On behalf of the Defendant
Philip Graham
3rd
Exhibits DB
3 August 2012

CO/3477/2012, CO3467/2012, CO/3635/2012, CO/3605/2012, & CO/3732/2012

IN THE HIGH COURT OF JUSTICE

QUEEN'S BENCH DIVISION

ADMINISTRATIVE COURT

IN THE MATTER OF AN APPLICATION TO PERMISSION TO APPLY FOR JUDICIAL REVIEW

BETWEEN:

The QUEEN (on the application of
(1) BUCKINGHAMSHIRE COUNTY COUNCIL and others
(2) HS2 ACTION ALLIANCE LIMITED
(3) HEATHROW HUB PROPERTY LIMITED and another
(4) HS2 ACTION ALLIANCE LIMITED
(5) AYLESBURY PARK GOLF CLUB LIMITED and others

Claimants

-and-

SECRETARY OF STATE FOR TRANSPORT

Defendant

and

HIGH SPEED TWO LIMITED

Interested Party

THIRD WITNESS STATEMENT OF PHILIP GRAHAM

I, PHILIP THOMAS GRAHAM of the Department for Transport, Great Minster House, 33 Horseferry Road, London, SW1P 4D, will say as follows

1. I am a Senior Civil Servant at the Department for Transport ("**DfT**"). Since January 2010 I have worked at Deputy Director level for High Speed Rail policy.

I am duly authorised to make this witness statement on behalf of DfT in response to the five applications by the Claimants listed above for permission for judicial review of the Secretary of State for Transport's ("the **SoS**") decision to approve HS2.

2. Except where stated otherwise, the facts and matters set out in this witness statement are within my own knowledge and are true. Where I have indicated that the matters set out are not within my own knowledge but rather are matters of information or belief, I have indicated their source. I refer to a number of documents in this statement which are attached in a bundle marked "**[DB/vol/tab/page]**". I also refer to documents already included in the Claimants' Joint Bundle ("**[CJB/vol/tab/page]**"), the Claimant Councils' Bundle (**"[CCB/vol/tab/page]")**, and the First witness statement of Christopher James Fraser Stanwell ("**[CFS1/tab/page]**").

3. In this statement I will cover the following areas:

   i) Overview and background to the development of Government policy on high speed rail; (paragraphs 4-55)
   ii) Policy context and objectives; (paragraphs 56-60)
   iii) Consideration of strategic alternatives; (paragraphs 61-201)
   iv) How the Government intends to take HS2 forward; (paragraphs 202-216)
   v) The use of hybrid bills and the process envisaged; (paragraphs 217-249)
   vi) The approach to consultation and the consultation process; (paragraphs 250-317)
   vii) The development of the HS2 phase 1 route; (paragraphs 318-328)
   viii) The terminus station at Euston; (paragraphs 329-376)
   ix) Connecting to HS1; (paragraphs 377-395)
   x) Connecting to Heathrow; (paragraphs 396-443)
   xi) Property and compensation; (paragraphs 444-484)

   In addition, two Annexes are provided. Annex A explains the Department for Transport's approach to the economic appraisal of transport projects, and how this was implemented in the case of HS2. Annex B describes the Parliamentary processes used for the Crossrail Bill.

i) Overview and background to the development of Government policy on high speed rail

4. This section of my statement sets out the evolution of Government policy on high speed rail, the establishment of High Speed Two (HS2) Ltd, and the development of the HS2 proposals. It provides an overview of the process undertaken by the Government in developing these proposals, consulting on them, and reaching the decisions announced by the Secretary of State in January 2012.

The SRA Study, the Eddington Report and the 2007 White Paper

5. The first significant consideration by government of the case for high speed rail lines in the United Kingdom came in 2001, when the Strategic Rail Authority ("SRA") (an independent public body sponsored by DfT and abolished in 2006) commissioned a study from Atkins (a transport consultancy firm) into the case for new high speed lines ("the **SRA Study**") **[DB/1/1/1]**. The SRA Study concluded that there was a strong transport case for new north-south high speed lines, as a means of relieving crowding on the West Coast, East Coast and Midlands Main Lines; and freeing up capacity on existing lines for new local, regional and freight networks.

6. The government did not make any specific decisions in response to the conclusions of the SRA Study. However, the SRA's analysis was subsequently taken into account in both the independent Eddington Transport Study into transport and economic growth, published in 2006, ("the **Eddington Report**") **[DB/1/5/101]** and the 2007 White Paper, *Delivering a Sustainable Railway* ("the **2007 White Paper**")[1] **[CCB/1/6/361]**. Neither of these reports ruled out new high speed lines. Rather, both reports argued that there was not a *prima facie* case for high speed rail, but that high speed rail options should be considered alongside other options for addressing long-term transport capacity constraints.

7. For example, while the Eddington Report expressed scepticism with regard to those high speed rail options that relied on unproven technologies such as

[1] A summary of the White Paper is provided at **[DB/1/10/175]**

Maglev (a transport system that uses magnetic levitation to guide and propel vehicles rather than wheels on rails), it also stated that:

> "…it is important to recognise that not all high-speed rail line options would be subject to the same issues. For those that do not involve relying on untested technologies and are targeted at solving proven congestion and overcrowding problems, higher and more certain returns are likely than for high-risk options on new links where demands are speculative … New infrastructure options are one potential solution, but they should be assessed alongside other options designed to meet the same objective." **[DB/1/5/164AE]**

8. Further, Sir Rod Eddington confirmed in his appearance before the Transport Select Committee on 16 April 2007 that he had not ruled out high speed lines: **[DB/1/8/170]**

> "**Q57 Mr Martlew:** Are you saying that you have not brushed high-speed away?
>
> "***Sir Rod Eddington:*** No, I have not.
>
> "**Q58 Mr Martlew:** Oh, that is good.
>
> "***Sir Rod Eddington:*** What I have brushed aside is speculative technology like Maglev from one end of the country to the other … my observation is that in the densest corridors high-speed rail is a critical part of transport infrastructure."

9. The 2007 White Paper considered the options for dealing with long-term demand growth on the inter-urban rail network. It concluded that long-term planning for additional capacity on inter-city routes should focus on new lines rather than enhancements to existing routes, stating that: "the disadvantages of undertaking major new construction work alongside a working railway outweigh the advantages" (paragraph 6.28)**[DB/1/10A/195]**. It also considered whether such new lines should be high speed and although it reached the initial view that "on the basis of the present carbon footprint of electricity generation, the balance of advantage would appear to favour services running at conventional speeds," a firm conclusion was not possible because "The environmental trade-offs remain[ed] uncertain" (paragraph 6.31). **[DB/1/10A/195]**

The New Lines Study and the National Networks Strategy Group

10. The fact that the Government had not ruled out new high speed lines as a long-term option was subsequently confirmed by the Secretary of State for Transport, Ruth Kelly, both in commissioning Network Rail to undertake work on such options and also in answering questions on the floor of the House of Commons:

- In March 2008, the Secretary of State wrote to the Chief Executive of Network Rail, Ian Coucher, commissioning his organisation to take forward work to consider longer-term options for the development of the rail network, in order "to develop a better understanding of some of the more complex options – such as electrification or new lines" **[DB/1/17/297]**

- In July 2008, the Secretary of State confirmed on the floor of the House of Commons that Network Rail's consideration should include looking at high speed lines:

  "Mr. Angus MacNeil (Na h-Eileanan an Iar) (SNP): High-speed rail lines from London to the continent have benefited the economy of the south-east of England. When will we see the network completed to Glasgow?

  "Ruth Kelly: The hon. Gentleman from month to month tries to make the case for high-speed rail to Glasgow. I have not set my mind against high-speed lines; it is right that Network Rail should consider all the options, particularly how the need for extra capacity might be met. If extra capacity is needed and a new line needs to be built, it must consider whether that line should be high-speed."**[DB/1/19/302]**

11. The Secretary of State's commission to Network Rail was taken forward through its New Lines Study ("the **New Lines Study**") **[DB/1/22/335]**[2]. The purpose of this study was to make a long-term assessment of the capacity of each of Britain's main inter-urban lines to meet forecast growth in passenger demand, and to consider options for addressing shortfalls, both through enhancement of the existing infrastructure where feasible and through the

[2] The document at DB/1/22/335 is a synopsis of the New Lines Study.

development of a new line or network of new lines. DfT was represented on the steering group for the New Lines Study.

12. The study process consisted of two key elements. The first was a capacity analysis to assess which of the major British inter-city rail corridors faced the most pressing capacity constraints, which concluded that these were most likely to occur on the West Coast Main Line corridor to the West Midlands, the North West and Glasgow, and that they could not feasibly be addressed through upgrades to the existing line. The second was an assessment of a range of new line options to provide additional capacity on this route. The purpose of this option assessment process was to identify which configuration of line and station options was likely to offer best value for money (for example, should a new line serve just Birmingham and Manchester or also extend to Liverpool and Glasgow?), and thereby to 'investigate whether there is a Strategic Business Case for continuing to develop the concept of building one or more new line(s) as additions to the national rail network.' No detailed route proposals for any line were developed as part of this study.

13. In November 2008, DfT established a National Networks Strategy Group, bringing key Government Departments together with Network Rail and the Highways Agency and chaired by the Minister of State for Transport, Lord Adonis. This Group's remit was to consider both shorter-term ways to make better use of existing transport capacity and also more significant, longer-term options, and it was expected to consider and build upon Network Rail's ongoing work. This was set out by the Secretary of State for Transport, Geoff Hoon, in a Written Statement to the House on 29 October 2008:

> "Alongside this, the study will focus on longer-term solutions for the strategic corridors. This will include consideration of wholly new rail lines, including high speed rail. We are committed to developing a modern sustainable rail system that supports economic growth, including housing development, and the climate change agenda. New lines have great potential and it is important that we start now to plan for future growth.
>
> "However, it is crucial that the case for such investment is underpinned by robust evidence on long-term demand projections and a clear understanding of the capacity of the existing networks, and takes full account of relevant

geographical, technical and environmental considerations. The national networks strategy group will build on the work on new lines being undertaken by Network Rail." **[DB/1/19A/305]**

The Establishment of HS2 Ltd

14. On 15 January 2009, the Secretary of State for Transport, made a statement to the House of Commons on Britain's Transport Infrastructure **[DB/1/21/330]**. This contained four key elements. First, it confirmed the Government's support for a third runway at Heathrow Airport. Secondly, it announced a major investment programme in the motorway network. Thirdly, it set out the Government's interest in the case for further electrification of the rail network. Fourthly, it announced that as part of its longer-term planning, a new company, High Speed Two Ltd ("**HS2 Ltd**"), would be formed to consider the case for new high speed rail services from London to Scotland, and including the development of a proposal for an entirely new line between London and the West Midlands.

15. On the same day as the Secretary of State's statement, a document entitled *Britain's Transport Infrastructure: High Speed Two* **[DB1/20/306]**[3] was published which explained in more detail the basis on which HS2 Ltd was being established and its overall remit. In setting this remit, the document noted that it followed the findings of Network Rail's initial work.

16. HS2 Ltd was to work in close collaboration with the Government in developing its plans, and was to consider and provide advice to the Government on the costs and benefits of: **[DB/1/20/329]**

    a) A proposed route with any options as appropriate;
    b) Options for a *Heathrow International* interchange station on the Great Western main line with an interchange also with Crossrail;
    c) Options for access to central London and the other cities served;
    d) Options for linking HS1 with the existing rail network, including the potential for services to continental Europe
    e) Financing and construction proposals.

[3] http://www.hs2.org.uk/assets/x/55872

HS2 Ltd was to report formally on these issues by the end of 2009, and the Government would assess the options for new lines thereafter.

17. The document also explained the analysis which had underpinned the Government's conclusions that new high speed lines warranted further examination, including through the development of a detailed route for consideration, and that any such new routes should be focused on the corridor from London to the West Midlands. This included, at paragraphs 31-37, an overview of its capacity and demand analysis on key transport corridors covering both the road and rail networks. **[DB/1/20/317]**

The 2009-10 'Strategic Alternatives' Study

18. In order to make an effective assessment of the case for any specific high speed rail proposal as a means of enhancing the national transport network, the Government recognised that it would be necessary to be able to make a comparison with alternative options for achieving the same ends. This comparison would need to cover two kinds of potential alternative options:

- 'Strategic Alternatives' – Non-high speed rail options, which might include improvements to other transport modes (in particular, the strategic road network), enhancements to existing railway lines to increase capacity or speed, or new conventional speed lines.

- 'Route Alternatives' – Different options for how a new high speed line should be configured, including the locations of stations and the route alignments between them; and

19. The work programme taken forward by HS2 Ltd in 2009 considered a substantial number of potential route alternatives, including assessing the most promising alternatives in some detail, through the process to identify its preferred option for a new high speed line from London to the West Midlands. The process followed and its conclusions are described in HS2 Ltd's 2009 report: *High Speed Two: London to the West Midlands and Beyond* **[DB1/24/349]**, see paragraphs 25 and 26 below.

20. With the exception of the assessment of a new conventional speed line described in paragraphs 4.4.16 to 4.4.23 of its 2009 report **[DB/1/24/560]**, HS2 Ltd's remit did not require it to carry out any assessment of potential strategic alternatives to a new high speed line. Therefore, an additional programme of work was necessary to enable Ministers to compare the detailed proposals being developed by HS2 Ltd with the full range of alternative options for enhancing the national transport network.

21. For this reason, in August 2009, DfT commissioned Atkins, a major design and engineering consultancy firm with substantial capability and experience in transport planning and economics, to develop and assess packages of enhancements to the current road and rail networks as potential alternatives to new rail lines.

22. The programme of work undertaken by Atkins under this contract covered the development of four packages of potential enhancements to the strategic road network and five packages of potential enhancements to the rail network between London and the West Midlands, and an assessment of the business case for each of these 'Strategic Alternative' packages. This included both economic and environmental assessments. These packages were all substantial, multi-billion pound programmes of enhancement works, whose objective was to assess the scope for increasing network capacity and providing associated connectivity benefits from an approach of this kind.

23. As with HS2 Ltd's work, the development of these packages was based on detailed assessments of likely future demand for transport and network capacity, and the economic analysis of the rail packages was carried out using the same modelling tools as for HS2. It was as part of this process that 'Rail Package 2', which is discussed at paragraph 77 of Christopher Stokes' witness statement, was developed and first assessed **[CCB/1/2/109]**. This is discussed in more detail in section (iii) of my statement.

HS2 Ltd's 2009 Report and the 2010 Command Paper, High Speed Rail

24. On 14 December 2009, Lord Adonis, by now Secretary of State for Transport, made a written statement to the House of Lords **[DB/1/23/347]** which stated that

he expected to receive advice from HS2 Ltd before the end of that year on the potential route for an initial high speed line, together with supporting technical analysis including demand forecasts. It would also advise on options for extending the high speed line and services further north, and options for serving Heathrow Airport and connecting to the HS1 line to the Channel Tunnel. His statement also set out his proposed next steps:

> "Having taken full account of the HS2 report, if the Government decides to pursue proposals for high-speed rail, we will publish a White Paper setting out plans by the end of March 2010. This would include route proposals, timescales and associated financial, economic, and environmental assessments. The White Paper would be followed by a full public consultation in the autumn of 2010, giving all interested parties an opportunity to comment before proposals are finalised and a hybrid Bill is prepared." **[DB/1/23/347]**

Finally, it also announced his intention that the Government would consult on a non-statutory hardship scheme to assist those people potentially affected by blight as a result of the publication of HS2 Ltd's proposals.

25. HS2 Ltd's advice was provided to the Government in its report, *High Speed Rail: London to the West Midlands and Beyond*, see paragraph 19 above. This was submitted to the Government at the end of December 2009 and subsequently published alongside the Government's Command Paper (see below) in March 2011. **[DB/1/24/349]**

26. HS2 Ltd's report set out a detailed proposal for a new line from London to the West Midlands, including a link to the West Coast Main Line close to Lichfield, enabling high speed services to continue at conventional speed to other destinations including Manchester, Liverpool and Glasgow, without the need to change trains. It also included an assessment of the business case for such a line, based on detailed consideration of future demand for transport and network capacity, as well as a high-level analysis of options for the further development of the line into a wider high speed rail network, potentially reaching to Scotland. It also considered options for connections to Heathrow Airport and to HS1.

27. Over the period to March 2010, the Secretary of State considered HS2 Ltd's advice in detail, and made visits to both the proposed route and the main alternative route identified by HS2 Ltd.

28. The emerging conclusions from Atkins' analysis of the Strategic Alternatives to HS2, including its assessment of their economic case and environmental impacts, formed the basis for discussions between the Secretary of State and the key DfT officials involved in the study over the same period. Atkins final report was submitted to the Department for Transport in early March 2010.

29. On 11 March 2010, DfT published a Command Paper, *High Speed Rail* "(The **2010 Command Paper**") **[CJB/1/3/26]**[4]. This set out the position that the Government had reached following consideration of both HS2 Ltd's work on the case for high speed rail and Atkins' parallel analysis of strategic alternatives to high speed rail. The main findings of the 2010 Command Paper are set out on pages 8-10 of the document, including the following:

- That the Government intended to take forward an 'initial core' Y-shaped high speed rail network linking London to Birmingham, Manchester, the East Midlands, Sheffield and Leeds, and with connections to the West and East Coast Main Lines to enable services to reach other destinations without passengers having to change trains.[5]

- That the capacity that would be released on existing lines through transferring long-distance services to the proposed high speed rail network should be used to expand commuter, regional and freight services.

- That HS2 Ltd's recommended route from London to the West Midlands would form the trunk of the network, subject to further work to reduce its impacts on the environment and communities. HS2 Ltd also was commissioned to commence detailed planning work on the legs from the West Midlands and Leeds (with a view to subsequent public consultation).

[4] http://www.official-documents.gov.uk/document/cm78/7827/7827.pdf

[5] The assertion made by Christopher Stokes in para 12 of his witness statement (submitted as part of the 51M Group's claim) **[CCB/1/2/86]** that it was only in December 2010 under the new administration, that the project was 'expanded' to extend to Leeds and Manchester is incorrect. This was a key element of the proposal put forward by Lord Adonis in March 2010.

- That high speed rail access to Heathrow was important and that Lord Mawhinney, a former Secretary of State for Transport, had been commissioned to review the options for connecting to the airport and their respective business cases.

- That a new high speed rail network should be connected to the HS1 line to the Channel Tunnel and that HS2 Ltd would carry out further work on the options for such a link.

- That powers to deliver the proposed 'Y' network should be secured through a single hybrid Bill, to be introduced subject to public consultation and to environmental impact assessment.

- That a public consultation would be held covering three key issues:

    - The strategic case for high speed rail in the UK;

    - The Government's proposed strategy for an initial core high speed rail network; and

    - HS2 Ltd's detailed recommendations for a high speed line from London to the West Midlands. **[CJB/1/3/266]**

30. In relation to potential strategic alternatives to high speed rail, the Command Paper ruled out major new motorways and expansions in domestic aviation on sustainability grounds. It acknowledged that enhancements to existing networks would be likely to have lower environmental impacts than completely new alignments (paragraph 2.39) **[CJB/1/3/308]**, but it found that major packages of enhancements to existing networks could not meet the Government's objectives as fully as new high speed lines, stating that:

> "…major, multi-billion pound upgrades to existing road and rail networks would provide far less additional capacity than a new railway line. Major upgrades also involve considerable disruption for travellers. Moreover, they yield few of the connectivity improvements which new high speed routes

make possible – for example, transforming the links between the West Midlands and other conurbations in the Midlands, the North and Scotland, in addition to substantially improving journey times to London." **[CJB/1/3/271]**

31. Alongside the 2010 Command Paper, the Department for Transport published HS2 Ltd's original advice together with a number of supporting technical documents **[DB/1/24/349]**. Although at that stage HS2 Ltd had carried out a draft Appraisal of Sustainability in support of its advice, this was not published because further work had been commissioned on the detail of the route and therefore the analysis would be likely to change. A non-technical summary of the AoS findings was however published. **[DB/4/89/202]**

32. The Government also published the full set of reports provided by Atkins on its strategic alternatives study. This included a 'Strategic Outline Case' for the packages of alternatives, and two more detailed technical reports on the road and rail alternatives. **[DB/1/25/624], [DB/1/26/653], [DB/2/27/797], [DB/2/28/982]**

33. A consultation on an Exceptional Hardship Scheme ("**EHS**") to assist those affected by the publication of HS2 Ltd's recommended route was also launched on the same day with a closing date of 20 May 2010. **[CCB/1/6/397]**

34. On 17 March 2010, the Secretary of State wrote to HS2 Ltd setting out its revised remit in the light of the Command Paper. This included further development work on the route for its proposed London to West Midlands high speed line to prepare for public consultation, the development of route proposals and options for lines from the West Midlands to Manchester and Leeds, the provision of assistance to Lord Mawhinney to support his review of options for serving Heathrow, and further work on options for linking to HS1. **[CJB/1/4/411]**

The new Coalition Government

35. Going into the May 2010 general election, all three major parties supported high speed rail, with both the Labour and Conservative parties including specific commitments in their manifestos. The Conservative party's policy on high speed rail had differed in two main respects from that promoted by the Labour Government. The first was that the Conservative Party had reached a firmer view

than that set out in the 2010 Command Paper that any new high speed network should run directly via Heathrow airport, and also be directly linked to the HS1 line from London to the Channel Tunnel. The second was that they favoured an 'S' network, running to Leeds via Manchester, rather than the 2010 Command Paper's proposed 'Y' network with lines on either side of the Pennines. Following the election, the Coalition agreement between the Liberal Democrat and Conservative parties affirmed the new Coalition Government's support for high speed rail network:

> "We will 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." **[CJB/1/5/446]**[6]

36. Following his appointment as the new Secretary of State for Transport, Philip Hammond confirmed by letter dated 21 May 2010 that Lord Mawhinney should continue his review of high speed rail options for serving Heathrow airport. **[DB/2/29/1023]**

37. He also wrote to HS2 Ltd, by letter dated 11 June 2010, to commission it to carry out additional work as set out below:

- To develop route options for a high speed link to Heathrow – to include through-route, spur and loop and options, and to assess their comparative business cases and environmental impacts;
- To develop and assess options for linking HS2 to HS1; and
- To carry out a comparative assessment of the comparative business cases of the 'S' and 'Y' networks.

The commissioning letter also set out the Secretary of State's intention to commence a public consultation on HS2 early in 2011. **[DB/2/30/1024]**[7]

[6] http://www.cabinetoffice.gov.uk/sites/default/files/resources/coalition_programme_for_government.pdf
[7] http://www.hs2.org.uk/assets/x/57834

38. The report of Lord Mawhinney's review of high speed rail options for serving Heathrow was published on 21 July 2010 **[CJB/2/8/460]**. This did not support diverting the main HS2 route to run via the airport. It recommended that in the first instance access to Heathrow should be provided through an interchange at Old Oak Common, but also that 'the most serious consideration' should be given to the construction of a direct link from the HS2 line to Heathrow as and when the network was expanded further north beyond the West Midlands.

39. Following the close of consultation on the EHS, referred to at paragraph 24 above, the new Secretary of State announced on 26 July 2010 that an EHS would be introduced. The EHS (details of which are set out at paragraphs 449-454 opened to applications on 20 August 2010 and continues to operate. **[DB/2/31/1027]**

40. In September and October 2010, the Secretary of State undertook a series of visits along HS2 Ltd's recommended route between London and the West Midlands, to view the route, and meet local MPs and their constituents to discuss the proposals and the concerns of local communities. On 19 October 2010, a programme of additional work by HS2 Ltd to review its proposed design at a number of locations along the route was commissioned by the Secretary of State, with a view to announcing his detailed preferred route for consultation by the end of the calendar year.[8]

41. Also in October 2010, HS2 Ltd's advice on the comparative business cases for the 'S' and the 'Y' network was published **[DB/2/34/1096]**. As well as comparative assessments of cost, passenger demand and engineering feasibility, this also included an analysis of the key sustainability features in relation to each network option. On the same day, the Secretary of State announced in his speech to the Conservative Party Conference that the Government's preferred option was for the 'Y' approach. **[DB/2/33/1090][9]**

Consultation process

[8] This commission was done through a meeting note email, a copy of which is provided at **[DB/2/37/1139]**.

[9] http://www.conservatives.com/News/Speeches/2010/10/Philip_Hammond_Government_announces_plans_for_next_phase_of_high_speed_rail.aspx).

42. The Government's proposed strategy and route for consultation were set out by the Secretary of State in a statement to Parliament on 20 December 2010. This statement explained that the Government intended to consult on:

a) A 'Y' network, which would be delivered in two phases – the first from London to the West Midlands; the second comprising the legs to Manchester and Leeds. The consultation document published in February 2011 explained that the Government proposed to secure powers through separate hybrid Bills for each phase;

b) A direct link to Heathrow provided through a spur from the main line, which would be constructed as part of the second phase of the network;

c) A direct link to HS1 provided through a new tunnel from Old Oak Common followed by the use of a short stretch of existing infrastructure (part of the North London Line); and

d) A route for the London to West Midlands line broadly as proposed by the previous Government, but with amendments to the vertical and horizontal alignments to reduce its impact on the environment and communities. **[DB2/40/1148]**

To inform this proposal, the Secretary of State considered a number of detailed reports by HS2 Ltd setting out the additional analysis that it had carried out on options for linking to Heathrow and HS1, and on potential refinements of the line of route. These reports are identified in Alison Munro's Witness Statement and were published at the same time as he made his Statement to the House.[10] The Secretary of State also considered the conclusions of Lord Mawhinney's review, and the proposals made by Arup (at that time the parent company of Heathrow Hub Ltd) for a hub station serving Heathrow Airport on the Great Western Main Line near Iver. Alongside the Secretary of State's announcement, a complete set of maps of the route being put forward for consultation was published.

[10] **[DB/2/35/1118], [DB/2/36/1126], [DB/2/38/1141]**

43. The public consultation on HS2 commenced on 28 February 2011 and ran for five months, closing on 29 July 2011. The Government published an over-arching consultation document ("the **Consultation Document**") as well as a range of supporting documents **[CJB/2/11/500]**. These supporting documents are listed in section (v) of this statement, and included an updated economic analysis of the project, a Route Engineering Report describing the layout and main features of the route, and an Appraisal of Sustainability. The Appraisal of Sustainability **[CJB/2/12/650]** was itself accompanied by a non-technical summary and a number of detailed Annexes, including one reviewing the sustainability of the main route alternatives considered.

44. In relation to strategic alternatives, the Government had considered that the previous rail enhancement packages developed by Atkins did not offer an appropriate comparator to its overall high speed rail strategy. This is because they looked only at the West Coast corridor, whereas the Government's high speed rail strategy included destinations served by all three current main north-south rail routes of London – the West Coast Main Line, the Midland Main Line and the East Coast Main Line). For this reason, the Government had commissioned from Atkins a new analysis of potential network-wide Strategic Alternatives to the proposed high speed 'Y' network, which included enhancements to all three main north-south routes **[CJB/3/13/884]**. This analysis informed the development of the Government's Consultation Document, and Atkins' report was published as part of the suite of consultation documents.

45. The consultation process included 41 days of local roadshows, at which DfT and HS2 Ltd staff were available to discuss the detail of the proposals. In the order of 55,000 responses to the consultation were received. A more detailed discussion of the consultation process is provided later in section (vi) of this statement.

Outcome of consultation

46. In the light of consultation responses, several additional pieces of work were commissioned to inform the Secretary of State's decisions. Those pertinent to the current proceedings are described below.

47. The Department for Transport undertook a general review of many elements of the Government's high speed rail strategy, and a review of issues relating to property compensation and blight. HS2 Ltd undertook new analysis of potential refinements to route design at more than twenty locations along the proposed line and of additional options for the broad corridor adopted, including options running via or close to Heathrow Airport and options based on lower line speeds, potentially enabling greater flexibility in route design.

48. Strategic alternatives had been the subject of significant interest during the consultation, and particularly the suggestion of upgrading existing lines. An important development was that a consortium of local authorities opposed to HS2 (the 51m Group, who are amongst the claimants in the Judicial Review) developed and published during the course of the consultation period their own proposal for enhancing capacity on the West Coast Main Line (the "Optimised Alternative"). This Optimised Alternative was submitted as part of the 51M Group's consultation response **[CCB/1/6/517]**. It was also referred to in other consultation responses, including that from the HS2 Action Alliance (a second claimant in this Judicial Review).

49. In light of this, further analysis was commissioned from Atkins and Network Rail Autumn 2012 of the main strategic alternatives to HS2, including both the key alternatives previously assessed by Atkins and also the Optimised Alternative referred to above. Atkins' additional analysis was an updated economic assessment **[DB/3/61/1842]** and Network Rail, as the custodians of the existing network, provided a review of the costs, feasibility and operational impacts of each option. **[CJB/3/16/117]**

50. The intention going into consultation, as set out in Chapter 3 of the consultation document, was that the Government would announce the outcome of the consultation by the end of 2011 **[CJB/2/11/569]**. In December 2011, however, the recently appointed Secretary of State, announced that she would postpone her decision until early 2012, in order to allow for a careful consideration of all relevant factors **[DB/3/58/1750]**. The additional time allowed HS2 Ltd to provide further advice which the Secretary of State had requested on additional options to reduce the proposed route's impact on the Chilterns Area of Outstanding Natural Beauty.

51. On 10 January 2012, the Secretary of State announced the outcome of the consultation, and published a Command Paper, *High Speed Rail: Investing in Britain's Future – Decisions and Next Steps* ("the **Decisions Document**") **[CJB/4/18/1384]**, along with a summary leaflet setting out the Government's decisions. **[CFS1/AA/1145]**

52. Alongside the Decisions Document, the Government made available a substantial public record of the analysis and consideration by HS2 Ltd and DfT of issues raised in consultation responses which informed the Secretary of State's decisions. This public record comprised a number of detailed supporting reports, as follows:

    a) Consultation Summary Report – the independent analysis of consultation responses by consultants Dialogue by Design; **[DB/3/55/1491]**
    b) Review of the Government's Strategy for a National High Speed Rail Network; **[DB/3/60/1761]**
    c) High Speed Rail Strategic Alternatives Study: Update following Consultation (the Atkins report); **[DB/3/61/1842]**
    d) Review of the Strategic Alternatives to High Speed Two (the Network Rail report); **[DB/3/62/1890]**
    e) Economic Case for HS2: Updated Appraisal of Transport User Benefits and Wider Economic Benefits; **[DB/3/63/1926]**
    f) Economic Case for HS2: Value for Money Statement; **[DB/3/64/1993]**
    g) Review of the Technical Specification for High Speed Rail in the UK; **[DB/3/65/2036]**
    h) Review of Possible Refinements to the Proposed HS2 London to West Midlands Route; **[CJB/4/20/1551]**
    i) Summary of Effects of HS2 London to West Midlands Route Refinements; **DB/3/66/2063]**
    j) Review of HS2 London to West Midlands Route Selection and Speed; **[DB/6/105/1978]**
    k) Review of HS2 London to West Midlands Appraisal of Sustainability; **[CFS1/BB/1153]**
    l) Review of Property Issues; **[DB/3/66B/2070]** and

m) Revised line of route maps for the London to West Midlands route. **[DB/3/66B/2080A]**[11]

In some cases, for example the *Economic Case for HS2*, more detailed technical documentation which underpinned these supporting reports has also been published.

53. The Decisions Document confirmed the Government's intention to take forward a Y-shaped high speed rail network, including direct links to Heathrow and to HS1, to be promoted in two phases, initially seeking powers for a London to West Midlands high speed line. It set out a number of refinements to the route put forward for consultation, including additional tunnelling in West London and the Chilterns, aimed at reducing further its impacts on the environment and communities.

54. In relation to Strategic Alternatives, the Decisions Document noted that when the West Coast Main Line corridor was looked at in isolation, Atkins' latest economic analysis indicated that the best enhancement packages appeared to offer strong value for money, although they could not match the scale of benefits provided by a new high speed line. However, the same did not apply to the network-wide enhancement options, which offered both lower benefits and lower value for money than the proposed HS2 network. The Government noted that none of the options provided significant connectivity benefits and, taking account of Network Rail's analysis. It also noted that under any of the options considered there would be "a significant risk that an approach of this kind would simply create years of delay and disruption for passengers and freight services, and even after that only give rise to a railway that is still overcrowded, delaying but not avoiding the need for new lines" (paragraph 3.92, page 72) **[CJB/1/4/1456]**. Whilst acknowledging the potential environmental advantages over new high speed lines, the Government did not consider that major enhancements to existing lines would offer an effective strategic approach to the long-term development of the inter-city rail network.

[11] There were approximately 100 maps/plans published alongside the decisions document. DB/3/66b/2080A contains two of these as a sample. The complete set can be found at http://www.dft.gov.uk/publications/hs2-decisions-and-next-steps/

55. The timetable below summarises the chronology of the development of HS2 so far, and the key documents produced at each stage.

Date	Key milestone	Key document(s)
January 2009	Set up of HS2 Ltd and start of development work	Britain's Transport Infrastructure: High Speed Two
August 2009	Atkins appointed to carry out review of Strategic Alternatives to high speed rail	High Speed 2 Strategic Alternatives Study – Strategic Outline Case
December 2009	HS2 Ltd submit advice to Government	High Speed Rail – London to West Midlands and Beyond
March 2010	Government publishes Command Paper setting out high speed rail policy	The Command Paper High Speed Rail, supporting documents and route maps
May 2010	New coalition Government confirm support for high speed rail	Coalition Agreement
July 2010	Lord Mawhinney's report on access to Heathrow published	High speed rail access to Heathrow
August 2010	Launch of the EHS	EHS guidance and application form
October 2010	Announcement confirming Y-shaped network	High Level Assessment of Wider Network Options - 'Reverse S' and 'Y' Options
December 2010	Announcement of scope of consultation	Secretary of State written ministerial statement, mitigation reports and proposed route maps for consultation
February 2011	Launch of High Speed Rail: Investing in Britain's Future consultation	Consultation Document and supporting documents
July 2011	Close of consultation period	
January 2012	Announcement of decisions following consultation	Decisions Document and supporting documents

ii) Policy context and objectives

56. This section of my statement explains the strategic objectives which the Government has identified for enhancing rail capacity and performance, in particular as a means of supporting sustainable and widespread economic growth. These have included, but not been restricted to, providing a substantial long-term increase in capacity on the major north-south rail lines. A key aim of the 2011 consultation process was to inform the Government's assessment of whether its strategy for a national high speed rail network was the right approach to achieving these objectives.

57. Chapter 2 of the Consultation Document **[CJB/2/11/541]** sets out the Government's assessment of the case for high speed rail, followed by a comparative assessment of the main strategic alternatives considered. In doing so, it indicates the full range of objectives that the Government had taken into consideration in deciding to consult on the HS2 proposals.

58. This chapter begins by outlining the Government's broad strategic objectives, as follows:

- Increasing regional prosperity (paragraphs 2.8 – 2.14) – driven by the effects of faster and more reliable journeys to London and the South East, and greater capacity to respond to rising demand (including on commuter routes);

- Improving connectivity between regional centres (paragraphs 2.15 – 2.20) – by addressing the historic limitations of the regional rail network

- Supporting employment and industry (paragraphs 2.21 – 2.23); and

- Supporting regeneration (paragraphs 2.24 – 2.28).

59. The next section of this chapter describes the set of more detailed, and in most cases quantifiable, factors that the Government has taken into account in assessing the case for high speed rail and the potential alternatives. These are:

- Capacity (paragraphs 2.34 – 2.36) –as well as long-distance capacity this includes impacts on commuter capacity, especially into London, and capacity for rail freight (see paragraphs 2.35 – 2.36);

- Faster journeys (paragraphs 2.37 – 2.42);

- Modal shift (i.e. people transferring to rail from other modes of transport) (paragraphs 2.43 – 2.44);

- Reliability (paragraphs 2.45 – 2.46);

- Wider Economic Benefits – these are discussed in more detail in Annex A to this witness statement (paragraphs 2.47 – 2.51);

- Greenhouse gas emissions (paragraphs 2.52 – 2.59); and

- Local and environmental impacts (paragraphs 2.66 – 2.75).

60. All of these factors were considered by the Government in its assessment of the comparative cases for a national high speed rail network and the potential alternatives, including enhancements to existing lines. The case for high speed rail, or for any option, could not reasonably be reduced only to a simple benefit cost ratio ('BCR').[12] This is acknowledged in the Executive Summary to the Consultation Document, which states on page 14:

> "This BCR is important, but it is not, by any means, the whole story. The Government believes that high speed rail would deliver significant non-monetised benefits, such as its contribution to job creation and regeneration and its potential to promote sustainable and balanced economic growth. It is these non-monetised benefits which underpin the strategic case for high speed rail." **[CJB/2/11/513]**

iii) Consideration of strategic alternatives

61. As the Government has considered its policy approach to high speed rail, assessments of alternative approaches to achieving its objectives have played an important part. For example, the SRA Study by Atkins in 2003 **[DB/1/1/1]**, also included high level analyses of the case for a new conventional line, for upgrades to existing lines, and for new road and airport capacity as alternatives to high speed rail.

62. As set out in paragraphs 21-23 above, The Government's consideration of strategic alternatives to HS2 began with the 2009-10 study of road and rail-

[12] A benefit cost ratio assesses the extent to which a proposal delivers benefits in excess of or less than its costs, and is calculated on the basis of the 'monetisation' of benefits (e.g. the attribution of a monetary value to non-financial benefits). See Annex A for more detail.

based strategic alternatives carried out by Atkins. In relation to rail-based strategic alternatives, that study considered five packages of infrastructure enhancements on the West Coast Main Line and the Chiltern Line aimed at increasing capacity and improving journey times for travellers.

63. In analysing these packages in the course of their 2009-10 study, Atkins carried out both an economic assessment and also an assessment of their potential environmental impacts. As Peter Miller's witness statement explains, the assessment of environmental impacts was based on the approach used for the HS2 Appraisal of Sustainability. The results of these assessments are set out in Chapter 4 of the report, *High Speed 2 Strategic Alternatives Study – Strategic Outline Case*, and the methodology applied is described in section 4.2. The environmental factors considered included (but were not restricted to) landscape, noise, biodiversity, air quality and greenhouse gas emissions. **[DB/1/26/693]**

64. It should be emphasised that the scope of the packages developed and assessed in Atkins' 2009-10 study covered only the rail corridor from London to the West Midlands and the North West. Therefore, they represented appropriate alternatives for comparison with the proposals developed by HS2 Ltd in 2009 for a high speed line from London to the West Midlands and were an important part of the evidence base informing the previous Government's 2010 Command Paper. Conversely they did not provide an appropriate comparator for the Government's overall strategy for a Y-shaped national high speed rail network set out in the 2011 Consultation Document, which also delivered benefits in relation to the Midland Main Line corridor to the East Midlands and Sheffield, and the East Coast Main Line corridor to Leeds and the North East. In developing its proposals for the February 2011 consultation, the Government commissioned an additional study from Atkins looking at network-wide strategic alternatives, covering all three major north-south lines. This is discussed in more detail below.

65. One of the packages of enhancements developed and assessed as part of the previous 2009-10 work still featured in many responses to the consultation. This package, referred to as 'Rail Package 2' (RP2), had been promoted for some time by groups opposing HS2 as a more appropriate

alternative to a new high speed line. In order to deal fully with strategic alternatives in this witness statement, it is therefore necessary to describe RP2 more fully, which I do below.

Rail Package 2

66. Rail Package 2 was the best-performing package in economic terms of those assessed by Atkins in its 2009-10 study. It comprised a set of infrastructure enhancements to the West Coast Main Line, estimated in total to cost approximately £3.7 billion, as set out below:

- A new by-pass line in the Stafford area;
- Grade separation[13] of the junction at Ledburn, between Cheddington and Leighton Buzzard;
- Three new platforms at Euston station;
- Three extra platforms at Manchester Piccadilly (together with grade separation of a junction immediately to the south at Ardwick);
- Increasing the number of running lines to four between Attleborough and Brinklow (including associated freight capacity works at Nuneaton);
- Speed improvements in the Northampton area; and
- Increasing the number of running lines to four on the route into Birmingham from Coventry (the 'Coventry corridor'), between the Beechwood Tunnel and Stechford.

67. The effect of these works would be to enable the maximum number of train paths on the fast lines of the West Coast Main Line to be increased from 13 an hour currently to 16 an hour. This was considered by Atkins to be the

[13] The term 'grade separation' refers to works to enhance capacity by vertically separating the different tracks at a junction.

maximum achievable without increasing the number of running lines from four to six, which was not believed to be a practical option. This is because the West Coast Main Line runs through densely populated areas (for example, north west London, Watford, Milton Keynes, Rugby) with in some cases significant development having taken place close to the line. The local impacts therefore of adding new lines in this way would be expected to be unacceptable.

68. In addition, Rail Package 2 included some changes to rolling stock: lengthening some inter-city services (over and above existing plans for train lengthening) and using faster trains on the longer suburban routes in order to enable capacity to be used more efficiently.

69. Atkins assessment was that the interventions proposed in Rail Package 2 would provide benefits in respect of increased capacity through lengthening trains and enabling additional services to run, and improvements in journey times, both through faster line speeds on some sections of the route, and through running more frequent and more direct services to many destinations.

70. The Government recognised that RP2 had been well-publicised since the publication of the 2010 Command Paper, particularly by groups opposing HS2, and therefore that a large number of potential respondents to the consultation would be likely to want to discuss its merits. In order to enable them to do so on a comparable basis to the HS2 proposals, the Department for Transport commissioned Atkins to update the economic assessments from its 2010 report. This updated analysis was published on the Department for Transport website in March 2011 in the report, *High Speed 2 Strategic Alternatives Study: London to West Midlands Rail Alternatives – Update of Economic Appraisal.* **[DB/2/42/1203]**

71. Two versions of Rail Package 2 were tested by Atkins in its 2009-10 analysis **[DB/1/27/797]** and in the updated analysis published in March 2011. The first ('RP2') also included additional journey time savings through reductions in the allowances that have been built into the current timetable to safeguard reliability. The second ('RP2A') retained the current allowances, as the Government considered it would not necessarily be appropriate to reduce

these, given the high value that travellers place on railway reliability. The impact of retaining the allowances was to reduce the overall benefit (due to longer journey times) and hence to lower noticeably the BCR of the scheme.

The Network Alternatives developed for Consultation

72. As mentioned above, the rail packages assessed in Atkins' March 2010 analysis **[DB/1/27/797]**, including RP2, would not have provided an appropriate comparator for the Government's high speed rail strategy as put forward for consultation. This is because this strategy was not only focused on the West Coast corridor (as was the case in Atkins 2009-10 study), but was for a Y-shaped national high speed rail network which connected to destinations on all three major north-south rail lines – the Midland, East Coast and West Coast Main Lines.

73. Therefore, to develop the strategic alternatives put forward as part of the HS2 consultation, DfT officials identified additional enhancement proposals on the Midland and East Coast Main Lines, and combined these with relevant options from Atkins' earlier work to form three enhancement 'scenarios'. Atkins were commissioned in autumn 2010 to estimate the costs associated with these scenarios, including both capital and operating costs, and to carry out an economic assessment. The results of this analysis are set out in Atkins' 2011 report, *High Speed Rail Strategic Alternatives Study – Strategic Alternatives to the Proposed 'Y' Network* ("**the Network Alternatives Report**"). **[CJB/3/13/884]**[14]

74. The three enhancement scenarios are set out below:

- Scenario A: Increasing passenger capacity on long-distance services by adding additional carriages to extend the length of existing long distance trains;

- Scenario B: Increasing passenger capacity by enabling the lines to support operation of a higher frequency of long-distance services. This

[14] Paragraph 15 of Mr Stokes' witness statement for the 51M Group asserts incorrectly that this report includes an evaluation of RP2 **[CCB/1/2/87]**. In fact, as set out above, RP2 had been developed and assessed by Atkins as part of its previous 2009-10 study of strategic alternatives to high speed rail.

scenario incorporated RP2A as its West Coast Main Line element, and identified works to provide a similar increase in the number of train services on the East Coast and Midland main lines;

- Scenario C: Combining passenger capacity enhancements such as those in Scenario B with improvements to slower lines such as the Chiltern Line, enabling reduced journey times on long distance services. This was a more ambitious scenario building on Atkins' earlier Rail Package 3 (which combined elements of RP2 with additional works on the Chiltern Line).

75. Section 1.2 of the Network Alternatives Report explains that it: "*outlines the interventions developed, examines the Capital and Operating Costs of the interventions, and then details the Economic Appraisal of the Alternatives*." DfT did not commission an environmental analysis of these network alternatives. The environmental assessment carried out as part of Atkins' original 2009-10 study had enabled the Government to understand the environmental impacts of enhancing existing lines on the West Coast corridor, and to reach a view that in comparison to entirely new lines the environmental advantage would lie with the enhancement approach as recorded in paragraph 2.92 of the 2011 Consultation Document. **[CJB/2/11/559]**

The Consultation Assessment of the Alternatives

76. The Consultation Document considered both the economic case for the three enhancement scenarios that had been developed, and also their performance against the broader strategic objectives and additional factors which had been incorporated into its assessment of a new national high speed rail network.

77. In relation to the economic assessment, the BCRs calculated by Atkins for the three scenarios and published in the Network Alternatives Report are set out in the table below. The economic analysis included options based both on leasing and purchasing rolling stock, as the former would follow current practice on the conventional network but the latter would be more consistent with the approach taken for the HS2 economic case (whose costs were

calculated on the basis that rolling stock on the new line would be purchased).

RAIL SCENARIO	BCR (WITH LEASED ROLLING STOCK)	BCR (WITH PURCHASED ROLLING STOCK)
Scenario A	0.4	0.6
Scenario B	0.9	1.4
Scenario C	0.5	0.7

Figures extracted from *High Speed Rail Strategic Alternatives Study – Strategic Alternatives to the Proposed 'Y' Network Tables 6.6 and 6.7* **[CJB/3/13/909]**

78. On this basis the consultation document focused on Scenario B, as this was the only option which offered benefits in excess of its costs, although even then, the BCR was substantially lower than the central case BCR calculated for the full Y network at that time of 2.2 (within a range from 1.8-2.7).

79. The overall benefits of these enhancement scenarios were also significantly lower than those offered by the proposed HS2 network. Even the largest option, Scenario C, only offered benefits totalling approximately £11.7 billion, compared to just over £37 billion from the HS2 network (within a range from £36.0 bn - £38.7 bn).

80. As I have mentioned above, the Government accepted that an environmental analysis would broadly favour enhancements to existing lines over new alignments. This is acknowledged in paragraph 2.92 of the Consultation Document, which states: "*the sustainability impacts of enhancing existing networks would be more favourable than those of new high speed lines – particularly in respect of factors such as visual impact, land take and noise*." **[CJB/2/11/559].**

81. The Consultation Document set out a range of conclusions in relation to the Government's broader objectives **[CJB/2/11/500]**. The Government's view, on the basis of both Atkins' analysis and its own consideration, was that, compared to a new high speed network, the case for enhancing existing lines was weak in a number of respects. Such enhancements:

- would generate a relatively small increase in overall capacity in comparison to new lines – and this would be particularly small in relation to the commuter, regional and freight markets, because much of the new capacity generated would be used for long-distance services (paragraph 2.87);

- would achieve smaller improvements in journey times in comparison to those delivered through high speed rail (paragraph 2.88);

- would be likely to deliver comparatively few 'wider economic benefits' as these are mainly generated through improved commuter services (paragraph 2.90);

- would not support job creation to the same degree as high speed rail, and nor could they match the regeneration opportunities associated with new high speed rail stations (paragraph 2.91);

- would not enhance interchange opportunities as they would rely on the same stations and interchanges as are currently in place (paragraph 2.91); and

- would cause significant disruption to passengers as works are carried out (paragraph 2.93). The Consultation Document acknowledges that the disruption would not be as serious on any single line as the previous West Coast Main Line upgrade, but it would still be significant, not least because the network is now more heavily used than when that project was completed.

82. On this basis, this section of the Consultation Document set out the Government's overall conclusion, having taken into account the environmental advantages of enhancing existing lines, the economic assessments made by Atkins, and the broader factors set out above, that such enhancement scenarios 'would not provide a strategic value for money alternative to high speed rail' (paragraph 2.94).

New proposals made in consultation – the 51M 'Optimised Alternative'

83. A large number of consultation respondents argued in favour of enhancing existing lines rather than building new infrastructure, many of them citing RP2 as the best approach to enhancing capacity. An important additional development, however, was the new proposal developed by Christopher Stokes for the 51M group of local authorities for an 'Optimised Alternative' to HS2 ("the **Optimised Alternative**"). This was first developed for and published by the group during the consultation period, and was subsequently submitted as a 19-page Appendix ("**the 51M Appendix**") to their consultation response. **[CCB/1/6/583]**

84. The 51M Appendix includes discussion of the need for additional capacity on the East Coast and Midland Main Lines, where it argues that foreseeable pressures might be met without additional infrastructure works on those lines. It also discusses the potential consequences for capacity in the West Coast corridor of infrastructure enhancements to the Chiltern Line, and the potential for greater use of demand management techniques to manage capacity issues.

85. The largest part of the 51M Appendix, however, is focused on the Optimised Alternative as a detailed proposal to increase capacity on the West Coast Main Line. This is summarised as follows (paragraph 1.1): **[CCB/1/6/583]**

> "…a realistic 'Optimised Alternative', providing additional capacity on the West Coast Main Line route on an incremental, value for money basis, through reconfiguration of some first class capacity to standard class, operation of longer trains, and limited, specific infrastructure investment to ease a small number of 'pinchpoints' on the route."

86. The description of the Optimised Alternative in the 51M Appendix incorporates a description of the proposed infrastructure works, plans for lengthening inter-city rolling stock (including an assessment of which main stations could accommodate the longest trains), an analysis of the seating capacity provided, and a detailed proposal for the north-bound evening peak service pattern and timetable (including both long distance and commuter services).

87. This service specification and timetable are described as ”illustrative” but it is stated at paragraph 1.49 that the timetable ‘has been “proved” through external expert analysis and is robust’.

88. The Optimised Alternative builds on Atkins’ work on RP2, but provides an additional increase in capacity through using 12-car Pendolino train-sets for the majority of long-distance services (in contrast to the 11-car sets included in RP2) and by re-classifying one carriage on West Coast Main Line inter-city trains from first-class to standard-class. It also makes some alterations to the service pattern used by Atkins, for example including one fewer long-distance service to Birmingham and one extra service to the North West.[15]

89. The Optimised Alternative assumes that some of the infrastructure works proposed in RP2 would not be necessary:

- Works to the Coventry corridor into Central Birmingham;
- The additional platforms and associated works at Manchester Piccadilly - on the basis that other schemes would free up the necessary capacity; and
- The additional platforms at Euston.

90. The remaining analysis provided of the Optimised Alternative is primarily focused on its capacity impacts, although it also asserts that the timetable included would provide ‘*improved journey times and intermediate journey opportunities*’ (paragraph 1.48). It does not make any mention of the broader strategic factors considered by the Government in its assessment of the case for high speed rail (although these are discussed in other parts of the 51M Group’s consultation response). It does, however, refer in a number of places to crowding issues on commuter services to Milton Keynes and Northampton and the need to provide additional capacity to relieve this (see paragraph

[15] The Appendix on the Optimised Alternative misrepresents the RP2 service pattern slightly at paragraph 1.44. This notes that RP2 17 trains per hour (“tph”) in the peak in contrast to the 16 tph required by the Optimised Alternative. In fact, RP2 is also based on a 16 train per hour service pattern.

1.25, paragraphs 1.40 – 1.41, paragraph 1.48 and paragraphs 1.55 – 1.56). **[CCB/1/6/589-596]**

91. The conclusion of the 51M Appendix is that, by running additional services, and increasing seating capacity through longer and reconfigured trains,[16] the Optimised Alternative could increase all day standard class capacity by 215 per cent and total capacity by roughly 150 per cent over 2008 levels (which was used as the base year in HS2 Ltd's economic analysis). Annex 1 of the 51M Appendix provides more detail on the capacity analysis that was carried out, including the Group's calculations of seated capacity in 2008, currently and following implementation of their proposals. [Note that using these figures, the increase over the current total level of capacity can be calculated, which shows that it would be much lower than the figures quoted above, at approximately 82 per cent.]

92. Annex 2 of the 51M Appendix provides a detailed assessment of the increase in peak capacity **[CCB/1/6/602]**. This is lower than for all-day capacity and indicates that total peak capacity could be increased by roughly 90 per cent over 2008 levels across both inter-city and fast commuter services (i.e. services to locations such as Milton Keynes and Northampton which used the fast lines for a portion of their journey). [Note again that, as in relation to all day capacity, the figures in this Annex, the increase over current levels would be lower, at roughly 66 per cent.]

93. The capacity benefits from the Optimised Alternative are additionally constrained by the fact that it only generates a limited number of additional train paths – just three per hour in the peak, two of which are allocated to semi-fast services to Northampton. Therefore, the distribution of any additional capacity is necessarily uneven between destinations. This is discussed in paragraphs 5.3.13 to 5.3.18 of the *Review of the Government's Strategy for a National High Speed Rail Network*. **[DB/3/60/1761]**

94. In relation to costs, the Optimised Alternative – particularly in relation to infrastructure works – is effectively a variant of RP2, and so the 51M Appendix draws upon the cost information provided in Atkins' reports. It does

[16] The reconfigured 12-car Pendolinos proposed in the Optimised Alternative would have a seating capacity of approximately 690 seats, compared to roughly 440 on the current 9-car Pendolinos.

not present any independent assessment of the costs of the infrastructure works proposed. It also does not provide any details of the potential costs associated with the additional lengthening and reconfiguration of rolling stock that it incorporates.

95. The 51M consultation response does not include an assessment of the BCR of the Optimised Alternative.

The Government's consideration of alternative proposals following consultation

96. The arguments in favour of and against enhancing existing rail lines as an alternative to constructing a new high speed rail network were discussed in a substantial number of consultation responses.

97. Some respondents raised concerns about such an approach. The response submitted by the Association of Train Operating Companies, for example, expressed the view that:

> "The proposals under RP2 … would deliver only marginal improvements for passenger services, fail to make possible [a] significant package of regional service benefits … and would not deliver any major improvements in freight capacity." **[DB/2/54/1488]**

98. Consultation responses from major Metropolitan local authorities expressed similar concerns, for example citing the significant negative effects of the previous West Coast Main Line upgrade. Manchester City Council's response stated that the West Coast Main Line upgrade project "had a negative impact on the local economy the full impacts of which have yet to be quantified" **[DB/2/53/1482]** and that the capacity that it provided would already be exhausted by the 2020s. Other respondents also stated that running additional long-distance services to and from London on the West Coast Main Line, as proposed in both RP2 and the Optimised Alternative, would limit its ability to respond to growing local demand (for example the Centro response, **[DB/3/59/1751]**).

99. Conversely, other respondents, including the 51M Group and the HS2 Action Alliance, argued that implementing alternative approaches such as RP2 or the Optimised Alternative would be a better way of achieving the Government's objectives for the national rail network.

100. Given the importance of this issue, and the conflicting views expressed by consultation respondents, the Department took the view that it was appropriate to commission additional analysis of these issues to inform Ministers' decisions. Two reports were commissioned:

- an update by Atkins of its economic analysis of the proposals most frequently cited in consultation responses (RP2, Scenario B and the 51M 'Optimised Alternative');**[CJB/4/19/1504]** and

- a new report, to be provided by Network Rail, on the costs, feasibility and operational impacts of the same three proposals. **[CJB/3/16/1117]**

101. The following sections discuss the conclusions of those reports.

Network Rail's Report on the Strategic Alternatives

102. The Government's view was that Network Rail was well-placed to make an assessment of the costs, feasibility and operational impacts because of its role as custodian of the current rail network and its extensive experience in rail operations, maintenance and enhancements in Britain.

103. Network Rail's analysis focused on RP2 and the Optimised Alternative, with the analysis of Scenario B (see paragraph 74 above) being carried out at a less detailed level, as the proposal had not been developed to the same extent.

104. For RP2 and the Optimised Alternative, Network Rail carried out an assessment of the adequacy of the infrastructure proposals to deliver the service specifications proposed, and on that basis an assessment of whether the costs provided for the schemes were likely to be accurate. In relation to

the Optimised Alternative, Network Rail used the cost estimates in the 51M Appendix, which drew directly upon Atkins' analysis.

105. Network Rail considered the scale of the infrastructure works and the level of disruption that would be likely to be caused, and made a high level assessment of the impacts of each scheme on the reliability of the network. It also carried out its own analysis of the likely crowding impacts of each scheme, using modelling tools designed to replicate a detailed peak timetable and carried out an assessment of the network's capacity following the completion of each proposal to accommodate aspirations for additional passenger and freight services (identified, for example, through its engagement with Train Operating Companies and others as part of the Route Utilisation Study process).

106. In respect of the Optimised Alternative and RP2, Network Rail's report concluded that the service specifications and timetables provided would be broadly deliverable once the proposed infrastructure interventions were completed, although the report expressed some scepticism about removing timetabling allowances as proposed in RP2 (see section 3.3.2). On this basis, the updated economic analysis commissioned from Atkins included an assessment of RP2A (which retained these allowances) alongside RP2. **[CJB/3/16/1143]**

107. Network Rail's report also noted that some of the proposed infrastructure works would not in practice be necessary to deliver the service specifications put forward – in particular, the RP2 outputs could potentially be delivered without the full Stafford by-pass scheme and without the proposed works at Manchester Piccadilly (due to an earlier Ministerial decision to take forward separate works in the Manchester area).

108. Network Rail's report noted, however, that there were some costs that should be added to those provided by Atkins or included in the 51M Appendix: **[CJB/3/16/1143]**

- The Optimised Alternative proposal omitted the costs associated with platform-lengthening works to enable 12-carriage Pendolino trains to

operate. (Network Rail estimated that these works would cost approximately £345 million, excluding any works at Euston); (paragraph 2.2.2 and 2.3.1)

- Neither RP2 or the Optimised Alternative included costs to upgrade or enhance depot facilities to service the additional rolling stock needed to operate the proposed timetables. This would be a particular issue for the Optimised Alternative if existing depots proved unable to accommodate the longer 12-car trains; (paragraph 2.3.1)

- The cost allowances for compensation to Train Operating Companies relating to disruption caused by infrastructure works appeared low in comparison to those incurred on the previous West Coast Main Line upgrade; (paragraph 2.3.1)

- No allowance was made for potential increases to maintenance costs associated with a more intensive service pattern; (paragraph 2.3.2) and

- The costs of works at Euston station were likely to have been significantly under-estimated (this is discussed in the following paragraph). (paragraph 2.1 and 2.3.1)

109. In relation to Euston station, the RP2 proposal had included a low-cost approach to providing more platform capacity by incorporating three additional platforms into the area currently occupied by Platforms 16-18 and the parcel deck. The Optimised Alternative had assumed that no works would be required at Euston. Network Rail's analysis did not support either of these conclusions. In relation to RP2, it found that new platforms would be likely to be required and that the proposed low-cost option for delivering these would not be feasible, meaning a major remodelling would be required, which would be 'expected to cost several hundred million pounds' (section 3.2.1) **[CJB/3/16/1138]**. In relation to the Optimised Alternative, it found that this would be likely to require significant platform lengthening works, and the need for additional platforms could not be ruled out, with platform lengthening alone necessitating 'a major remodelling of London Euston station, including the

phased closure of sections of the station with major demolition and rebuilding programmes' (section 2.3.1). **[CJB/3/16/1126]**

110. In addition to its assessment of the cost estimates for these proposed schemes, Network Rail's report also raised a number of concerns in respect of the operational impact on the network of RP2 and the Optimised Alternative:

- Neither proposal would provide sufficient capacity to meet forecast demand on the suburban commuter services at the south end of the West Coast Main Line; (paragraph 2.3.3 and 3.3.3)

- The proposals would all result in long periods of disruption along the route while the infrastructure interventions were constructed (the report notes that this disruption would be 'on routes that are more popular and are being used more intensively than ever before' and across all three main lines could be similar to that arising from the West Coast Route Modernisation); (paragraph 2.3.1 and 3.3.1)

- The high utilisation of the fast lines in both proposals would negatively impact on route performance; (paragraph 3.3.2 and 2.3.2)

- Both service specifications would increase long-distance connectivity on some flows, however, this would be at the expense of other intermediate distance flows, where connectivity would severely worsen; and (paragraph 2.1 and 3.1)

- Both schemes would limit the network's capacity to accommodate growth in regional markets, particularly on the line into Manchester Piccadilly and, for the Optimised Alternative which included no upgrade to this route, on the Coventry corridor into Birmingham. (paragraph 2.1 and 3.1)

111. A number of these concerns, notably their effects in relation to commuter and regional demand, and the potential disruption impacts, had

been foreshadowed in Chapter 2 of the Consultation Document **[CJB/2/11/541-560]**, as noted in paragraph 57 above.

112. In reaching its conclusions regarding commuter crowding, Network Rail used a bespoke modelling tool, based on the industry-standard 'MOIRA' modelling suite. This allowed a detailed peak timetable to be modelled and the impacts on individual trains to be identified (in contrast to the more strategic, all-day capacity approach used to generate the overall BCR for the schemes). This suggested that, under the RP2 scheme, the number of passengers standing on commuter services out of Euston in the evening high-peak hour would rise from roughly 800 currently to 2,000 by 2035 **[CJB/3/16/1146]**. The increase in standing passengers under the Optimised Alternative would be higher again, as a result of the slightly reduced service pattern into Euston, with this proposal seeing the number of standing passengers during the evening high-peak hour increase to around 2,200 by 2035. **[CJB/3/16/1133]**

113. Network Rail's report also included a high-level assessment of Scenario B which raised a number of concerns regarding the Midland and East Coast Main Line proposals (the West Coast Main Line element being the same as RP2). It noted that on both lines significant, and expensive, additional infrastructure works would be required (over and above those included in the proposals and costs put forward for Scenario B) to deliver the service specifications proposed, that the disruption caused as works were taken forward would be very substantial (perhaps worse than on the West Coast Main Line given the fewer diversionary routes available on these corridors), and that on the East Coast corridor in particular the proposals did not appear to provide a long-term solution to forecast capacity issues on outer suburban commuter services. Its conclusion is that Scenario B 'is not a suitable long-term strategy for the corridors in question' (Executive Summary). **[CJB/3/16/1118]**

Atkins' update to the Economic Analysis of the Strategic Alternatives **[DB/3/61/1842]**

114. Alongside the work commissioned from Network Rail, the Department also commissioned Atkins to update its economic analysis of the strategic alternatives, to provide a consistent comparator to the update of the HS2 economic case that was undertaken to inform Ministers' decisions following consultation. Given that consultation responses covering the strategic alternatives focused most often on three options – RP2, the 51M proposal and Scenario B – Atkins' economic assessment was restricted to these, plus RP2A (as explained at paragraph 28 above).

115. In the light of Network Rail's analysis, the infrastructure costs relating to works at Manchester Piccadilly were removed by Atkins from the costs of RP2 (and hence also of the West Coast Main Line element of Scenario B) and the costs relating to works at Stafford were reduced. This led to a significant overall reduction in infrastructure costs. In relation to costs at Euston, given that Network Rail's report did not include a specific cost estimate, a decision was taken to retain the costing estimated by Atkins, but to note the potential for these costs to increase significantly was noted as a key risk (see paragraph 120 below).

116. For the Optimised Alternative, Atkins used the infrastructure costs set out in the 51M Appendix (which drew directly from Atkins' earlier work on RP2). In addition, the £345 million cost identified by Network Rail for platform lengthening and other works along the route was included. As with RP2, the potential costs of works at Euston were noted as a key risk.

117. In addition, a review of operating costs was carried out covering both HS2 and the Strategic Alternatives under consideration. This process led to a number of changes, both upwards and downwards, to specific cost items, with the overall effect of reducing operating costs in comparison to Atkins' previous analysis.

118. To achieve consistency with the analysis carried out for HS2, the modelling of benefits and revenues in the updated analysis reflected new economic growth and other forecasts, and amended the base year for rail demand forward from 2007-08 to 2010-11. When combined with the reductions in costs discussed above for RP2 and Scenario B, the result was

an increase in the BCRs for both these schemes. For the Optimised Alternative, this was the first time a BCR had been calculated, as the 51M Appendix did not include an economic assessment.

119. The central BCRs calculated by Atkins, and published in January 2012, are set out in the table below. They compare to BCRs for HS2 of 1.4 for the London to West Midlands phase and 1.6 – 1.9 for the full 'Y'. As set out in paragraph 123 below, however, Atkins also identified some key risks associated with its analysis, which meant that the BCRs may not in practice be as high as the central estimates in the table.**[DB/3/61/1870]**

RAIL PACKAGE	**BCR (WITH LEASED ROLLING STOCK)**
RP2	4.01
RP2A	2.72
51M	5.17
Scenario B	1.41

120. Updated BCRs on the basis of purchased rolling stock were not commissioned, as the Department's view was that this was not a credible scenario given that these packages were based on incremental changes to existing franchises and routes, which operated on the basis of leasing trains and carriages. The Atkins report did acknowledge, however, that if a calculation were made on this basis, it would be likely to see these BCRs increase.

121. Although the BCRs for RP2 and RP2A were higher than those calculated in Atkins' previous economic analysis, it remained the case that the overall level of benefits delivered by either of these options was substantially lower than that delivered by the first Phase of HS2. The same was true in relation to the Optimised Alternative. The overall benefits from these three options totalled in each case between £6 and £8 billion over the appraisal period, compared to £19 billion for the London to West Midlands phase of HS2.

122. In relation to the key network alternative, Scenario B, the forecast overall benefits totalled £13.7 billion **[DB/3/61/1869]**[17]. This compared to £41.4-£46.9 billion for the full Y network **[DB/3/63/1962]**[18]. The BCR for Scenario B also remained lower than that for the Government's proposed Y-shaped high speed rail network.

123. Atkins' report noted that the central BCRs set out in the table above were subject to a number of specific risks; and section 5.3.4 of their report set out the results of two sets of cost sensitivity tests, which looked at scenarios in which certain assumptions are changed: **[DB/3/61/1869]**

- As set out in the previous section, Network Rail's November 2011 report had indicated, but did not quantify, a number of missing and/or under-estimated costs for the strategic alternatives – including costs for depot works and for infrastructure works at Euston station. With this in mind, in order to assess the impact on the BCR of different levels of potential increase to the estimated cost, Atkins carried out recalculations of the BCRs for each package on the basis of cost increases of £250m, £500m and £750m. In the £750m scenario, this saw the BCRs of RP2 and the 51M proposals drop to 3.04 and 3.37 respectively.

- The operating cost estimates used for all the packages, but particularly for the 51M proposal, required the achievement of operational efficiencies in the use of rolling stock on the West Coast Main Line. Atkins also therefore tested a number of scenarios in which those efficiencies were not achieved. The first of these was to re-test the 51M scheme using the same rolling stock assumptions as for RP2, which reduced its BCR to 2.45. The second was to test for all scenarios the impacts of a further 10 per cent increase in rolling stock, which reduced the BCR for RP2 to 2.57 and for 51M to 1.61.

124. These two sets of sensitivity tests are not mutually exclusive, and could both apply, in which case the cumulative effect would be greater still.

[17] See Table 5.6

[18] See Table 9

125. To enable a fuller comparison, the Department also commissioned from Atkins an assessment of the additional benefits from wider economic impacts (WEIs) associated with these schemes. As predicted in the Consultation Document (see paragraph 81, 3rd bullet above), these were significantly smaller than those from HS2. The maximum WEIs on the West Coast Main Line under any of these proposals were estimated to be less than £1.3 billion,[19] compared to more than £4 billion[20] for the HS2 London to West Midlands scheme. Similarly, the analysis of Scenario B forecast benefits from WEIs totalling less than £2 billion,[21] compared to £5.7-£12.3 billion for the Y network **[DB/3/63/1962]**[22].

The Government's review of the case for the strategic alternatives

126. The conclusions reached by Ministers following consultation regarding the case for enhancing existing lines as an alternative to HS2 are set out in the Decisions Document.

127. Paragraph 31 of Part I of the Decisions Document states that:

> "The strong likelihood, therefore, is that even pushing the West Coast Main Line to the absolute limit, as the alternatives we have looked at do, would only delay rather than eliminate the need for new lines in the future. In the meantime, substantial disruption would have been imposed on passengers over a number of years as works were carried out and the additional strategic, economic and connectivity benefits that high speed rail is particularly capable of delivering would have been foregone … the Government has concluded that [enhancing existing lines] would not offer an effective strategic approach to the long term development of Britain's inter-city rail network." **[CJB/4/18/1406]**

128. This passage indicates three of the factors taken into account in Ministers' decision-making on this issue:

[19] **[DB/3/61/1869]** – see Table 5.7
[20] **[DB/3/63/1973]** – see Table 15
[21] **[DB/3/61/1869]** – see Table 7
[22] See Table 9

i) the risk of a shortfall between the capacity available through the enhancement options considered and the long-term capacity requirements of the network;

ii) the potential disruption to passengers and other rail users which would be caused by major enhancements; and

iii) the lower overall scale of benefits which an approach of this kind would provide in comparison with its proposed strategy for a national high speed rail network.

129. A fuller discussion of potential strategic alternatives to a national high speed rail network was provided in Chapter 3 of Part II of the Decisions Document **[CJB/4/18/1435]**. This acknowledged the lower costs and lower environmental impacts of enhancing existing lines compared to high speed rail (see paragraphs 3.88 and 3.91 of the Decisions Document). It also acknowledged the stronger BCRs of RP2 and the 51M proposal compared to Phase 1 of HS2 (see paragraph 3.80), but noted conversely that the BCR for the proposed 'Y' high speed rail network would be higher than that for the network alternative Scenario B (paragraph 3.81). It also explained in these paragraphs that under any of the alternatives tested the overall scale of benefits would be significantly lower than from HS2. **[CJB/4/18/1453-1456]**

130. In addition, Part II of the Decisions Document set out elements of Network Rail's analysis, including the capacity issues that it had identified (paragraphs 3.85 – 3.87), and the potential disruption to passengers and other rail users as works were carried out (paragraph 3.91). It also noted the limited impacts of the strategic alternatives on connectivity and regeneration (paragraph 3.89), and their potential effects on the reliability and maintainability of the network (paragraph 3.90). **[CJB/4/18/1454-1455]**

131. A number of further issues relating to the main Strategic Alternatives were considered in the *Review of the Government's Strategy for a National High Speed Rail Network* [**DB/3/60/1761**][23]. These included the distribution of any additional capacity provided (paragraphs 5.3.13 to

[23] http://assets.dft.gov.uk/publications/hs2-review-of-strategy/hs2-review-of-strategy.pdf

5.3.18)**[DB/3/60/1804]**, the inability of such alternatives to address the historic limitations of the current rail network in respect of poor connectivity between regional cities (paragraph 5.4.3)**[DB/3/60/1808]**, their failure to improve rail access to the key international gateways or to Crossrail (paragraph 5.4.4)**[DB/3/60/1808]**, and their comparatively low wider economic impacts (paragraph 5.8.1 to 5.8.4).**[DB/3/60/1813]**

132. Many of these issues had been foreshadowed in the Consultation Document, and were supported by the reports provided by Atkins and Network Rail.

Criticisms made by the 51M Group Expert

133. Christopher Stokes' witness statement[24] in support of the 51M Group's claim, sets out a number of criticisms of the Government's consideration of the strategic alternatives to high speed rail. These relate in large part to the Government's consideration of the conclusions of the Network Rail report, which Mr Stokes considers to be flawed. This section of my witness statement addresses these criticisms.

Commuter Capacity

134. Mr Stokes criticises the conclusions reached by Network Rail in respect of crowding on commuter services under the 51M proposal as unsound. Mr Stokes argues that this is because the commuter service specification put forward in the 51M Group's response to consultation was only 'illustrative', and that this approach was taken because the issues of commuter capacity did not form 'any real part' of the Government's February 2011 consultation.

135. Commuter capacity was an important factor in the consultation process. As set out in the opening section of this witness statement (see paragraphs 5 and 29), the benefits of new high speed rail lines for commuter travellers, particularly through the release of capacity on existing lines, have

[24] **[CCB/1/2/83]**

been recognised for some time. This continued to be the case in the Consultation Document: **[CJB/2/11/500]**

- On Page 5, the Secretary of State's foreword highlights the benefits of high speed rail in terms of released capacity for commuter services;

- Paragraph 1.32 highlights the importance of commuter rail in supporting productivity in Britain's cities;

- Paragraph 1.38 notes the significant growth in passenger journeys seen over recent years in the London and South East region (the main UK commuter market);

- Paragraph 1.44 highlights the impact of increasing numbers of commuter passengers using longer-distance services;

- Paragraph 1.45 mentions the significant investment already under way to enhance commuter capacity (including through the Crossrail and Thameslink schemes);

- Paragraph 2.4, 2.14, 2.34 and 2.36 all mention the benefits for commuters from released capacity as a result of a new high speed line. Paragraph 2.36 particularly notes the growth in commuter demand forecast on the southern stretches of the main north-south lines;

- Paragraph 2.49 notes the importance of released capacity for commuters in providing wider economic benefits, such as agglomeration effects; and

- Paragraph 2.87 specifically notes the limited benefits for commuters from enhancing existing lines.

136. It appears that Mr Stokes' was aware of the need to respond to growing demand for commuter services in developing the Optimised Alternative, as the Appendix to the 51M consultation response notes in

Paragraph 1.25 that: “There is already significant overcrowding on the fast commuter services to Milton Keynes and Northampton, and passenger volumes on this route are likely to grow rapidly in line with expected population growth.” **[CCB/1/6/589]**

137. The service specification set out in the 51M Appendix is developed to the same degree of detail for both inter-city and commuter services, including not only service frequencies but detailed timings for the stops made by each service. The information provided was sufficient for an assessment of the proposed specification to be made, so there was no requirement for the Department or Network Rail to seek additional clarification.

138. In paragraph 70 of his witness statement, Mr Stokes draws attention to two quotations from which he infers a failure to clarify issues relating to the Optimised Alternative with 51M, which casts Network Rail’s conclusions into doubt. In reality, this inference is not justified. The first quotation relates to Network Rail’s assessment of peak crowding; this was derived using the evening peak service specification provided in 51M’s consultation response. The second quotation, in contrast, relates to off-peak service levels, for which a detailed specification was not provided and hence an assumption was made. This was made to inform an estimate of rolling stock requirements, however, and had no impact on Network Rail’s assessment of peak crowding. **[CCB/1/2/107]**

139. At paragraph 69 a) of his witness statement, Mr Stokes states that the Optimised Alternative ‘does not require any reduction in slow line commuter services south of Tring’. However, his proposal clearly included a detailed peak service specification which provides for such a reduction. In any case, even if current service levels were retained, this would only provide the same level of suburban commuter capacity as assessed under Rail Package 2, which still sees the numbers of passengers standing in the evening high-peak hour increase from approximately 800 currently to between 1,500 and 2,000 passengers in 2035 (depending on rolling stock configuration).

140. At paragraphs 71-73 of his witness statement, Mr Stokes sets out two proposals for how the Optimised Alternative could have been adjusted to provide additional commuter capacity:

- The first is through lengthening additional commuter trains to 12 cars. This was already taken into account in Network Rail's report, which tested crowding levels under two scenarios – scenario 1 in which all suburban services to Milton Keynes, Northampton and beyond are 12-car; and scenario 2 in which services to Tring are also extended to 12-car (the remaining services to Watford Junction cannot be extended due to platform constraints). Switching from scenario 1 to scenario 2 only reduced the number of standing passengers in the evening high-peak hour in 2035 under the 51M proposal from 2,200 to 1,900 – still well over twice current levels.

- The second is 'construction of a grade separated junction at Ledburn' to enable additional fast commuter services to run. This formed part of the 51M proposal and was incorporated into Network Rail's analysis. Paragraph 1.25 of the 51M Appendix makes clear that a key infrastructure element is the grade separation of this junction, and the service specification on page 14 includes as a result two additional fast commuter services per peak hour.

141. At paragraph 69b of his witness statement, Mr Stokes claims that Network Rail's analysis fails to take account of how actual passengers take decisions regarding the trains that they use. In fact, the use of detailed timetabling information in Network Rail's modelling approach enabled exactly this type of real-life passenger behaviour to be incorporated. And at paragraph 69c, he claims that Network Rail have misunderstood his proposals for the use of long-distance services stopping at Watford Junction and Milton Keynes. In fact, if commuters were prevented from using these services, this would result in more passengers having to use shorter-distance trains, further increasing the level of crowding.

142. In paragraph 66c of his witness statement, Mr Stokes asserts that the service specification published by HS2 Ltd includes additional fast commuter

services to Milton Keynes and Northampton 'but no other capacity increases above present levels on Euston suburban services'. This assertion is incorrect: the specification published by HS2 Ltd includes additional peak hour Euston-Watford Junction services, which would provide additional capacity to inner suburban stations and enable peak-time Tring trains to provide a faster service.

143. Mr Stokes also does not take into account an additional advantage for commuters of new high speed lines. This relates to the fact that as many long-distance travellers transfer to the new high speed line, additional capacity would be created on residual conventional long-distance services which could be used by commuters to outer suburban destinations such as Milton Keynes. Rising demand for long-distance rail travel means that the current West Coast Main Line timetable includes just three long-distance trains an hour which stop at Milton Keynes, and fewer still in peak hours. In contrast, with a new high speed line carrying the majority of inter-city travellers, the residual long-distance West Coast Main Line service specification developed by HS2 Ltd is able to accommodate as many as eight peak long-distance trains per hour with stops at Milton Keynes. Under the 51M proposal, load factors on long-distance services would increase from current levels, limiting the scope for any use of capacity of this kind.

Connectivity Impacts of the Strategic Alternatives

144. Mr Stokes disputes Network Rail's finding that the Optimised Alternative would reduce connectivity for some towns, and in some cases would leave stations without a service. In this instance, he states that "the service pattern set out in the [optimised alternative] was not exhaustive, and was not intended to cover stations such as Atherstone, Rugeley and Stone, which are the stations cited in Network Rail's report" (paragraph 57e of his witness statement) **[CCB/1/2/101]**. However, these stations are currently served by London services which are omitted from his proposed service specification, and the 51M Appendix makes no reference to how they might alternatively be accommodated. If this were to be through additional local services, it is unlikely that stakeholders would consider this an appropriate replacement for the direct London services that would be lost. Furthermore, Network Rail's review of his proposed timetable was carried out on the basis

of the service specification shown, and if these stations were to be added, this would affect the journey times achievable.

Disruption Impacts of the Strategic Alternatives

145. Mr Stokes makes two criticisms in relation to disruption for existing passengers due to the proposed infrastructure works under the Optimised Alternative. These are a) that this disruption is over-stated in Network Rail's report; and b) that Network Rail and the Government fail to take account of the significant disruption that he considers would be caused by the construction of HS2, particularly at Euston.

146. Fewer infrastructure works are included in the Optimised Alternative than in RP2, as some, such as the four-tracking of the Coventry corridor, were considered unnecessary by the 51M Group. This would reduce the number of worksites, although the scale of the remaining works should not be underestimated. However, Network Rail found that the Optimised Alternative omits some significant additional works that would in practice be required, most notably platform-lengthening works at many stations, including major works at Euston, Coventry, Wolverhampton, Lichfield Trent Valley, Wilmslow, Wigan North Western and Glasgow Central stations. Network Rail also found that the works required to deliver the Optimised Alternative would need to take place on a railway that is now much more intensively used, and carrying far higher numbers of passengers, than when the previous West Coast Main Line upgrade was carried out.

147. Network Rail's conclusions were based on an appropriate analysis of the proposed infrastructure schemes, carried out to the same level of detail as for the company's own strategic level decision-making. This involved a number of site visits by the company's engineers. The Secretary of State does not accept that Network Rail's report exaggerates the impacts of some of the works required – it does not suggest, for example, that the road closure necessary for the works at Ledburn Junction would be of a major highway.

148. In relation to Mr Stokes' second criticism, it should be first noted that Network Rail was not commissioned to carry out a comparative analysis of

disruption under the strategic alternatives and HS2. The Government did consider this issue, however, and it is discussed in section 5.6 of the *Review of the Government's Strategy for a National High Speed Rail Network*. **[DB/3/60/1810]**

149. Mr Stokes' argument (at paragraph 57(c) of his witness statement **[CCB/1/2/103]**) is that the works required to deliver the Optimised Alternative would be less disruptive than those required at Euston to deliver HS2. The 51M scheme would nevertheless entail a major programme of infrastructure interventions along the length of the West Coast Main Line, including, in Network Rail's analysis, a major remodelling of Euston Station (as discussed in paragraph 109 above).

150. Furthermore, the works proposed at Euston for HS2 would involve additional land take to the west of the station, where new platforms would be built which could be used to maintain train operations whilst other parts of the station are being redeveloped.

Adequacy of Capacity Provided by the Strategic Alternatives

151. Mr Stokes has argued that the Optimised Alternative would provide adequate capacity to deal with the level of growth forecast by HS2 Ltd, and so any additional capacity increase would be unjustified (see paragraph 24 of his witness statement). **[CCB/1/2/90]**

152. The analysis carried out by Network Rail contradicts this argument and suggests that this scheme would be unable to meet levels of growth forecast on commuter services on the southern stretch of the West Coast Main Line.

153. Mr Stokes does not accurately represent the basis on which the Government's decisions were taken. The 102 per cent growth figure cited by Mr Stokes at paragraph 24 of his witness statement is not, as he suggests, the Government's 'prediction' of the maximum level of growth that may need to be accommodated on the West Coast Main Line route. Rather it is an

assumption about an appropriate level at which to 'cap' demand growth in the models used to calculate the BCRs for HS2 and the alternatives.

154. A cap of this kind is commonly put in place, because otherwise the modelling approach used, which relies on long-term forecasts of factors such as economic and population growth, would see demand grow in perpetuity. A cap level equivalent to roughly a doubling of long-distance rail travel over 2008 levels was chosen as an appropriately conservative proxy for the potential effects of market saturation, and to allow a consistent assessment to be made of the case for both HS2 and the alternatives, but it was not intended to represent and was not described as a prediction of the maximum potential growth in this market.

155. In practice, this assumption, as with all estimates of long-term growth, is subject to considerable uncertainty. The claimants have chosen to focus particularly on the risk that this level of growth may never be achieved. That scenario cannot be ruled out, but neither can the opposite risk that demand may in fact rise to levels considerably higher than that used as the cap. Indeed, it could be argued that this latter scenario is more likely, as many of the main historic drivers of rail demand (such as population, employment and GDP growth) are forecast to continue rising past the date at which the cap would otherwise be reached.

156. This is also reflected in the report by the Transport Select Committee's advisors which is referenced in paragraph 33 of Mr Stokes' witness statement **[CCB/1/2/94]**. Mr Stokes notes that the report indicates that the Optimised Alternative would be likely to be able to provide sufficient capacity for the next twenty years so long as a mechanism is found to 'spread' peak demand (i.e. to reduce the proportion of all-day demand which occurs in peak hours). However, his account fails to acknowledge that this conclusion is only valid if demand growth drops from the high current level to a trend rate of around 2 per cent a year, and that there is also a significant risk of under-provision of capacity, with the same report also stating that:

> "if … the 10% annual growth of the past three years were to continue, even pressing ahead with HS2 would mean severe overcrowding for

commuters post-2020, given that HS2 cannot be in operation before 2026" **[CCB/1/6/756]**[25]

157. Therefore, while the cap plays an important role in the economic assessment of HS2 and the alternatives, it is entirely appropriate for Ministers to consider the implications of lower and higher levels of growth, alongside other relevant factors, in making their strategic decisions. This is discussed in paragraphs 5.3.24 to 5.3.29 of the *Review of the Government's Strategy for High Speed Rail* **[DB/3/60/1087]**.

158. The decisions taken by the Government in relation to HS2 reflect the Secretary of State's objective of identifying and progressing a robust long-term solution. This is made clear in paragraph 10 of Part I of the Decisions Document which states that:

> "We are determined to … plan ahead and to build for the future, rejecting short-term 'make do and mend' measures on these major lines in favour of a strategic approach which will deliver benefits for generations to come." **[CJB/4/18/1401]**

Provision of Passenger Loading Data

159. In paragraphs 37-43 of his witness statement, Mr Stokes states that a failure by the Department to release detailed information on passenger loadings on the West Coast Main Line effectively prevented 51M from making a full response to concerns about over-crowding. **[CCB/1/2/95]**

160. This data has also been subject to an application for a disclosure order by one of the Claimants. In the light of this application for disclosure, this section of my witness statement will explain:

a) how passenger counts data were used in the demand forecasting under taken by HS2 Ltd and why this was an appropriate approach;

[25] http://www.publications.parliament.uk/pa/cm201012/cmselect/cmtran/1185/118513.htm (para 15)

b) why such data is commercially confidential and how the Department for Transport has handled requests for this data; and

c) the basis on which the descriptions of current levels of crowding in the February 2011 consultation document were made (since the claimants' witness statements argue that these are unfounded and contradicted by the passenger loading data which has previously been released).

161. The overall approach to demand forecasting undertaken by HS2 Ltd is set out in Annex A to this witness statement. The use of passenger counts information in this process was also discussed in my first witness statement (which related to the claimants' previous application for disclosure).

162. The forecasts of demand used to calculate the economic case for HS2 were derived through a suite of models referred to as the PLANET Long Distance Framework modelling suite. This operates by forecasting growth in demand forward from a 'base year' representing current patterns of travel.

163. Since 2009, HS2 Ltd has generated three sets of demand forecasts using the PLANET modelling suite to underpin its analysis of the case for HS2:

- A set of forecasts generated in 2009 and using a base year of 2007-08, which formed the basis for the economic assessment in its 2009 Report, *High Speed Rail: London to the West Midlands and Beyond*. **[DB/1/24/349]**

- A new set of forecasts, also using a base year of 2007-08, generated in 2010 and forming the basis for the economic assessment in the document, *Economic Case for HS2*, which was published alongside the 2011 Consultation Document; and **[CJB/3/14/912]**

- A set of forecasts using an updated base year of 2010-11, generated in 2011 and forming the basis for the economic assessment in the document, *Economic Case for HS2: Updated Appraisal of Transport*

User Benefits and Wider Economic Benefits, which was published alongside the 2012 Decisions Document. **[DB/3/63/1926]**

164. In each case, in carrying out these forecasts, HS2 Ltd received technical support from expert consultants, experienced in the operation of models of this type. As well as the Economic Case documents described above, detailed technical documents were also published in support of HS2 Ltd's analysis. These include in each case a *Demand and Appraisal Report* providing a more detailed overview of the modelling results (in the case of HS2 Ltd's 2009 Report, this supporting document is called the *Demand Model Analysis*), and a *Model Development Report*, describing the structure and operation of the modelling suite, and the changes made since the previous version. All these documents, relating to each iteration of HS2 Ltd's analysis, have been and are accessible via the HS2 Ltd website. HS2 Ltd have also made available the spreadsheets containing the raw outputs from each modelling exercise.[26]

165. The base year data used to populate the models in the PLANET suite was drawn from the rail industry's LENNON database of ticket sales data. This is a detailed and comprehensive database, which provides a reliable picture of passenger travel for modelling purposes. Because ticket sales data indicate the journeys made by passengers but not, in all cases, the specific trains used, the LENNON data does not directly enable a calculation of peak loadings to be made.

166. The modelling approach used in the PLANET modelling suite to consider future demand for long-distance rail reflects this, and it forecasts demand on an all-day basis. Given that the forecasts indicate a high level of crowding in the long-term throughout the day it is likely that even higher levels would be seen in peak hours. An all-day approach of this kind is appropriate in making a strategic assessment of growth in demand for long-distance rail travel, as demand in peak and off-peak periods is not as sharply differentiated as for commuter rail. It is this overall long-term trend in passenger demand growth which is at the heart of the Government's case for HS2.

[26] http://www.hs2.org.uk/economicdocs

167. Those elements of the modelling suite which deal with local demand into and out of London and Birmingham ('PLANET South' and 'PLANET Midlands' do not operate on an all-day basis, but instead model demand in the three-hour AM peak. This reflects the more significant differentiation between peak and off-peak demand in these markets, which means that peak travel patterns more directly affect the long-term requirements of the network in these areas. Because the LENNON data cannot be used to derive peak loadings directly, the model uses estimates of the proportion of overall demand falling in the three-hour AM peak. This is subject to validation as described below.

168. The passenger counts data which was the subject of the Claimants' application for disclosure did not form part of the information used for modelling base year rail demand or to forecast future growth in demand for rail travel in the markets relevant to HS2.

169. However, in accordance with normal practice, the operation of the PLANET model is subject to validation. The DfT passenger counts data was one of the sources of information used for validation purposes. For the demand forecasts generated using a 2007-08 base year, passenger counts data from 2007 is used for validation purposes. For the updated demand forecast using a 2010-11 base year, the validation was carried out using 2010 passenger counts data.

170. A second validation exercise was also carried out in each case using data drawn from the rail industry's MOIRA model.

171. This is discussed in more detail in section 8.3 of the April 2012 report, *Model Development and Baseline Report*, a technical report prepared for HS2 Ltd by MVA Consultancy together with Mott MacDonald and Atkins. Appendix 6 of that Report presents the results of the validation checks, including those using passenger counts data. **[DB/4/75/2302]**

Why was the passenger count data not used more fully in HS2 Ltd's forecasting?

172. The planning, development and construction of a high speed rail network such as HS2 is a major project expected to take more than 20 years to complete. The lifespan of such a network once complete and in operation is much longer still, potentially lasting for many decades or more. The purpose of HS2 Ltd's modelling therefore is to generate a robust assessment of changes in demand for passenger rail over a long period. In doing so, it has to look well beyond short- to medium-term rail industry planning horizons – for example, the 5-year planning periods which underpin the regulatory process for the rail industry – in order to make an assessment of demand growth over several decades.

173. Long-term rail demand forecasting of this kind must look not only at changes in demand over time but also at the drivers of those changes (such as population growth, economic factors, fuel prices etc), with a view to understanding the long-term relationships between them – both individually and in aggregate. Once those relationships are understood, forecasts of how the drivers will change in future (such as the Office of Budget Responsibility's forecasts of GDP growth) can be used to make an estimate of how rail demand may change in future.

174. The Department for Transport adheres to best practice in making forecasts of this kind, which is using long time series wherever possible to establish the relationships (the elasticities) between drivers of demand and demand. To provide an example of the length of the time series of data required when carrying out research and analysis of this kind: the Department has recently published a study which considers alternative approaches to the long-term forecasting of rail demand and which uses demand data from the period 1990/91 (as far back as appropriate data exists) to 2007/8. Moreover, the Department intends to update, and therefore further lengthen, this dataset in future.

175. If a long-term approach of this kind is not followed, a significant risk is created that specific short-term issues distort the data and conceal the long-term trends which are intended to be identified. Long-term trends in demand growth may be temporarily interrupted, for example, by macroeconomic factors such as a period of slower economic growth or by more localised

events such as lengthy and disruptive engineering works which discourage passengers from travelling.

176. The available passenger counts information would not enable a long-term approach of this kind to be taken. Minimal data for the West Coast Main Line is available before 2009, and it would be neither robust nor appropriate to use data relating to such a short time series to derive any long-term trend. This is further exacerbated by the unusual economic circumstances of the last 4 years. In addition, the passenger counts information does not provide a comprehensive picture of passenger travel on the rail network, as is provided by the LENNON data, and, while the quality of the data has improved significantly, the data in the early years is less robust and would be unlikely to be of sufficient quality for forecasting purposes.

177. In contrast, because this data is derived from a different source to the LENNON data, it is of use for validation purposes. To provide a robust validation, HS2 Ltd used two data sources:

- the passenger counts data, which is less accurate than LENNON but is an independent data source; and
- outputs from the MOIRA model, which is not fully independent as it uses the same LENNON data as PLANET, but has been developed for a different purpose and hence processes it in a different way.

178. Paragraph 8.3.3 of the 2012 *Model Development and Baseline Report* by MVA summarises the strengths and weaknesses of the passenger counts data:

> "Guards' counts data represents a further data source, and unlike MOIRA it is an independent data source; however, these data are likely to be less accurate than the LENNON data used to create [PLANET Long Distance]. As with MOIRA these data provide a useful validation check of PLD." **[DB/4/75/2278]**

179. For these reasons, while it is appropriate for HS2 Ltd to have used passenger counts data as a validation check for its modelling, it would not have been appropriate or robust to use it as a basis for demand forecasting.

Confidentiality of Passenger Counts Data

180. As I explained in my first Witness Statement, Rail Franchise Agreements between the Department and train operating companies ['TOCs'] require TOCs to provide counts of the number of passengers using rail services to allow the Department to monitor crowding levels.

181. In March 2009, the Department for Transport consulted the TOCs over the specific issue of data confidentiality and data access/sharing with reference to the passenger counts information they are required to provide to the Department. This led to signed agreements between the TOCs and DfT's Rail Statistics team confirming that DfT should not publish passenger loading/guards' counts data or pass such information to third parties. The following exceptions apply, where the Department may under the terms of the agreements distribute or publish such data:

(1) If the TOC confirms in writing that specific data provided can be released to a wider audience.

(2) Use of specific data to compile aggregated statistics for use in a format agreed with the TOC.

(3) Provision of specific data to a third party working on behalf of the Department for a specified project, provided that the third party agrees in writing that such data will be treated in confidence and will not be used for other than the specified purpose.

182. Train operating companies (TOCs) give a number of reasons for regarding their passenger loading (count) data to be commercially confidential. The Association of Train Operating Companies has written to the Department for Transport setting out some of the industry's concerns in relation to the commercial confidentiality of this data. A copy of this letter is provided to the Court at **[DB/4/81F/1276]**

183. The claimants have argued that the data relating to Virgin West Coast services in particular cannot be considered commercially confidential as it has been made available to bidders for the West Coast franchise, which is in the process of being relet. In fact, such data is provided to shortlisted bidders only and under strict confidentiality terms – with the particular proviso that the data are to be used for the sole purpose of compiling a commercial bid for the franchise. The data are not allowed to be retained by bidders. The value of this data in making bids of this kind further emphasises its commercial value and hence the need for confidentiality.

184. Operators do not accept that data prior to 2011 is outdated (and therefore of limited value). Although, as described above it would not be appropriate for use as the basis for long-term forecasting, by establishing short-run trends within the historic data it would be possible to make estimates of current demand, and of potential short-term patterns in demand growth, which could be harmful to TOC interests. For some TOCs, the pattern of services will have remained largely unchanged in recent years and for this reason patterns of demand seen in previous years would still be relevant now.

185. Finally, this passenger count data is collected by the operators at their cost and are therefore 'owned' by them. It is shared with DfT only as a contractual requirement. The data is not in the public domain and third parties would not typically be allowed access to trains or stations to collect this kind of data.

How the Department for Transport has handled requests for data of this kind

186. The Department for Transport has over recent years received a number Freedom of Information requests for data of this kind. In many cases, these have been unrelated to HS2.

187. The Department has maintained a consistent position that this data should not be released because it is commercially confidential and because the public interest does not favour releasing it.

188. The reasons why the data is considered commercially confidential are set out above. The public interest test relates not only to the immediate confidentiality of specific datasets, but also to the broader potential impact of release on the Department's overall relationship with the TOCs and on the quality of information available to it with which to plan its transport policies.

189. A key issue is that DfT is in the process of procuring a centralised passenger counts database. The database will provide data across the rail industry for management information and planning purposes. It is being developed with the voluntary assistance of the TOCs on the condition that the data they make available for the database is not made public in such a way that there could be damage to their financial positions or reputation. The quality and detail of the information that the Department receives on a confidential basis from the TOCs has improved substantially in recent years, because operators have been willing to provide supporting information to clarify the data. In participating in the database project, TOCs have agreed to make significantly more data available to the Department in future. This has been made possible by establishing good working relationships through an understanding of the TOCs' views about the confidential nature of the data.

190. In light of the concerns raised by ATOC in its letter to the Department, there is a real risk that they will stop supplying any information that they are not obliged to under the terms of their Franchise Agreements with the DfT. Franchisees may revert to only providing the bare minimum that their franchise agreement requires. The database will not be a success with this amount of data. This would have an impact on DfT's ability to carry out its policy and planning functions, and would limit the information available to the Department when franchises are being let. Therefore, it is likely that the release of passenger loading information of this kind, given the assurances provided by the Department to the TOCs, would be likely both to damage the commercial position of the TOCs, and, by adversely affecting DfT's working relationship with the rail industry, would impair the effectiveness of its policy-making.

191. In the present case, DfT received a Freedom of Information request for passenger loading data in a letter from Cllr Martin Tett to the Secretary of State for Transport dated 30 September 2011 **[CCB/1/5/321]**, some two months after the consultation period ended. The Department considered that request under the terms of the FOI Act and did not release the data. A review of that decision was requested and was undertaken by the Department. The review upheld the original decision.

192. Subsequently, the Claimants requested data of this kind – covering 'existing passenger loadings' on the West Coast Main Line and East Coast Main Line – in their Pre-Action Protocol Letter in relation to the current claim from Buckinghamshire County Council and associated Local Authorities. The Treasury Solicitors responded on behalf of the Department on 23 March 2012 **[CCB/1/3/203]**, indicating where publicly available information on passenger loadings could be found, but not releasing the data in question for reasons of commercial confidentiality.

193. A further request for this data was then made by the Claimants in a letter from Harrison Grant Solicitors dated 11 April 2012 **[DB/4/81E/2471]**. This made the additional proposal that "if necessary … restrictions can be put in place so as to control the use of the information at the hearing."

194. On the basis of this proposal, the Department spoke to the relevant TOCs regarding the release of this data. In the course of those discussions, the TOCs made clear their strong reservations regarding the release of such data. However, the Department was able to propose and agree terms on which basis it was able to secure the agreement of Virgin Trains, London Midland and East Coast Trains to the disclosure of this information to the Claimants. The Treasury Solicitor wrote to the Claimants on 27 April 2012 **[DB/4/81E/2473]** agreeing to the release of the information under these conditions, and the data sets have been released. The Department has subsequently agreed with the relevant TOCs to relax those conditions in order that the information can also be reviewed by the claimants' expert advisor.

195. On 22 May 2012 **[DB/4/81E/2474]**, the Claimants expanded the scope of their request to cover not only data on existing passenger loadings, but

also historic data relating to passenger loadings in 2008, 2009 and 2010. On 1 June 2012, an application for a disclosure order was made in relation to this information by the Claimants.

196. In the light of the evidence I have given in paragraphs 159 to 195 above, the Secretary of State continues to resist the Claimants' request as being unnecessary and unjustified.

The February 2011 Assessment of Current Demand

197. A further argument that has been made by the claimants is that the passenger loading data would not support the Secretary of State's statements in the February 2011 Consultation Document regarding present levels of crowding on the national rail network.

198. Current levels of crowding are only briefly mentioned in this document. This reflects the fact that the Secretary of State's reasons for promoting HS2 in relation to capacity, which are based upon long-term forecasts of demand. Current crowding levels are only indirectly relevant. I have explained in the previous section the limited role of the passenger loading data in question in deriving those forecasts of future demand and why the approach taken was appropriate.

199. The sections on current crowding levels in the February 2011 Consultation document were based on the information provided in the relevant Route Utilisation Studies ('RUSs') published by Network Rail – notably the *West Coast Main Line RUS Draft for Consultation* (published in December 2010)**[DB/4/81B/2444]**; the *East Midland RUS* (published February 2010)**[DB/4/81B/2430]**; and the *East Coast Main Line RUS* (published February 2008)**[DB/4/81B/2421]**.

200. The Consultation Document makes 5 specific statements about current levels of crowding. The evidence from which they were drawn is explained below:

- *Despite the capacity increases provided by the West Coast Route Modernisation programme, long distance services on this route*

regularly see passengers standing for a significant portion of their journey, particularly in peak hours and at other popular times. (Paragraph 1.41)

Figure 3.16 on page 48 of the West Coast Main Line RUS Draft for Consultation shows Network Rail's assessment of the numbers of long-distance trains to and from Euston carrying standing passengers. **[DB/4/81B/2453]**

This shows that trains carrying standing passengers into or out of Euston are a daily occurrence. On a standard weekday the graph shows 20 trains with load factors on average in excess of 80 per cent, one of which shows a consistent load factor above 100 per cent. As the report notes, these average load factors are likely to hide significant variation and hence many still more crowded trains). The report indicates that these figures are substantially higher on Fridays, and the text accompanying the graph (on page 49) also explains that higher levels of passenger demand for rail travel are seen on school holidays and weekends. This is a regular pattern of crowded trains.

The crowding and regular pattern of standing passengers on long-distance services from Birmingham to Scotland discussed below is also relevant.

The data underpinning the graph excludes trains on which high load factors occur for short periods of time (less than 20 minutes).

Long-distance passenger demand on the WCML has continued to increase since this data was collected, so current crowding levels would be expected now to be higher.

- *Crowding is not only a feature of services to and from London on this route – more than a quarter of trains between Birmingham and Scotland, for example, carry standing passengers for part of their journey. (Paragraph 1.42)*

  Page 49 of the West Coast Main Line RUS Draft for Consultation states that 27 per cent of long distance services between

Birmingham and Glasgow have passengers standing for some part of the journey.**[DB/4/81B/2454]**

- *Long-distance services on the East Coast Main Line also suffer from significant overcrowding, with passengers often having to stand in peak hours. The numbers [SIC] of standing passengers is particularly high between London and Peterborough, but the busiest services regularly carry standing passengers as far as York or Leeds. (Paragraph 1.43)*

  Page 30 of the East Coast Main Line RUS states that "[Long-distance] services suffer from significant over-crowding at certain times. On the busiest trains it is not uncommon for passengers to have to stand, especially between London and Peterborough, with an average current peak loading between 70 and 80 per cent in this area. Standing can extend to Leeds or York or further on busy weekend trains."**[DB/4/81B/2429]**

- *On the Midland Main Line, almost half of all long distance trains arriving into St Pancras International in the peak have passengers standing. (Paragraph 1.43)*

  Figure 3.8 (page 33) of the East Midlands RUS shows 6 out of 13 peak long-distance services into St Pancras International carrying standing passengers. **[DB/4/81B/2443]**

- *This pattern of rising demand and increasing crowding on long distance services is underpinned not only by growth in inter-city travel, but also by significant increases in usage of these services by commuters from towns such as Milton Keynes, Northampton, Peterborough, Rugby and Kettering … In the last ten years, for example, there has been an 88 per cent increase in demand from Rugby.*

  Growth in passenger journeys to Northampton and Rugby between 1999/2000 and 2009/10 is set out in Table 3.7 on page 38 the West Coast Main Line RUS Draft for Consultation **[DB/4/81B2452]**. On the same page it is also stated that demand has grown on shorter distance routes, including to Milton Keynes.

Growth in passenger journeys to Kettering (and other key destinations on the Midland Main Line) is set out in Table 3.2 on page 31 of the East Midlands RUS. **[DB/4/81B/2441]**Growth in passenger journeys to Peterborough is set out in Figure 7 on page 29 of the East Coast Main Line RUS.**[DB/4/81B/2428]**

201. It has been argued by some of the claimants that these statements, especially in relation to the West Coast Main Line, are incorrect because the passenger loading data indicate that these crowding issues could, in their view, easily be resolved. The aim of this part of the February Consultation document, however, was to state factually the current situation, not to discuss potential short- to medium-term options for resolving any immediate crowding issues.

iv) How the Government intends to take HS2 forward

202. This section of my statement explains how the Secretary of State's intends to take forward the HS2 proposal, as set out in Part III of the Decisions Document. **[CJB/4/18/1493]**

203. HS2 Ltd will continue as the organisation responsible for taking forward HS2, and will move from their previous advisory role to the promoter of the HS2 project. On 11 January 2012, following the announcement of the Government's decisions on HS2, the Secretary of State wrote to the Chairman of HS2 Ltd to set out the company's new remit. **[DB/4/68/2114]** [27]

204. The Secretary of State, through HS2 Ltd, will take forward HS2 in two separate work streams, Phase 1 of the network from London to the West Midlands, and Phase 2 of the network from the West Midlands to Manchester and Leeds.

Phase 1

205. The Secretary of State intends to introduce a hybrid bill to provide the necessary powers to construct and operate the first phase of HS2. Paragraph 5 of Part III of the Decisions Document sets out the activities that

[27] http://hs2.org.uk/assets/x/80237.

will be undertaken in order to achieve introduction of the bill by the end of 2013**[CJB/4/68/2114]**. A summary of these follows.

206. HS2 Ltd will develop the detailed design of the route from London to the West Midlands, and will carry out an environmental impact assessment, to enable the production of a draft Environmental Statement. This will be publicly consulted on in spring 2013, prior to the hybrid bill being introduced by the end of 2013 supported by an Environmental Statement.

207. Directions will be developed to safeguard the route from London to the West Midlands. The process of safeguarding is described in section xi) of my statement. Subject to consultation, which is planned to begin after Parliament returns in September 2012, the route will be safeguarded, at which time statutory blight provisions will be available to property owners within the safeguarded area.

208. Alongside the safeguarding of the route, and to the same timetable, the Government will develop and consult on a package of discretionary measures to supplement statutory compensation arrangements for property-owners affected by HS2.

209. HS2 Ltd has set up a number of forums through which interested individuals or organisations can participate in the development of the project, including Community Forums for each local area along the route. Information about the forums is published on HS2 Ltd's website[28] and on the consultation website[29]. This engagement programme is discussed in Alison Munro's witness statement.

210. HS2 Ltd will also continue to advise the Government on the costs and benefits of the London to West Midlands line, including updates to the economic case.

Phase 2

[28] http://hs2.org.uk/consultation-engagement
[29] http://highspeedrail.dft.gov.uk/

211. In March 2012 HS2 Ltd submitted their advice to Government on the options for routes and stations for Phase 2 from the West Midlands to Manchester and Leeds. I refer to the Secretary of State's 27 March 2012 statement. **[DB/4/73/2187]**

212. The Secretary of State intends to publish the advice in autumn 2012 with her response setting out the Government's initial proposed route and station options.

213. As part of its advice on route and station options, HS2 Ltd is undertaking a sustainability appraisal of the options and advise on their environmental impacts. HS2 Ltd will also continue to develop the economic case for phase 2 and the Y network.

214. A formal public consultation exercise is planned to begin no later than early 2014, with the Department currently exploring whether it can be brought forward to begin in 2013.

215. At the time of publishing the proposed route for phase 2, the Government will also consult on appropriate package of discretionary compensation measures for property owners affected by the proposals.

216. Following and subject to the public consultation exercise, if the Secretary of State decides to proceed with the proposed route for phase 2, she will then begin preparations to introduce a second hybrid bill.

v) The use of hybrid bills and the process envisaged

217. This section of my statement sets out the Government's intention to secure powers for the construction and operation of HS2 through hybrid bills. I shall explain how through the Parliamentary process the Government intends to ensure the objectives of Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment ("the "EIA Directive") are met.

The decision to use a hybrid bill

218. Before construction and operation of the railway can commence, the Government must first obtain the necessary development consent and legal powers. The Government intends to secure these powers through parliamentary bills.

219. There are two classes of bill – public and private. *Erskine May: Parliamentary Practice*, the definitive guide to Parliamentary practices and procedures, says that:

> "[public bills] relate to matters of public policy and are introduced directly by Members of either House. Private bills are bills for the particular interest or benefit of any person or persons, public company or corporation, or local authority, and are promoted by the interested parties themselves by means of petitions deposited in accordance with the standing orders relating to private business" (Erskine May, (2011), **[DB/4/81A/2412]**.

220. Where a bill relates to matters of public policy and is also of interest or benefit to certain individuals or organisations, it shares characteristics of both public and private bills, and is known as a hybrid bill. Erskine May describes hybrid bills as:

> "public bills which are considered to affect specific private or local interests, in a manner different from the private or local interest of other persons or bodies of the same category, so as to attract the provisions of the standing orders relating to private business" **[DB/4/81A/2413]**

221. The hybrid bill process is suitable for the purposes of progressing the Government's high speed rail proposals, which are of national significance, but also affects specific parties differently – such as, for example, specific land and property owners. The use of hybrid bills to progress large transport infrastructure projects is well tested. A hybrid bill was used both for Crossrail and the Channel Tunnel Rail Link ("**CTRL**").

222. Page 37 of the Decisions Document states that the Government intends to introduce two hybrid bills to Parliament – one for each phase of the Y network:

"A phased approach to undertaking the necessary design, legislative and construction steps is the best way to ensure that the benefits of high speed rail are realised at the earliest opportunity. The Government will pursue a hybrid bill for each phase of the Y network. A single hybrid bill for the entire network would risk the overall delivery of the project." **[CJB/4/18/1421]**

223. The previous Government had proposed using a single hybrid bill. It believed that this would offer greater certainty of delivery of the full network, and could be achieved without delaying overall delivery (though it was acknowledged that it would mean that the initial London to West Midlands phase could not be delivered as quickly). This approach was also supported by a number of respondents to the 2011 public consultation.

224. The present Government's view is that seeking powers for the full Y network through a single hybrid bill would substantially increase both the difficulties of obtaining the necessary Parliamentary time and the risk of failing to achieve Royal Assent, due to the scale of such a bill. The time required to develop and consult on route proposals for Phase 2 of the network would also delay the achievement of any benefits from Phase 1, as it would hold back the introduction into Parliament of proposals for this initial phase and hence its subsequent development, construction and coming into operation. The Government is considering options to provide additional assurance in relation to the delivery of Phase 2 through the Phase 1 legislative process. The Government's consideration of these points is set out in more detail in section 6.3 of the *Review of the Government's Strategy for a National High Speed Rail Network*. **[DB/3/60/1816]**

225. The reasons for favouring a phased approach, with separate Bills for the London to West Midlands and Leeds/Manchester phases of the network, were explained in Chapter 3 of the Consultation Document, as follows:

- First, it would help to ensure rapid and early progress in developing high speed rail in the UK. Under the previous Government initial work was commenced on the London – West Midlands line which could now be taken forward rapidly;

- Second, the parliamentary processes for securing powers for the construction of new rail lines is likely to be complex and lengthy. Seeking powers at a later stage for the second phase of the network would help to reduce the scale of the task and speed up the commencement of construction;
- Third, developing a major piece of new infrastructure on this scale involves significant cost, so the impact on the public finances is best managed by a phased approach to construction;
- Fourth, constructing a national high speed rail network would represent a very major undertaking for the construction industry in the UK. By phasing the delivery of the proposed network, construction of the first phase could begin as Crossrail is completed. In this way, a clear pipeline of major rail-related civil engineering projects over two or more decades would be mapped out for the industry. **[CJB/1/11/561-563]**

226. The Government intends to introduce the hybrid bill for phase 1 into Parliament by the end of 2013. The timing of the bill's progression will be determined by Parliament, although the Department for Transport business plan aspires to the phase one Bill receiving Royal Assent by May 2015.

What will the hybrid bill achieve?

227. The hybrid bill will provide the powers necessary for the construction and operation of HS2, including (but not confined to):

- Providing development consent (for the purposes of the EIA Directive) for the railway;
- Providing powers to purchase land compulsorily and allow the extinguishment of private rights of way;
- Disapplying or modifying certain controls relating to Scheduled Ancient Monuments, Listed Buildings and Conservation Areas;
- Providing the right to deal with trees overhanging the railway where necessary and disapply or modify certain protections relating to trees;
- Modifying the application of the Control of Pollution Act 1974 and the Environmental Protection Act 1990 in relation to the railway;

- Setting out how the legislative framework of the Railways Act 1993 in relation to licencing, franchising, closures etc will apply to HS2;
- Disapplying or modifying controls relating to a range of issues such as burial grounds, ecclesiastical law, London Lorries Act, London Buildings Act etc;
- Providing for compensation for water abstraction and injurious affection, reinstatement of discontinued facilities, protection of interests, and devolution of functions from the Secretary of State.

Overview of the hybrid bill process

228. The Parliamentary procedure for hybrid bills includes elements of both public and private bill standing orders, reflecting the hybrid nature of the matter to which the bill relates.

229. As with a public bill, the principle of a hybrid bill is debated by the House of Commons at second reading. If the Bill receives a second reading it is then referred to a select committee. Membership of the select committee is usually chosen partly by the House and partly by the Committee of Selection, although there have been instances – including the Channel Tunnel Rail Link and Crossrail Bill – where all members of the committee have been nominated by the Committee of Selection.

230. The select committee hears petitions against the bill and scrutinises the detail of the bill. Any individuals or organisations that have *locus standi* (i.e. their property or interests are specially and directly affected by the bill, or they fall within the other categories for which the Standing Orders permit *locus standi*) may submit petitions against the bill and seek amendments. If the promoter of the bill considers that a petitioner is not "directly and specially affected" the promoter may object to the petitioner's right (*locus standi*) to be heard before the Select Committee appointed to consider the bill. In the case of a hybrid bill in the House of Commons, a promoter's objection to a petitioner's *locus standi* is heard at the beginning of the proceedings before the Select Committee appointed to consider the bill in the Commons.

231. An owner of land proposed to be compulsorily acquired has locus standi. This includes landowners whose land, although not proposed to be acquired, will be adversely affected by matters such as noise, dust, vibration

etc. In addition certain Standing Orders ("S.O.") of the House of Commons deal specifically with the *locus standi* of particular classes or groups of persons. The cases dealt with in Standing Orders relevant to HS2 are:

- any society or association "sufficiently" representing any trade, business or interest in a district to which the Bill relates where it is alleged in the petition that the trade, business or interest will be adversely affected by the Bill (S.O.95).
- bodies representing amenity, educational, travel or recreational interests where it is alleged in the petition that the interest they represent will be adversely affected to a material extent (S.O.95).
- a local authority (defined as being a county council, the council of a district, the council of a parish or group of parishes or the parish meeting of a parish which has no separate parish council, a London borough council and the Greater London Authority) of any area the whole or any part of which is alleged in the petition to be injuriously affected. (S.O.96).
- the inhabitants of an area of a local authority the whole or any part of which is alleged in the petition to be injuriously affected. (S.O.96).
- the Conservators having control, regulation or management of any forest, common or open space alleged to be injuriously affected by the Bill. (S.O.101).

232. The petitioning process itself is summarised in Erskine May:

> "The petitioner […] opens to the committee, calling such evidence as he wishes. If the committee determines that there is a case to answer, the promoters then answer the petitioner's case, and if they call evidence this entitles the petitioner to a right of reply". (Erskine May, (2011), **[DB/4/81A/2415]**

233. The Select Committee is unable to hear petitions against the principle of the bill unless the House has given an instruction or indication that they may do so:

> "The second reading is considered to remove from the promoters the onus to proving the expediency of the bill and committees have declined to hear evidence on the principle of the bill as

already endorsed by the House". (Erskine May, (2011) **[DB/4/81A/2415]**

234. In light of petitions received the Select Committee may recommend that the promoter of the Bill makes amendments to the scheme or provide commitments or assurances in relation to particular issues. Once the Select Committee has heard petitions and witnesses' evidence, it then returns the Bill to the House with any amendments that the promoter has agreed to in the course of its deliberations. The committee may also decide to communicate its views on the subject matter of the Bill by way of a special report to the House.

235. The public elements of the Bill are then debated further by a Public Bill Committee before entering the Report stage and Third Reading. The Bill then enters the House of Lords where it is subject to the equivalent steps and the same scrutiny, before receiving Royal Assent.

Environmental Impact Assessment

236. The EIA Directive includes an exemption (article 1(4)) for projects in which development consent is sought through an act of national legislation. The exemption applies "*where the legislative process has enabled the objectives pursued by the Directive, including that of supplying information, to be achieved, and the information available to the parliament at the time when the details of the project were adopted was equivalent to that which would have been submitted to the competent authority in an ordinary procedure for granting consent for a project*" (Case C-287/98 *Luxembourg v Linster*).

237. Standing Order 27A[30] ("**S.O. 27A**") requires bills authorising the carrying out of works to be accompanied by an Environmental Statement. This must contain such information as is reasonably required to assess the environmental effect of the works, and as the Promoter can reasonably be expected to compile. S.O. 27A requires that the ES be made available for inspection (see S.O. 27A(6)).

238. S.O. 27A does not lay down detailed rules for public participation on the ES (beyond requiring its availability for inspection) nor does it provide

[30] Standing Orders Relating to Private Business 27A

expressly for the consideration of the environmental information. The Crossrail proceedings show how these objectives of the EIA may be met in practice.

Crossrail

239. The Crossrail Bill and the Environmental Statement ("ES") were presented to Parliament on 22 February 2005. The Government invited the public to comment on the ES and ensured that all the relevant documentation was publicly available. The Government received 391 representations, and presented these to Parliament ahead of the Bill's second reading in Command Paper 6603 **[DB/1/4/80]**. This was to enable Members of Parliament to consider the ES and the comments received on it at second reading.

240. The principle of the Crossrail Bill, which specified terminal and intermediate stations, was debated by Members of Parliament during the Bills second reading in the Commons on 19 July 2005 **[DB/1/3/73]**. The House then instructed the Select Committee to consider the Bill, and to report back, without comment, on any issues relating to environmental impacts raised by petitions which the Select Committee was prevented from considering due to being outside of the principle of the Bill.

241. The House of Commons Select Committee heard 358 petitions against the Bill. In light of petitions, the Select Committee secured the Promoter's agreement to provide a range of assurances and undertakings, and make changes to the project which served in whole or in part to reduce environmental impacts. Examples of such assurances, undertakings and changes are provided in Annex B of this witness statement.

242. Following the Bill's second reading and during the Select Committee hearings, the Government introduced four Additional Provisions and provided further instructions enabling the Select Committee to consider these. The House also provided other instructions enabling the Select Committee to consider matters outside of the principle of the Bill, namely the extension of Crossrail to Reading and Ebbsfleet, and an intermediate station at Woolwich.

243. The Government prepared a number of supplementary ES identifying environmental impacts and mitigating measures relating to the four Additional

Provisions and other changes made to the Bill as a result of petitions. As for the main ES, the Government invited the public to comment on these.

244. Prior to the Bill's third reading, the Government presented the comments that had been received from the public on the supplementary ES to Parliament in command paper 7249[31]. It also, in command paper 7250, summarised the work that had already been carried out up until that time to assess, control, and mitigate the environmental impacts of the project.[32] The command papers enabled members of Parliament to consider the environmental impacts of the project (including amendments made to it and the representations of the public) prior to third reading of the Bill in the Commons. In this way, the environmental information was available to Parliament when it made the decision to grant development consent for the project.

245. To ensure that the project would be taken forward as set out in the ES, certain provisions were included in the Bill, and the Government gave undertakings to Parliament to comply with Environmental Minimum Requirements ("EMR"). Further information on the EMR is included in Annex B (paragraphs 15-18).

246. To ensure compliance with article 9 of the EIA Directive, the Government summarised its reasons for endorsing Crossrail (including the main factors taken into account, the main mitigation measures and the main benefits of Crossrail) in its closing submission to the House of Commons Select Committee **[DB/1/6A/165A]** and in Appendix A to Command Paper 7250 **[DB/1/14/260]**. The reasons were available to the House for consideration at third reading.

247. A more detailed description of the Crossrail Bill, including the approach taken to EIA and petitioning, is provided at Annex B.

Preparation for the High Speed Rail Bill

248. HS2 Ltd has completed an 8 week consultation from 5 April to 30 May on the scope and methodology for the ES for phase 1. The nature of this consultation was technical and, while open to all interested parties to

[31] **[DB/1/13/228]**
[32] **[DB/1/14/240]**

respond, specifically sought the comments of Natural England, the Environment Agency, English Heritage, the Association of National Parks Authorities, Health and Safety Executive, Coal Authority, the English Sports Council, the British Waterways Board, Highways Agency, Network Rail, Transport for London, and affected local authorities and councils. HS2 Ltd plans to publish the conclusions from this consultation and its finalised scope and methodologies in summer 2012.

249. The Government intends to publish the draft ES for phase 1 in Spring 2013 for an appropriate period of public consultation, allowing all interested parties to provide their views on the substance of the ES. The responses to this consultation will enable revisions to the ES to be made before it is then deposited in Parliament by the end of 2013, in accordance with S.O. 27A. Arrangements will be made for public participation in and consultation on the ES drawing upon the Crossrail procedures discussed above.

vi) The approach to consultation and the consultation process

The stages of consultation

250. Since the March 2010 Command Paper,[33] the Government's intention has been to consult on three separate issues:

- The strategic case for high speed rail in the UK;
- The overall strategy for a Y-shaped high speed rail network; and
- The detailed route of any specific line forming part of that network.

251. In theory, it would have been possible to consult on the first two issues in isolation, before moving on to consider and consult on any specific route, whether for the initial London to West Midlands phase or any other element of the network. However, doing so would have been likely to slow the process by which the project was delivered, delaying the achievement of the benefits which it would provide. From the point of view of those potentially affected by the proposals, it would also have delayed the point at which the route for the initial phase would have be decided, creating additional uncertainty and

[33] **[CJB/1/3/258]**

holding back the safeguarding process which would ultimately trigger the statutory blight regime.

252. The Government's view was that the consultations on the overall strategy and the route for Phase 1 should be run in parallel. This provided the opportunity at the national level for all consultees with a strategic interest to make their views known. Those consultees specifically affected by the proposed route for Phase 1 would also have the opportunity to make their views known to the Secretary of State about that route. This therefore was the basis for the 2011 consultation.

253. Public consultation covering proposed routes for Phase 2 to Manchester, Leeds and Heathrow will take place later in this Parliament. The aim of this consultation will be to provide those potentially affected by the proposed routes for Phase 2 with the opportunity to make their views known to the Secretary of State about those routes.

254. There will be further public consultation on both phases as part of the development of the route design and detailed assessment of environmental and other impacts. These include public participation in the EIA process and public consultation on the ES as part of the hybrid bill process. For phase 1 of the network this engagement will take place in 2012 and 2013, with public consultation in Spring 2013 prior to the introduction of the hybrid bill.

255. There will be public consultation on blight and compensation measures, on safeguarding of routes, and on the introduction of a construction code of practice.

256. The Government's assessment of the phased approach to consultation in the light of consultation responses is set out in more detail in paragraphs 8.3.2 to 8.3.6 of the *Review of the Government's Strategy for a National High Speed Rail Network* **[DB/3/60/1835]**

The scope of the 2011 consultation

257. The consultation asked seven questions, each of which related to a broad theme or themes. These were: **[DB/2/11/612]**

1. This question is about the strategy and wider context:
Do you agree that there is a strong case for enhancing the capacity and performance of Britain's inter-city rail network to support economic growth over the coming decades?

2. This question is about the case for high speed rail:
Do you agree that a national high speed rail network from London to Birmingham, Leeds and Manchester (the Y network) would provide the best value for money solution (best balance of costs and benefits) for enhancing rail capacity and performance?

3. This question is about how to deliver the Government's proposed network:
Do you agree with the Government's proposals for the phased roll-out of a national high speed rail network, and for links to Heathrow Airport and to the High Speed 1 line to the Channel Tunnel?

4. This question is about the specification for the line between London and the West Midlands:
Do you agree with the principles and specification used by HS2 Ltd to underpin its proposals for new high speed rail lines and the route selection process HS2 Ltd undertook?

5. This question is about the route for the line between London and the West Midlands:
Do you agree that the Government's proposed route, including the approach proposed for mitigating its impacts, is the best option for a new high speed rail line between London and the West Midlands?

6. This question is about the Appraisal of Sustainability:
Do you wish to comment on the Appraisal of Sustainability of the Government's proposed route between London and the West Midlands that has been published to inform this consultation?

7. This question is about blight and compensation:

Do you agree with the options set out to assist those whose properties lose a significant amount of value as a result of any new high speed line?

Delivery of the 2011 consultation

258. The consultation launched on 28 February 2011 and ran for 5 months, closing on 29 July 2011. The consultation period was substantially longer than the minimum 12 weeks advised in the Consultation Code of Practice. This reflected the importance attached by the Government to providing a range of opportunities for those potentially affected by the proposals to receive and consider information about them, as well as the complex nature of many of the issues under consideration. It was one of the biggest consultation exercises undertaken by the Department for Transport.

259. Information was provided to consultees in a suite of documents which were published at the start of the consultation, along with detailed maps of the proposed route from London to the West Midlands. These documents were:

- *High Speed Rail: Investing in Britain's Future*, the Consultation Document **[CJB/2/11/500]**
- *High Speed Rail: Investing in Britain's Future – Consultation Summary* **[DB/2/43/1278]**
- *The Economic Case for HS2: The Y Network and London to the West Midland* **[CJB/3/14/912]**
- *HS2 London to the West Midlands Appraisal of Sustainability* **[CJB/2/12/650]** and **[DB5/95-100A/1174-1770AG]**
- *Strategic Alternatives to the Proposed Y Network* **[CJB/3/13/884]**
- *HS2 Route Engineering Report* **[CJB/3/15/976]**
- *High Speed Rail: Investing in Britain's Future Equality Impact Screening* **[DB/2/44/1303]**

260. All the documents were available online. Hard copies of the Consultation Document and Consultation Summary could be ordered online or via a dedicated phone line. Hard copies of all documents were also placed in libraries along the proposed route and reference copies were available at

consultation events. A DVD containing all the documents and maps was also available to order or to pick up at consultation events.

261. A range of 53 factsheets were also made available during the consultation. The factsheets were designed as brief but informative summaries of key points of the consultation. As well as factsheets covering a range of thematic issues, a series of 15 'In Your Area' factsheets provided location-specific information for each section of the route. Factsheets were available online and at consultation events. **[DB/2/45-47/1308-1315]**

262. A dedicated website was set up for the consultation at http://highspeedrail.dft.gov.uk/. This website now provides information on current and future consultations but a record of the website as it was during the 2011 consultation is available online.[34]. The website hosted an online response mechanism as well as all the consultation information, documents, maps, factsheets, and the calendar of events. It also had a searchable map facility which allowed people to enter their postcode and see the line of the proposed route in their area and details of local events and relevant factsheets.

263. HS2 Ltd provided, and continue to provide, a dedicated enquiry phone line and email address where people can direct questions or comments.

264. To reflect the dual role of the consultation, as explained in paragraph 252 above, the consultation was publicised nationally with events held around the country, but more detailed information on specific local issues was made available along the line of the route along with a full programme of public events.

265. As part of the consultation DfT and HS2 Ltd held a programme of local roadshows covering 31 locations along the proposed route, at which people attending could talk directly to DfT and HS2 Ltd staff and expert consultants about the proposals. In total there were 41 days of events of this kind, which were a mixture of indoor exhibitions and mobile roadshows using a specially designed HS2 trailer which meant that smaller towns and villages without a

[34] http://webarchive.nationalarchives.gov.uk/20110720163056/http://highspeedrail.dft.gov.uk/

large indoor space could still have a local event. Overall there were over 28,000 visitors to the consultation roadshows.

266. In addition to the line of route roadshows, the Department held a series of regional seminars for civic and business stakeholders in the cities served by the proposed Y network. Each was attended by a Minister or senior Department official along with other speakers, and the seminars gave attendees the opportunity to discuss the consultation proposals or ask questions. The seminars were covered by relevant local and regional media.

267. A mobile information stand visited many stations along the West Coast Main Line and in cities served by the proposed Y network. This provided an opportunity to increase awareness of the consultation in those areas and provide information to rail users.

268. The Department and HS2 Ltd undertook a range of activity to publicise the consultation. At the start of the consultation the Secretary of State wrote to over 172,000 properties within 1km of the route (250m in tunnelled sections) to alert them to the consultation and the planned consultation events **[DB/2/41A/1202A]**. This broad corridor was chosen as it was considered that there was significant interest in the high speed rail proposals within the communities close to the line of route. It was not intended to indicate how many properties would be affected by the proposed route.

269. The consultation and accompanying local events were advertised in local newspapers along the line of route, and the consultation received significant coverage in national and local media during the consultation period.

270. People who wanted to take part in the consultation could respond in a number of ways. The online response mechanism was the primary method used, with around half of all responses received online. Hard copy response forms were also available, and could either be handed in at consultation events or posted to a freepost address. For consultees who didn't want to use the response form or answer the consultation questions, responses were accepted by letter or email. In addition, letters received by DfT or HS2 during

the consultation period either directly or via MPs or other departments were treated as responses where their content related to consultation issues.

271. Non-written feedback (for example conversations at consultation events) was not formally recorded; however after each event and throughout the consultation staff were encouraged to share feedback, including on particular issues or concerns at specific locations.

272. In this way, at the national level all consultees were given the opportunity to comment on the case for high speed rail in the UK and on Government's strategy, and local consultees and all others with a particular interest in the proposed route were also provided with the information and access needed to respond on specific line of route issues. Many of those living on or near the proposed route for Phase 1 also wished to respond on strategic issues, which can be seen in the consultation responses received. There was a wide geographical distribution of consultation responses received, including responses, for example, from every Parliamentary constituency in Britain except Orkney and Shetland.

Response analysis

273. The 2011 consultation received approximately 55,000 responses. Dialogue by Design ("DbyD"), an independent company specialising in consultations, was contracted by HS2 Ltd to analyse the HS2 consultation responses.

274. To analyse and report on the consultation responses, DbyD used a system of codes applied to the text of responses to capture the issues raised. This is a common method of analysing large numbers of consultation responses. A full description of the methodology used by DbyD is provided in Chapter 3 of the *Consultation Summary Report*. **[DB/3/55/1521]**

275. The results of DbyD's analysis are set out in the *Consultation Summary Report* **[DB/3/55/1491]**. This report was an independent product and formed one of the elements informing the Secretary of State's decisions. The scope and initial structure of the report and accompanying coding

framework were developed with the involvement of DfT and HS2 Ltd officials, who also reviewed the draft report commenting on factual accuracy and style. DfT and HS2 Ltd had no involvement in DbyD's analysis of responses.

276. As additional assurance of the quality of DbyD's methodology and analysis, HS2 Ltd commissioned an independent peer review of DbyD's work, which was carried out by the Consultation Institute **[DB/3/561721]**. This report is available online at http://hs2.org.uk/assets/x/85352. HS2 Ltd also carried out its own parallel coding of 400 responses and compared this to DbyD's analysis as a further quality assurance mechanism.

277. DbyD's final report (aside from final proofreading changes) was submitted to Secretary of State in late October 2011. The report was published in January 2012 as part of the suite of documents supporting the Secretary of State's decisions.

278. Additional analysis was carried out by DfT and HS2 Ltd officials of a number of responses from "key stakeholders", that is, organisations and individuals that had a particularly strong interest in the proposals, and where the Department considered it likely that their responses may contain significant new information or evidence on the proposals consulted on. These organisations and individuals fell into a number of categories, which included MPs; local authorities; business organisations; transport industry organisations; statutory bodies; and action groups opposing HS2. Amongst the responses read and considered as part of this analysis were those from 51M and a number of individual local authority members of 51M, and HS2 Action Alliance.

279. The list of responses reviewed in this way was not intended to be exhaustive. Neither was it intended to replace the full analysis undertaken by DbyD. The aim of the exercise was to ensure that the substantive content of the consultation responses submitted by these organisations and individuals, given their particular areas of interest or expertise, was captured and considered, in order to inform the advice underpinning the Secretary of State's decision making. The analysis focussed on issues raised by respondents, with particular emphasis on identifying new evidence. This was considered important as, while DbyD were due to report on all the issues

raised in the consultation, it was important that the Department became aware of new evidence as soon as possible so that it could consider whether any further work needed to be commissioned.

280. These responses were read by members of the relevant different teams across DfT and HS2 Ltd. The issues and evidence were recorded against a number of different themes. The themes were:

a) Strategy
b) Strategic alternatives
c) Engineering
d) Environment
e) Demand & appraisal
f) Property
g) Optioneering
h) Consultation
i) Funding & Financing
j) Region-specific issues

In some cases (for example Strategy) the analysis was split into a number of different sub-themed sections.

281. Many issues were found to have been raised by a number of respondents. Because the review focussed on issues rather than on whom they were raised by, once an issue had been captured from one response, it was not considered necessary to complete exhaustive lists of all respondents who had raised the same issue. The purpose of the exercise was to ensure that the issue was captured and taken forward for consideration.

282. Once recorded, the issues were reviewed by teams in DfT and HS2 Ltd with responsibility for the relevant themes. The information captured through this process was used in two ways: firstly to identify whether further work needed to be undertaken or commissioned from consultants; and secondly to inform preparation of advice to the Secretary of State to inform her decisions following consultation.

283. HS2 Ltd also carried out a detailed review of locality-specific comments made in the consultation. Where consultees referred to specific villages, towns, cities, roads, or areas of interest in their responses, DbyD gave these comments a location code. These location codes accounted for almost half the 2,000 codes used by DbyD in their analysis. A list of location codes is included as an annex to the Consultation Summary Report **[DB/3/55/1668]**. HS2 Ltd's engineering teams were provided with reports containing comments which had been given location codes. Along with other sources of information such as comments made at roadshows, they used these reports to develop a programme of local studies to consider options for mitigating impacts and enhancing the line of route. A number of specific proposals for changes to the alignment were considered as part of these studies. The results of this work are set out in the *Review of Possible Refinements to the Proposed HS2 London to West Midlands Route* report. **[CJB/4/20/1551]**

284. These analyses, including DbyD's response analysis, DfT and HS2 Ltd's parallel analysis of consultation responses from "key stakeholders", and HS2 Ltd's review of location-specific issues fed into the overall programme of work which informed the Department and HS2 Ltd's advice to the Secretary of State in support of her decisions following consultation. As set out in paragraph 52 above, a detailed record of this programme of analysis and consideration by DfT and HS2 Ltd was made available in the supporting documentation published in January 2012 alongside the Decisions Document.

285. As part of its overall review of high speed rail strategy, the Department reviewed the consultation process in light of comments made by consultees. This review is set out in chapter 8 of the *Review of the Government's Strategy for a National High Speed Rail Network* report. **[DB/3/60/1835]**

286. The Department's In House Analytical Consultancy has also carried out supplementary analysis of response data, mainly to provide additional geographical analysis as the geography of responses was only briefly touched upon in the *Consultation Summary Report*. This analysis was based

on DbyD's coding rather than the text of consultation responses. The resulting report may be found at [**DB/3A/70B/2181A].**[35]

287. In May 2012 it came to light that 407 responses which had been received by email on the last day of the consultation period had not been passed to DbyD for analysis, and so had not been included in DbyD's *Consultation Summary Report*. This was due to an error in the electronic transfer of one batch of emails from a DfT email account to HS2 Ltd.

288. While email was not one of the response channels set out in the Consultation Document, the Department did accept consultation responses which were sent by email (see paragraph 270 above). Around 4,000 responses to the consultation were submitted to the 'highspeedrail@dft.gsi.gov.uk' email account, which was managed by the DfT high speed rail team. This was an existing email account, not created specifically for the consultation, which also received emails unrelated to the consultation.

289. The first 1,228 responses to this email address were individually logged by DfT in a spreadsheet and made available electronically to HS2 Ltd through a shared folder to which both parties had access. These responses were printed by HS2 Ltd and then transferred to DbyD. Due to high numbers of emailed submissions, however, this process was reviewed and a change was made so that responses were printed directly by DfT and handed over in hard copy to HS2 Ltd to pass on to DbyD. The original DfT log of emails was not maintained, but instead each batch of responses was saved in an individual folder within the email account.

290. In the final few days of the consultation period, the number of emailed submissions being made rose significantly. In response to this, after 25 July, a new procedure was adopted. This was for responses to be copied onto a secure memory stick and taken to HS2 Ltd who printed them before being handed over to DbyD. This meant that the printing process could be carried out by HS2 Ltd who had more staff resources available for this task. Batches of responses continued to be saved in folders in the email account.

[35] http://www.dft.gov.uk/publications/hs2-supplementary-analysis/

291. The omitted responses were received on the last day of consultation, when there was a particular peak in response activity. DfT and HS2 Ltd cannot identify whether the missing emails were not transferred to the memory stick, or whether having been transferred to the memory stick they were not printed and sent to DbyD. However it is clear that these responses never reached DbyD as intended.

292. On discovering the error, HS2 Ltd carried out quality assurance checks of 100% of all the emails in the affected batch, and 10% of emailed responses in all other batches. These checks indicated that the only missing responses were from the affected batch, and there was no indication of any systemic failure of the transfer process. The most likely explanation is that the problem was caused by human error.

293. The 407 responses were a mixture of campaign responses (responses with the same or very similar text), short emails of less than one page, and more detailed responses of two pages or more, from a mixture of individuals and organisations. In particular, the batch included:

a) a response from HS2 Action Alliance (a separate response was also submitted covering Q7 only and was included in DbyD's analysis);
b) a response from Cherwell District Council (a member of the 51M Group); and
c) a response from Heathrow Hub Ltd (a separate summary response from Heathrow Hub Ltd was submitted online and was included in DbyD's analysis).

294. Separate to the error with emailed responses, a further issue was brought to DfT's attention in June 2012 relating to responses from Jeremy Wright MP and the Offchurch action group, which also appeared to have been omitted from DbyD's analysis. Investigation by DbyD has shown that this issue occurred because of a manual error by DbyD in which two identical responses from the same source were both marked as duplicates, rather than just one, meaning that neither response was analysed by DbyD. Once this issue had come to light, HS2 Ltd commissioned DbyD to perform a full audit

of all responses that had been marked as duplicates. A further four responses were found where both copies had been marked as duplicates, meaning that a total of six responses had been affected by this error.

295. In summary then, 413 responses in total were found to have been omitted from DbyD's analysis: 407 because of the error in transferring a batch of emails, and six because of the error in identifying duplicate submissions.

296. It should be noted that these errors only affected the analysis carried out of consultation responses by DbyD. They did not affect the additional reviews of responses from 'key stakeholders' which were carried out by the Department for Transport and HS2 Ltd (see paragraphs 278 to 283 above).

297. A number of the responses that were not transferred to DbyD, including those submitted by the HS2 Action Alliance and by Cherwell District Council, were nevertheless included in these reviews of 'key stakeholder' responses. The issues and concerns they raise were therefore taken into account in the advice considered by the Secretary of State prior to taking her decisions in January 2012.

298. In the case of HS2 Action Alliance's response, in my role as the Deputy Director responsible for High Speed Rail Strategy, I and members of my team read and considered relevant sections of this response – in particular, the chapters dealing with Questions 1, 2 and 3 of the consultation. The points made and issues raised in these sections were taken into account in developing the programme of post-consultation work and analysis whose results are set out in the *Review of the Government's Strategy for a National High Speed Rail Network* **[DB/3/60/1761]** and both elements (the *Updated Appraisal of Transport User Benefits and Wider Economic Benefits* **[DB/3/63/1926]** and the *Value for Money Statement* **DB/3/64/1993]**) of the updated *Economic Case for HS2*. Both these and other sections of the HS2AA response were also read and considered by other officials in DfT and HS2 Ltd. Other documents, including for example the *Review of Property Issues* **[DB/3/66A/2070]***, the Review of the HS2 London to West Midlands Appraisal of Sustainability* **[CFS1/BB/1153]** and the *Review of the Technical*

Specification for HS2 **[DB/3/65/2036]**, reflect points made by the HS2AA in its response.

299. In the case of Cherwell District Council's response, this was also reviewed by both DfT and HS2 Ltd. This review considered both the location-specific issues raised by the Council, and also more strategic issues, such as concerns about the line speed used in the design of HS2 and about the proposed operating hours for the railway. It was noted that the Council supported the consultation response made by the 51M Group.

300. The response from Heathrow Hub Ltd was not read by officials during this process. However, as noted at paragraph 293 above the company had submitted a separate summary response which was not affected by any handling error and was included in the formal analysis by DbyD.

301. Heathrow Hub Ltd, and its former parent company, Arup,[36] have also engaged with the Department and HS2 Ltd on a regular basis throughout the development of the HS2 project, including presenting directly to Ministers. Their proposal that the HS2 line should follow a route directly via Heathrow and serve the airport by means of a new hub station at Iver was familiar to me and to other officials, and has been considered by successive Secretaries of State. I discuss the Government's consideration of this proposal, and the extensive engagement with Heathrow Hub Ltd and Arup in section x) below.

302. Both HS2 Action Alliance and Heathrow Hub Ltd gave evidence to the Transport Select Committee enquiry which took place in 2011 during and shortly after the consultation process. This was a further opportunity for them to set out their position, and the evidence (both oral and written) that these organisations gave to that enquiry was considered by the Department for Transport.

[36] Throughout the consultation period and until 1 September 2011, Arup owned 83 per cent of the shares of Heathrow Hub Ltd. On 2 September 2011, these were sold to Stephen Costello, as were shares held by Berwin Leighton Paisner LLP, at which point he became the sole owner/shareholder. See Arup Group Financial Statement 2011, page 16.

303. Following discovery of the omission of these 413 consultation responses, DbyD were asked to carry out an additional analysis all of the omitted consultation responses.

304. The first purpose of this additional analysis was to ensure that any issues raised by these responses that had not been identified in the C*onsultation Summary Report* were noted and communicated to DfT and HS2. The second purpose was to ensure that, even where no new issues were raised, consideration was given to whether the inclusion of these responses would have changed the balance or conclusions of DbyD's *Consultation Summary Report*.

305. DbyD's final report on this additional analysis was provided to DfT and HS2 Ltd in July in the form of an Addendum to their original Consultation Summary Report (the "DbyD Addendum"). **[DB3A/74/2189]**

306. The DbyD Addendum concludes that the additional responses "do not provide any information that was not already included in the previous Consultation Summary Report or would have made a difference to the substantive content or balance of that report" **[DB/3A/74/2197]**. Their inclusion in DbyD's original review of responses would not have substantially changed its findings.

307. With one exception, all the issues in the additional responses were able to be coded using the existing coding framework. The exception related to location codes, where twenty new location codes (see paragraph 283 above) were created. The references to these locations in the omitted responses would not have been included by DbyD in their reporting. This was because they had not been identified by sufficient respondents. However, as with other location references, HS2 Ltd is making them available to its design teams. This is consistent with the previous approach to locations, which was to individually code all location references, even where they were not referred to in the Consultation Summary Report.

308. As noted above, several of the omitted consultation responses were detailed reports. In some cases they include substantial detail on particular

issues, at a greater level of detail than that included in the commentary in the Consultation Summary Report. DbyD therefore also provided DfT and HS2 Ltd with a note setting out this additional detail. **[DB/4/73A/2188A]**

309. Officials from DfT and HS2 Ltd reviewed the DbyD Addendum, DbyD's additional note about the detailed comments in these responses, and in the case of a number of the more detailed submissions, the responses themselves.

310. Having considered the DbyD Addendum, the additional note by DbyD referred to above, and the review by officials, the Secretary of State concluded in a Written Ministerial Statement on 17 July 2012 that:

> *"Inclusion in the original analysis would not have changed the substance of Dialogue by Design's findings, nor affected the considerations which informed me in taking my decisions following the consultation."* **[DB/4/75/2227]**

311. The DbyD Addendum was published shortly after the Written Ministerial Statement on 20 July 2012.

312. The DfT Director of High Speed Rail Policy, Martin Capstick, wrote to all respondents affected on 20 July 2012 to explain what had happened and to apologise for this error. **[DB/4/75A/2227A]**

The Government's position on reconsultation in respect of route changes and of the Optimised Alternative

313. Following the close of public consultation, HS2 Ltd advised the Department and Secretary of State on potential alterations which could be made to the route in light of consultation responses **[CJB/4/20/1551].** As part of the consideration of these potential alterations, consideration was also given to whether the alterations, either individually or as a package, would be substantial enough to require reconsultation.

314. The potential alterations were for the purpose of further mitigating the impacts of the route. Their overall effect would be to reduce the number of properties affected by the high speed line. The changes proposed were all in response to concerns raised in the consultation. The majority of the amendments were to the vertical alignment of the railway (that is, lowering or raising the line) and did not alter the distance of the line from individual properties.

315. The Department recognised that in a very limited number of cases the amendments might lead to a more significant change of impact on a particular property. Certain properties might now require demolition which had previously been located just beyond the line of the proposed route on the plans published for the 2011 consultation. The reasonable expectation was that such properties would be significantly affected by the construction or operation of the railway in other ways. Given their location, the occupiers of such properties would have been notified in writing at the start of public consultation in February 2011 (see paragraph 268 above). **[DB/2/41A/1202A]**

316. The Department's conclusion was that the package of alterations the Secretary of State decided to introduce did not so significantly change the proposals consulted on in February 2011 as to require reconsultation.

317. The Optimised Alternative had been published by the 51M Group during the consultation period and had been referred to in a number of consultation responses. It was also a variant on a proposal, RP2, which as I have explained had been available for consideration since March 2010. There was no reason to re-consult on the Optimised Alternative.

vii) The Development of the HS2 Phase 1 route

318. This section of my witness statement explains how the route for the first phase of HS2 from London to the West Midlands has been developed and refined throughout the period from the beginnings of the project in January 2009 through to the decisions announced in January 2012, and that it will continue to be further refined as the project progresses.

319. HS2 Ltd's work on the route began in 2009 by generating options and assessing them against a number of strategic, technical and sustainability criteria in a three stage sift process. Through this process HS2 Ltd developed a recommended route, known as Route 3. Their December 2009 report to Government describes the recommendation, how it was reached and the criteria that were used. **[DB/1/24/349]**

320. HS2 Ltd's recommendation was considered by the Secretary of State and the March 2010 Command Paper **[CJB/1/3/258]** set out the Government's response, which was to broadly agree with the recommendation, subject to further work being carried out to reduce specific impacts on the local environment and communities.

321. In October 2010, after having undertaken a programme of visits to the line of the route endorsed in the Command Paper, the Secretary of State asked HS2 Ltd to consider and provide further advice on options for refinements or mitigation to the route in order to reduce the impacts on the environment and communities. **[DB/2/37/1139]**

322. HS2 Ltd's advice is set out in a series of reports which they presented to Government in November and December 2010.[37] They recommended a number of changes to the route alignment together with other proposals for mitigation measures to reduce impacts where changes to the route were not recommended.

323. On 20 December 2010 the Secretary of State announced the Government's proposed route for consultation **[DB/2/40/1148]**. The proposed route broadly followed the 'Route 3' corridor recommended by HS2 Ltd in its December 2010 report and endorsed by the March 2010 Command Paper, but a series of refinements were introduced along the line of the route to reduce its impacts. In total around half of the route was amended in some way, including changes in the Chilterns Area of Outstanding Natural Beauty, in the Aylesbury area, and near Lichfield.

[37] **[DB/2/32/1029], [DB/2/35/1118], [DB/2/36/1126], [DB/2/38/1141]**

324. As part of the February 2011 consultation, consultees were able to make comments about the proposed route and its impacts, propose alternative routes or alignments, and suggest mitigation measures.

325. Section 5 of Part B of Dialogue by Design's Consultation Summary Report sets out a summary of the views and evidence provided by consultees on the proposed route, alternatives, and mitigation measures. This includes information on each of the specific locations along the route mentioned by more than 50 respondents. **[DB/3/55/1580]**

326. The *Review of Refinements to the Proposed London to West Midlands Route* **[DB/3/60/1761]** gives a summary of the route refinements that HS2 Ltd considered and subsequently recommended to the Secretary of State.

327. The Decisions Document sets out the decisions on the route including the decision to accept all of the refinements recommended by HS2 Ltd. As a result a number of changes were made to the route, including introducing additional tunnelling to avoid surface impacts, and lowering the route into deeper cuttings in several places to reduce noise and visual effects. **[CJB/4/18/1475]**

328. Following the Secretary of State's decisions in January 2012, development of the route is continuing to a greater level of detail. There are expected to be opportunities for further mitigation as the route design and environmental assessment work develops. HS2 Ltd is undertaking a widespread engagement programme at national, regional and local levels to encourage interested parties to input further to the development of the route prior to the introduction of the hybrid bill.

viii) The terminus station at Euston

Remit and recommendation of HS2 Ltd

329. In January 2009 the Secretary of State remitted HS2 Ltd to develop a detailed proposal for a new line between London and the West Midlands, including '*options for access to central London*' **[DB/1/20/329]**. The remit

paper noted that the extension of an existing north London terminus station would be an option as well as an interchange with Crossrail on the Great Western mainline. **[DB/1/20/323]**

330. In its December 2009 report (Chapter 3.2), HS2 Ltd recommended that the preferred option was a redeveloped single-level station at Euston as the London terminus station. **[DB/1/24/411]**

331. In making its recommendation, HS2 Ltd considered the issue of passenger dispersal onto the wider transport network, including London Underground. Based upon its modelling work, HS2 Ltd noted that the contribution of HS2 to passenger demand on the Underground network from and to Euston was likely to be relatively limited when measured against the overall levels of passenger demand for travel on the Underground from and to Euston at and following the coming into operation of HS2. HS2 Ltd drew attention to proposals for increasing capacity on the Underground which formed part of emerging strategic policy promoted by the Mayor and Transport for London.

332. An interchange station with Crossrail at Old Oak Common in West London was also recommended by HS2 Ltd. This would, amongst other benefits, reduce passenger numbers alighting at Euston and associated congestion.

333. HS2 Ltd advised on how to take forward the next stage of design work including further dialogue with the London Borough of Camden on area planning and re-housing measures, further analysis on how to minimise disruption to existing services during construction, and additional work on passenger dispersal.

334. Dispersal of passengers onto the heavily used London networks would pose challenges in any central London location for a terminus station for HS2. Similarly in a city centre with high density of population, the major construction work required for any station option would mean impacts on the local area.

335. The Secretary of State's view was that on balance Euston was the most appropriate choice out of the options presented. It was a good strategic fit for the HS2 proposals, being located in central London and serving as a terminus for an existing inter-city line to northern destinations. An HS2 terminus at Euston would complement existing plans for the redevelopment of the Euston area and provide substantial regeneration benefits. The adverse impacts would be an inescapable element any option for a London terminus station, were able to be mitigated to an acceptable degree.

336. The Secretary of State's position, as set out in the Command Paper *High Speed Rail*, March 2010 , was to agree with HS2 Ltd that a London terminus for HS2 should be provided by redeveloping Euston station. This is discussed in paragraphs 6.2-6.12 of the Command Paper **[CJB/1/3/355]**. The Command Paper also set out the Secretary of State's view that an interchange station at Old Oak Common should also be included in the scheme.

Wider context

337. In judging that Euston was the best option for a London terminus station for HS2, the wider context of future plans for the area was an important consideration.

338. Euston is included as an Opportunity Area in the London Plan in both 2008[38] and 2011[39] **[DB/1/2/61] and [DB/2/52/1457]**. Opportunity Areas are areas within the capital with the capacity to accommodate new housing, commercial and other development. They are priority areas for redevelopment, regeneration and growth. The strategic policy direction for Euston in the London Plan states:

> *Euston is a major national and commuter rail terminal possessing good bus and underground links to the rest of the Central Activities Zone. The station airspace and adjacent areas are underused and have potential for intensification. There is scope to re-configure Euston Square Gardens and the bus station to enhance this space and the transport interchange*

[38] http://www.london.gov.uk/thelondonplan/docs/londonplan08.pdf
[39] http://www.london.gov.uk/priorities/planning/londonplan

*and also to develop the relationship with the adjacent university quarter.***[DB/1/2/67]**

339. The London Borough of Camden also recognises Euston as an important growth area and the redevelopment of Euston forms a key part of several objectives in Camden's Local Development Framework[40]. **[DB/2/41/1156]**

340. In considering Euston as the London terminus for HS2 the Secretary of State was aware of the wider plans for Euston's redevelopment. Rebuilding Euston station to accommodate HS2 will provide a significant opportunity to redesign the station and surrounding area in line with the Mayor and Camden's wider aspirations, and will be a positive catalyst for regeneration.

341. Plans for the area will be developed and taken forward through the Opportunity Area Planning Framework ("OAPF") for Euston. An OAPF is a supplementary planning document issued by the Mayor of London, and required by the London Plan, that provides a vision for how developments in an area designated as an Opportunity Area in the London Plan should address physical, social, economic and regeneration objectives. It will set out how existing London and Camden planning policies will apply to the area.

342. The Secretary of State has agreed that HS2 Ltd should provide funding of £370k over two years for development of the Euston to help ensure that the benefits and opportunities that HS2 will bring to the Euston area are realised as far as possible. **[DB/3A/70A/2181AI]**

343. Network Rail had already highlighted the need for redevelopment of Euston station, and plans were underway for its redevelopment prior to it being considered as a terminus for HS2 **[DB/1/6/165]**. Network Rail intended to redevelop the station to increase capacity and enable it to handle growing numbers of passengers using the West Coast Main Line. Even without HS2, this redevelopment would have been required in the same timescale due to

[40] http://www.camden.gov.uk/ccm/navigation/environment/planning-and-built-environment/planning-policy/local-development-framework--ldf-/

the growth in demand on the West Coast Main Line (see paragraph 6.5 of the March 2010 Command Paper at **[CJB/1/3/356]**).

Consultation and decision

344. The 2011 consultation set out the Government's case for high speed rail and the proposed route from London to the West Midlands, including the choice of Euston as proposed London terminus station. The Consultation Document highlighted both the benefits, in terms of job creation and regeneration, and disbenefits, including impacts on housing and open spaces, to the Euston area, and notes the main alternative options for stations considered and why these were not chosen. Annex B of the Consultation Document also set out the sifting process used by HS2 Ltd to select its recommended option in more detail. **[CJB/2/11/622]**

345. Information on Euston was also made available in other ways. A Euston area factsheet was published which summarised the information in the consultation document **[DB/2/45/1308]**. Three days of consultation events were held in and around Euston station, and a separate event with HS2 Ltd officials was arranged specifically for the residents of Regent's Park Estate (where it had not been able to hold a full mobile consultation event due to space restrictions).

346. The concerns raised in consultation responses from Camden, the Greater London Authority ("GLA") and others were considered following the consultation. However nothing raised in consultation responses was considered to affect the overall preference for Euston as the London terminus station. The review of the comments and evidence relating to Euston station is set out in section 5.2 of the *Review of Route Selection and Speed* report. **[DB/6/105/1978]**

347. In the Decisions Document, the Secretary of State's consideration of this matter is set out in paragraphs 5.29 to 5.31 **[CJB/4/18/1473]**. The *Review of Route Selection and Speed* states:

"*Should a decision be taken to proceed, we would work closely with Transport for London (TfL) as part of its ongoing strategy for modernising and improving Underground services … We would also continue to work with the London Borough of Camden to mitigate impacts in this area*." (Paragraphs 5.2.8-9) **[DB/6/105/2033]**

Impacts on local area

348. Redeveloping Euston station will allow for significant regeneration benefits as part of the expanded station footprint and any over-site development. It would also improve access routes through the station area. Other areas of London have seen substantial regeneration benefits flow from transport developments (for example at St Pancras International, Kings Cross, and areas served by the Jubilee Line extension).

349. Rebuilding Euston station with an expanded station footprint will require the demolition of four residential blocks in the Regent's Park Estate to the north-west of the existing station. These blocks have a mixture of social tenants, private tenants and owner-occupiers, across a total of 190 flats. There are additional properties in the Euston area which would need to be demolished bringing the total to 215. These requirements were set out in the Appraisal of Sustainability published for consultation in February 2011. Camden have expressed concerns that there are a number of other dwellings which they consider would either be required for demolition or rendered uninhabitable.

350. The Secretary of State recognises the scale of these impacts on the local community. She has made clear that HS2 Ltd will work closely with the community and with the London Borough of Camden ("LB Camden") to develop options to manage the impacts, particularly to ensure that high-quality social housing is provided to replace the demolished blocks. This is discussed in paragraphs 5.66-5.68 of the February 2011 Consultation Document **[CJB/2/11/606]**. It also discussed in the *Review of Property Issues*, which was published alongside the Decisions Document, and which states at paragraph 56 that:

"We are committed to working with all affected local authorities to agree a joint strategy, including thorough engagement with local people, businesses and communities, to provide new, high, quality social housing to replace any which is compulsorily purchased." **[DB/3/66A/2070]**

351. The Secretary of State's desired outcome is for social tenants to be rehoused directly into new permanent accommodation in the area if possible, preferably before the demolition of the affected blocks (see letter from Secretary of State to Cllr Sarah Hayward, 16 March 2012, third paragraph **[DB/4/72/2184]**). HS2 Ltd is currently exploring various options in discussion with LB Camden. One option is to use the nearby National Temperance Hospital site to provide new accommodation prior to the demolition of the existing blocks. The Department has recently agreed to purchase the site. No decisions have yet been made about whether this site will be used for replacement housing. The Department's ownership of the site ensures this option remains open and provides flexibility for the scheme.

352. For residential properties and businesses which are privately owned and required for the railway, the owners will be eligible for compensation in line with the statutory provisions, including access to statutory blight measures once the land is safeguarded following consultation later this year. This includes the open market value for their property, and home loss and disturbance payments where applicable, which may cover costs such as removal costs and professional fees. Such payments are based on the principle of equivalence; that is, that as far as is practicable the property owner should be no better or worse off in financial terms than if the property was not being compulsorily purchased.

353. As recognised in the 2011 Consultation Document and Appraisal of Sustainability the increased footprint at Euston would also mean the loss of a substantial part of St James's Gardens. The Secretary of State seeks to ensure that, if possible, lost public spaces are replaced on at least a like-for-like basis as part of the developed station complex.

354. Another particular concern is the impact on the Maria Fidelis School. Although not within the footprint of the redeveloped Euston station, the school

would border the construction zone and LB Camden and the school's governing body consider that it would be seriously affected during the construction period. The school is currently located across two sites on either sides of Euston station, and LB Camden and the school have proposed that as part of the HS2 project the school be consolidated onto a single site. The Secretary of State has asked HS2 Ltd to work closely with LB Camden and the school to develop options to address this issue.

Dispersal of HS2 passengers

355. The Secretary of State is aware of the issues around dispersal of passengers at Euston. The increase in the volume of passengers from HS2 will affect the Underground network in two ways:

- Additional demand will be created within Euston station on the Underground platforms and interchanges; and

- Additional demand will be created on Underground train services on the lines passing through Euston.

356. It is important to note that increasing usage of the West Coast Main Line will add a significant number of additional passengers using Euston station and transferring onto the London Underground, and that the Underground lines serving Euston are predicted to be heavily loaded, even without HS2 (see paragraph 6.7 *High Speed Rail*). **[CJB/1/3/356]**

357. As I have mentioned above, HS2 Ltd considered the issue of passenger dispersal onto the London Underground at Euston in its December 2009 report **[DB/1/24/349]**. The Secretary of State agreed that an intermediate station at Old Oak Common in West London would help materially to reduce the crowding and dispersal issues at Euston.

358. Enhancements at Euston station to help with passenger dispersal have been included in the HS2 proposals. These include rebuilding and increasing the size of the Euston underground station ticket hall. This ticket hall will enable a smoother flow of passengers off HS2 and classic rail

services and into the underground system, which will ease overcrowding issues within the station itself and as passengers move through the underground infrastructure.

359. There are also opportunities to reduce crowding in the station and on the tube lines currently serving Euston by improving the connections between Euston and Euston Square underground stations. These two stations are currently not connected and Euston Square is accessed by a short walk along Euston Road. The Secretary of State for Transport announced in the House on 20 December 2010 that he had asked HS2 Ltd to consider this:

> *"…I have also asked HS2 to consider remodelling the station at Euston, so that Euston Square station can be incorporated into the main Euston station, giving access to additional underground lines*." **[DB/2/40/1153]**[41]

360. In line with the Secretary of State's statement in the House, this is under consideration by HS2 Ltd as part of the next stage of design.

361. Any alternative proposal to increase capacity on the West Coast Main Line through upgrades to existing infrastructure would be likely to give rise to an increase in passenger numbers at Euston. The analysis of the Optimised Alternative in Atkins' January 2012 report **[DB/3/61/1842]** suggests more than 21,000 additional passengers would use West Coast Main Line long-distance services each day by 2037, over and above forecast background growth. However, unlike HS2, the Optimised Alternative does not include any measures for reducing the impact this would have on crowding levels.

362. In their response to the 2011 consultation, the Greater London Authority ("GLA"), whose response also encompassed issues relating to Transport for London ("TFL"), raised concerns about the impact of HS2 on the London Underground lines serving Euston. These concerns were considered by the Department (see paragraph 5.30 of the Decisions Document). **[CJB/4/18/1473]**

[41] http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm101220/debtext/101220-0002.htm#1012206000656

363. HS2 Ltd's analysis suggests that the first phase of HS2 would represent around a 2% increase in the predicted passenger numbers on the Underground lines through Euston in the 3 hour morning peak period (see paragraph 5.4 of Consultation Document **[CJB/2/11/583]**). While the second phase of the network increases passenger numbers at Euston, the overall impact on these Underground lines remains small, rising to approximately 3% (ref paragraph 4.3.3 of the Demand and Appraisal Report) **[DB/3A/77/2341]**. This is because many of the new passengers at Euston would otherwise have used the East Coast and Midland Main Lines into Kings Cross St Pancras, from where they would also have been able to use the Underground to make their onward journey. Therefore, the impact of the increase in passenger numbers at Euston is mitigated by a reduction in the number of passengers joining the Underground at Kings Cross St Pancras.

364. TfL's own analysis, provided in Table A1 of the GLA's consultation response, supports HS2 Ltd's conclusion that overall impact of HS2 would be limited relative to background growth **[CCB/1/6/501]**. TfL's base case (without HS2) shows background growth on the Victoria and Northern lines reaching unacceptable levels of crowding (by TfL's own standards) before 2033. With HS2 in place, terminating at Euston with an interchange station at Old Oak Common and the proposed enhancements to Euston station, TfL's figures show a relatively small increase in crowding on the Victoria line and a small reduction in crowding on the Northern line.

365. TfL's calculations on maximum and average wait times demonstrate that HS2 would not be the major contributor to rising wait times. As Table A2 of the GLA consultation response shows, average wait times are expected to double on the Northern line, and more than double on the Victoria line, without HS2 **[CCB/1/6/502]**. With HS2 in place as described above, average wait times on both lines would rise slightly more, but in the case of the Northern line this is a marginal increase. In the case of the Victoria line, although the increase would be slightly larger, it would still not be the major contributing factor.

366. Although not mainly caused by HS2, TfL's evidence did further highlight the potential for future crowding and dispersal issues around Euston

that would need to be considered and addressed with or without HS2. There are various potential solutions to how these issues could be resolved. From the early stages of the HS2 project, HS2 Ltd and the Department have been in discussions with TfL about the various options available. Page 64 of HS2 Ltd's December 2009 report sets out a range of potential options proposed by Transport for London, including: **[DB/1/24/422]**

- Northern Line Upgrade 2 – a proposal to increase capacity on the Northern line by 17%;
- Removal of London Overground services from Euston;
- Diversion of some West Coast Main Line services onto Crossrail; and
- The Chelsea-Hackney line, also known as Crossrail 2.

367. Section 7.4 of the *Review of Route Selection and Speed* examines the third of these options, which was suggested by several respondents to the consultation. This proposal would be to construct a link between the West Coast Main Line and Crossrail in west London so that some West Coast Main Line services would be diverted away from Euston and onto the Crossrail lines **[DB/6/105/2040]**. This would reduce passenger numbers coming into Euston and help relieve congestion issues. Given the increased pressure on Euston which would come from phase 2 of HS2, HS2 Ltd recommend looking further at this as a solution to be introduced prior to the opening of phase 2 of the network

368. TfL has made clear that its preferred option would be to build the Crossrail 2 project. This has been an ambition of TfL's for many years to support the growing tube network and relieve congestion at key points, unrelated to and dating back to before the HS2 proposals. The 2008 London Plan includes Crossrail 2 as a planned scheme, to be developed for implementation following Crossrail 1.

369. The 2011 London Plan emphasises Crossrail 2 as a strategic priority to improve the public transport system in London:

Despite the committed investment in London's Underground and National Rail

network (such as Crossrail and Thameslink), forecast demand shows that crowding and congestion remains a significant issue along the northeast to southwest corridor across central London. To help to address this, a route for a new line, commonly known as the Chelsea-Hackney Line (and often referred to as Crossrail 2) has been safeguarded across London. It is essential that this safeguarding remains in place to protect this important new line, which would provide significant new rail capacity and congestion relief to existing rail and Tube lines. TfL is currently engaged in a review of such a potential line, including considering alternative route alignments, in order to ensure it will be able to provide the maximum benefits and value for money for the investment needed to build it. (The London Plan 2011, paragraph 6.18) **[DB/2/52/1466]**

370. TfL consider that the plans for HS2 strengthen the case for building Crossrail 2, but it is clear that the Mayor sees Crossrail 2 as an essential investment for the London transport network, with or without HS2. In a letter of 29 May 2012 to the Secretary of State, the Mayor requests that the design for the rebuilt Euston station makes provision for a Crossrail 2 station at Euston, but does not suggest that the costs of or work to develop the Crossrail 2 proposal should be carried by the HS2 project. **[DB/3A/81/2407]**

371. The Secretary of State remains of the view, on the basis of the evidence set out above and engagement with TfL since January 2012, that these issues are capable of being resolved through a number of options, some of which are already within the HS2 proposals, such as the Old Oak Common interchange and enhancements to the Euston underground ticket hall; some of which are under consideration by HS2 Ltd, such as a direct link between Euston and Euston Square Underground station; and others which are proposals which Transport for London should take forward, and are currently the subject of consideration.

372. The Secretary of State considers that in recognising the additional impact from HS2 at various stages in the project's development, and in committing to the Department and HS2 Ltd to working closely together with TfL on resolving the issue as the project progresses, the Government is

responding appropriately and rationally in taking forward her proposals for HS2 as stated in the Decisions Document.

Future work

373. The Secretary of State has asked HS2 Ltd to work closely with Camden and the local community in and around Euston as the HS2 proposals move forward, to continue to develop plans for mitigation measures to reduce the identified impacts.

374. HS2 Ltd's intention was to have a number of community forums in the Camden area to discuss and provide information on these issues. However, a decision was taken at a Camden-led public meeting on 19 July 2012 for the community not to engage in the community forum process. Therefore, HS2 Ltd is pursuing a strategy to engage via bilateral meetings and other mechanisms. London Borough of Camden will continue to engage with HS2 in its capacity as a local authority at the Camden mitigation steering group and the OAPF.

375. It is intended that HS2 Ltd will have built up relationships sufficiently so that by the planned September forums along the route, the Euston stakeholder engagement team will be able to deliver the same information to the local community via alternative engagement mechanisms.

376. HS2 Ltd will also continue to work closely with Transport for London on how HS2 will integrate with the existing London network, and the specific issue of passenger dispersal at Euston.

ix) Connecting to HS1

The case for connecting to HS1

377. The February 2011 consultation document highlighted the importance that the Channel Tunnel and HS1 line have played to date in enhancing travel between the UK and the Continent, and the growth of rail connectivity across mainland Europe (paragraph 3.24 – 3.25). It goes on to say:

3.26 However, at present, services on HS1 and the Channel Tunnel are relatively inaccessible for those outside London and the South East. By providing direct access to the wider European network for services from Manchester, Birmingham and other cities, a link between a national high speed rail network and the current HS1 line could address this.

3.27 The Government favours a direct rail link between HS2 and HS1, which would run in tunnel from Old Oak Common to the North London Line and then use upgraded existing infrastructure to reach the HS1 line north of St Pancras International.

3.28 This would enable direct high speed services from across Britain to European destinations via the Channel Tunnel. Birmingham would be a little over three hours from Paris, and Manchester and Leeds around 3 hours 40 minutes. An indirect link – such as improving the interchange connectivity between the respective London termini of the two lines – would deliver neither these journey times nor the same strategic benefits, particularly in terms of reduced dependency on aviation.

3.29 The Government's view is that the strategic case for a direct link between the proposed high speed rail network and the HS1 line to the Channel Tunnel is strong. **[CJB/2/11/566]**

378. In response to the consultation, 893 respondents questioned the demand for a link, highlighting that this was low, while 15,467 respondents expressed support for the proposed link, highlighting the strategic benefits that it would bring. DbyD's consultation summary report states that: **[DB/3/55/1565]**

3.3.44 ... The reason most frequently cited is that it would improve connectivity and access to the continent. In particular, respondents support through services from the North to the European mainland.

"Whilst living in Manchester, the Channel Tunnel seemed inaccessible and inexplicable. Having now used it as a resident of London, I see how convenient it

is. Bringing this physically and psychologically closer to the north would be a huge boon for the north." (Member of the public)

3.3.45 A few respondents, particularly business organisations, think a linked-up high speed rail network would be beneficial to cities and businesses in the North, as it would improve international connectivity and access to continental markets. Respondents also support the link with the existing high speed rail network for environmental reasons.

"BRUG do however, wholly champion the need to link HS2 with HS1, as we consider this to be an overwhelming priority requirement of any form of expanded UK high-speed rail network and equal to any corresponding high-speed access into Central London and indeed, nationwide. Our enhanced access to the European mainland is of paramount importance, in both economic and environmental terms." (Bromsgrove Rail User Group)

379. Following the consultation, the Secretary of State restated the strategic case for linking to HS1 in the Decisions Document: **[CJB/4/18/1465]**

4.41 Enhancing the integration of Britain's transport infrastructure is a vital objective. Integration increases the efficient movement of goods and people, directly supporting economic growth. On this basis, the economic and wider strategic benefits of seamless connectivity between HS2 and the HS1 line to the Channel Tunnel are potentially very important. The Government believes that a direct link between these two nationally-significant pieces of infrastructure is an important objective, and intends to implement the link in phase 1 of the project. This will enable trains to run directly between HS2 and HS1, without the need for passengers to change trains. There are clear strategic advantages from ensuring that a new national high speed rail network in Britain is integrated with the only existing high speed line in this country, particularly given that HS1 would then directly connect HS2 with Europe's growing high speed rail network.

380. The strategic benefits are further expanded on in the *Review of the Government's Strategy for a National High Speed Rail Network (January 2012)* (paragraph 7.4.2 – 7.4.9). These included: **[DB/3/60/1831]**

- Ensuring Britain remains an attractive and competitive business location;
- Supporting growth in the Midlands and the North, by connecting these parts of the UK to the expanding European high speed network;
- Providing an alternative mode of travel for many journeys which would otherwise be undertaken by short-haul aviation, and therefore contributing to the long-term goal of reducing carbon emissions.

Options for connecting to HS1

Initial advice

381. In its December 2009 report to Government, HS2 Ltd put forward the following three options for linking a high speed line from the West Midlands to London with HS1:

- A new high speed connection via a dedicated tunnel from Old Oak Common to near the London tunnel portal for HS1 in East London, enabling high speed trains to run straight through and join onto the HS1 line.
- A new classic speed link to HS1 via a single or dual track running through a short, newly built tunnel from Old Oak Common to the West Coast Mainline, emerging south of Queen's Park, and then joining the North London Line before finally connecting with HS1 at Camden Road East Junction.
- An improved interchange between Euston and St Pancras, potentially using a people mover such as a light railway (a detailed proposal had not been developed).

382. In March 2010 the Government's *High Speed Rail* command paper (paragraph 7.28), commissioned HS2 Ltd to develop its proposals and confirm whether there was a viable economic case for taking them forward

[CJB/1/3/384]. In his letter of 11 June 2010 to the Chairman of HS2 Ltd, the Secretary of State commissioned HS2 Ltd to:

> *Carry out an assessment of the options for linking HS1 with HS2, including analysing the viability and cost of each option […].* **[DB/2/30/1025]**

Consideration of options for a rail link

383. HS2 Ltd gave further consideration to single track and dual track classic speed link proposals. Due to its very high estimated construction costs, the high speed option for an HS2-HS1 link was not pursued further.

384. In September 2010, HS2 Ltd presented its conclusions and advice in *High Speed Rail – London to the West Midlands and Beyond: A report to Government by High Speed Two Limited – Supplementary Report.* **[DB/2/32/1029]**[42]

385. The report provided advice on single track and dual track conventional-speed options, running in tunnel from Old Oak Common and joining onto the North London Line at Primrose Hill Junction (where the North London Line joins the West Coast Mainline). **[DB/2/32/102/1069]**

> *The single track option would create a new single track tunnel between Old Oak Common and the existing Primrose Hill Junction at the point where the North London Line joins the WCML. From there, it would upgrade one North London Line track to GC gauge to operate as a bidirectional route, and then onto HS1. Loops would be constructed to allow trains in opposite directions to pass each other at two points. The journey time would be around ten minutes, providing capacity for a minimum of three trains per direction per hour. We would need to carry out further work with Transport for London and Network Rail to determine the operational feasibility of this option in the light of possible future passenger and freight developments on the North London line and to develop a detailed service specification and infrastructure*

42 http://webarchive.nationalarchives.gov.uk/20110131042819/http://www.dft.gov.uk/pgr/rail/pi/highspeedrail/proposedroute/routesupplement/

design. This option is estimated to cost £0.9 billion including risk and optimism bias.

The double track option would create one single track tunnel between Old Oak Common and the existing Primrose Hill Junction at the point where the North London Line joins the WCML, and a second GC gauge track which would pass through one of the existing Primrose Hill Tunnel bores, creating a double track link. From there, it would upgrade two North London Lines to GC gauge to permit two-track operation. This option would provide a theoretical capacity on the link itself of around 15 trains per direction per hour. This could not however be realised in practice due to the other users on the North London line and the train paths available on HS1 and HS2. The work would involve much more alteration to the existing classic rail infrastructure and have a much greater impact on adjoining property than the single track option. As with the single track option, we would need to carry out further work with Transport for London and Network Rail determine the operational feasibility and to develop a detailed service specification and infrastructure design. The estimated cost for this option is £1.5 billion including risk and optimism bias.

386. Some consideration was also given to two other conventional speed, single track options, but these were not pursued. The first – which included a shorter tunnel from Old Oak Common to join the West Coast Mainline slow lines at Queens Park, and upgrades to the lines – was dismissed due to the complexity of construction which would involve significant disruption to existing train services and a need to therefore compensate Train Operating Companies ("TOC"). The second – which looked to reduce costs by using the proposed HS2 track between Old Oak Common and Euston, with an underground junction to join onto the North London Line – was dismissed due to a significant risk of settlement to properties, very limited overall cost savings, and potential conflicts of capacity with domestic services.

387. The September 2010 report recommended the single, rather than dual, track from Old Oak Common to the HS1 portal near Camden as the best option for a rail link. It was advised that this would cost an estimated £0.9bn (including risk and optimism bias), and while a number of construction and

operational challenges would need to be overcome, construction would have only a limited impact on existing freight and passenger services on the North London Line.

388. The environmental impacts of both options were shown largely to be the same although there were a number of areas in which the dual track option fared worse, with greater impact on the townscape, and direct affects on the Grade II listed Camden Road Stations and potentially several other properties. The noise impacts were not identified to be significantly greater than that currently resulting from the North London Line.

389. The February 2011 consultation document confirmed that the Secretary of State considered the most appropriate option for connecting the two lines would be a single track classic speed line, and for this to be constructed as part of phase 1.

390. Some consultation responses, including the response from the GLA, questioned the feasibility of the proposal, with concerns that it had not been fully investigated, would not have adequate capacity, and could have negative impacts on existing passenger and freight services using the North London Line.

391. The need for further work with Transport for London and Network Rail to better understand and overcome operational and capacity issues has been recognised by HS2 Ltd since first developing proposals for a rail link. This was set out in the September 2010 supplementary report, and subsequently in the *Review of Possible Refinements to the Proposed HS2 London to West Midlands Route* (January 2012), which stated:

> *We have been working with Network Rail and TfL to understand what modifications might be needed to the North London Line in this area. That work has identified a number of potential options that would ensure that existing North London Line services were not impacted, and we have factored this into our cost estimates for the link (paragraph 5.4.2).* **[CJB/4/20/1589]**

392. Since the decision in January to proceed, HS2 Ltd has continued to work with TfL and Network Rail on the detail of the proposed HS2-HS1 link,

including a fuller analysis of any potential impacts on the operation of the North London Line and the options for mitigating or reducing these.

Improved interchange

393. HS2 Ltd also gave further consideration to options for a people mover to improve the interchange between Euston and St Pancras station, and presented their conclusions in the September 2010 report. Three options (street level, sub-surface, and elevated) along three alignments (Euston Road, Polygon Road and Phoenix Road) were considered.

394. Of the options considered, HS2 Ltd recommended an elevated APM at an estimated cost of £170 million (including risk and optimism bias). It was advised that this would have a better business case than a direct rail link, but it was noted that it would significantly impact on local residential communities.

395. The Government decided not to put proposals for an improved interchange between Euston and St. Pancras forward for consultation for the reasons summarised in the consultation document (paragraph 3.33):

> *Although this option would cost less than a direct rail link, the Government does not support such an approach because it would have significant negative impacts for local communities, because it would cause disruption to the development of the recently approved UK Centre for Medical Research and Innovation and because, compared to a direct link, it would reduce the attractiveness of international high speed rail services and hence the ability to compete with aviation.* **[CJB/2/11/567]**

x) Connecting to Heathrow

396. The potential for linking a new high speed line out of London to Heathrow Airport was acknowledged in the document, *Britain's Transport Infrastructure: High Speed Two*, which was published by the previous Government in January 2009 and which set out the original remit of HS2 Ltd. This document stated that: **[DB/1/20/322]**

> "A new rail line following a broadly north-westerly alignment between London and the West Midlands … presents a number of potential opportunities to improve surface access by rail to Heathrow Airport …

A '*Heathrow International*' interchange station in West London between a new rail line, Crossrail and existing Great Western main line services could provide convenient access to Heathrow, building on the £15.9bn investment now committed to Crossrail. There is also the potential to construct a spur into Heathrow – or to route a new line via the airport. An early priority will be to consider these options for serving the airport and to identify the optimum solution."

397. Section 3.3 of HS2 Ltd's December 2009 report to Government set out a number of options for connecting to Heathrow Airport and discussed their respective merits **[DB/1/24/429]**. This included assessments of the relative cases for running the main HS2 route through or close to the airport, for providing a direct link to the airport via a spur or loop from the main line or for providing a rapid and convenient interchange between the new line and existing services to the airport via a new interchange station, such as that proposed at Old Oak Common in West London.

398. It also set out the process through which HS2 Ltd had sifted options for the location of a station serving Heathrow, which included new interchanges in the west of London (not just Old Oak Common, but also other locations such as Acton, Southall and Hayes), a new interchange close to the airport at Iver (similar to that currently promoted by Heathrow Hub Ltd) and station options within the airport's boundaries.

399. HS2 Ltd's analysis identified that the market for high speed rail travel to Heathrow would in practice be likely to be small – potentially as few as 2,000 travellers per day. This was for a number of reasons: first because the majority of those travelling to Heathrow do so from London and the South East; second because not all of those travelling from locations further north would necessarily have convenient access to the new high speed line (particularly as the proposed London-West Midlands line would only serve destinations in the West Coast rail corridor); third because road travel would still remain attractive for those travelling in groups, as would air travel for those 'interlining' (i.e. travelling to the airport to transfer to other connecting flights); and fourth because the ultimate destination of around half of those

travelling by domestic aviation to Heathrow is not the airport but other locations in the South East including central London.

400. This meant that in considering options for serving Heathrow, the key considerations would not only be the quality of access offered to the airport, but also issues of cost and of the impacts on the capacity of the main HS2 line and on journey times for travellers into and out of central London.

401. HS2 Ltd's consideration of the respective merits of through-route, loop and spur options is set out in paragraphs 3.3.14 to 3.3.24 of its December 2009 report **[DB/1/24/432]**, and includes options with a station at Iver as proposed by Heathrow Hub Ltd. Heathrow Hub Ltd's assertion that no consideration was given to a direct route via Heathrow after February 2009 is incorrect.

402. HS2 Ltd's analysis led it to the view that the most promising options for serving Heathrow Airport by high speed rail would be either:

- an Old Oak Common interchange providing a direct connection to Crossrail and to Heathrow Express services; or
- a station at or near Heathrow on a loop from the main HS2 line and offering connections both to the airport and to the Great Western Main Line.

403. Its comparative assessment of these two options was set out in paragraphs 3.3.31 to 3.3.44 of its December 2009 report **[DB/1/24/440]**. HS2 Ltd's recommendation was that the best option would be to serve Heathrow via an interchange at Old Oak Common. The two options delivered broadly similar journey times to central London, although for the small number of Heathrow travellers the loop option was better. The Old Oak Common option, however, was estimated to be significantly cheaper (around £1.4 billion less), would provide better access to London via Crossrail and would ease congestion and dispersal at Euston. It was also noted (at paragraphs 3.3.43-44) that the Old Oak Common option would offer major opportunities to support regeneration around the interchange site, as well as potential to

further improve onward connectivity, for instance through links to the West London and Central Lines.

404. The report acknowledged that the case for a link to Heathrow could alter in the light of future developments, including wider improvements to surface access to the airport. It therefore noted that it would be possible to provide 'passive provision' as part of the London to West Midlands route, enabling a link to be built at a future date with minimal disruption to the operation of the line.

405. In its response to HS2 Ltd's report, the previous Government acknowledged HS2 Ltd's analysis, particularly in respect of the potentially limited market for high speed rail services to the airport, but noted that the case for high speed links to the airport may become stronger in future:

> …the Government also believes that the importance of effective integration between national and international transport networks is only likely to grow stronger in the light of increasing globalisation and tighter constraints on carbon emissions. As a result, the economic and social value of a direct high speed link to Heathrow may rise, and the possibility of the potential market growing rapidly should not be ruled out, particularly given the Government's proposal for a core network reaching to Manchester and Leeds and offering significant journey time savings to other destinations including Edinburgh and Glasgow. (see paragraph 7.17) **[CJB/1/3/382]**

406. Its conclusion was that a link should be provided initially via the proposed interchange at Old Oak Common, but at the same time that further analysis was needed of the longer-term case for a direct link to the airport. It therefore commissioned the former Secretary of State for Transport, Lord Mawhinney, to assess the options for such a link (including those for a spur or loop from the main line) and their business cases, and to report back following the General Election in summer 2010. **[CFS1/I/228]**[43]

[43] The letter commissioning this review is available online at: http://www.parliament.uk/deposits/depositedpapers/2010/DEP2010-0786.pdf

407. The previous Government's consideration of this issue is set out in more detail in paragraphs 7.3 to 7.18 of the Command Paper, *High Speed Rail*. **[CJB/1/3/378]**

408. Prior to the 2010 General Election, the Conservative Party had been critical of the Government's proposal for linking to Heathrow via an interchange at Old Oak Common. The question of how to serve Heathrow by high speed rail was therefore a key issue for early consideration by the new Secretary of State for Transport following the formation of the coalition Government.

409. In May 2010, the Secretary of State wrote to Lord Mawhinney confirming that he should continue his review of high speed rail access to Heathrow, but to take into account the new Government's policy rejecting plans for a third runway at the airport **[DB/2/29/1023]**[44]. And the following month the Secretary of State wrote to HS2 Ltd asking it to carry out detailed work on route options for serving Heathrow, including a through-route via a station at or near the airport, as well as loop and spur options **[DB/2/30/1024]**[45].

410. Lord Mawhinney's review was completed and its report published in July 2010 **[CJB/2/8/460]**. The report did not support running the main HS2 route through or close to Heathrow on the basis that the additional costs of such an approach would be too high to be justified. Instead, it recommended that, in the early stages of the development of a national high speed rail network, a connection to Heathrow should be provided through the Old Oak Common interchange. It also recommended that 'the most serious consideration' should also be given to constructing a direct high speed link to Heathrow, to operate alongside the Old Oak Common interchange, as the network is extended further north. In relation to potential station locations at Heathrow should such a link be taken forward, Lord Mawhinney's preferred option was for a station at the Central Terminal Area ("CTA").

411. HS2 Ltd's additional work on route options to Heathrow was completed and its report submitted to Ministers in September 2010

[44] http://assets.dft.gov.uk/publications/hammond-20100521/hammond-20100521.pdf
[45] http://www.hs2.org.uk/assets/x/57834

[DB/2/32/1029]. It considered the full range of options for serving Heathrow, including developing detailed proposals for a through-route via a station either linked to the Great Western Main Line at Iver (roughly the site of the proposed Heathrow Hub) or close to the Northern Perimeter Road within the airport boundary. It also looked at loop and spur options, and re-examined potential station locations in the vicinity of the airport. It did not make a firm recommendation, but noted that:

> The issues around serving Heathrow from HS2 are complex, involving wider strategic considerations of aviation and transport policy which affect both where an airport station might be located, and the best way of linking it to the high speed line … Decisions on how to connect the airport to the high speed rail network … need to balance the needs of passengers to and from Greater London with providing a high quality link to attract transfer passengers from major urban centres to the UK's only international hub airport. There is no single right answer. **[DB/2/32/1033]**

412. The report's approach was to consider the costs and impacts of each of the potential combinations of route and station options. HS2 Ltd's analysis ruled out a station at the Central Terminal Area for reasons of cost and complexity, and therefore the potential station options were for a station at Terminal 5, close to the Northern Perimeter Road ('Heathrow North') or outside the airport's boundary at Iver. The first of these, however, could only be constructed on a north-south alignment, and so could not be practically combined with a through-route, which would need to be aligned roughly east-west.

413. In terms of routes, HS2 Ltd identified a number of options. These options were two potential spur routes, one almost entirely in tunnel and one including a surface section in the M25 corridor, a route for a loop (again, largely tunnelled), and the through-route mentioned above (for which two options were identified, depending on the station location, although the surface sections were largely identical).

414. The through-route – which was referred to as Route 1.5, as it was a variant of the Route 1 option considered by HS2 Ltd as part of its initial 2009

development work – ran from Old Oak Common in tunnel to the vicinity of the airport, with a slightly longer tunnel in the case of the Heathrow North station option, and then continued in tunnel to western side of the M25. The remainder of the route combined surface sections and lengthy tunnels (including under Princes Risborough) before rejoining HS2 Ltd's main route close to Brackley in Northamptonshire.

415. A diagrammatic representation of the options (taken from HS2 Ltd's December 2009 report) is provided below: **[DB/1/24/432]**

416. The report confirmed that the costs of any of the options would be high, but that the cheapest were likely to be the spur routes using the surface option and the routes serving Iver. However, given that the Iver station would be some distance outside the airport's boundary, the report also noted that significant additional expenditure would be required in these options to pay for infrastructure to transport passengers to the airport's terminals. BAA's estimate of the costs of a 'people mover' was noted as around £1.6 billion. The Iver option would also not offer the full benefits of an 'on-airport' station and hence would attract fewer Heathrow-bound passengers to rail, although it

would provide some additional benefits due to the connection to the Great Western Main Line.

417. The spur options would have no impact on journey time for the majority of passengers who would be travelling to and from central London, but could affect capacity on the main route if and when all its train paths were being used, as each Heathrow-bound service would need to displace a London-bound train. A loop would not affect the capacity of the main line but would be the most costly of the options and would significantly lengthen journey times for London-bound passengers on those services which ran via the airport. The through-route would increase journey times for all London-bound passengers, but would not affect capacity if it was assumed that all services stopped at Heathrow.

418. The analysis of the options contained in the report indicated that the best of the options in economic terms was likely to be the spur. This was because any additional benefits generated by the loop and through-route options were more than offset by the corresponding reduction in benefits for London-bound passengers due to increased journey times. With regard to the spur options, the additional benefits were smaller, as fewer trains would serve the airport, but there would not be the same off-setting effect.

419. The report looked at the sustainability of the routes under consideration and the impact of each option on the proposals for an interchange at Old Oak Common. It found that there was a case for maintaining an interchange at Old Oak Common even with a station serving Heathrow, although the case would be weaker if an Iver option incorporating a Great Western Main Line connection were chosen.

420. Having considered the reports prepared by Lord Mawhinney and by HS2 Ltd, as well as the proposals developed by Arup for a hub station near Iver, on 20 December 2010, the Secretary of State announced his preferred approach to linking HS2 to Heathrow as part of the overall HS2 strategy which he proposed to put forward for public consultation. In his Statement to the House, he said the following: **[DB/2/40/1148]**

> "I have concluded that a spur route to the airport, running on the surface close to the M25 for part of its length, is the best option. It is lower-cost than the other options considered by HS2 Ltd, will keep journey times between London and Birmingham to a minimum and will retain the flexibility to be extended into a loop in future. To deliver the best possible value for taxpayers' money, I propose that a spur route be constructed as part of the second phase of the network, opening at the same time as the routes to Manchester and Leeds. I have today asked HS2 Ltd to carry out further work on such a spur route, with a view to public consultation later in this Parliament alongside the routes to Manchester and Leeds. For the period prior to the opening of that second phase, high-speed rail travellers to the airport will be able to change to fast Heathrow Express services at Old Oak Common, where there will also be a direct interchange with Crossrail."

421. On the same day, the Secretary of State also wrote to the Chair of HS2 Ltd confirming the position he had reached, and commissioning it to develop detailed route options for the spur as part of its development of proposals for the phase 2 of the Y network. In addition, the letter noted that in designing the spur route, HS2 Ltd should seek to safeguard the option of extending it into a loop in future. **[DB/2/39A/1147B]**

422. The 2011 Consultation Document set out the reasons for the Government's proposed approach in paragraphs 3.13 to 3.23. The costs of the spur to Heathrow were also included in the cost-benefit analysis of the Y network included in the February 2011 *Economic Case for HS2* **[CJB/3/14/912]**. However, as the spur was to be part of phase 2 of the network, the consultation did not include details of a proposed route for the spur as no route had been developed at this stage. Consultation on the route of the spur, including appraisal of its environmental and other impacts, would take place at the same time as consultation on the proposed phase 2 route to Manchester and Leeds.

423. Consultation responses which mentioned Heathrow were more often in favour of linking HS2 to Heathrow, with relatively little direct opposition to this specific element of the Government's strategy. Amongst those who

supported a link, there was relatively little, if any, backing for serving Heathrow via a loop, but a number of consultation responses, including from BAA and a number of airlines, recommended that the Government reconsider the case for routing the main line to the airport, as opposed to serving it by the type of spur link included in the consultation. The Labour Party in opposition had in the meantime also expressed its support for a through-route via Heathrow. For these reasons, HS2 Ltd reviewed the options for such a link in detail, but did not conclude in favour of an approach of this kind. Its assessment is set out in section 3.4 of the report, *Review of HS2 London to West Midlands: Route Selection and Speed*. **[DB/6/105/1978]**

424. In the Decisions Document, the Secretary of State for Transport set out her conclusions on the approach to connecting Heathrow to HS2:

> **"Route options for a direct spur link to Heathrow Airport should be developed to form part of Phase 2 of the Y network.** Diverting the main HS2 line via or close to Heathrow would be costly and would disadvantage the vast majority of HS2 passengers. The Government therefore favours a direct spur link to the airport, which could radically improve its accessibility from the major cities of the Midlands and the North. The options for such a spur link will be considered by the Government as part of Phase 2." **[CJB/4/18/1421]**

425. The Decisions Document noted the Government's announcement that it would be consulting on its aviation strategy, including potential options for maintaining the UK's aviation hub status, and stated that the Government would continue to review its proposals for linking HS2 to Heathrow in the light of that consultation. It remained of the view that the case for linking HS2 to the country's main hub airport would remain strong. This is discussed in paragraph 4.39 of the Decisions Document. **[CJB/4/18/1464]**

426. The next section sets out briefly the basis on which the Government reached its decisions in relation to HS2 and Heathrow.

The basis for the Government's decisions on connecting HS2 to Heathrow

427. The Government recognises that the number of travellers forecast to use such a link in the economic modelling carried out by HS2 Ltd is relatively small, and the costs of building it are high, given the tunnelling required to reach the airport due to the densely populated residential areas surrounding it.

428. Nonetheless, the Government believes that there are broader benefits, which would not be captured in a conventional cost-benefit analysis, which support the case for such a link and outweigh the comparative weakness of the economic case. These are discussed in the Decisions Document and the *Review of the Government's Strategy for a National High Speed Rail Network* and are summarised briefly below: **[DB/3/60/1761]**

- It would improve access to the airport from the major cities of the Midlands and the North, making them more attractive locations for international firms in which to do business, and potentially creating new opportunities for growth;

- Combined with other improvements to surface access links to Heathrow (such as the Crossrail project and the proposals for a western link to the airport from the Great Western Main Line) it could establish Heathrow as a multi-modal transport hub in its own right, potentially easing pressure on central London networks. Providing additional public transport options to access the airport could also contribute to addressing local air quality issues;

- High-speed rail services to Heathrow from Scotland and the North (and vice versa) could provide an alternative to some domestic aviation services on these routes, potentially freeing up runway slots at the airport. These could be reused to enhance the airport's route network or left open to improve operational resilience. Furthermore, enhancing the airport's international operations in these ways could support the Government's objective to maintain the UK's aviation hub status; and

- Providing an alternative to domestic (and potentially some short-haul) aviation through direct high speed rail services to the airport could see opportunities for modal shift from air to rail – generally a less carbon-intensive mode.

429. Some consultation respondents argued that a link of this kind would be likely to see overall carbon emissions increase rather than decrease, as any slots released through a reduction in domestic or short-haul aviation to Heathrow would be reused for long-haul flights. This is discussed in paragraphs 7.3.31-32 of the *Review of the Government's Strategy for a National High Speed Rail Network*, which note that the inclusion of aviation in the EU Emissions Trading System would prevent any overall increase in carbon emissions being generated in this way. **[DB/3/60/1829]**

430. Having reached the view that the strategic case for a link to the airport was sufficiently strong to justify its inclusion as part of its high speed rail strategy, the next issue for the Secretary of State was how such a link should be provided.

431. The two main alternatives considered by the Secretary of State in assessing how to link to the airport were the spur option proposed in consultation and the type of through-route which had attracted support in a number of consultation responses.

432. A through-route, as recognised in the *Review of the Government's Strategy* would provide some incremental benefits for those travelling to and from the airport in terms of a high frequency of service and a slightly improved journey time to the environs of the airport. However, the number of passengers to or from the airport on each service would be very small in comparison to the number travelling to or from London, who would be disadvantaged by a slower journey time due to the longer route length when running directly through or close to the airport. On balance, therefore, the overall impact would be a reduction in benefits. HS2 Ltd's assessment was that the through-route approach would increase journey times for London travellers by at least four minutes, even on a non-stop train service, rising to eight minutes on services stopping at the airport. It also noted the practical

challenges, particularly in respect of line capacity of operating a selective stopping pattern.

433. The Secretary of State also considered the potential station locations under each option. A feasibility study looking at building a station under the Central Terminal Area at Heathrow had found that its costs would be likely to be as high as £3 billion to £4 billion, even assuming the technical challenges could be overcome, and that option was ruled out. Therefore, the only feasible station option directly linked to an airport terminal would be at Terminal 5. However, as set out above, a Terminal 5 station could not be integrated with a through-route as it could only be built on a broadly north-south axis. The Government's view was that this was a further important argument against a through-route approach – as it would mean that passengers would need to transfer to a separate transit system to reach any of the airport's terminals and would reduce if not eliminate any time savings benefits even for airport-bound travellers. This would be particularly true for an Iver station, whose location would be around three miles from the airport boundary.

434. In respect of the costs of the key options, it was noted that the cost of the proposed spur link to Terminal 5 had been estimated in HS2 Ltd's September 2010 report to be approximately £3.1 billion. This was slightly higher than the estimated base cost for a through-route via Iver (which was estimated to be £2.9 billion), but lower once the costs of a transit system from an Iver station to the airport were also taken into account. More recent and detailed design work by HS2 Ltd has reinforced the cost argument in favour of the proposed spur to Terminal 5, as it has further reduced the cost estimate.

435. Two key additional arguments have been made by proponents of a through-route via Iver (the 'Heathrow Hub'). The first is that the need for the Old Oak Common Interchange would be obviated by the additional connectivity provided through the Hub's proposed direct link between HS2 and the Great Western Main Line. The Government's analysis does not support this view. The Old Oak Common interchange has an important role in alleviating dispersal issues at Euston by providing a fast and convenient link via Crossrail to many parts of the capital. A link to Crossrail at or near

Heathrow would be too far from London to provide an attractive overall journey time, and hence could not provide a substitute for Old Oak Common. Any additional benefits, therefore, would relate to a faster interchange to HS2 for travellers from Bristol, Wales and the South West, but as Old Oak Common would already provide a convenient interchange the incremental benefits would be likely to be very small.

436. The second additional argument is that a through-route running close to the airport would have lower environmental impacts than the Government's proposed route – particularly because it would involve less surface running through the Chilterns Area of Outstanding Natural Beauty ("AONB") and would cross it at a narrower point. HS2 Ltd examined the potential environmental impacts of a number of such options, however, and did not find that any would offer significant environmental benefits overall, even allowing for a reduction in impacts on the AONB. Any marginal environmental benefits would therefore be substantially outweighed by the slower journey times and poorer interconnectivity provided by such an approach.

437. For these reasons, as set out above, the Secretary of State remained in favour of linking to Terminal 5 via a spur route. Its view also remained that this should be taken forward as part of the second phase of the HS2 network, as this would enable rapid progress to continue to be made towards seeking development consent for Phase 1, and because demand levels for such a link would be expected to grow as the network is extended. In the interim period, the interchange at Old Oak Common would provide an efficient connection to Heathrow for HS2 passengers, although it would not offer the full range of benefits of an on-airport station.

438. These conclusions formed part of the Secretary of State's overall decisions on HS2, with the Decisions Document stating that:

> "*Route options for a direct spur link to Heathrow Airport should be developed to form part of Phase 2 of the Y network. Diverting the main HS2 line via or close to Heathrow would be costly and would disadvantage the vast majority of HS2 passengers*." **[CJB/3/14/1421]**

The Government's Engagement with the 'Heathrow Hub' Proposal

439. As set out above, the 'Heathrow Hub' proposal is for a transport interchange at Iver, roughly three miles north of the airport, through which a new high speed line from London to the North would be routed, and which would also be connected to the Great Western Main Line (and Crossrail services using it) and motorway network (as it would be located close to the intersection between the M25 and the M40). This proposal was originally developed by Arup, before it sold its majority shareholding in Heathrow Hub Ltd, and it has been given substantial consideration throughout the development of the HS2 proposals.

440. Arup submitted their proposals for a 'Heathrow Hub' to HS2 Ltd as it was preparing its initial advice to Government. Section 3.3 of HS2 Ltd's December 2009 report, which covers links to Heathrow includes an assessment of both an Iver station option and a through-route option. It also includes, on page 87, a detailed description of the Arup proposal. **[DB/1/24/447]**

441. In addition, Arup met with the then Secretary of State, Lord Adonis, three times to present and discuss their proposals. The first of these meetings took place on 17 December 2009, with follow-up meetings on 7 February 2010 and 1 March 2010 (before which a meeting with HS2 Ltd had also taken place). Arup also made a detailed submission to the review of options for connecting to Heathrow carried out by Lord Mawhinney's review.

442. Following the 2010 Election and the formation of the coalition Government, Arup and Heathrow Hub Ltd continued to promote their proposal. Arup met the Secretary of State, Philip Hammond, in October 2010. Heathrow Hub Ltd gave oral and written evidence to the Transport Select Committee in the course of the committee's inquiry into high speed rail in 2011. Heathrow Hub Ltd also met DfT's Director General for Domestic Transport, Steve Gooding, on 16 December 2011.

443. In paragraph 5 of their Statement of Facts and Grounds, Heathrow Hub Ltd alleges that the consultation process included a series of errors related to the previous analysis of its proposals. These are discussed below:

1. *HS2 Ltd's December 2009 report assumed that the catchment for Heathrow would remain the same regardless of the improvement to surface access which HS2 would be capable of bringing about*.

   This is incorrect. The modelling approach used by HS2 Ltd, which is described in the document, *HS2 Airport Demand Model (ADM): A Report for HS2*,[46] includes an assessment not only of existing trips to Heathrow (whether by surface access or domestic aviation) but also of new trips made by passengers who might otherwise have travelled to a different hub airport (such as Schipol or Paris Charles de Gaulle) to make their journey.

2. *HS2 Ltd's work is premised on early assumption of a significant time penalty for routeing via Heathrow which was subsequently found to be incorrect.*

   HS2 Ltd's analysis continues to show a time penalty of at least four minutes for routing the main HS2 line via a station at or near Heathrow, in comparison to the route confirmed following consultation. This is discussed in paragraphs 3.4.10 to 3.4.15 of the 2012 report, *Review of HS2 London to West Midlands Route Selection and Speed*. **[DB/6/105/2009]**

3. *HS2 Ltd's work fails to assess potential benefits derived from modal shift in trips to the airport from those coming from the West*

   It is true that HS2 Ltd's analysis does not include potential benefits from Great Western Main Line travellers who might use a Heathrow Hub station to access the airport. However, benefits from improved western access to Heathrow could be derived in a number of ways, in some cases unrelated to HS2, and the Government has recently announced its

46 http://webarchive.nationalarchives.gov.uk/+/http:/www.dft.gov.uk/pgr/rail/pi/highspeedrail/hs2ltd/appraisalmaterial/pdf/airportdemandmodel.pdf

support for a scheme providing such access through a new conventional rail link between the Great Western Main Line and the airport. **[DB/3A/73B/2188E]**[47]

4. *The comparative cost of a Heathrow Hub station in HS2 Ltd's 2009 Report was over-estimated as it would not need to be a subterranean structure*

More recent analysis of options for serving Heathrow is provided in HS2 Ltd's September 2010 report, *High Speed Rail: London to the West Midlands and Beyond – Supplementary Report*. The analysis of the option of a 'hub' station at Iver in this report does not assume a subterranean structure, with paragraph 1.2.10 stating that: "An Iver station would be at or near ground level". **[DB/2/32/1046]**

5. *The Mawhinney Report recommended a station under the Central Terminal Area instead of a Heathrow Hub station, but HS2 Ltd concluded this was 'unbuildable'*

The Mawhinney Report was only one of the elements supporting the Secretary of State's December 2010 decision on the package to be put forward for consultation. The decision was also informed by the analysis of options for serving Heathrow carried out by HS2 Ltd, and the work carried out by Arup for a Heathrow Hub station.[48] In the light of Lord Mawhinney's recommendation in favour of a Heathrow station at the Central Terminal Area, HS2 Ltd reconsidered the feasibility of such an option, but concluded that the difficulty of construction and its high costs ruled it out as a practicable option. **[DB/2/32/1033]**

xi) Property and compensation

Safeguarding and Statutory Blight Provisions

444. The Secretary of State intends after Parliament returns in September 2012 to consult on and issue safeguarding directions for the land required for the

[47] http://www.dft.gov.uk/news/press-releases/dft-press-20120716a/
[48] **[DB/2/40/1148]** see column 1201.

construction of HS2. Once this land is safeguarded, owners of properties within the safeguarded area may qualify for statutory blight provisions under the Town and Country Planning Act 1990. A qualifying owner will be able to serve a blight notice on the Government requiring it to consider buying their property in advance.

445. The purpose of the statutory blight provisions is to provide for a remedy to the blight on safeguarded land by allowing property owners to bring forward the sale of their property to Government should they wish to do so, rather than being forced to wait for a compulsory purchase order to be made.

446. Owners of properties which are not required for the construction of HS2, but nevertheless following construction and opening of the railway are adversely impacted by physical factors including, *inter alia*, noise and vibration, will be entitled to claim compensation under Part 1 of the Land Compensation Act 1973.

447. Such claims may be submitted once the railway has been operational for a year, to allow sufficient time for the actual impacts to be understood and reflected in the property market. The level of compensation to be paid would be assessed by professional, independent valuers using recognised procedures, with disputes referred to the Upper Tribunal (Lands Chamber) if necessary.

448. As part of the Crossrail bill an information paper entitled *Operation of the National Compensation Code*[49] was presented to the House of Commons Select Committee which explained in some detail how the statutory provisions for compulsory purchase, blight and compensation would operate. This provides a useful context for how the same statutory provisions are expected to operate for HS2, as explained in Annex A of the Consultation Document.

The current Exceptional Hardship Scheme

449. At the time of the initial publication of the proposed route in March 2010, the Government recognised that the HS2 proposal may cause blight to properties on or close to the route in the period before the land was safeguarded and statutory

[49] See Information Paper C2 – Operation of the National Compensation Code: http://www.crossrail.co.uk/assets/library/document/c/original/c02operationofthenationalcompensationcode.pdf **[DB/1/12/218]**

blight provisions became available. There was no statutory remedy for this, but the Government considered that those most affected by blight as a result of the proposals should not have to wait for the consultation process to be completed, the decision on the scheme made, and the land to then be safeguarded (a process expected to take at least 18 months) before being able to apply for assistance.

450. Thus at the same time as the preferred route was announced, the Secretary of State also announced his intention to consult on introducing a discretionary EHS, under which property owners who needed to move urgently but who could not sell their property because of the HS2 announcement could apply to the Government to buy the property. The scheme was designed as an interim measure for the period between the announcement of a proposed route and a route decision being taken (subject to detailed design and further mitigation), enabling safeguarding to take place, at which point the statutory blight provisions would be activated.

451. After the general election, the new Secretary of State extended the consultation period on the proposed EHS to 17 June 2010. **[DB/2/29A/1023A]**[50]

452. Following consultation, the Secretary of State announced on 26 July 2010 that an EHS would be introduced **[DB/2/31/1027**.[51] The EHS opened to applications on 20 August 2010. Applicants to the EHS must meet five criteria to be eligible to sell their property to Government. These are set out in the EHS Guidance and Application Form **[DB/3A/70/2156]**[52], and a broad summary follows:

I. Qualifying interest. Applicants must be either owner-occupiers of residential properties, business properties or agricultural units, mortgagees, or the representative of a deceased person with a qualifying interest.

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50 http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm100527/wmstext/100527m0002.htm#10052719000294).

51 http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm100726/wmstext/100726m0001.htm#1007264000045

52 Updated guidance is available online at http://hs2.org.uk/assets/x/84065

II. Location. The property must be located on or close to the proposed route, such that it would be likely to be substantially adversely affected by the railway.

III. Effort to sell. Applicants must have made all reasonable efforts to sell the property and have not received an offer within 15% of its open market value.

IV. No prior knowledge. Applicants must not have known about HS2 when they bought the property.

V. Exceptional hardship. Applicants must be able to demonstrate that they urgently need to sell the property and would suffer exceptional hardship if they had to wait until statutory blight / alternative discretionary measures became available.

453. The scheme is operated by HS2 Ltd and applications are considered by a panel, made up of two independent members and one HS2 Ltd senior official, which makes recommendations to the Secretary of State. The scheme has, as at 1 June 2012, considered some 360 applications, 69 of which have been accepted.

454. Applicants are asked to submit evidence to demonstrate that they meet all five criteria. This evidence, which can include details of how a property has been marketed and at what price, viewer feedback, and reasons why the applicant considers that they are or will be suffering exceptional hardship, is vital to enable the panel to properly consider the effect of HS2 on the property.

Development of Options for Discretionary Measures to supplement the Statutory Blight Provisions

455. On 26 July 2010, the Secretary of State made the following statement in respect of his intention to supplement the statutory blight regime with some form of discretionary assistance for those outside of the safeguarding zone but still severely affected by generalised blight as a result of HS2: **[DB/2/31/1028]** [53]

53

http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm100726/wmstext/100726m0001.htm#1007264000045

I am mindful of the importance of appropriate longer-term arrangements to assist those who would be most seriously affected by a new line. I agree that some additional provision over and above the statutory blight regime will be needed to achieve this, and it is therefore my intention that this should be put in place, if and when a decision is taken to safeguard a route.

456. The Secretary of State's intention to consider introducing some form of longer-term discretionary assistance recognised that the statutory blight provisions were only available to owners of properties within the safeguarded area, yet it was possible that properties outside the safeguarded area but still close to the route may also experience a reduction in value as a result of the HS2 proposal. A number of responses to the EHS consultation made this point and called for a longer-term discretionary scheme to be considered.

457. Following the introduction of the EHS, the Secretary of State asked officials to prepare a range of options for a discretionary scheme: **[DB/2/40/1149]**

…to assist those whose properties will not be required for the construction of the railway, but who will none the less see a significant diminution of value as a result of the construction of the line.

458. The scope of such a scheme, however designed, was not intended to be able to incorporate measures to prevent or compensate for *all* generalised blight. The effects of blight are very hard to quantify, as fluctuations in property values are normal and can be caused by a range of factors, particularly in a weaker property market. Any discretionary scheme would need to be a proportionate approach, helping those most severely affected by blight while not introducing an unacceptable burden on the taxpayer through its own costs or the costs of any precedent it may set.

459. The difficulty of isolating the effects of blight caused by HS2 from other factors which may affect the sale or value of a property also underlines how important it is that discretionary schemes consider applications based on evidence of blight affecting the property, rather than just assertion of it. This is the basis for the current EHS scheme.

460. The option of a hardship scheme was one of the options considered at this stage. This was the type of scheme used on the CTRL and Crossrail[54], which were considered the relevant precedents. The option of a property purchase bond was also considered.

461. A property purchase bond scheme would operate as follows. The Government would issue a bond to property owners close to the proposed line of route which could be exercised at a later stage in the project's development to require the Government to buy the property if the owner was not able to sell it on the open market for a reasonable price. The stage at which this could happen would need to be specified in the detail of such a scheme; an example might be that the bond could become exercisable at the start of construction.

462. In the meantime, the bond would be transferable with the property if it were sold. This would offer potential buyers a guarantee that if the property lost value as a result of HS2 this loss could be recouped by selling the property to Government in the future. The intention would be that selling the property with the bond would offset the effect that blight may have otherwise had on the property's value, and that the existence of such bonds would help to support the efficient functioning of local property markets during the period of uncertainty at the early stages of the project.

463. The success of such a scheme would be heavily reliant on the bond functioning in the way set out above, as property owners outside of the safeguarding zone would not be able to require the Government to buy their property until the bond became exercisable.

464. HS2 Action Alliance favoured this type of scheme, and had organised a campaign of responses to the EHS consultation which proposed this alternative to a hardship scheme. The Government noted this support and included the property purchase bond scheme type in its considerations, although not restricted to the scheme design proposed by HS2 Action Alliance.

[54] The Crossrail hardship scheme is described in Information Paper C8 – Purchase of Property in Cases of Hardship: http://www.crossrail.co.uk/assets/library/document/c/original/c08purchaseofpropertyincasesofhardship.pdf **[DB/1/15A/273A]**

465. The Government also considered a further option, which applied the principle of a bond but to compensation payments rather than property sales. Such an option was developed alongside the options of a hardship based scheme and a property purchase bond, and these three options were included in the February 2011 consultation.

466. This material formed Annex A of the Consultation Document **[CJB/2/11/614]**. The Annex also set out the background of the statutory system, which any discretionary scheme would need to operate alongside, and some of the high level considerations which had informed the policy development so far.

Consultation on Property Issues

467. The Government's approach was to consult on property issues in two stages. During policy development it became clear that it would be prudent to develop the detail on how a scheme would operate at the second stage, with the first stage covering the issues of the type of scheme and general approach.

468. Therefore, the 2011 consultation focused on high level considerations and options to inform selection of the type of scheme(s), with a second round of consultation following the Secretary of State's decisions in response to the 2011 consultation. This would focus on the details of the scheme (at a similar level as the previous EHS consultation) and would be targeted primarily at affected property owners and their representatives. This approach was explained in the 2011 consultation document. **[CJB/2/11/619]**

469. Property was an important issue in the 2011 consultation and the subject of Question 7 of the consultation questions which asked: **[CJB/2/11/612]**

> *Do you agree with the options set out to assist those whose properties lose a significant amount of value as a result of any new high speed line?.*

Annex A of the Consultation Document provided information for consultees about the statutory schemes and the options for discretionary support, and this was summarised in two factsheets: one on the EHS and one on the options for longer term discretionary blight measures. **[DB/2/46/1312] and [DB/2/47/1314]**.

470. While the Consultation Summary document did not summarise the information in Annex A, it did make clear (pages 14-15) where that information was available, as did the response form **[DB/2/43/1291]**. Consultees with an interest in the property-related information were therefore directed to where it could be found. Copies of the full Consultation Document could be ordered online or over the phone for free, or were available at events. Printed copies of Annex A only were also available for people who were particularly interested in the property information but didn't want to take away the full Consultation Document.

471. Attendees at the consultation roadshows could also ask questions or raise concerns about property impacts. As well as viewing maps of the route and discussing with engineers the proposed mitigation measures in their area, people were also able to talk to staff from HS2 Ltd's property team and experts from property consultants CBRE. These conversations covered a range of issues, although many of the discussions were about people's individual circumstances, whether their property would need to be compulsorily acquired or would be affected by noise, and what statutory compensation they would be entitled to.

472. During the consultation, HS2 Action Alliance continued their campaign for a property purchase bond, producing a public answer to Question 7 favouring the property purchase bond approach, which they suggested that consultees could append to their own consultation responses.

473. The analysis of the consultation responses was set out in the Consultation Summary Report, by independent consultants Dialogue by Design. The analysis of responses to the question on property is included in the Question 7 chapter of Part B of this report. **[DB/3/55/1623]**

474. More than 36,000 responses to question 7 were received, but only a small proportion (approximately 4,600) of these respondents expressed a view on any of the three options proposed for a discretionary blight scheme. Of those that did, most comments (more than 4,400) were on the property purchase bond option, with the majority supporting this option either outright or with caveats. A

number of these respondents either included HS2 Action Alliance's campaign response or referred to it in their own submissions.

475. In the Decisions Document, the Secretary of State's preference was for a package of measures – rather than a single type of scheme – to help people severely affected by blight or other impacts from HS2. Her decisions on the elements of this package are described in the *Review of Property Issues* document **[DB/3/66A/2070]**, which was published alongside the Decisions Document.

476. The compensation bond option which had been consulted on was not taken forward. There had been very little support for it in the consultation and there were significant issues of interaction with existing legislation. There were also practical issues around how it could be implemented.

477. A hardship based scheme was considered comparatively low risk and with more predictable outcomes, and also closely followed the precedent set by previous projects. The Secretary of State decided that the package of measures for further consultation should include a hardship scheme, which would be a refreshed version of the EHS. Consideration would be given to which elements of the EHS criteria and process needed to be changed or revised to create a scheme suitable for the long term nature of the project, and this would be a key part of the second stage of consultation.

478. The Secretary of State also decided to include the following measures in the proposed package. A sale and rent back option: this would be aimed at people whose properties were likely to be demolished at some point, and who want to sell their property before that time, for example for financial reasons, but who want to remain in their home for a period after it has been sold.

479. A tunnelling guarantee was included in response to questions and concerns raised during consultation from people with properties above the proposed HS2 tunnels, many of whom were unsure of what assistance they would be entitled to. The tunnelling guarantee is designed to reassure people that such properties will be carefully monitored before, during and after construction of the tunnel, and in

the unlikely event of any adverse effects, that these would be put right or compensated for accordingly.

480. Concerns about the effects of construction on areas close to the line were a common issue raised by attendees at consultation events. Introducing a construction small claims scheme was considered a reasonable response to these concerns and follows practice set by other schemes.

481. The Secretary of State gave careful consideration to the property purchase bond scheme option in the light of consultation responses. However her conclusion was not to include a property purchase bond. The reasons for this decision are set out in paragraphs 61 to 71 of the *Review of Property Issues*. **[DB/3/66A/2079]**

482. The Secretary of State was concerned at the additional burden which such a scheme would place on the taxpayer. This included the risk of significant cost escalation should the scheme not be effective. It also included concerns regarding the uncertainty of its effectiveness compared with tried-and-tested methods, which meant that such a property purchase bond scheme would place a significant liability on the taxpayer. The Secretary of State considered that it would not have been justifiable to create such liability, both for this project and for future projects which may be subject to precedents set by this project, for a scheme with such a high degree of uncertainty and risk.

483. The Secretary of State was also concerned about the risk of blight being exacerbated if a scheme of this kind were to lead to the Government owning a large number of properties close to the line of route.

484. Whilst having regard to the support amongst consultees for the property purchase bond approach, the Secretary of State considered that her decisions as set out in the *Review of Property Issues* on the package of discretionary measures she plans to take forward for consultation strike the right balance between helping ease blight caused by the HS2 project and avoiding placing an

unreasonable burden on the taxpayer or on promoters of similar projects in the future.

Statement of Truth

I believe that the facts stated in this witness statement are true

PHILIP GRAHAM
Dated: 3 August 2012

Annex A

Economic Appraisal

1. This annex explains the Department for Transport's approach to economic appraisal of transport projects, and how this appraisal was carried out for HS2.

2. It draws upon the published material setting out HS2 Ltd's and the Department for Transport's assessments of the economic case for HS2, including in particular:

    - The January 2012 report, *Economic Case for HS2: Updated Appraisal of Transport User Benefits and Wider Economic Benefits* **[DB/3/63/1926]**

    - The January 2012 report, *Economic Case for HS2: Value for Money Statement* **[DB/3/64/1993]**

    - The January 2012 report, *Cost and Risk Model* **[DB/3A/67/2081]**

    The tables provided below have been created specifically for the purposes of this annex on the basis of data contained within the published reports.

3. As explained at paragraph 164 of the main body of this Witness Statement, these reports are supported by a number of detailed technical documents, including *Demand and Appraisal Reports* (which provide a more detailed overview of the modelling results) and *Model Development Reports* (which set out the structure of the modelling suite and how it has been updated). These have been published on the HS2 Ltd website.

Economic Appraisal as Part of the 'Five Case' Model

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4. The Department for Transport uses a 'five-case' model for the consideration of investment decisions and the preparation of advice to Ministers on these. This approach is consistent with HM Treasury's 'Green Book' and with its supplementary guidance on the five-case model. These set out the overall Government framework for policy and project appraisal and evaluation, and for business case development.

5. The application of the five-case approach to transport projects was announced by the Secretary of State for Transport, Philip Hammond, on 27 April 2011 **[DB/2/49/1332]**[55] and is summarised in the document, *The Transport Business Case*.**DB/2/50A/1387A]**[56]

6. The five cases that are developed to support any major transport investment decision are:

   - 'strategic case' – is the proposal supported by a robust case for change that fits with wider public policy objectives?

   - 'economic case' – what value for money does the proposal represent?

   - 'commercial case' – is the proposal commercially viable?

   - 'financial case' – is the proposal financially affordable?

   - 'management case' – is the proposal achievable?

7. As can be seen, the Economic Case is an important element of this model, but it is considered by Ministers in the context of the overall business case. In particular, in the early stages of a project, Ministers will need to reflect on whether and how it meets their strategic objectives (the strategic case) as well as the extent to which it achieves value for money (the economic case). A scheme that does not achieve the objectives set is unlikely to be the preferred option regardless of the apparent value for money that it might offer.

8. A detailed explanation of the Department's approach to the appraisal of economic cases for transport projects, and the economic case for HS2, is provided below.

The Department for Transport's approach to economic appraisal

[55] http://www.dft.gov.uk/news/statements/hammond-20110427/
[56] http://assets.dft.gov.uk/publications/transport-business-case/transportbusinesscase.pdf

9. The Department for Transport publishes detailed guidance for scheme promoters setting out how the economic case for a transport project seeking Government funding or approval should be assessed. This guidance is referred to as WebTAG (Web Transport Appraisal Guidance) and is published on the Department for Transport's website at www.dft.gov.uk/webtag/. The WebTAG guidance is updated on an annual basis.

10. WebTAG covers all aspects required for the appraisal of transport projects, including the cost estimation, modelling and forecasting approaches to be used to generate an assessment of a project's benefit cost ratio (BCR), and also how costs and benefits that are difficult or impossible to monetise should be appraised. Together, these feed into an overall "value for money" assessment.

11. It is important to note that, while WebTAG sets out detailed guidance for scheme promoters, it also recognises that its contents may not be appropriate in all circumstances, particularly given the wide variation in the types and scale of schemes and policies which may need to be assessed. For example, the most recent version of the Overview section of WebTAG,[57] which was published in November 2011, after the announcement of the five-case approach described above, states at paragraph 1.3.6 that: **[DB/3/57/1745]**

> "It is worth highlighting that although WebTAG provides best-practice guidance, it is not possible to write modelling guidance to address every eventuality and in some circumstances it might be more appropriate to deviate from these minimum standards or adopt an approach not addressed by the guidance."

12. The economic case for HS2 was developed in line with the approach set out in WebTAG, with any adjustments made following discussion with the Department for Transport's analytical team, led by the Chief Economist, and other government departments, where appropriate.

13. In assessing the economic case for a project, WebTAG requires the promoter to calculate an initial BCR for the project based on elements that are capable of robust monetisation (i.e. the conversion into a monetary value of non-financial

[57] http://www.dft.gov.uk/webtag/documents/expert/pdf/overview.pdf

factors). An 'adjusted BCR' is also calculated through the incorporation of a number of additional factors, which can also be monetised but with less certainty regarding the methodologies. These BCRs can then be translated into a value-for-money (vfm) 'category' – ranging from 'poor' (below 1) to 'very high' (above 4).

14. The final step in the value for money assessment process, once the initial and the adjusted BCR figures have been calculated, is to consider in addition those factors which are relevant but cannot be quantified in monetary terms (due to a lack of evidence to support monetisation). These are referred to as non-monetised impacts. In this case, the approach taken is for the author(s) of the value for money assessment to make an informed judgement as to whether these factors would be likely to be of sufficient magnitude to move the scheme either upwards or downwards into a different vfm category.

15. The factors that are generally included at each stage are set out in the table below:

Initial BCR (robust, monetisable impacts)	**Adjusted BCR (less robust, but monetisable impacts)**	**VfM Assessment (non-monetised impacts)**
Travel time savings Crowding benefits Noise Air quality Greenhouse gases Physical activity Accidents Cost to Broad Transport budget Indirect impact on tax revenue	Reliability Regeneration Wider economic impacts Landscape Journey quality	Access to services Affordability Severance Townscape Heritage of historic resources Biodiversity Water environment Security Option values

16. It will not always be appropriate, however, to include all of these factors in the assessment for every scheme. In some cases, for example due to the nature of the project under consideration or the level of development reached, a factor may

also be treated in a different way (e.g. it may be more appropriate to make an unquantified assessment of factors such as regeneration or landscape impacts when the scheme is at a relatively early stage in its development).

17. The Green Book allows for the widest possible range of relevant factors to be considered in decision-making, but recognises that the range of factors and level of analysis should be both proportionate and material to the decision in question The overall methodology described above allows this to be achieved, whilst still recognising the comparative levels of robustness and certainty attached to the assessments of different elements.

18. In relation specifically to the HS2 economic case, the approach taken was for the initial economic analysis of costs and benefits, including wider economic impacts, to be undertaken by HS2 Ltd's analytical team (with support from external contractors). This was scrutinised and reviewed by members of the Department for Transport's Rail Analysis Division, who used it to inform an overall value for money assessment.

19. This value for money assessment was itself subject to scrutiny by the Department's Transport Appraisal and Strategic Modelling Division, and this scrutiny was led by DfT's Chief Economist. Every submission to a DfT investment board or Ministers giving advice on a proposal's business case (or otherwise refer to a proposal's Value for Money or Benefit Cost Ratio) requires clearance from Transport Appraisal and Strategic Modelling ("TASM"). TASM's role is to ensure on behalf of the Chief Economist that VfM advice accurately and concisely conveys the facts of a proposal's VfM, including the risks and uncertainties around it. For the HS2 value for money scrutiny, this process included a detailed review of the modelling suite, a sophisticated uncertainty analysis, and a review of costs by a Departmental official with significant experience in project development and delivery. In relation to the value of time savings for business travellers, which was an issue cited in many consultation responses, a bespoke evidence review was carried out and independently peer reviewed by leading transport academics.

Assessing the Transport Benefits of HS2

20. At the core of the economic case for any rail scheme will be its benefits for transport users. The calculation of these begins with the construction of a 'model' to mimic in virtual form the functioning of the transport networks and the behaviour of people using those networks. This can then be adjusted to assess the potential impacts of changes to those networks, such as the building of a new railway line. The approach to modelling used for HS2 is also discussed in paragraphs 162-171 of the main body of my Witness Statement.

21. A suite of models developed to support the assessment of major rail schemes has been used to assess the case for HS2. This suite consists of a multi-modal model ('PLANET Long Distance') which aims to allocate potential long distance travellers to rail, road or aviation depending on their relative attractiveness for specific journeys, and then localised models which look at how potential travellers on local rail services would access long-distance rail services. The latter include models covering the London commuter network ('PLANET South') and the West Midlands rail network ('PLANET Midlands').

22. In addition, HS2 Ltd commissioned the development of additional modelling tools to represent how users of the London and West Midlands local transport networks travel to and from rail stations, and also to and from Heathrow Airport. Understanding these issues would be particularly important for HS2 because (unlike many rail schemes) it would provide major new stations in these areas and hence new options for accessing the rail network. These models enabled an assessment to be made of the relative merits of different station options and of the overall benefits generated as a result of improvements to access.

23. This modelling suite was first used for the purposes of assessing the economic case for HS2 as part of the analysis set out in HS2 Ltd's December 2009 report, *High Speed Rail: London to the West Midlands and Beyond*[58], with subsequent updates carried out for the February 2011 report, *Economic Case for HS2*[59], and for the January 2011 report, *Economic Case for HS2: Updated Appraisal of Transport User Benefits and Wider Economic Benefits*.[60] In each case, detailed supporting technical documentation was also published. This is set out in paragraphs 163-164 of the main body of my Witness Statement.

[58] **[DB/1/24/349]**
[59] **[CJB/3/14/912]**
[60] **[DB/3/63/1926]**

24. The modelling suite is first populated using data representing current demand for transport. This information is obtained from ticket sales data for the rail network (LENNON data), as well as survey data from a variety of sources for rail, road and aviation. The outputs from the model in terms of the journey patterns it predicts are validated against other data sources, such as outputs from the rail industry's MOIRA model and the regular counts of passengers undertaken by train operating companies, to ensure that it is functioning correctly and can generate an accurate representation of individual travel patterns.

25. Forecasts of future demand for travel are then made. The aim for such forecasts is that they provide a solid basis for modelling and analysis, but they cannot and are not intended to be wholly accurate predictions of events, particularly when looking many years into the future. For the rail network, these are calculated on the basis of official forecasts of key factors such as population, employment and economic growth, as well as policy assumptions about issues such as fares growth, and historical evidence as to how changes in these factors affect demand for rail travel. The methodology to be used is specified in WebTAG and is largely based on the rail industry's Passenger Demand Forecasting Handbook. The Department for Transport has separate forecasting tools for road and aviation demand. Forecasts of highway demand are taken from DfT's National Trip End Model (NTEM) and forecasts of aviation demand from DfT's National Air Passenger Demand Model (NAPDM). Total forecast demand for long distance travel is then allocated across modes and origins and destinations by the PLANET long distance model.

26. In order to assess the benefits of HS2, the model is first run using this forecast of future demand on the basis of a 'do minimum' scenario for the network. This is broadly speaking the network as it is now, but may incorporate some future changes where there is a reasonable degree of certainty that these will happen (for instance, where Ministers have publicly committed to a scheme, or where a contractual commitment has been entered into). Having run the 'do minimum' scenario, the model is then adjusted to include the HS2 scheme in its representation of the network, and run a second time using the same forecast of future demand.

27. The benefits of HS2 can then be calculated by looking at the difference between the model outputs from the two runs. Some travellers will be seen to make the same journey in the first model run as in the second, but it may be quicker or more reliable using HS2 than the conventional rail network, or it may be less crowded as a result of the additional capacity provided. Some of these travellers may also have a faster journey to their final destination in the second model run, because of new interchange opportunities offered by HS2 – for instance, a rail traveller from Birmingham or Manchester to Canary Wharf currently has a slow tube journey requiring at least one change of line, whereas with the HS2 scheme in place they would be able to change at Old Oak Common and travel directly on Crossrail to Canary Wharf.

28. In addition, some trips may be forecast to be made by car or plane in the first model run, but by rail in the second, as the additional speed, reliability and capacity offered by HS2 make rail a more attractive mode, and they will benefit from a faster and potentially more comfortable journey. And some trips may not be made in the first model run, as they would be too slow or too uncomfortable, whereas the improvements that result from HS2 in the second model run would be sufficient to reverse that decision and allow travellers to benefit from the resulting journeys.

29. It is important to note that a transport user would not necessarily need to travel on HS2 itself to benefit from it. For example, the transfer of many long-distance trains and passengers to the new line could create additional capacity on the conventional network for commuters – both by reducing crowding on existing trains and enabling a greater frequency of service. And modal shift from road to rail as a result of HS2 could reduce congestion and the risk of accidents in some key locations for those continuing to use the road network. These benefits can also be identified through the model runs.

30. Having identified the benefits accruing to transport users in this way as a result of HS2, WebTAG provides standard methodologies for converting these into monetary values. Benefits from travel time savings can be generated through faster journeys, more frequent services, quicker and more convenient interchanges, and better onward connections, and different values of such time savings are stipulated for leisure, commuter and business travellers. In addition,

WebTAG provides values for reduced crowding and congestion and improvements in safety.

31. The 'initial' BCR for HS2 also includes a calculation of reliability benefits. This is different from the standard WebTAG approach to accommodate differences in modelling methodologies, with the appraisal of reliability benefits in the HS2 model being based on an approach in which improvements in reliability are treated as travel time savings. This is because they effectively reduce the amount of 'redundancy' that needs to be built in when planning journeys.

32. As discussed above, in calculating the 'initial' BCR there are additional environmental factors that should be taken into account, such as noise, air quality and greenhouse gases. Estimates of the impacts of these were made on the basis of information included in the HS2 Appraisal of Sustainability, and valued using the approaches and monetary values set out in WebTAG. Where HS2 has an overall positive effect (such as on air quality) these are counted as additional benefits, and where it has an overall negative effect (such as on noise) the value of this is treated as a 'disbenefit' and subtracted from the benefit calculation.

33. The final element in the 'initial' BCR relates to the impacts on tax revenues to the Government as travellers transfer from one mode to another. For rail schemes, this impact is normally negative, as modal shift from road to rail leads to a reduction in income from taxes such as fuel duty and Air Passenger Duty. The value of this reduction is calculated on the basis of the forecasts of modal shift provided by the model and treated as a 'disbenefit'.

34. The monetised benefits are calculated on the basis of an appraisal period of 60 years and discounted to a 'Present Value' figure using the discount rates published in HM Treasury's Green Book. Discounting in this way recognises the fact that benefits arising far into the future are not valued as highly as those arising more immediately.

35. The Present Value benefits used to calculate the BCR for HS2 are set out in the table below:

£m 2011 Present	**Phase 1**	**Full Y Network**

Value (totals may not sum due to rounding)				**(lower bound)**		
	Business	**Other**	**TOTAL**	**Business**	**Other**	**TOTAL**
Journey time savings	7,400	2,600	10,000	18,700	5,800	24,500
Improved reliability	2,200	1,000	3,200	4,100	1,100	5,200
Reduced crowding	700	2,100	2,900	1,800	4,900	6,700
Other rail user impacts	1,500	1,700	3,200	2,900	2,600	5,500
Other transport impacts	400	400	800	1,200	900	2,100
Total Transport Benefits	**12,300**	**7,800**	**20,000**	**28,800**	**15,300**	**44,100**
Plus other quantifiable benefits			600			1,000
Less reduction in tax revenue			- 1,600			- 3,600
Net Benefits			**19,000**			**41,400**

36. The benefits for the Y network were calculated by HS2 Ltd as a range, due to limitations in the model's ability to replicate in detail access to stations outside London and the West Midlands (this is explained in more detail in Para 3.1.4 of the *Economic Case for HS2: Updated Appraisal of Transport User Benefits and Wider Economic Benefits*) **[DB/3/63/1946]**. The lower bound of the range (included in the table above) assumed that all Phase 2 stations are located outside town centres and poorly linked to public transport networks. The upper bound assumed that all stations are in city centres, and as well linked to public transport as the existing main stations for those cities. As a result of the easier access to those stations in that second scenario, the high speed rail network is able to provide faster end-to-end journeys and attract more passengers, hence generating greater benefit. This sees the net benefits from the scheme rise from £41.4 billion to £46.9 billion.

37. More detailed information on the modelling approach used for HS2 and the forecasts of future demand is available in the *Model Development Report* **[DB/3A/76/2228]** and the *Demand and Appraisal Report* **[DB/3A/77/2316]**, which are described at paragraph 164 of the main body of my Witness Statement and published on the HS2 Ltd website.[61]

Estimating the Costs of HS2

Capital Costs - Infrastructure

38. The capital costs for the first phase of HS2 were developed on the basis of the design work carried out by HS2 Ltd in preparation for consultation, and reflecting the subsequent changes made in the light of responses (which are set out in Chapter 6 of the Decisions Document). The costs for the second phase were based on HS2 Ltd's ongoing design work for routes to Manchester, Leeds and Heathrow, and represented the most up-to-date information and assumptions available at the time that the economic case was finalised to inform the Secretary of State's decisions following consultation.

39. In order to estimate costs for these route designs, HS2 Ltd have used generic 'rates' for different elements of the design, such as rates per mile of track, for switches and crossings, for signalling equipment and power lines, for land costs, and for cuttings, embankments and tunnels. Costs have also been included for each of the stations in HS2 Ltd's route proposals, estimated in a similar way.

40. HS2 Ltd also calculated 'on costs' for activities such as design and project management as percentages of the engineering costs described above, and added additional cost provisions where specific issues had been identified in the design, such as at Old Oak Common, where the interdependencies between different infrastructure elements would be particularly complex.

41. Given the relatively early stage of development of the HS2 scheme, substantial additional risk allowances were added to these costs. For the first phase, a quantified risk assessment (QRA) process identified construction and other risk allowances of just over 22 per cent. Having calculated the scheme cost including

[61] [61] http://www.hs2.org.uk/eco-consresp

QRA, a further allowance of 34 per cent (of total costs including QRA) was made for 'optimism bias' – creating a total risk allowance totalling roughly 64 per cent of the 'core' costs of the scheme. Optimism bias is an additional allowance made as a project is in development to reflect a historic tendency from scheme promoters to under-estimate costs and make insufficient allowance for the risks of cost escalation.

42. For the second phase routes, because the designs were at an early stage of development, it was not possible to carry out a quantified risk analysis and therefore an overall allowance of 66 per cent for optimism bias was applied.

43. The table below sets out the treatment of risk and optimism bias in the cost estimates for Phase 1 and for the full Y network:

	PHASE 1	**PHASE 2**	**Y NETWORK**
Core cost for Phase 1	£9.9 bn		
Plus quantified risk assessment (QRA) for Phase 1 (22 per cent)	£2.2 bn		
Core cost including QRA Phase 1	**£12.1 bn**		
Plus optimism Bias for Phase 1 (34 per cent)	£4.1 bn		
TOTAL PHASE 1	**£16.3 bn**		**£16.3 bn**
Core cost for Phase 2		£9.9 bn	
Plus optimism Bias for Phase 2 (66 per cent)		£6.5 bn	
TOTAL PHASE 2		**£16.4 bn**	**£16.4 bn**
TOTAL Y NETWORK (BOTH PHASES)			**£32.7 bn**

44. This treatment of risk and optimism bias is consistent with the approach stipulated in HM Treasury's Supplementary Green Book Guidance on this topic[62] and with WebTAG. For non-standard civil engineering projects such as HS2, the starting point is to include optimism bias of 66 per cent on capital costs, however this can be reduced where elements of a project have reached a more detailed stage of development or where steps have been taken to mitigate the risks of cost overruns (including through QRA processes). The risk and optimism bias allowances included in HS2 Ltd's costings were reviewed by DfT's analytical

[62] http://www.hm-treasury.gov.uk/green_book_guidance_optimism_bias.htm

team, and by a senior member of staff with experience in project development and delivery, and found to be appropriate.

45. The infrastructure costs discussed above relate to the initial construction of the network. For the purposes of calculating a BCR it is necessary to also consider the capital costs associated with renewing that network over the course of the appraisal period. These are calculated on the basis of the expected lifetime of different elements of the infrastructure, with the track being assumed to be renewed, for example, on a 30-year cycle, whereas signalling would be renewed more often, on a 15-year cycle.

Capital Costs – Rolling Stock

46. An additional capital cost relates to the purchase and renewal of rolling stock for the network. The economic case for HS2 assumes two different types of rolling stock would be purchased:

- Dedicated, European gauge high-speed trains. These could be off-the-shelf designs as they would be procured to the same specification as the trains used on other European high speed rail networks, but would only be able to run on the HS2 track, as the remainder of the UK network has been built to a smaller gauge.

- 'Classic compatible' high speed trains build to UK gauge and capable of travelling both on HS2 and on the conventional network (as the Eurostar trains are currently). These would be more flexible in their operation, but more expensive as they would need to be a more bespoke design.

47. The numbers required of each type of train are calculated on the basis of the service specifications (e.g. the outline timetables) incorporated into the model used to calculate overall benefits. As for the infrastructure, the rolling stock costs include allowances for optimism bias (OB). These are lower than for the infrastructure costs, as there is more information available on which to base cost estimates, particularly for the dedicated high-speed fleet, as this could use tried-and-tested European designs.

48. The capital costs for purchasing rolling stock are set out in the table below.

	Phase 1				**Full 'Y' Network**			
	No of sets	**Cost (£m)**	**Level of OB**	**Cost inc. OB (£m)**	**No of sets**	**Cost (£m)**	**Level of OB**	**Cost inc. OB (£m)**
Dedicated High-Speed Trainsets	16	425	18%	500	105	2,785	18%	3,285
200m 'Classic Compatible Sets	45	1,790	40%	2505	68	2,705	40%	3,785
260m 'Classic Compatible Sets	--	--	--	--	15	775	40%	1,085
TOTAL				**3,005**				**8,160**

All numbers rounded to the nearest £5m which means totals may not sum correctly

49. Given the 60-year appraisal period, costs are also included in the BCR calculation for the renewal of the rolling stock fleet, which is assumed to take place 35 years after purchase.

Operating Costs

50. In addition to the capital costs described above, the costings used to generate the benefit cost ratio for HS2 include operating costs relating to the operation of services and maintenance of track and trains.

51. The cost used for infrastructure maintenance is derived from the costs of maintaining HS1, and is calculated as an annual cost per kilometre of £191,000. This is likely to be an over-estimate, as it includes a high level of overhead costs, given the shorter length of HS1 compared to HS2 (either the first phase or the full network), but no adjustment is made for this.

52. Train operating costs are derived from a range of assumptions, including in relation to power consumption and costs, staff costs and maintenance costs. These are derived from evidence drawn from the existing network, and where appropriate from Government forecasts, such as for electricity costs. Staff costs are also included for the operation of the HS2 stations.

53. The additional capacity provided by HS2, and the transfer of many long-distance services to the new line, creates the opportunity to rethink the timetable and service patterns on the conventional network. On the basis of the 'released capacity' service specification developed by HS2 Ltd, even though this provides a valuable improvement in service levels for many destinations, the overall effect is to reduce operating costs on existing lines. This is because with HS2 in place fewer long-distance services, which tend to have the highest operating costs, would be run on the conventional network over the course of the day, and where the capacity released is used for other services, these would generally be operated using smaller trains with lower costs. These savings are subtracted to generate the net operating cost increase as a result of HS2.

54. In line with the approach set out in WebTAG, operating costs have an additional allowance of 41 per cent added for optimism bias.

55. As with the benefits, in order to calculate a BCR the costs of HS2 must be converted into a 'Present Value' using the discount rates set out in the HM Treasury Green Book. This has only a small (though still noticeable) impact on the initial cost of construction and of the purchase of rolling stock, as this is incurred relatively early and spread across only a small number of years. However, for renewal, maintenance and operating costs it has a much more significant effect, as these are incurred across the full 60-year appraisal period.

56. The operating costs over the course of the appraisal period used in calculating the BCR for HS2 are set out in the table below:

COSTS IN £M, 2011 PRESENT VALUE (NB: TOTALS MAY NOT SUM DUE TO ROUNDING)	**PHASE 1**	**FULL Y NETWORK**

HS2 infrastructure operations and maintenance	800	1,900
Rolling stock maintenance	2,600	6,600
Rolling stock traction power	2,200	6,100
Train crew	1,600	3,900
Station costs	300	500
Other HS2 operating costs	600	1,200
Classic line cost saving from released capacity	- 1,900	- 5,100
Additional provision for optimism bias (41 per cent)	2,600	6,500
TOTAL OPERATING COSTS	**8,600**	**21,700**

57. More detail of the approach taken to calculating capital and operating costs, including of the specific rates used for each element, are available in the *HS2 Cost and Risk Model* **[DB/3/67/2081]**, published on the HS2 Ltd website.[63]

58. The final element in calculating the net cost to Government of HS2 is the additional fares revenues that are generated by the project, which are subtracted from the total capital and operating costs. This is because the BCR is used to help inform decisions by Ministers regarding the best use of Government funds, and since any fares revenues effectively serve to reduce the level of subsidy to the railways that the Government has to provide, these effectively reduce the call on the Exchequer in promoting the scheme.

59. Fares revenues are estimated from the outputs from the model runs used to derive the benefits of HS2. Average fares for each journey on the network are calculated using current ticket sales data, and uplifted over the appraisal period on the basis of current Government fares policy and assumptions about future changes in fares. Attaching fares levels to the journeys generated by the model runs enables the difference in revenues between the 'do minimum' model run and the run including HS2 to be identified, and fed into the BCR.

60. It is important to note that fares revenues are calculated on a 'whole network' basis – i.e. not only the additional revenues generated by HS2 but also

[63] http://www.hs2.org.uk/assets/x/85359

reductions in revenues on the existing network caused by the transfer of long-distance passengers to the new line are taken into account. Some critics of HS2 have argued that the economic case fails to properly allow for increases in subsidy on the current network due to the construction and operation of HS2, but this approach demonstrates that this criticism is unfounded.

The Economic Assessment of HS2

61. The assessment of the benefits for transport users and the costs of HS2 was carried out by HS2 Ltd. The results of its assessment were published alongside the Decisions Document in the report, *Economic Case for HS2: Updated Appraisal of Transport User Benefits and Wider Economic Benefits* **[DB/3/63/1926]**.[64]

62. The calculation of the 'initial' BCR for HS2 used to inform Ministers' decisions following consultation is set out in the table below:

ALL £ FIGURES IN £BN, 2011 PRESENT VALUE	**PHASE 1**	**FULL Y NETWORK**
BENEFITS	**£19.0**	**£41.4 – 46.9**
CAPITAL COSTS	£18.8	£36.4
OPERATING COSTS	£8.6	£21.7
TOTAL COSTS (CAPITAL PLUS OPERATING)	**£27.4**	**£58.1**
FARES REVENUES	£13.9	£31.8 – 34.0
NET COST TO GOVERNMENT (COSTS MINUS REVENUES)	**£13.5**	**£26.3 – 24.1**
'INITIAL' BCR (BENEFITS / NET COST)	**1.4**	**1.6 – 1.9**

63. As set out in paragraphs 8-10, however, this initial BCR excludes some additional factors which should be taken into account in assessing the economic value of a project. Where these can be quantified and monetised, they should be incorporated into an 'adjusted' BCR. For HS2, the most important monetisable factors of this kind are:

- Wider economic impacts; and

[64] http://www.dft.gov.uk/publications/hs2-economic-case-appraisal-update/

- Landscape effects.

64. The development of techniques to measure wider economic impacts of transport interventions dates back to work undertaken by SACTRA (the Standing Advisory Committee on Trunk Road Appraisal) published in 1999[65], which concluded that there could be benefits for businesses and the economy from transport projects which would not be captured simply by modelling the time savings and other benefits for individual travellers. The Department followed this up with new appraisal guidance, showing scheme promoters which wider economic impacts needed to be estimated, and how to calculate them. The importance of these effects was further emphasised by the 2006 Eddington study into transport and economic growth, and the Department has applied these methods in a variety of scheme appraisals, including the appraisal of the Crossrail project, where such effects make a significant contribution to the overall scheme benefits.

65. The most important of these in relation to HS2 are 'agglomeration effects'; these effects are driven by the fact that business productivity tends to increase where businesses are 'clustered' together (which can be seen in, for example, the high premiums paid by financial firms to be located close to other such companies in the City of London or Canary Wharf). Transport improvements can effectively widen the geographic scope of these 'clusters' by providing more firms and individuals with easy access to the pools of knowledge, ideas, labour and customers which they promote. These effects tend to be most pronounced within conurbations and over shorter distances, and therefore much the greatest part of the agglomeration effects from HS2 result from the improvements in shorter distance and commuter rail that can be made as long-distance services transfer to the new high speed lines. Even so, these benefits are still substantial – ranging from roughly £2.8 billion for Phase 1 to potentially more than £9 billion for the full Y network.

66. A second wider economic effect of relevance to HS2 relates to the fact that markets are generally imperfect and hence the additional output made possible by transport improvements is likely to be valued more highly by consumers than by those producing it. This uplift in value is not currently captured by conventional

[65] DETR (1999) 'Transport and the Economy', SACTRA (Standing Advisory Committee on Trunk Road Assessment)

transport appraisal techniques, and adjusting for it provides an additional increase to the benefits from HS2, lifting the total wider economic impacts to just over £4 billion for Phase 1 and up to £12.3 billion for the Y network.

67. The impacts of HS2 on the landscape through which it passes are also significant. The 'adjusted' BCR includes an assessment of the value of these impacts. To make an assessment of this kind, a detailed route is required, as it is based on a mile-by-mile analysis of the land types through which the line passes and the potential effects of HS2 on that land. For this reason, an assessment was only made for Phase 1, as no confirmed route was available for the second phase of the network. The landscape impacts for Phase 1 were assessed as a 'disbenefit' of just under £1 billion.

68. In addition to this monetised valuation, the Appraisal of Sustainability also included more detailed, but non-monetised, information about the potential landscape impacts of HS2.

69. The calculation of the adjusted BCRs for HS2 is set out in the table below:

ALL £ FIGURES IN £BN, 2011 PRESENT VALUE	**PHASE 1**	**FULL Y NETWORK**
A. 'CONVENTIONAL' BENEFITS	**£19.0**	**£41.4 – 46.9**
B. NET COST TO GOVERNMENT (COSTS MINUS REVENUES)	**£13.5**	**£26.3 – 24.1**
C. 'INITIAL' BCR (BENEFITS / NET COST)	**1.4**	**1.6 – 1.9**
D. Wider Economic Impacts	£4.1	£5.7 - £12.3
E. BENEFITS INC. WIDER ECONOMIC IMPACTS (WEIs)	**£23.1**	**£47.2 - £59.3**
F. BCR INC. WEIs (E / B)	**1.7**	**1.8 – 2.5**
G. Landscape Impacts	- £1.0	--
H. BENEFITS INC. WEIs & LANDSCAPE IMPACTS	**£22.1**	**--**
I. 'ADJUSTED' BCR (H / B)	**1.6**	**1.8 – 2.5**

70. Because no robust assessment of landscape impacts could be made for Phase 2, in advising the Secretary of State on the value for money of the Y network, the

Department for Transport's analytical team noted that the landscape impacts would have to total around £8bn for the adjusted BCR to drop below 1.5 and into the 'low' vfm category even at the lower end of the range.

71. A further factor taken into account in advising the Secretary of State on the value for money of HS2 was a significant downwards revision of the forecasts of economic growth produced by the Office of Budget Responsibility which occurred while the economic assessment of the scheme was in progress. A sensitivity test was carried out to test the effect of this change on the BCR for the Phase 1 scheme, which indicated that it would reduce the BCR for phase 1 by less than 0.1.

72. The remaining factors to be considered in the value for money assessment were not quantified in monetary terms for the most part, but consideration was given to whether they would be likely to have an upwards or downwards effect. These included factors which could be monetised as the HS2 proposals are developed further, such as regeneration effects and journey ambience improvements (discussed at paragraph 6.3 of the report, Economic Case for HS2: Value for Money Statement), and effects for which no agreed approach to monetisation is available such as townscape, heritage and biodiversity effects (a list is provided at paragraph 6.16 of the same document). **[DB/3/64/2004]**

73. The exception to this non-monetised approach was that the Department's analysts took into account a paper prepared for HS2 Ltd by its consultants on the potential additional benefits associated with the redevelopment of Euston station, which indicated that the value of these could be as high as £900 million or more. This was not incorporated into the 'adjusted' BCR as further analysis of the issues was required, but it was accepted that this redevelopment would have a positive impact over and above that captured through the transport analysis.

74. In respect of the London to West Midlands phase of HS2, the Department for Transport's judgement was that this scheme was towards the lower end of the 'medium' value for money category, with the unquantified impacts exerting both downwards (e.g. heritage and biodiversity) and upwards pressure (e.g. access to services and Euston improvements).

75. A full value for money assessment of the Y scheme was not made, as without a detailed route design for the second phase too many impacts would have to be omitted. It was however noted, as set out in paragraph 70 above, that the scale of these impacts would have to be very significant to move the scheme, even at the lower end of the range, out of the 'medium' value for money category, particularly given the additional 'upside' factors that would also have been omitted.

The comparative value for money of HS2

76. A number of critics of the Government's proposals have argued that the value for money offered by HS2 is insufficiently high to justify promoting the project. In reality it is not the case either that the value for money of HS2 is significantly lower than those of other major schemes or that the scheme necessarily should not be taken forward even if it were.

77. It is true that the BCR for HS2 is lower than those of many smaller infrastructure schemes. None of these schemes, however, is able to deliver the scale of benefits offered by HS2. When HS2 is compared to other major schemes aimed at delivering a very significant enhancement to capacity or connectivity the picture is less clear-cut. The benefit cost ratio for HS1, for example, the only other high speed line to be built in the UK, was assessed at the time that a Government decision was made to proceed with the project in 1998 as being approximately 1.5 (including a quantified assessment of regeneration benefits, which has not been made for HS2);[66] and the benefit cost ratio for Jubilee Line Extension at a similar stage was lower still at just 0.95.[67]

78. It should be noted that a number of major changes to the Government's appraisal methodologies have been made since the BCR for the Jubilee Line Extension was calculated, but even adjusting for these it is estimated that the BCR would be approximately 1.75 – still well within the range for the HS2 Y network. The BCR calculated for Crossrail prior to the hybrid Bill entering Parliament was slightly higher at roughly 2.0, rising to 2.6 with the inclusion of wider economic impacts (this was the first time that these had been incorporated into the assessment of a major infrastructure project of this kind).

[66] See **[DB/3A/81C/2455]**
[67] See **[DB/3A/81D/2467]**

79. The BCR for the London to West Midlands phase of HS2 is within the range of those for other major infrastructure projects. The BCR for the full Y network is towards the upper end of the range of assessments for comparable major projects, with only Crossrail being assessed as being higher.

80. A BCR summarises a considerable amount of information in a single metric that lends itself to the comparison of proposals. It is necessary to have in mind, however, that a BCR only captures those impacts that are amenable to quantitative analysis and monetisation. It tends to obscure the detailed trade-offs that are being made within its calculation. A BCR can be a useful device for a first comparison of many different proposals. It is not a substitute for a comprehensive evaluation and judgement of the overall costs, benefits and merits of a major transport project.

81. As set out at paragraphs 2 to 7 of this Annex, the economic case is one of the five cases that are used to inform Ministerial decision-making on major investments.

Criticisms of the Economic Case for HS2

82. A number of criticisms have been made of the approach to the assessment of the economic case for HS2. These are discussed in some detail in the Decisions Document and in the *Economic Case for HS2: Value for Money Statement*[68], and the Government's position in each case is summarised here.

83. The most significant criticisms have tended to relate to two issues:

- The robustness of the forecasts used of future demand for rail travel; and
- The valuation of time savings benefits for business travellers.

<u>Demand Forecasting</u>

[68] **[DB/3/64/1993]**

84. The first key concern raised about the HS2 demand forecasts relates to the 'GDP elasticities' underpinning them (these set out the relationship between GDP growth and rail demand growth, with, for example, an elasticity of 0.5 meaning that every 1 per cent of GDP growth would be matched by 0.5 per cent growth in rail demand). It has been argued that the GDP elasticities used by HS2 Ltd to derive the demand growth for the HS2 business case were out of date. This is because they were drawn from Version 4.1 of the rail industry's Passenger Demand Forecasting Handbook (PDFH 4.1), whereas a more recent version (PDFH 5) was published in 2009, containing a lower GDP elasticity figure for long distance journeys.

85. In making its forecasts, HS2 Ltd has followed the WebTAG forecasting guidance, which stipulates the use of the PDFH 4.1 elasticities.

86. DfT undertakes considerable due diligence in considering whether to adopt new appraisal guidance, taking account of all relevant evidence. The case for incorporating the PDFH 5 elasticities has always been finely balanced, not least because these would have performed poorly in predicting the continuing growth in long distance rail travel over the recent recession, and the Department gave this issue detailed consideration before reaching a view. In May 2012, having completed its consideration, the Department released new draft guidance indicating its intention to switch to the PDFH 5 elasticities. Given the uncertainties, in taking this decision, the Department emphasised the importance of sensitivity testing. HS2 Ltd has indicated its intention to test a range of potential approaches to forecasting long term demand growth in future updates of the economic case for HS2 **[DB/3A/78/2384]**.[69]

87. Due to the interest in this issue expressed in consultation responses, HS2 Ltd conducted a sensitivity test using the PDFH 5 elasticities to inform the Secretary of State's decision, the details of which are set out in the *Economic Case for HS2*. This indicated that the change to the PDFH 5 elasticities would reduce the BCR for the scheme, though this effect could potentially be mitigated through changes to service patterns.

[69] See http://www.hs2.org.uk/assets/x/85349

88. This issue is discussed in more detail in paragraphs 16.2-16.9 of the *Economic Case for HS2: Value for Money Assessment* **[DB/3/64/2026]**.

89. The second concern raised about the HS2 demand forecasts relates to the level at which the 'demand cap' is set. This is the point after which it is assumed in the model that no further demand growth is occurred and is used as a proxy for market saturation effects, since without such a cap the elasticity-based approach to forecasting would see demand grow to potentially unsustainable levels over the long-term. This issue is also discussed in paragraphs 153-158 of the section of the main body of my Witness Statement covering the Strategic Alternatives.

90. In relation to rail schemes, the approach stipulated in WebTAG is to cap demand in 2026 (although draft guidance has since been issued indicating an intention to push this date back to 20 years from the point of appraisal, and noting that a different approach may be appropriate for some schemes). Given that this would effectively mean that the modelled demand would have ceased to grow by the time the Phase 1 scheme opened, HS2 Ltd considered that a different approach needed to be adopted for HS2. This was based on identifying an appropriate level at which to cap rail demand, rather than using a specific year, as this was likely more accurately to reflect the way in which demand growth might slow or saturate in practice.

91. The level at which to cap demand was set by HS2 Ltd at a level roughly equivalent to a doubling of long-distance growth above 2008 levels (the base year for their original 2009 forecasts). For the January 2012 forecasts used to inform the Secretary of State's decisions, this meant that no further demand growth was included in the model after 2037.

92. The Government's view is that, while there is inevitably uncertainty about such forecasts, this is an appropriately conservative approach, given that many of the drivers of demand growth (such as population and employment growth) are predicted to continue well beyond this point. Setting the cap at this level also equates to only a very small increase in the average number of long-distance rail journeys per person over current levels (less than one every two years). Nonetheless, given the uncertainty, this was a key issue for sensitivity testing, as discussed below.

93. This is discussed in paragraphs 16.14 to 16.18 of the *Economic Case for HS2: Value for Money Assessment*. **[DB/3/64/2028]**

Valuing Time Savings for Business Travellers

94. The approach to identifying the correct value to place on time savings for business travellers on rail journeys has been a matter of debate within the academic community for decades.

95. The established UK approach used for valuing such time savings is based on a simplifying assumption that any reduction in journey time delivers a commensurate increase in productive time for the traveller (i.e. if a traveller's journey is one hour shorter, then he or she would benefit from an additional hour's work). In reality, the situation is clearly more complex. Travellers may be able to get work done whilst in transit and so it is not clear to what extent time spent travelling is really 'lost time' for work. This is most obviously the case in relation to long distance rail journeys, where the environment can be particularly amenable to working. On the other hand, it could equally be argued in some circumstances that a reduction in journey time may be of far greater value than the commensurate time spent working. This might be the case, for example, if a faster journey allows a traveller more time at his or her destination, and hence enables the negotiation of two important contracts in the course of a single trip rather than just one. Critics of the established approach tend to focus on the average productivity of travellers arguing that the assumption that all journey time is on average unproductive is unreasonable. However, for the purposes of appraising schemes, it is the marginal productivity of travellers that is important – that is, what they do with the extra time savings realised.

96. If the value of being able to work on the train were to be taken into account, it would be likely to have a significant effect on two factors: (i) the value of time savings for business travellers and (ii) the valuation of reducing crowding. As the table at paragraph 35 of this Annex shows, the level of time savings benefits for business travellers from HS2 is significantly higher than for other travellers, whereas the level of crowding benefits is significantly lower. This is because it is assumed that a business traveller gets significant value from time savings due to

their effects on productivity, whereas no such effect is assumed from crowding reduction (as with the leisure traveller, the business passenger is assumed just to get a more comfortable journey). In reality, the more crowded a train the harder it is to work effectively. Therefore, in considering this issue, it is important to take both potential effects into account.

97. The Government has publicly acknowledged that this issue requires careful consideration in relation to the economic case for HS2, and it was covered in some detail in Chapter 2 of the February 2011 Consultation Document (see page 50 in particular). In addition, the economic analysis produced for the 2011 public consultation included a sensitivity test to consider the effect on the economic case of using a different approach. This sensitivity test reduced the value of time savings for business travellers by a half, but also increased the value attached to crowding relief for business travellers. The overall impact was broadly neutral.

98. This issue was raised in a large number of consultation responses. In response, HS2 Ltd reran the sensitivity analysis as part of the updated economic case used to inform Ministers' decisions. The Department for Transport's Strategy Unit also carried out an evidence review of the issue **[DB/3A/79/2388]**, which was subject to independent peer review by the Institute for Transport Studies at Leeds University **[DB/3A/80/2397]**. Both these reviews have now been published on the Department for Transport website.[70] The conclusion of the peer review was that given the analytical challenges presented by this issue, currently the most appropriate way of handling it was to use the 'standard' approach but to also carry out sensitivity testing. This had been the approach of HS2 Ltd.

99. This issue is discussed in more detail in paragraphs 17.2 to 17.11 of the *Economic Case for HS2: Value for Money Assessment*. **[DB/3/64/2031]**

The approach to sensitivity testing in the economic case for HS2

100. Throughout their work on the case for high speed rail, beginning with their original December 2009 report to Government, HS2 Ltd have recognised the importance of sensitivity testing to ensure that impact on their conclusions and recommendations of changes to key assumptions are understood. This process

[70] http://www.dft.gov.uk/publications/review-value-time-assumptions-hs2/ and http://www.dft.gov.uk/publications/its-leeds-peer-review-hs2/

was further strengthened in the light of consultation responses, and the January 2012 report, *Economic Case for HS2: Updated Appraisal of Transport User Benefits and Wider Economic Benefits*, which was used to inform Ministers' decisions, incorporated a number of additional sensitivity tests to respond to points raised. **[DB/3/63/1926]**

101. The testing carried out by HS2 Ltd covered a number of issues:

- Changes to the level and pattern of rail demand growth – including testing different rates of demand growth and different levels at which demand growth might come to an end. These factors play a major role in the calculation of the benefits for HS2, and so a number of upside and downside scenarios are tested. As set out above, in January 2012 this also included testing the drivers of demand growth in PDFH 5;

- Changes to rail fares assumptions – including testing both faster and slower growth in rail fares, and different assumptions regarding the effect of fares changes on the overall level of demand;

- Changes to the assumptions about the value of time savings for business travellers (see above);

- Changes to demand and pricing on other modes – including testing the impact of assuming that car and/or air travel sees no further growth, and the impacts of higher prices for road travel and aviation;

- Changes to the design of the scheme – including reducing the speed and capacity of the HS2 line and reducing the seating capacity of the HS2 rolling stock; and

- Changes to the costs of HS2 – including looking at the impact of changes to the construction, rolling stock and operating costs of HS2, looking in particular at the treatment of optimism bias.

102. Sensitivity analysis has shown that the case for HS2 is most sensitive to changes in the assumptions about the rate and, particularly, level of demand

growth. Sensitivity analysis has focused on these issues. HS2 Ltd has made relatively conservative assumptions in relation to long term demand growth.

103. Other factors which have a substantial impact include the assumptions about the costs of car travel (as this affects the relative attractiveness of rail to the much larger market for car travel) and changes to fares, especially where these are assumed to have an impact on the overall level of demand growth achieved. In contrast, the economic case is comparatively robust to changes in demand growth for road travel and aviation, and to incremental changes in the design of the scheme.

104. The results of these tests are discussed in detail in the *Economic Case for HS2: Updated Appraisal of Transport User Benefits and Wider Economic Benefits* **[DB/3/63/1926]** and in the *Demand and Appraisal Report* **[DB/3A/77/2316]** published on the HS2 Ltd website.

105. These sensitivity tests look at changes to individual factors in isolation. Following the completion of consultation, the Department for Transport analytical team concluded that it was also important to consider the combined effect of groups of potential changes. To support this 'risk analysis', a new analytical tool was developed, which considered a very large number of possible combinations of effects to assess the likelihood of different levels of change to the adjusted BCR for HS2.

106. The conclusions of this work are set out in the *Economic Case for HS2: Value for Money Statement.* This indicates that the likelihood of the value for money of the first phase of HS2 falling into the 'low vfm' category is relatively small; the most likely value for money category would be 'medium' (see paragraphs 9.3 to 9.7 and Chart 1). **[DB/3/64/2012]**

Changes to the Economic Case for HS2 since 2009

107. The benefit cost ratio published in the January 2012 economic case for HS2 is lower than that set out in the consultation documentation in February 2011, which was itself lower than that published in March 2010 in the previous

Government's Command Paper, *High Speed Rail* **[CJB/1/3/261]**. The different benefit cost ratios are set out in the table below:

	March 2010	**February 2011**	**January 2012**
BCR Phase 1 (without Wider Economic Impacts)	2.4	1.6	1.4
BCR Phase 1 (with WEIs)	2.7	2.0	1.7
BCR Y Network (without WEIs)	--	2.2	1.6 – 1.9
BCR Y Network (with WEIs)	--	2.6	1.8 – 2.5

108. These reductions reflect a number of factors, including changes to costs for elements of the project, changes to the modelling approach and some of the underpinning assumptions (such as population growth), and adjustments and corrections to the model itself. The most significant factors, however, were changes to the official Government forecasts of GDP growth and changes to the base year used for modelling.

109. While many of the forecasts underpinning the HS2 economic case changed relatively little between updates of the economic case, the economic outlook has varied considerably. The chart below shows the GVA/capita inputs used in each iteration of the economic case for HS2 (these are derived from the Government's central forecasts of GDP growth.

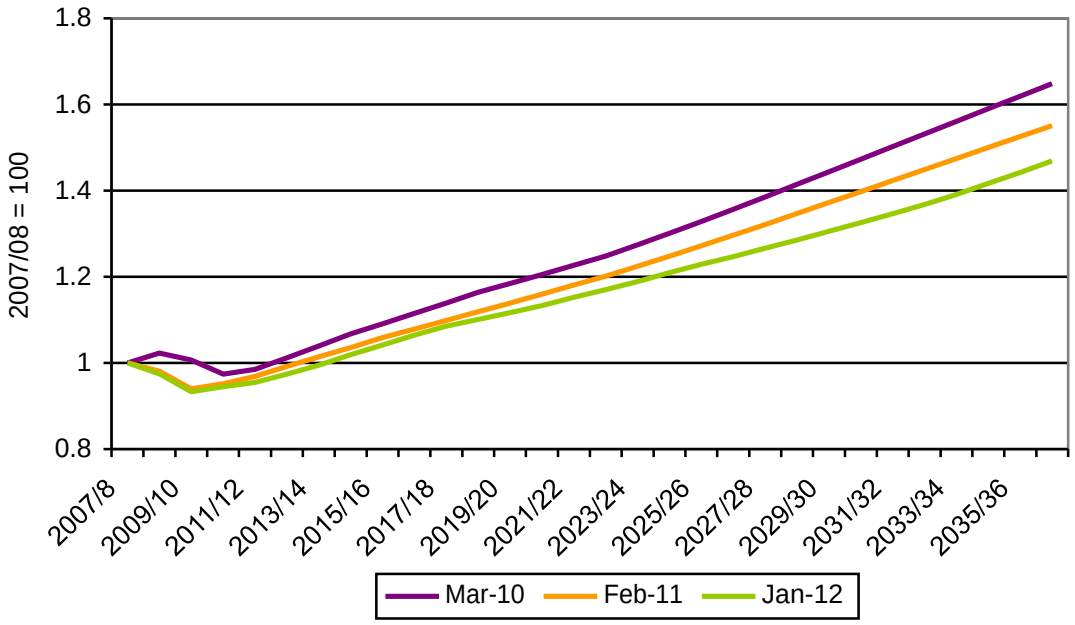

Chart 1: GVA per capita assumptions

110. Following the 2010 general election, the new government established the Office of Budget Responsibility (OBR), one of whose roles is to provide independent forecasts of economic growth. The first forecasts produced by the OBR were significantly lower than those produced by HM Treasury under the previous Government so that between the March 2010 and February 2011 iterations of the economic case, projections of GDP per capita fell by a total of 5.5% over the period to 2032-33. When combined with an associated reduction in the forecast rate of employment growth and changes to fares policy, the net impact of all the changes to the assumptions was to suppress the rate of background rail demand growth so that the point at which the cap level of demand would be reached shifted back from 2032-33 in the March 2010 economic case to 2042-43 in February 2011.

111. Between February 2011 and January 2012 the economic outlook was further downgraded. Over the same period, HS2 Ltd implemented a range of other updates, the most significant of which involved updating the year from which their forecasts were based.

112. The economic case for HS2 published in February 2011 predicted a significant fall in rail demand in the years immediately following the base year of 2007-08 as a consequence of the economic crisis. In practice this was not

observed. Rail demand (particularly long-distance rail) continued to grow over the period 2008-11, as is shown in the chart below.

113. In the January 2012 iteration of the economic case, the base year for forecasting was brought forward to 2010-11. Growth in rail demand over the three years from 2007-08 was thereby taken into account in the forecasts. By increasing the number of trips in the base year there is subsequently less growth needed to reach an approximate doubling of 2008 demand. The result of this was that in the January 2012 update the demand cap came forward to 2036-37.

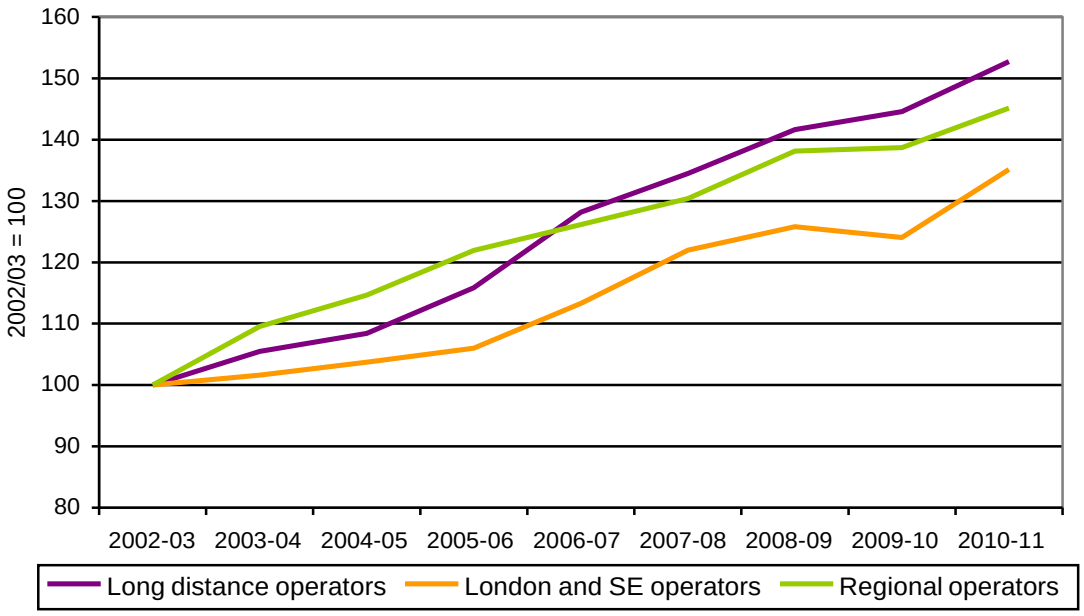

Chart 2: Passenger Journeys by Sector

Source: National Rail Trends, ORR

114. Given that the level at which demand was capped did not change, however, the increased benefits due to actual growth in the early years of the period under consideration did not outweigh the broader impacts of the lower GDP forecasts published since the previous iteration of the economic case. A reduction in GDP growth affects both the rate at which demand grows, but also the level of benefits from journey time savings and other factors, as the monetised value which passengers are estimated to attach to these is assumed to increase in line with GDP. Therefore, even allowing for additional early demand, the overall effect on the BCR was downwards.

Changes to the Economic Case for HS2 since January 2012

115. Following the announcement of the Secretary of State's decisions on 10 January 2012, HS2 Ltd and its advisers began work to prepare a range of supporting technical documentation on the economic analysis for publication. This was in line with the approach that had been taken in relation to previous iterations of the economic case.

116. In the course of preparing that supporting documentation, a number of technical issues were identified in the model outputs that had been produced. This was not unexpected; each run of the PLANET model produces outputs totalling several Gigabytes of data, and whilst significant quality assurance checks were carried out, it is always possible that some errors will not be picked up. This is one of the reasons why sensitivity testing has been and continues to be carried out.

117. Save in one respect, these issues were relatively minor and their aggregate effect was broadly neutral.

118. One issue was more significant, affecting the economic cases both for HS2 and for the strategic alternatives (which were assessed using the same modelling suite). This issue related to the level at which the demand cap had been set. The date at which the demand cap level would be reached was calculated using a spreadsheet tool, the outputs of which were then used to calibrate the full model. A technical error in the spreadsheet meant that outputs were used in this instance had been based on a demand cap roughly 5 per cent higher (and hence two years later) than in previous iterations of the economic case. Adjusting for this error would reduce the overall level of demand in the model, and as a result lower the benefits from HS2 and the Strategic Alternatives.

119. The impact of this adjustment on the BCR for HS2 is estimated to be a reduction of approximately 0.2 for the first phase, and 0.3-0.4 for the second phase. A similar reduction would be expected in the BCRs for the Strategic Alternatives. The scale of the change to the demand cap, however, lay well within the range of the sensitivity tests which had previously been carried out and presented to Ministers.

120. Adjusting for this error would have no impact on the strategic case for HS2. It would not alter the analysis by Network Rail of the impacts of the different alternatives in relation to demand growth and crowding on the southern stretches of the West Coast Main Line.

121. HS2 Ltd has published a note explaining this issue in more detail **[DB/3A/78/2384]**[71], and setting out how it will be addressed in subsequent updates to the economic case. ,

[71] http://www.hs2.org.uk/assets/x/85349

Annex B: The Crossrail Bill

Overview

1. The Crossrail Bill was introduced in February 2005. The Bill took 3 years, 5 months, to complete its Parliamentary process. In summary the key stages were as follows:

- 22 February 2005 – Bill and the accompanying ES introduced to the Commons. The public invited to comment on the ES
- July 2005 – Command paper 6603 to Parliament presenting representations received from the public on the ES **[DB/1/4/80]**[72]
- 19 July 2005 – (Commons) Second reading debate
- 17 January 2006 to 18 October 2007 – (Commons) Select committee (84 sitting days considering 205/457 petitions and 4 additional provisions) followed by Special Report
- 22 – 27 November 2007 – (Commons) Public bill committee
- November 2007 – Command paper 7249 to Parliament presenting representations received from the public on the supplementary ESs **[DB/1/13/228]**[73]
- November 2007 – Command paper 7250 to Parliament summarising the work carried out to assess, control, and mitigate the environmental impacts of the project
- 13 December 2007 – (Commons) Report stage
- 13 December 2007 – (Commons) Third reading
- 14 December 2007 – Bill introduced into the Lords
- 17 January 2008 – (Lords) Second reading
- 19 February 2008 to 8 May 2008 – (Lords) select committee (29 sitting days considering 45/113 petitions) followed by Special Report
- 26 June 2008 – (Lords) Grand committee
- 16 July 2008 – (Lords) Report stage

[72] Command Paper 6603: http://www.official-documents.gov.uk/document/cm66/6603/6603.pdf
[73] Command Paper 7249: http://www.official-documents.gov.uk/document/cm72/7249/7249.pdf

- 22 July 2008 – (Lords) Third reading
- 22 July 2008 – Royal Assent

The principle of the Bill and instructions to select committee

2. At second reading on 19 July 2005, Members debated the principle of the Bill and the instructions to be put to the Select Committee. Following substantial debate and a vote, the House gave the following instruction to the Select Committee (House of Commons, Votes and Proceedings, Tuesday 19 July 2005: **[DB/1/3/73]**

   a) that the Select Committee, without comment, report to the House for its consideration any issue relating to the environmental impact of the railway transport system for which the Bill provides that is raised in a Petition against the Bill, but which the Select Committee is prevented from considering by the practice of the House; and

   b) that, in applying the practice of the House, the Select Committee treat the principle of the Bill as including—

      i) the termini of the railway transport system for which the Bill provides, and

      ii) the provision of intermediate stations at Paddington, Bond Street, Tottenham Court Road, Farringdon, Liverpool Street, Whitechapel, the Isle of Dogs and Custom House.

3. This instruction was debated at second reading, including the question whether the Select Committee could consider the provision of particular stations along the route (as these formed part of the Bill's principle). The House was concerned that the Select Committee should not be too restricted in what it could consider and hear petitions on, although it was noted that if the Select Committee felt constrained it could request guidance from the House.[74]

4. Following second reading and during the select committee hearings, the House gave further instructions to the Select Committee (on 12 January 2006, 31 October 2006, and 25 April 2007): **[DB/1/3/77-79]**

[74] The key points of this debate are summarised in House of Commons Research Paper 07/85 pp.8-10 (http://www.parliament.uk/documents/commons/lib/research/rp2007/rp07-085.pdf)

- To consider four sets of additional provisions that were introduced to the bill following second reading and during select committee proceedings in light of petitions
- To enable (but not require) consideration of extending Crossrail to Reading and Ebbsfleet
- To consider an intermediate station at Woolwich.

5. The instructions relating to additional stations enabled the committee to hear petitions on matters which were not within the principle of the bill.

Petitioning

6. 358 petitions against the Bill were received in the Commons, and a further 99 petitions were received against the four Additional Provisions introduced later. Wherever possible, the Government endeavoured to resolve petitions outside of committee, negotiating assurances and undertakings with the petitioners. This resulted in many petitions being withdrawn. The Government did not challenge the *locus standi* of any of the petitioners against the Bill. Of the 457 petitions received, 205 were heard by the Select Committee who sat in public for 84 days of hearings between 17 January 2006 and 18 October 2007.

7. In its Special Report, the Select Committee recommended amendments to the Bill and made recommendations to Government to offer assurances and undertakings to petitioners. For example, the Select Committee secured the Promoter's agreement to install "floating slab track" in sections of tunnel running under two properties following petitions from the respective property owners. To ensure a consistent approach to all petitioners, the Select Committee then obtained the promoter's agreement to install floating slab track in all tunnels running under residential properties at a depth of 15 metres or less (see House of Commons Select Committee on the Crossrail Bill, Crossrail Bill, First Special Report of Session 2006-07, pp. 20-21). **[DB/1/11/197]**

8. Command Paper 7250 (p.8) highlights a number of changes that were made to the Crossrail project as a result of the select committee process, the common purpose of which was to reduce the environmental impacts of the project:

I. *A revised depot strategy that would reduce the overall environmental impacts of the Crossrail project by removing the need for the construction of new facilities at Romford.*

II. *A revised tunnelling strategy that removed the need for an intermediate Tunnel Boring Machine (TBM) launch site at Hanbury Street and so eliminated the need for a temporary construction adit*[75] *to Pedley Street and conveyer from there to Mile End Park, as well as allowing a reduction in the proposed size of the ventilation and intervention shaft at Hanbury Street.*

III. *A revised access route to the Gidea Park sidings works resulting in fewer properties experiencing significant noise impacts.*

IV. *Revised proposals to enable the retention of certain built structures that were considered to have value from a heritage perspective, most notably four Brunel Bridges on the Great Western Main Line.*

V. *Proposals to maintain navigational access to Poplar Dock and the Blackwall Basin, which eliminated a significant impact on ecology and significant impacts on Traffic and Transport and Community.* **[DB/1/13/228]**

9. A significant change made to the Crossrail Bill following petitions heard by the Select Committee was the introduction of a station at Woolwich. In light of petitions, the Select Committee recommended the Government make changes to the Bill allowing for that additional station. While this was not part of the principle of the Bill as agreed at second reading and was, therefore, outside of the Committee's remit to consider, the Government gave an instruction to the Select Committee enabling it to do so.

Environmental Statement ("ES")

10. The Environmental Statement was presented to the House of Commons on 22 February 2005 with the bill[76]. The Government gave widespread publicity to the Bill and the ES both prior to and at the date of presentation, in order to ensure that the public were both aware of and understood the Bill and had access to all relevant documents.

[75] An 'adit' is engineering term for an entrance to an underground tunnel.
[76] The Bill was then carried over into the following Parliamentary Session (05-06) and re-introduced on 18 May 2005.

11. The ES (which was nine volumes comprising 3,700 pages, plus a further 14,000 pages of technical reports, and a 55 page non-technical summary setting out the ES's main findings) described the findings of assessment of the likely significant environmental effects (both negative and positive), with an aim to (Command Paper 7250, p.6): **[DB/1/14/240]**

- Identify the potential environmental impacts associated with the construction and operation of Crossrail;
- Identify measures to mitigate adverse significant impacts; and
- Predict the magnitude and significance of any remaining impacts.

12. On presentation of the ES to Parliament in February 2005, the Government carried out a 12 week period of public consultation on the ES.

13. In July 2005, prior to second reading of the Bill, in Command Paper 6603 **[DB/1/4/80]** the Government made available to Parliament the 391 representations received from the public on the ES before 10 June 2005.[77] Parliament was able to take account of these representations and the ES during the Bill's second reading.

14. Each of the four sets of Additional Provisions (APs) to the Bill was accompanied by a supplementary ES to consider the related environmental impacts and mitigating measures. Other supplementary ES were also published to consider the environmental impacts of other changes to the project. This series of supplementary ESs were published during the period of May 2005 to May 2007. Each was followed by a 6 week period of public consultation on its contents. In November 2007, prior to the Bill's third reading in the House of Commons, in Command Papers 7249 and 7250 the Government made available to Parliament the representations received from the public on the supplementary ESs before 8 August 2007; and summarised the work that had already been carried out to assess, control, and mitigate the environmental impacts of the project.[78] Members of Parliament were able to understand the approach to environmental impact assessment and to consider the environmental impacts of the project (including amendments made to it and the opinions of the public), taking account of the environmental information, prior to third reading of the Bill in the Commons.

[77] Command Paper 6603: http://www.official-documents.gov.uk/document/cm66/6603/6603.pdf
[78] Command Paper 7249: http://www.official-documents.gov.uk/document/cm72/7249/7249.pdf; and Command Paper 7250: http://www.official-documents.gov.uk/document/cm72/7250/7250.pdf

Control of Environmental Impacts

15. During the Crossrail Bill's passage through Parliament, the Government put in place "Environmental Minimum Requirements" ("EMR") to ensure that the impacts of Crossrail would not be greater than as assessed in the ES, save for any impact that:

- Resulted from a change in circumstances which were not likely at the time of the ES; or
- Would not be likely to have significant environmental impacts (meaning significant adverse impacts where the change were a modification to the current project); or
- Would be subject to a separate consent process (and therefore further EIA if required)

16. The Government gave undertakings to the Select Committee to ensure compliance with the EMR. The first was on the first day of Select Committee (17 January 2006, paragraphs 111 - 112): **[DB/1/7/166]**

> Mr David Elvin QC: *"There are also important controls outside the Bill. The Crossrail scheme includes a suite of documents referred to collectively, as I mentioned, as the environmental minimum requirements, which are being developed in consultation with local authorities and other stakeholders. The nominated undertaker will be bound to comply with the controls set out in the EMR. They comprise a number of matters including, as I have already mentioned, the Construction Code.*
>
> *Chairman, in accordance with paragraph 2.5 of Information Paper D2 on the control of environmental impacts, on behalf of the Secretary of State I now give an undertaking to Parliament in these terms: insofar as the environmental minimum requirements are not directly enforceable against any person appointed as a nominated undertaker or to whom the powers of the Bill are devolved under clause 53 of the Bill, he will take such steps as he considers are reasonable and necessary to secure compliance with those requirements."*

17. A second undertaking of this type was given on day 82 (10 July 2007), following an amendment to the Bill: **[DB/1/8/172]**

Timothy Mould QC) *"[…] in any case where a statutory undertaker is carrying out development for or in connection with the Crossrail project in reliance on the planning permission enjoyed in consequence of the provision of the Bill, of which the marginal note is extension of permitted development rights. The Secretary of State undertakes to take such steps as he considers are reasonable and necessary to secure compliance with such of the Environmental Minimum Requirements as he considers relate to that development and are not directly enforceable against that undertaking.'*.

18. Further information on the EMR and provisions included in the Crossrail Bill and other legislation which sought to control the impacts of Crossrail are detailed in Information Paper D2: Control of Environmental Impacts. **[DB/1/15/261]**[79]

Reasons

19. The Government summarised its reasons for endorsing Crossrail in a closing submission to the House of Commons Select Committee **[DB/1/6A/165A]** and Appendix A to Command Paper 7250 **[DB1/14/260]**. Command Paper 7250 summarised the main factors taken into account, the main mitigation measures and the main benefits of Crossrail. The Government announced publication of the Command Paper in a written ministerial statement on 20 November 2007 **[DB/1/12A/227A]**.[80] During 3rd Reading of the Bill, the Transport Minister made direct reference to the written ministerial statement and Command Paper 7250, drawing members' attention to them (Hansard, 13 December 2007, Column 552).

[79] http://www.crossrail.co.uk/assets/library/document/d/original/d02controlofenvironmentalimpacts.pdf
[80] http://www.publications.parliament.uk/pa/cm200708/cmhansrd/cm071120/wmstext/71120m0002.htm#07112061000018