High Speed Rail: investing in Britain's future
Network Rail consultation response

1. **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?**

Yes. Expanding the capacity and improving the performance of our rail network has a key role to play in supporting sustainable economic growth.

Given the very intensive use of the network by today's level of traffic, we believe a step change increase in capacity can only be delivered by new lines. Network Rail's *New Lines Study* considered the long-term future of the main inter-city routes, including the West Coast Main Line (WCML), finding that:

> *"only the addition of further running lines over long sections of route would be likely to provide any meaningful increase in capacity."*[1]

The West Coast Main Line Route Utilisation Strategy (RUS) – the industry's strategic planning for the line from London to the North West and Scotland – declared:

> *"the WCML, particularly at the south end of the route, is effectively full and any interventions will be disproportionately expensive compared with the benefits gained. The RUS supports the development of the proposed high speed line, initially between London and the West Midlands and then onwards to Manchester and beyond."*[2]

In this context, 'full' means that, at certain times of the day, some train services will be carrying so many passengers that – ordinarily – some form of capacity enhancing intervention would be considered essential. However, once the work that Network Rail is undertaking at Stafford (which will have capacity benefits further south on the West Coast Main Line) has been completed, there will be no possibility of increasing capacity on the line further to enable significantly more trains to run, and no possibility of lengthening the crowded services significantly.

This conclusion is based on the forecast of strong growth in passenger and freight demand, continuing the trend of recent years. On the West Coast Main Line, strong growth on intercity services and continued growth on commuter and regional services, will soon make it impossible to do anything to increase capacity further.

At first, the pressure will be felt on commuter services serving communities such as Northampton or Milton Keynes, but this pressure will soon be similarly problematic on long-distance high speed services using the current infrastructure as, in the longer term, demand for all services will continue to grow strongly. Our expectation is that this point will be reached around the end of this decade.

The business case for HS2 shows benefits of £43.7 billion against net costs of around £17.1 billion.[3] In addition, Network Rail's passenger growth forecasts for the three biggest cities on the 'Y' network that show that demand will continue to grow. Our published figures – for the discrete intercity markets only, and on a different timescale to the DfT and HS2's forecasts – also lead us to expect growth into the foreseeable future.

- London-Manchester will see passenger demand growth of up to 61% by 2024
- London-Birmingham will see passenger demand growth of 58% in the same period[4]
- London-Leeds passenger demand was forecast to grow by 44% from 2006-2016[5]

Additional rail capacity, and specifically the additional capacity provided to the network by HS2, can play a vital role in supporting economic growth. There are substantial risks in doing nothing: that our transport infrastructure becomes a brake on economic growth, and not an accelerant of it. Our *New Lines Study* and West Coast Main Line Route Utilisation Strategy both strongly support the case made by the Government and HS2 Ltd. Both found that capacity will be effectively exhausted by some point in the 2020s, at the latest, and that a new line is by far and away the most appropriate intervention to resolve this problem.

HS2 will support economic growth nationally, but this would particularly be the case in the cities served by new high speed services both to and from London and each other. However, the positive impact of the new network capacity delivered by HS2 on economic growth would not be restricted to the cities it serves. By moving the majority of inter-city passenger journeys onto the new line, spare capacity on the existing infrastructure can be released for freight, commuter and regional services.

As a result, we are working with Passenger Focus now to explore how best to use this released capacity, including consulting with local communities to understand their preferences and future aspirations. This would potentially also give those companies who already make extensive use of rail freight, particularly in the West Midlands, more scope to expand and more flexibility in their use of the network. In turn, this would help take lorries off the roads and ease congestion on a key part of the national road network.[6]

At their full extent, new high speed lines also have very significant potential for modal shift, making rail the transport mode of choice between our key cities. Effectively integrating HS2 in the existing network can help to maximise the benefits of project. For example, with Crossrail at Old Oak Common, or in Manchester, Leeds and Sheffield where the network will, funding permitting, have been substantially improved by the Northern Hub project.[7]

Modal shift to rail can also bring significant environmental benefits over time. Network Rail's *New Lines Study* found that there are significant potential environmental benefits from a new line. Our model was for a different specification project, but it was clear that the reduction in road and air journeys resulting from a new high speed line connecting London to the Midlands, the North West and, eventually, on to Scotland would lead to carbon savings. However, any carbon savings should be seen alongside the significant increase in capacity and therefore the support for economic growth HS2 would provide.

2. 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?

Yes. The proposed scheme would deliver a huge increase in capacity to the rail network as a whole and the key routes to the Midlands and the North of England in particular. Smaller schemes are simply not suitable alternatives for meeting the Government's strategic objectives. It should also be noted that these ratios exclude the negative financial impacts of disruption, which could be expected to be very significant with any upgrade of the existing network.

HS2 clearly meets the strategic specification required from government, unlike any other scheme – Rail Package B (a revised version of what was Rail Package 2), for example, has a comparable benefit-to-cost ratio but would not deliver enough additional capacity, would not improve journey times to anything like the same degree and would have nowhere near the same transformative economic impact. Delivering Rail Package B would also be disruptive for passengers and companies moving their goods by rail on the existing network and this, of course, would in itself have an associated cost.

Network Rail's *New Lines Study* demonstrated there was a robust business case for a high speed rail line on the basis that it serves a sufficient number of cities.[8] An optimised network which serves the key targets – London, Birmingham and Manchester – and adds more destinations to spread the costs over more journeys produces a strong business case.

In terms of future additions to the network beyond the Y, our findings indicated that the extension of any line to Scotland would significantly improve the benefit-to-cost ratio. London-Scotland is a substantial market currently dominated by aviation; a high speed rail line would reduce carbon emissions and journey times and offer substantial improvements to connectivity.

Our *New Lines Study* only looked at the key transport markets on the WCML – London, Birmingham, Manchester and Scotland. Later (though unpublished) work confirmed that the second part of the Y – to the East Midlands, South Yorkshire and Leeds, also had a strong business case.

It is worth noting that the wider economic benefits of HS2, as well as alternative rail packages, have been assessed using the New Approach to Transport Appraisal (NATA) framework. Using conservative assumptions, this analysis calculated HS2 would generate £44 billion benefits for the economy, set against net costs of £17 billion.

3. 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 the High Speed 1 line to the Channel Tunnel?

Yes. Adopting a phased approach for a project of this scale is both suitable and appropriate.

Both the spur to Heathrow and the link to HS1 show the limitations of relying solely on the benefit-to-cost ratio. Our modelling of the business cases did not make a strong case, but the fact that there may be a stronger strategic case to build these links is understood.

4. 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?

Yes. Using standard appraisal methodologies is the established approach, and to depart from it would have made comparison of this project with others much harder.

However, research published last year by Network Rail – *Prioritising investment to support our economy* – showed that traditional appraisal methodology do not necessarily capture all the wider benefits of transport schemes to the economy.[9] The report suggests that

spending decisions on transport and other related sectors (such as housing and regeneration) should focus more strongly on real economic returns of projects. Such an approach would better understand impacts such as changes in business behaviour, job creation and responses in local labour markets.

The difficulty of traditional models in capturing the full economic impacts of transport projects is unfortunate when dealing with incremental improvements, but is possibly more problematic when dealing with a potentially transformative project such as HS2. The impact of nearly halving some journey times and releasing huge amounts of capacity is hard to capture adequately with an approach based on assessing the value of incremental improvements in journey times. As a result, it is possible that the full positive impact of HS2 on the economy may have been underestimated as a result of the limitations of the methodology used in terms of capturing the full economic benefits of the project.

In terms of the approach taken to determining the route, this is in line with normal industry practice and has sought to balance performance of the line, mitigation of its downsides for those communities along the line, value for money and environmental impact.

5. 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?

Yes. We believe the proposed route is the best option. It is highly efficient both in terms of land use and in making maximum possible use of existing transport corridors, tunnels and deep cuttings while also ensuring the route can support optimal journey times.

Clearly, rail technology has changed enormously between the time the West Coast Main Line was built and today. Higher train speeds require much straighter lines. The WCML winds sinuously around the landscape, hence the need for tilting Pendolino trains to reach current linespeeds. This type of tilting rolling stock is not necessary on the East Coast Main Line, which was built on a far straighter alignment.

At a high level, the route is clearly appropriate and has been designed to maximise performance while mitigating the impacts on local communities as far as possible. At a local level, the route interacts with the existing rail network at various points. Some of these interfaces will present challenges in making sure that both the high speed and existing lines are optimised.

However, none of these challenges are insuperable, and we look forward to working with the department and HS2 Ltd to produce the best overall outcome and minimising disruption. The key issues which will need to be worked through include:

- **Old Oak Common**, where the interfaces between Great Western Main Line, HS2, Crossrail, and local services will need to be managed effectively.
- **Euston station** will need to remain operational throughout the construction phase, which will be a major challenge and one in which close co-operation between all partners, including Transport for London, will be essential.
- Delivery of the **North London Line** link has the potential to be disruptive for existing passengers; we are working with HS2 Ltd to refine the scheme and minimise the impact.
- In the Day 1 scheme, high speed trains will have to run from the high speed line onto the existing **West Coast Main Line** at a point north of Rugeley. This will undoubtedly

present challenges to the operation of the network. Scheduling all the services is likely to be complex, though we look forward to working with DfT and HS2 Ltd to resolve these issues.

It is important that HS2 is seen in the context of the whole network and, by thinking in this way the benefits of the scheme for the network as a whole can be maximised and any negative impacts mitigated as far as is possible.

6. 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?

Network Rail agrees that the proposed route for HS2 will have both positive and negative impacts on the environment with the negative impacts being mitigated in the plans outlined in the Appraisal of Sustainability for the project.

The negative sustainability impacts arising from the project such as pollution (noise, vibration and visual aesthetics), climate change, environment, heritage and community impacts have been very substantially mitigated through the extensive use of deep cuttings, routing along existing corridors and tunnelling.

7. 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?

Yes. Network Rail is the owner of a substantial proportion of the land that is proposed for use by the HS2 scheme. Using existing railway lands, such as those owned by Network Rail, will help minimise the impact of the scheme on individual home owners and businesses who may otherwise find their property at risk. As such we are fully supportive of this approach.

We do need to fully understand the impact of the scheme on our property and we look forward to working with the Government and HS2 Ltd to develop this understanding.

---

[1] Network Rail New Lines Study (2009) *Capacity Analysis*, p30
[2] Network Rail (2010) *West Coast Main Line Route Utilisation Strategy Draft for Consultation*, p8
[3] Department for Transport (2011) *High Speed Rail: investing in Britain's future* p14
[4] Network Rail (2010) *West Coast Main Line Route Utilisation Strategy Draft for Consultation*, p4
[5] Network Rail (2008) *East Coast Main Line Route Utilisation Strategy*, p77
[6] Network Rail (2010) *Value and importance of Freight*, p3
[7] Network Rail (2009) *The Northern Hub: transforming rail in the North*
[8] Network Rail New Lines Study (2009) *Strategic Business Case*, pp1-2
[9] Network Rail (2010) *Prioritising investment to support our economy*