1. This document is provided by the Department for Transport on behalf of the Government in response to the House of Lords Economic Affairs Committee inquiry named “Rethinking High Speed 2”.

2. The Government welcomes the Committee’s thorough report and have organised our responses in the same sections as the Committee’s report.

**Summary of Government’s position**

3. This section sets out the summary of the Government’s position and also provides the Government’s response to paragraphs 14 and 23 set out in the Committee’s summary of conclusions and recommendations.

4. The strategic case for High Speed 2 (HS2) is about increasing capacity and improving connections between major towns and cities, thereby boosting productivity and economic growth, and helping to make the North and Midlands more attractive business locations. It is an integral part of the Government’s plans to build a stronger, more balanced economy capable of delivering lasting growth and widely shared prosperity. HS2 will form the backbone of the nation’s future rail network; is required to deliver the emerging vision for Northern Powerhouse Rail developed with Transport for the North; and will be integrated with wider investments and enhancements in our rail network.

5. Parliament voted overwhelmingly in favour of HS2, with the Third Reading of the Phase One Act in February 2017 receiving 399 votes to 42 in the House of Commons. Since then, the Government and HS2 Ltd have made progress:

- 9,000 jobs are supported by the project already, this is expected to rise to over 30,000 at peak construction. This includes more than 320 apprentices. In addition, almost 2,000 businesses across the UK are delivering HS2 contracts, 70% of these businesses are classed as SMEs;
- Early works and decommissioning is underway at 250 active sites including major developments at Curzon Street, Euston and Old Oak Common;
- At Euston, a construction partner and master development partner have been appointed. Designs for three new stations at Curzon Street, Birmingham Interchange and Old Oak Common have also been unveiled;
- Legislation for HS2 Phase 2a, West Midlands to Crewe, is progressing through Parliament, having received a majority in the House of Commons of 295 at Second Reading in January 2018. The Government recently began a major consultation on refinements to the Phase 2b route including
interfaces to support the emerging plans for Northern Powerhouse Rail (NPR).

6. The Government’s intention is to set out the latest evidence base and an updated assessment of the Phase One scheme in conjunction with the commencement of main construction activity later in 2019. An updated assessment of Phase 2b is also expected around the time of deposit for its hybrid Bill.

**Government position on priorities for rail investment**

7. This section provides the Government’s response to paragraphs 1 to 5 set out in the Committee’s summary of conclusions and recommendations.

**Government investment to improve rail connections and passenger experience for northern cities**

8. HS2 will bring significant benefits to the North of England, improving journey times and capacity from Manchester, Leeds, Liverpool, Sheffield and other Northern cities to London and the Midlands. The HS2 network will allow 400 metre long trains, each with over 1,000 seats, operating on dedicated tracks into new stations in Manchester and Leeds. These will replace long distance trains that currently run on existing lines, releasing capacity for more local and regional services along the three north-south spines of the West Coast Mainline, East Coast Mainline and the Midland Mainline, as well as freight traffic.

9. HS2 is already having a catalytic effect on the economy of the West Midlands. The project is attracting regeneration, growth and jobs to Birmingham with HSBC and PWC both relocating staff to the city. This positive transformation is why the Mayor of the West Midlands and political and business leaders across the region are passionate supporters. The Growth Strategies for Cheshire, Greater Manchester and Leeds are equally ambitious.

10. The Committee has highlighted the overcrowding that exists on commuter trains in the North at present, particularly around Manchester. This is indeed a serious problem and HS2 will help significantly on the corridors it serves, as set out in the 2017 Strategic Case. However, action is also planned well before HS2 and Northern Powerhouse Rail can be delivered.

11. The key issues are constrained track capacity and shorter trains in the North of England. That is why major investment programmes, including the Great North Rail Project and TransPennine Upgrade, are underway to increase the capacity of the network in the North to support additional services and longer trains. Alongside this, the Northern and TransPennine Express franchises will deliver over 500 brand new vehicles and are refurbishing existing vehicles to modern standards, while removing all of the existing Pacer trains.
12. HS2, Northern Powerhouse Rail and these upgrades are not the only rail investments being progressed in Northern England and the Government are working closely with Transport for the North (TfN), Network Rail, the Train Operating Companies and other regional stakeholders to take forward other improvements which can be made to improve rail travel in the North in the near term.

**HS2 and Northern Powerhouse Rail**

13. The Committee has suggested that HS2 Phase 2b and Northern Powerhouse Rail should be combined into a single programme to allow investment to be prioritised where it is needed most. The two projects are already being developed closely together and integrated. Northern Powerhouse Rail is being developed on the basis that NPR trains will use more than 80 kilometres of HS2 track and the new HS2 lines into Manchester and Leeds. Therefore, in reality, HS2 needs to be in place first and Phase 2b is already more advanced with route and environmental consultations underway ahead of Bill deposit.

14. The Government will nonetheless carefully consider this recommendation, while recognising that HS2 is currently sponsored as a national programme by the Department for Transport whilst NPR is jointly developed with TfN.

15. In Spring 2019, the Department for Transport launched a Design Refinement Consultation for HS2 Phase 2b which included proposals, for the first time, for HS2 to connect with a Northern Powerhouse Rail (NPR) line, allowing for potential new services between Manchester and Liverpool, and London and Liverpool. These provisions are funded as part of the £300 million that was announced by the Government in 2017.

16. The Government is currently considering further scope to support the integration of HS2 and Northern Powerhouse Rail, which will be subject to future funding decisions. This represents a significant step forward for integrating HS2 and NPR, and demonstrates just how critical HS2 is for delivering NPR. There is no either/or between these projects; HS2 is crucial in realising Northern Powerhouse Rail and connecting the North’s great cities.

17. The Committee has queried why HS2 and Crossrail 2 are being prioritised over Northern Powerhouse Rail. This is not the case. HS2 and NPR are being integrated and Transport for London is preparing a Strategic Outline Business Case for Crossrail 2.

18. The Committee has also queried the decision taken to construct HS2 ‘from the South upwards.’ The Government passed the Phase One Bill in 2017 with a cross-party majority. HS2 is a long-term project that will rebalance the economy and offers improved connectivity to Manchester, Liverpool, the North West and Scotland before Phase 2 is operational. Phase 2a will further improve connectivity and bring benefits to the North.
19. Delivering HS2 is essential to deliver Northern Powerhouse Rail. This is why the Chancellor announced £300 million of funding to futureproof HS2 to accommodate NPR junctions.

20. With Transport for the North and Midlands Connect, the Government are developing a clear set of proposals for connections that would allow Northern Powerhouse Rail and Midland Connect services to make use of HS2.

**HS2 is intended to solve capacity problems on the rail network**

21. The Committee queried whether the additional capacity delivered by HS2 is needed and suggests that most long-distance services are not overcrowded at present. Since the Committee first reported this in 2015, the Government has set out a considerable evidence base that describes the crowding issues on long distance services and how HS2 is the only investment that generates sufficient capacity to relieve this crowding.

22. In the last 20 years, demand for rail travel in the UK has more than doubled. For some of the key intercity flows HS2 will serve, demand has nearly trebled and is forecast to continue rising. The West Coast Main Line is now almost full in terms of peak-time train paths, and this reduces performance. HS2 is designed to deliver the capacity that will be required to meet the needs of rail users in the early 2030s and beyond.

**HS2 is already having a catalytic effect on the economy of the Midlands and the North of England**

23. HS2 will support economic growth across the Northern Powerhouse, creating opportunities for skills and employment across the region and acting as a catalyst for regeneration in city centres. At peak construction activity, HS2 is expected to directly create 30,000 jobs and, once the line is up and running it is expected to create 3,000 jobs in operation and maintenance. The new railway will help train a new generation of skilled workers, including through the new National Colleges with campuses in Doncaster and Birmingham. It is also expected to indirectly create many more jobs through growth around stations across the country. Of the jobs created by HS2, 70% will be outside London and the South East.

**Costs and appraisal of High Speed 2**

24. This section provides the Government’s response to paragraphs 6 to 13 set out in the Committee’s summary of conclusions and recommendations.

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25. Spending Review 2015 established a long-term funding envelope for delivery of the full “Y” network of £55.7bn (2015 prices). HS2 Ltd is working with its contractors to deliver HS2 within that.

26. The Government will set out the latest cost position later in the year ahead of the start of main construction works.

**Project appraisal of HS2**

27. The Committee has expressed reservations about the cost-benefit analysis used in determining whether HS2 provides value for money and has stated that new analysis of the project is needed to take account of its transformative effects.

28. The Department for Transport has confidence in its existing techniques, which have been developed over many years, to inform transport investment decisions. The Department continues to proactively develop its appraisal methods. A previous study on international comparisons of transport appraisal practice demonstrated that the Department’s Transport Analysis Guidance (TAG) is comparable in quality with best practice elsewhere².

29. In April 2019, the Department published its latest ‘Appraisal and Modelling Strategy’³ to ensure that guidance continues to provide a comprehensive, consistent and robust approach for assessing the impacts of transport investment, maintaining its highly respected evidence base and increase its scope and depth to meet the needs and ambitions of local and devolved areas.

30. In September 2016, the Department for Transport published an update to ‘Understanding and Valuing the Impacts of Transport Investment’⁴, which reviewed Wider Economic Impacts Guidance within TAG. The results of this consultation fed into the 2018 update to TAG and will feed into future business case analysis.

31. This guidance provided a simple equation that can be applied to business user benefits and Wider Economic Impacts (WEIs) in the Economic Case to estimate the impact of HS2 on the UK economy. The approach estimated that the full Y network could generate £79bn of GDP (present value, 2015 prices) over the appraisal period to 2093.

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32. The Department for Transport is aware of the long-standing challenge around the limitation in the standard appraisal approach which relates to treatment of land-use changes. TAG allows three levels of analysis to be undertaken on transport schemes; levels one and two focus on capturing the impacts of a scheme (including wider economic impacts) assuming fixed land use. Whereas level three includes analysis where land use change is explicitly quantified. The techniques used for level one and two analysis are more mature than for level three\(^5\).

33. There is the potential for wider transformative impacts (level three impacts) over the life of the project that are not currently fully captured within the measured benefits of the scheme. Given the complexity and uncertainty inherent in forecasting land-use changes, the Government has not included the benefits of land-use changes in its Benefit Cost Ratio (BCR) estimates for HS2\(^6\).

34. The Government’s latest Areas of Research Interest, published in May 2019\(^7\) demonstrates that the Department is committed to maintaining confidence in the HS2 evidence base and improving the way in which it captures and articulate the impacts of HS2.

35. The Committee has expressed reservations about the methodology used to estimate values of travel time savings, in particular whether asking hypothetical questions on willingness to pay for quicker journeys is the most robust evidence base for the calculation of benefits. The Department for Transport welcomes attempts to update the evidence for travel time savings albeit the Committee remain specifically concerned over the increase in values of time by long-distance rail business passengers.

36. The Government continues to recognise the importance of business travellers to the HS2 business case and has continued to use the most appropriate methodology to estimate the number of business passengers that will use HS2. The values it uses continue to reflect people’s behaviours, and the Department for Transport formally updated TAG values of time for business travel in 2016 moving from wages to a survey method of contingent valuation. The HS2 business case adopted these values in its 2016 and 2017 economic cases.

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37. As set out in TAG Unit A1.3\textsuperscript{8} preferences are the most direct way to estimate
willingness-to-pay. However, it is difficult to collect data of sufficient quality
and quantity in this area, which means it is necessary to use alternative
methods and techniques. The Department for Transport commissioned the
Institute of Transport Studies in Leeds to review the evidence on the
business values of time\textsuperscript{9}. It showed the values used in the appraisal
correspond closely with the average values from the available revealed
preference evidence. This stated preference evidence forms the basis of
values of time that the Department for Transport currently recommends for
use in appraisal.

38. The Government have used the most appropriate methodology to estimate
the number of business travellers that will use HS2. In 2014, business
travel accounted for nearly half (45\%) of all intercity rail journeys on the
corridors served by HS2\textsuperscript{10}, and it is reasonable to expect it to be higher for
journeys between major cities.

39. The Committee notes that recent trends in observed rail demand growth
deviate from the long-term demand forecasts used in calculating the
benefits. They are concerned by the sensitivity of benefits to GDP per head
forecasts and that the benefits are dependent on forecasts of business
travellers on long-distance rail.

40. Demand growth is uncertain and difficult to predict. Our models forecast
the impact of “background” or “exogenous” factors on rail growth such as
GDP growth but do not model all potential “endogenous” growth factors.
The 2017 business case was revised with the most recent GDP growth
forecasts, which have resulted in a lower level of demand compared to the
previous economic case.

41. The 2017 economic case\textsuperscript{11} updated the rail demand data with the observed
growth in rail demand between the model base year and 2017. This will
continue to be updated for future business cases. The 2017 economic case
assumed a relatively conservative background growth rate assumption of
1.9% per annum to 2037 compared to the last couple of decade’s average
of 4.5%.

42. The National Rail Travel Survey (NRTS) is a vital source of information on
rail travel that is used across the Department’s rail analysis functions. The
NRTS used a large sample size of more than 400,000 responses. The

tag-unit-a1-3-user-and-provider-impacts.pdf
\textsuperscript{10}Rail Usage Drivers Dataset (RUDD)
/CS866_A_HS2_Phase_2a_Economic_case.pdf
department acknowledges that this was last completed in 2004/5 and updating this data is part of the Department’s latest research priorities\(^\text{12}\).

**Reducing costs**

43. This section provides the Government’s response to paragraphs 15 to 24 set out in the Committee’s summary of conclusions and recommendations.

44. The Government has consistently said that the project must be delivered in a way that provides value for taxpayers. HS2 Ltd is the delivery body for the railway and is working with its supply chain and contractors to a long-term funding envelope for the project set in 2015.

**HS2 is being designed to run at speeds of up to 360km/h**

45. HS2 offers a once in a generation opportunity to transform rail connectivity in Great Britain, designed to last for 120 years. The Government has taken this into consideration when making decisions on the railway. Detailed evidence was provided by HS2 Ltd, to support the Government’s decision-making process, which resulted in an alignment speed of up to 400km/h with a maximum speed of rolling stock of 360km/h.

46. The detailed evidence that underpinned these decisions has already been supplied to the Committee in correspondence. Nusrat Ghani MP’s letter dated 19 February 2019 to the Committee described the evidence provided by HS2 Ltd to the Government in 2012, namely that the cost of building the Phase One consulted route at 200km/h, would be 9% lower than the cost of a route designed to a maximum speed of 360km/h. An intermediate speed option of 300km/h was also considered to test the operating cost and value for money implications of lower operating speeds. The intermediate option resulted in large reductions in benefits, revenues and benefit-cost ratio, offering worse value for money.

47. As a result, HS2 Ltd recommended to the Government that the optimum maximum operating speed remained at 360km/h as the practical limit of deliverable technology at the time, noting that with future improvements in technology there is likely to be a case for higher speed. As such, the Government has set clear journey time targets in the Sponsor’s Requirements.

48. As also set out in our evidence to the Committee, HS2 Ltd is looking at whether there are instances along the line where this maximum speed can be reduced without detriment to intended journey times. No final decisions have been made by the Government but it remains open to optimising engineering solutions and cost outcomes, without materially reducing the levels of service.

49. The former Technical Director at High Speed 2 Ltd, Professor Andrew McNaughton, wrote in June 2019, that reducing the speed of the new railway will only have a “small effect on cost... but a major dis-benefit to the 230,000 plus daily travellers who will use it for many decades”.

50. As the Government has already released the detailed information to the Committee that underpinned its decision on speed, the Government does not accept the Committee’s recommendation that it should instruct HS2 Ltd to update and publish its analysis of the cost saving that would be made from designing the line to a lower maximum operating speed.

**Assessing alternative route option for Phase 2b**

51. With regards to summary point 19 and analysis conducted by Atkins in 2016, alternatives to Phase 2b of the route will be considered again as part of the Phase 2b Outline Business Case which is scheduled for publication in 2020.

**The importance of Euston**

52. The Committee recommends that the Government gives serious consideration to terminating Phase One at Old Oak Common, either permanently or temporarily. Detailed evidence has already been supplied by the Government to the Committee that sets out why this is not feasible, even temporarily. The Government does not accept the Committee’s views and recommendations and a summary of our evidence is set out below.

53. HS2’s strategic case is based on transforming connectivity, delivering better journey times and making travel easier, in particular between city centres. In determining the route, the Government has considered the cost, benefit and strategic fit. Demand forecasts suggest around two thirds of London passengers want to start or terminate their journey at Euston. Euston is the right strategic solution for the London terminus of HS2 allowing onward connectivity to the Northern, Victoria and Hammersmith & City Lines alongside other surface transport modes.

54. It is no secret that building high speed railway lines into city centres is complex and the Government will always consider whether an alternative is better and could save taxpayers’ money. However, the Government refutes the Committee’s assertion that utilising Old Oak Common as HS2’s southern terminus would result in an £8 billion cost saving and only a £3.8bn reduction in benefits. Detailed arguments are set out in our written evidence setting out why the Government disagrees with the Committee’s position. In particular, the Government would highlight that the value of the Construction Partner contract for Euston station is £1.65 billion and the contract value for civils design and construction for the Euston tunnels and approaches is £0.6-0.9 billion.

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55. Operationally, terminating all HS2 services at Old Oak Common would place a huge strain on onward travel connections. Whilst Old Oak Common does have the option of onward connectivity to the Elizabeth Line and the Great Western Mainline, it does not have the capacity to cope with this additional demand permanently. As most passengers want to get to other parts of London or onwards, it would increase journey times for the majority of passengers, further reducing the economic benefits of the scheme.

56. Postponing the redevelopment of Euston station until Phase 2b of the railway is in operation would have fewer issues in terms of onward travel connections but would still likely require additional infrastructure to turn around the 10 trains per hour envisaged in Phase One. Indeed, using established train planning rules, initial analysis indicates only six-eight trains per hour can be reliably terminated at Old Oak Common with the existing infrastructure.

57. Terminating at Old Oak Common in the short term might be a practical way to commission the railway in the same way that Crossrail intends to open in stages, but as a permanent solution it would impose construction constraints which would make the railway more difficult to build. Tunnel boring machines need to be launched from the Old Oak Common station compound, where they will then travel eastwards to Euston. This is so the tunnel excavation spoil can be extracted at Old Oak Common, where the construction compound is set-up and sized appropriately to enable most of the spoil to be taken away by rail for disposal. As a result, the tunnel boring machines can only be launched and have the tunnel spoil processed while Old Oak Common is a construction site. Once Old Oak Common station has been completed and opened, the space for tunnelling and spoil processing facilities will be lost.

58. Finally, the Committee itself recognises that the project should take account of the transformational effect on local communities that a new railway station can bring. The plans that the Old Oak and Park Royal Development Corporation have for the area around the HS2 and Crossrail stations are ambitious and represent one of the largest brownfield regeneration projects in Europe.