



Department
for Transport

HS2

Phase 2b

Western Leg: Crewe to Manchester

An Update on the
Strategic Outline Business Case

Executive Summary



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Executive Summary

This update to the Strategic Outline Business Case (SOBC) has been prepared to support the deposit of the High-Speed Rail Crewe-Manchester hybrid Bill for HS2, referred to as HS2 Phase 2b Western Leg (HS2 Phase 2b WL) or the Proposed Scheme. It is an evolution of earlier business cases prepared at various stages during the development of the HS2 Programme over the past decade. This SOBC update presents a clear and up-to-date view of the Strategic, Economic and Financial Cases for the scheme. At the project's next business case stage, the Outline Business Case planned for 2023, the Management and Commercial Cases will be updated. At that stage, the final scheme design should be available, and an optimised delivery strategy will have been developed, fully incorporating the lessons learned from progress on Phase One and Phase 2a of HS2.

The **Strategic Case** presents the case for change on which the scheme is predicated, unlocking a step-change in regional productivity by delivering a once-in-a-generation investment to build the infrastructure needed to bring the UK's largest economic regions and cities closer together. Transport is a proven instrument in driving better economic performance of towns, cities and regions by better connecting people and businesses with opportunities. The opposite also holds true and the mixed history of investment in improving infrastructure across the UK has contributed to imbalances in the economy and levels of productivity, particularly outside of London and the South East.

The North West region of the UK has significant economic potential. It has the largest concentration of advanced manufacturing and chemicals production and the largest media hub outside of London. The region is home to several major global manufacturing companies, and has key strengths in the production of advanced materials, and in the energy, health innovation and digital sectors. However, the economic potential of the North West is not being fully realised. Manchester is the economic engine of the region and the UK's fastest growing city, yet its growth remains constrained by the poor quality of existing infrastructure, which impacts connectivity and capacity for businesses and workers, and the absence of any new strategic transport corridors, with none having been built into the city since the 1970s. If this continues without intervention, there is a risk that the productivity gap between the region and London and the South East is compounded further by the economic shock of the COVID-19 pandemic, with its latent economic potential remaining untapped.

The West Coast Mainline (WCML) is the UK's most important strategic rail corridor, connecting the biggest economic regions of London, the Midlands and the North. It is the busiest mixed-traffic corridor in Europe and suffers from overcrowded trains and poor reliability. Each day this affects journeys made by people for work, business and leisure, diluting productivity and economic growth. The WCML is restricted by a network built in the Victorian age that limits the ability to deliver the upgrades necessary to provide a railway suitable for future generations. Even with significant expense and disruption, only incremental improvements can be achieved.

Phases One and 2a of HS2 have started to address existing capacity and connectivity constraints on the WCML, by creating a new High-Speed Rail route between London, the West Midlands and Crewe. However, these are just the first steps required to deliver much needed long-term transformation. Rail services into Manchester are bottlenecked, exacerbating poor reliability and crowding. These bottlenecks constrain the number of local,

regional and inter-city services that can run, limiting journey opportunities for the wider region. Completing HS2 Phase 2b WL will bring about a step change in inter-city transport connectivity, providing the necessary platform to generate economic growth and bridge the gap to achieving productivity potential.

National, regional and local government agree that significant investment is required to fulfil the ambition to transform and rebalance the UK economy. The Integrated Rail Plan (IRP) has set out the critical role transport will play in enabling this ambition, and is predicated on completing the HS2 infrastructure from Crewe to Manchester.

Bringing the UK's largest economic centres closer together removes the need for businesses to concentrate in London and the South East, allowing them to take financial advantage of establishing themselves in the Midlands and the North, while also broadening their access to jobs and workers across the region. In time, these agglomerative benefits will help redistribute capital and investment, and will provide the platform on which to level up and unite the country's regions. Greater Manchester already has areas primed for regeneration and development, including within the city centre and in the area surrounding Manchester Airport. This regeneration will only be effective with high quality, reliable transport infrastructure, starting with improved north-south connectivity into Manchester.

The IRP also recommends that plans for Northern Powerhouse Rail (NPR), which will enhance east-west connectivity, should be taken forward. HS2 is a vital and necessary precursor to NPR, which will build on the increased connectivity generated by HS2 and spread these agglomeration benefits more widely across the northern region of the UK. The current scope of NPR can only be delivered if Phase 2b WL is progressed, with critical rail and station infrastructure (for example in Manchester), including a core section of the NPR High-Speed network, being delivered as part of the scheme. The HS2 scheme also includes junctions to which the NPR scheme will be able to join at a later date without creating disruption to services.

The Government is clear that these ambitions must align with a green industrial revolution as the UK builds back better from the pandemic and works to achieve net zero carbon emissions by 2050. Transport currently represents the single greatest contributor to greenhouse gas emissions, accounting for more than a quarter of the UK's emission total in 2019. While other industries have taken substantial steps in decarbonising over recent years, transport has much more to do to turn the dial. Electrification of road vehicles and the increased efficiency of domestic air travel alone will not be enough to achieve net zero. Greater steps are required to accelerate the transition to more sustainable forms of transport and increase the share of journeys taken by public transport. As high-speed rail is one of the most sustainable, carbon efficient ways of travelling over long distances, HS2 will be at the heart of a modern, integrated and sustainable transport network.

Past infrastructure projects have not taken sufficient care of the natural environment and its ecosystems during their construction and operation. Significant work has been undertaken as part of the delivery of HS2 Phases One and 2a to ensure there is no net loss in biodiversity as a result of these projects. The ambition on Phase 2b WL is to go further and seek to achieve a 10% net gain in biodiversity for replaceable habitats.

The **Economic Case** presents a quantified view of the scheme's value for money which is informed by the latest cost and schedule estimates, and a thorough assessment of its potential monetised and non-monetised benefits. In line with best practice for projects of large size, scale and duration – including HS2 Phase One – ranges for cost, schedule and the benefit-to-cost ratio (BCR) have been used to reflect the scheme's early stage of maturity and the level of wider uncertainty. The reference case also accounts for the near-term downturn in economic output as a result of the COVID-19 pandemic.

The economic modelling indicates that, over a 60-year appraisal period, when accounting for wider dynamic economic impacts, the BCR is most likely to fall within a range of 1.0 to 1.5, indicating that benefits outweigh scheme costs, and provide long-term economic value for the taxpayer. Wider modelling scenarios, accounting for different economic and population growth projections, and COVID-19 impacts, indicate a range between 0.6-1.7, with a central BCR of 0.9. The central BCR rises to 1.2 when assessed over a 100-year appraisal period. These scenarios have been used to stress test the scheme against various potential outcomes and to account for the inherent uncertainties for a project of this scale.

The **Financial Case** sets out the forecast cost of the programme and assesses the funding arrangements for the construction of the scheme and the longer-term affordability set against the wider UK rail network. The initial cost estimate is between **£15bn and £22bn (Q3 2019 prices)** based on the introduction of services between **2035 and 2041**. The cost and schedule ranges include a level of potential contingency appropriate for the early stage of the project's development. They also reflect better understanding of the delivery of the scheme, based on latest market intelligence, international benchmarking and actual costs seen on Phases One and 2a.

Conclusion


In preparing for the deposit of the hybrid Bill, the Department for Transport (DfT) has continued to assess the case for alternative rail strategic options. Interventions making use of upgrades to the existing line instead of building a new line have been considered for both the WCML and Manchester spurs. These do not provide the level of enhanced connectivity nor the transformational change needed, with limited flexibility for additional rail services, continued lower performance and reliability, and reduced resilience to changing climates.

Upgrading infrastructure designed and built for the Victorian age will simply not deliver the level of transformation required. Having invested in Phases One and 2a, completing Phase 2b WL will bring High-Speed Rail infrastructure directly to the North, linking up the UK's largest cities, creating new opportunities to build skills, regenerating local areas, and redistributing growth.


Despite the impact of the COVID-19 pandemic on travel demand, there remains a compelling strategic case for the scheme. The underlying case for investment in the rail network of the North and Midlands remains strong, and essential if we are to grow and level up the economy in a net-zero world. HS2 Phase 2b WL will do this by improving capacity and connectivity, bringing the economic centres of the UK closer together, increasing access to jobs, helping companies compete globally, and so leaving a lasting legacy for future generations in the same way that the Victorians did for us.

HS2 Phase 2b WL Benefits


Connectivity and Capacity




London to Manchester
3 times per hour in 1 hour
11 minutes*



Birmingham to Manchester **3 times per hour** in just 41 minutes*




Manchester Piccadilly to Manchester Airport in just **7 minutes***




1500 seats per hour between Manchester and Birmingham

Wider network impacts


Improves reliability across the network by freeing up key bottlenecks



Enables Northern Powerhouse Rail through the provision of critical infrastructure





Supporting development and regeneration




Will support up to **820,000m²** of **commercial development** in and around Manchester Piccadilly

Supports plans for a new suburban centre around Manchester Airport






3 England to Scotland HS2 services per hour*




A quadrupling of **High Speed capacity** to Scotland on top of that provided by HS2 Phase 2a*

Sustainable alternative to long distance travel



HS2 Ltd aim to deliver a 10% net gain in biodiversity




Trains powered using **Zero-Carbon energy**



A mode shift towards rail



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Skills and Jobs



2,200

HS2 is already supporting 2,200 UK registered companies with HS2 contracts



>2000

Over 2,000 apprenticeships will be created across Phase One, 2a and 2b WL

The likely per annum GDP impacts from the scheme are

c£800 million in 2051

* Based on the current assumed timetable.

