



Fast-tracking Prosperity in the North West and Midlands

**Unlocking economic and transport
opportunities through HS2 Phase 2a**



HIGH SPEED RAIL
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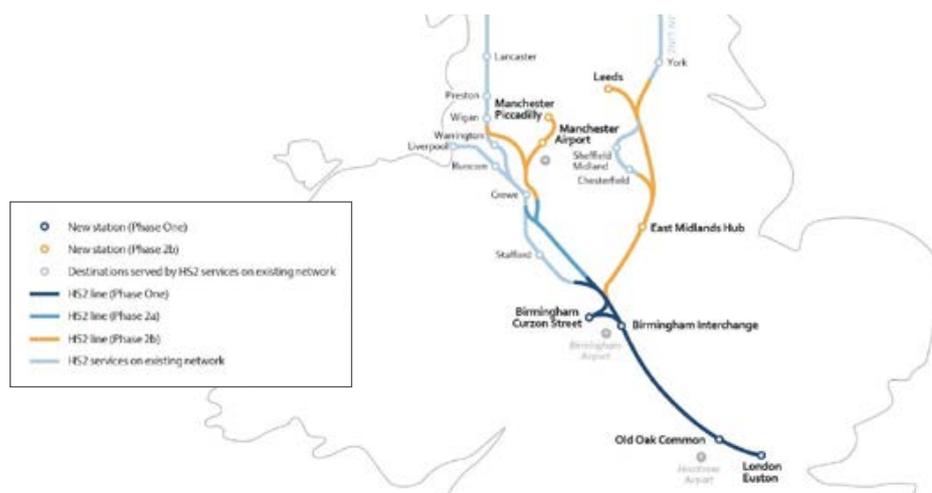
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1. Executive summary

Phase 2 and the overall HS2 plan



Current status

The idea that part of the planned second phase of HS2 could be delivered six years earlier, to become Phase 2a, was first suggested by HS2 Ltd Chairman Sir David Higgins in March 2014. Development has continued apace. The current plan is that HS2 will reach a new hub station at Crewe in 2027, accelerating the delivery of HS2 benefits in North West England.

Following public consultation, a Parliamentary Bill to obtain the powers to build this extension to the first phase line, across the West and North Midlands to Crewe, started its progress through Parliament in July 2017. On January 30th 2018, at its second reading in the House of Commons, the Bill was passed by an overwhelming majority with 295 in favour and 12 against and it is now in its Select Committee stage.

Related plans, for a new hub station at Crewe, are not part of the Parliamentary Powers being sought for Phase 2a. In March 2018, Government reached its conclusions on plans and options for Crewe Hub where the aim is to integrate platforms for HS2 trains into the existing station to maximise passenger convenience.

The High Speed Rail (West Midlands – Crewe) Bill Select Committee began its public sessions on Monday 19th March. Individuals and organisations whose property or interests are directly affected by the Bill are provided with an opportunity to object to specific provisions and seek amendments (although the principle of the Bill is no longer at issue).

The Select Committee has the power to require amendments to the Bill in response to the concerns raised by petitioners. Hearings with petitioners are expected to run from April to May 2019.

With Parliamentary progress underway to provide powers to construct the route, Phase 2a is set to open in just nine years in 2027.

Overview of the report

This report sets out:

- › How the economic benefits of HS2 Phase 2a can be maximised, including through business investment and complementary local development plans
- › How a remodelled Crewe station can become a significant rail hub for Cheshire, Staffordshire, North Wales and the Mersey-Dee area, bringing transport and economic development benefits through transformational connectivity for all of its users
- › How Phase 2a brings faster journeys for North West England and the North Midlands and helps bring a three-hour train journey to Glasgow nearer with passenger experience and environmental gains
- › The options that are opened up to use the capacity released by Phase 2a on the existing rail network, for more freight to switch to rail and for more and better passenger services
- › As the supply chain develops for Phase 1, how we can do the same for Phase 2a to support our industrial base
- › The new HS2 services that Phase 2a/Crewe Hub facilitates, adding new destinations to the HS2 service network – including Stoke-on-Trent – and improving services to others.

As a **high speed** rail link, Phase 2a of HS2 reduces journey times. With the completion of Phase 2a, the cities of Liverpool (1h34 from London) and Manchester (1h30) will be able to more closely connect to the economic assets and strengths of London and the South East (such as in financial services) to enhance local and regional growth.

But the rationale for Phase 2a lies in a much wider range of benefits. These include: a significant increase in capacity that the new services will provide; better connections between cities in the Midlands/North West England/Scotland and London; wider economic benefits especially in North West England across the very wide catchment of the planned hub station at Crewe.

Connecting Crewe, Cheshire, North Staffordshire and North Wales and the Mersey-Dee area

The creation of a radically re-designed, modern station at Crewe marks the northern limit of the Phase 2a scheme. It will be reached in just 55 minutes from London – a saving of 14 minutes from Phase 2a alone, and 35 minutes quicker than today's journey times.

The Crewe Hub will be created through a partnership of Network Rail, Cheshire East Council, and Cheshire and Warrington LEP. It will provide a strategic interchange with connectional rail services that will ensure that the whole of Cheshire, North Staffordshire, North Wales and the Mersey-Dee area – a sub-region with a population of more than 1.5 million – benefit from HS2 at the earliest stage possible.

The redesigned station at Crewe could allow HS2's long 400m trains to operate further north and provide an opportunity for some of them to divide and join into two 200m portions. While service plans are not finalised, one option would be to divide and join 2 x 200m HS2 sets forming London trains, one for Preston/Lancaster and the other for Stoke-on-Trent (and, potentially, Macclesfield, Stockport and Manchester). A wider benefit of Phase 2a with the Crewe Hub is that the set of direct London HS2 services can be expanded to serve new places.

Business opportunities and development

The benefits of Phase 2a to the North Midlands and the North West arise from the type of transformation in connectivity that has already started to stimulate the West Midlands economy from HS2 Phase 1.

Crewe Hub

Crewe is a key location on the rail network, providing highly valuable connectivity to the wider North West, the Midlands, Wales and Scotland – as well as the major cities of Manchester, Liverpool, Birmingham, and London. Around 5 million people live within an hour of Crewe station. It is one of the busiest UK stations outside of London.

Network Rail has concluded that the best location for the Crewe Hub is for it to be created around the existing station. Government initiated a public consultation on the design choices for Crewe Hub, which closed on 12 October 2017.

The Secretary of State for Transport confirmed the Government's support for the Crewe Hub vision in March 2018. Plans include:

- › provision of 400m platforms, extending Platform 5, to allow for the splitting and joining of HS2 services
- › a revision to the draft HS2 operating service plan with the addition of Stoke-on-Trent to the set of HS2 destinations
- › a proposed platform on the Manchester independent lines, incorporating a transfer deck to the main station
- › a change to the design of the southern connection from HS2, so that HS2 joins (and takes over) the central two lines on the existing network.

Realising the Crewe Hub vision in full will:

“require delivery of planned NR renewals, local and national government working together, and a local funding contribution to support future potential investment decisions including for a junction north of Crewe, enabling HS2 trains to call at Crewe and then re-join the HS2 main line, as part of Phase 2b [and] completing the full transfer deck across the station [...] with new entrances to support local regeneration ambitions and further improve the passenger experience”

(Source: statement released by the Department for Transport on March 9th, 2018)

The Cheshire East Council's regeneration plans in housing and employment around the station and beyond embrace the towns of Middlewich, Sandbach and Congleton. The Council's strategic infrastructure programme now stands at over £350m, which has grown from £45m seven years ago.

The creation of the Northern Gateway Development Zone in Staffordshire and Cheshire, led by the council leaders and LEP chairs, and now promoted by the Constellation Partnership, gained significant momentum in 2017. Its HS2 Growth Strategy contains plans to create 100,000 new homes and 120,000 jobs. It identifies and quantifies priorities, including for transport and infrastructure, and builds on the region's strengths in advanced manufacturing and engineering, and other growth sectors.

Faster and more reliable HS2 services from Crewe will help support the region's ambition of doubling the size of its economy to over £50bn. The Partnership is also already working together to support complementary key projects such as dualling the A500 between Crewe and Stoke.

Through the Crewe Hub, North Wales and the Mersey-Dee area will be better connected to the Midlands and the rest of the North West, as well as to London and the South East. The North Wales & Mersey Dee Taskforce – now known as Growth Track 360 – was established to develop a single approach for capitalising on access to HS2 services at Crewe. This could benefit an area with huge strengths in high value manufacturing – with companies such as Airbus, Ineos, Toyota and Tata Steel – and also greatly benefit Wrexham, the largest town in North Wales.

Quicker journeys for North West England and Scotland

Phase 2a generates time savings over and above those that come from the first phase of HS2. These savings are valuable in themselves for passengers and they also allow more efficient use of the HS2 train fleet.

The savings in journey times that Phase 2a brings are summarised in Table 1¹.

Journey time	Existing	With HS2 Phase 1	With HS2 Phase 1 and Phase 2a
Crewe	1h30	1h9	0h55
Manchester Piccadilly	2h7	1h41	1h30
Preston	2h8	1h41	1h30
Liverpool Lime Street	2h14	1h46	1h34
Glasgow Central	4h30	3h56	3h45

Table 1: Fastest typical journey times between London and key destinations 'without' and 'with' the Proposed Scheme in operation (Phase 1 and Phase 2a)

1. Source: HS2 Phase 2a Environmental Statement Non-Technical Summary, DfT, July 2017.

These time savings are a key stepping stone towards achieving the 3-hour target to London from Glasgow/Edinburgh, agreed between Holyrood and Westminster Ministers in March 2016. All steps towards the 3-hour target will help rail to increase further its market share in this important travel market and bring economic and environmental benefits as outlined in the HS2: 'Getting the best out of Britain' report published last year.

Environmental benefits

The quicker journey times should lead to less demand for short-haul air travel, easing pressure on scarce South East England runway slots and bring environmental savings, with lower carbon and other unwanted emissions. The three-hour target makes rail significantly more attractive than air travel and it is likely that many domestic air journeys will cease. Between London airports and Edinburgh there are nearly 300 flights each week and more than 150 between Glasgow and London. There are also many flights between these Scottish airports and Birmingham. As Table 2 below shows, if these drop by 50% (commensurate with the drop in flights between London and Paris arising from the introduction of the Eurostar and HS1), the annual carbon saving is 77,000 tonnes.

Flight	Airport	Number of Flights between (per week)	Carbon per single flight per passenger (kg)	Carbon per single train journey per passenger (kg)	Carbon saving (kg)
Edinburgh	London Heathrow	104	75	30	45
	London Gatwick	57	80	30	50
	London City	78	75	30	45
	London Stansted	55	70	30	40
	Birmingham	46	55	20	35
Glasgow	London Heathrow	69	80	30	50
	London Gatwick	46	85	30	55
	London City	40	80	30	50
	Birmingham	35	60	20	40

Table 2: Flights between London, Birmingham and Manchester, and Glasgow and Edinburgh and carbon savings.²

2. The number of flights figures for Heathrow, Gatwick, City, Stansted and Birmingham to Edinburgh and to Glasgow taken from skyscanner.net e.g. <https://www.skyscanner.net/routes/edi/lhr/edinburgh-to-london-heathrow.html> and plane seat plans taken from British Airways or seatguru.com, e.g. https://www.seatguru.com/airlines/EasyJet_Airlines/EasyJet_Airlines_Airbus_A320.php assuming that the all flights with 80% loading factor and all flights operated by the most common plane (source: cheapflights.co.uk, e.g. <https://www.cheapflights.co.uk/flights/Edinburgh/London/>)

Released capacity: new local and regional rail services, freight benefits and reducing M6 lorries

Without Phase 2a, HS2 trains from the north of England and Scotland need to use a section of the West Coast Main Line that remains a bottleneck where four tracks narrow down to two between Colwich and Stafford. Today, this acts as a constraint on the whole timetable. Phase 2a releases this capacity constraint on the existing line. This means that more railfreight services can be run over what is the busiest trunk route for railfreight in the country (leading to fewer lorries on the very busy M6 motorway); and it also means more and better local and regional passenger rail services can be run.

A legacy of a strengthened industrial base

The sequential phasing of HS2's development will help with development of the supply chain, which is taking place with the construction of Phase 1. Being able to see ahead to a long-term potential work-stream enables the supply chain to innovate and invest in equipment and delivery approaches that will be more efficient. This helps contain HS2 capital costs, and looking further ahead, it helps foster a competitive UK supply base for what is a major world market.

2. HS2 Phase 2a

Genesis

The plans to accelerate the delivery of HS2 featured in Sir David Higgins' first report as Chairman of HS2 Ltd in March 2014³. Here he stated:

"...benefits could be spread further north sooner if Phase 2 were accelerated and the line were extended to a new regional transport hub at Crewe by 2027, six years earlier than planned. This would bring together road and rail services for the region as a whole, allowing faster services sooner to Manchester, the rest of the North West and to Scotland."

"Although final decisions must await the outcome of the recent consultation, I believe it is the right strategic answer for the long term and, by combining road and rail services in one interchange, it would also act as a real agent of change in that region. It would be for the Government and Parliament to decide how that might be achieved in terms of legislation, but I do not believe this needs to be a lengthy process."

The Secretary of State for Transport welcomed the report. He announced that the Government would ask HS2 Ltd and Network Rail to undertake work looking at how the Crewe section of Phase 2 might be completed by 2027, alongside the construction of a new integrated hub station at Crewe, and at how planning for Phase 2 might be aligned with planning for Control Period 6 (2019–24).

Sir David Higgins followed up with a second report in October 2014⁴:

"the proposed North West hub should be at Crewe because that is the best way to serve not just the local region, but also provide services into the rest of the North West, North Wales and Merseyside. I strongly recommend that its delivery should be accelerated to 2027 instead of 2033 so that the North, and Scotland, begin to feel the benefit of HS2 as early as possible. I also recommend that the possibility of running classic compatible services to Stoke-on-Trent, Macclesfield and Stockport be investigated."

3. HS2 Plus: HS2 sooner and better, DfT March 2014.

4. Rebalancing Britain: from HS2 towards a national transport strategy, DfT October 2014.

In November 2015, the Secretary of State announced that Phase 2 would be divided into Phase 2a (Fradley in the West Midlands to Crewe in the North West) and 2b (Crewe to Manchester and the West Midlands to Leeds). Phase 2a would be delivered by 2027, and this would require a separate Hybrid Bill to be brought before Parliament. The Government's Command Paper⁵ stated that this would be deliverable and desirable as:

- › it is a relatively straightforward section of line to construct from an engineering point of view with currently only 1.8 kilometres of tunnel and 6.5 kilometres of viaduct, not passing through any major urban area
- › it does not require the delivery of any new stations
- › it does not require additional rolling stock
- › it connects directly with Phase 1, meaning that high speed trains could continue to run all the way to Crewe from London on a dedicated high speed network as soon as the line is built
- › it connects with the West Coast Main Line (WCML), bringing benefits to other locations in the North West
- › it allows passengers travelling to or from a wide range of places to connect onto HS2 services given that Crewe is already a major hub on the rail network, with regional and long-distance connections to the wider North West, East Midlands, and North and South Wales.

The Command Paper stated that Phase 2a offers additional journey time savings of up to 13 minutes between London and Crewe and that it would relieve pressure on bottlenecks on the WCML at Colwich Junction and around Stafford. It would offer potential efficiency savings and a smoother work profile by continuing construction from Phase 1.

The Bill

On 17 July 2017, the Government introduced the High Speed Rail (West Midlands to Crewe) Bill into Parliament. This Hybrid Bill⁶ is to authorise HS2 Phase 2a which will run between Fradley in the West Midlands and Crewe in Cheshire.

On January 30th 2018, at its second reading in the House of Commons, the Bill was passed by an overwhelming majority (295 in favour 12 against) and it has now progressed to the Select Committee stage.

5. DfT, High Speed Two: East and West: The next steps to Crewe and beyond, Cm 9157, 30 November 2015.

6. A hybrid bill combines the characteristics of public and private Bills.

The High Speed Rail (West Midlands – Crewe) Bill Committee began its public sessions on Monday 19th March. Individuals and organisations whose property or interests are directly affected by the Bill have the opportunity to object to specific provisions and seek amendments (although the principle of the Bill is no longer at issue). The Select Committee has the power to require amendments to the Bill in response to the concerns raised by petitioners. Hearings with petitioners are expected to run from April and are expected to finish by May 2019.

The Phase 2a Bill, if enacted, will grant powers to:

- › build and maintain HS2 and its associated works
- › compulsorily acquire the land required
- › affect or change rights of way, including the stopping-up or diversion of highways and waterways (permanently or temporarily)
- › modify infrastructure belonging to statutory undertakers (e.g. utility companies)
- › carry out work on listed buildings and demolish buildings in conservation areas
- › carry out protective works to buildings and third-party infrastructure
- › make necessary changes to existing legislation to facilitate construction and operation of HS2

This is a large piece of legislation and is accompanied by around 140 documents totalling 12,000 pages. This includes an Environmental Statement.

Crewe Hub

The closely related works at Crewe Hub station are not covered by the Hybrid Bill and, as an adaptation to an existing station, will be for Network Rail to implement.

In July 2017, the Government published a consultation on a new hub station at Crewe. The Secretary of State for Transport told the House:

“the HS2 business case has always included two trains per hour stopping at Crewe. The Phase 2a Bill includes the interventions needed to support that, but I know that there is a strong ambition to achieve even more. Today, I am therefore launching a consultation on options to develop a Crewe hub. This work shows how such a service pattern could support an HS2 service to Stoke-on-Trent and bring benefits to places like Chester, north and south Wales, Shrewsbury and Derby. Future decisions will be subject to affordability and value for money. Funding the broader vision for a Crewe Hub will require national and local government to work together, but I believe that there is the potential to deliver even more benefits.”

The consultation⁷, which closed on 12 October 2017, sought views on:

- › the vision for a hub station at Crewe, as recommended by Sir David Higgins in 2014
- › providing 400m platforms at Crewe station in 2027 which could enable longer HS2 trains to and from London to split and join at Crewe, meaning other destinations, such as Stoke-on-Trent, could be served by a high speed service
- › providing a junction north of Crewe station to connect the West Coast Main Line (WCML) and the high speed line, in 2033 as part of HS2 Phase 2b. This could enable northbound high speed connectivity from Crewe, providing more seats between Crewe and London
- › levels of future freight growth that should be considered in planning a Crewe Hub
- › levels of growth in local and regional passenger services that should be considered in planning a Crewe Hub
- › the role the local area could play in realising a Crewe Hub, including by way of local funding contributions and evidence for potential levels of growth.

The outcome of this consultation was published by the Government on March 9th, 2018. With widespread stakeholder support for the vision and for the various optional developments, the Government has made the commitment to proceed with the Crewe Hub alongside the expected implementation of HS2 Phase 2a.

7. DfT, Crewe Hub Consultation, Cm 9477, 17 July 2017.

There will be:

- › 400m platforms, with Platform 5 extended to allow for the splitting and joining of HS2 services (trains will run as 2×200m units)
- › this revised operating arrangement opens opportunities to serve Stoke-On-Trent via HS2
- › a proposed platform on the Manchester independent lines, incorporating a transfer deck to the main station
- › a change to the design of the southern connection from HS2, so that HS2 joins (and takes over) the central two (fast, non-stopping) lines on the existing network
- › delivery of the planned NR renewals will be integrated into the works programme. Local and national government will work together, with a local funding contribution to support future potential investment decisions including for:
 - › a junction north of Crewe, enabling HS2 trains to call at Crewe and then re-join the HS2 main line, as part of Phase 2b
 - › completing the full transfer deck across the station to Weston Road (to the east of the station) and potentially to Gresty Road (to the west) with new entrances to support local regeneration.



Crewe station by night
Photo: A D Cochrane.

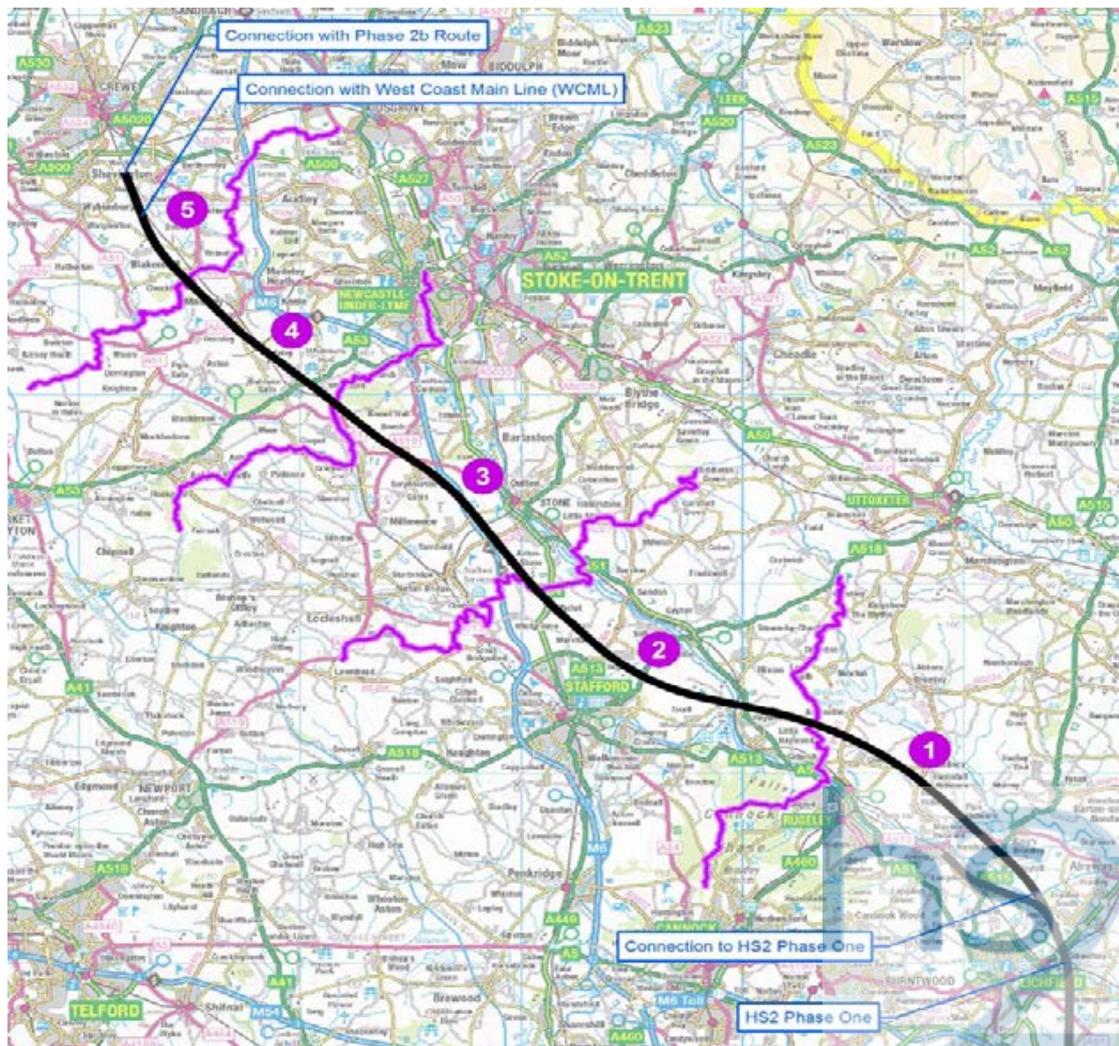


Crewe station by day
Photo: Cheshire Life

The Phase 2a scheme

HS2 Phase 2a between the West Midlands and Crewe, comprises approximately 36 miles (58km) of HS2 main line (including the section which would connect with and form the first part of Phase 2b) and two spurs south of Crewe. It has costs estimated at £3.48bn.

The route is illustrated in the map below (which highlights five community areas, created to assist environmental assessments and community engagement).



Source: HS2 Phase 2a Environmental Statement Non-Technical Summary, DfT, July 2017.

3. The benefits of Phase 2a

The economic case

Phase 2a has a benefit cost ratio of 1.9:1 – a medium strength economic case. The assumptions in this calculation do not allow for the service developments that Crewe Hub will bring, and neither do they anticipate any significant changes to services (passenger and freight) using the West Coast Main Line. Also, not taken into account is regeneration and expansion of residential and commercial property in the Crewe station catchment – or indeed in the catchment of other locations such as Liverpool or Stoke-on-Trent that will benefit substantially. Phase 2a is judged (narrowly) on its own merits, assuming that Phase 2b does not take place.

It is worth building Phase 2a even with these cautious assumptions.

The creation of a modern station at Crewe is long overdue. The current station is a half-completed 1960s rebuild; the trackwork was last re-modelled in the 1980s when services were much less frequent and less well-used.

The economic appraisal of the works needed at Crewe station to form the Hub show cost benefit ratios in the range 3.2:1 to 4.1:1 – a good economic case. While no economic appraisal of the combination of Phase 2a and Crewe Hub has been published, it is likely overall to have a good economic case (a benefit: cost ratio of over 2:1).

In the near future, Crewe will have a high frequency train service to the heart of London in just 55 minutes. For Cheshire, North Staffordshire, North Wales and the Wirral, this is transformational connectivity across a broad geography – and Crewe is a location which also offers direct rail services to South Wales, North Wales, the North Midlands, the West Midlands, the East Midlands, North West England and Scotland. This is why local authorities and development agencies are so keen to support Phase 2a and Crewe Hub, including financially. They have formed the Northern Gateway Development Zone in Staffordshire and Cheshire, to nurture and capture the expected significant local economic benefit.

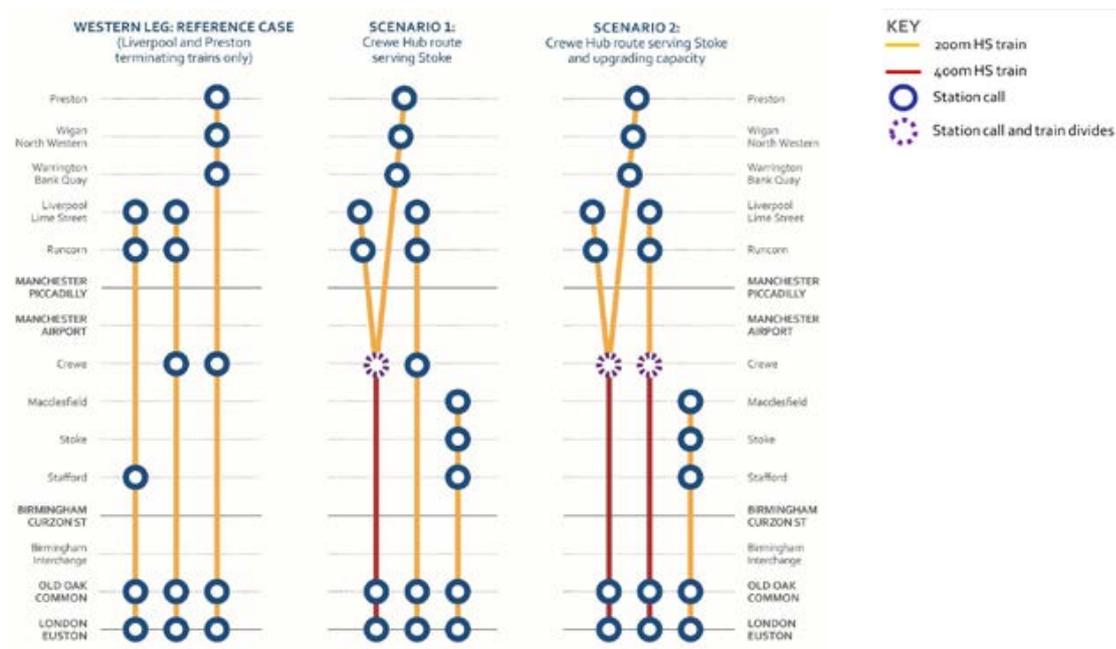
Northern Gateway Development Zone

The creation of the Northern Gateway Development Zone in Staffordshire and Cheshire, led by the council leaders and LEP chairs, has gained significant momentum over the past months. With plans to create 100,000 new homes and 120,000 new jobs, the partnership and its consultants are currently preparing the joint HS2 Growth Strategy – and early work will articulate the overall vision. This will be underpinned by masterplans including for Crewe, Stoke-on-Trent and Stafford and the Weaver Towns of Winsford, Northwich and Middlewich. The HS2 Growth Strategy work will identify and quantify priorities, including for transport and infrastructure, and will extend to detailed property and market analysis. This will provide an evidence-based economic ambition for the Northern Gateway that builds on the region's strengths in advanced manufacturing and engineering, and capitalises on other growth sectors too.

The partnership is already working together to support key projects such as completing the dualling of the A500 between Crewe and Stoke. Crewe already acts as a major interchange on the rail network and Network Rail is working on developing options for a Crewe Hub. This could also provide opportunities to better connect North Wales and the Mersey Dee region to London and the South East. Faster and more reliable HS2 services from Crewe will help support that region's ambition of doubling the size of its regional economy to over £50bn and creating 70,000 new jobs.

The North Wales & Mersey Dee Taskforce – Growth Track 360 – has been established to develop a single approach for capitalising on access to HS2 services at Crewe and delivering significant local transport improvements, such as reducing journey times between the region's major towns and cities to an hour or less.

Source: Changing Britain: HS2 Taking Root, DfT 2016



Crewe network – Potential scheme service patterns for Crewe Hub scenarios 1 and 2⁸

Source: HS2 Economic Case Phase 2a and 2b, DfT, July 2017

Service development

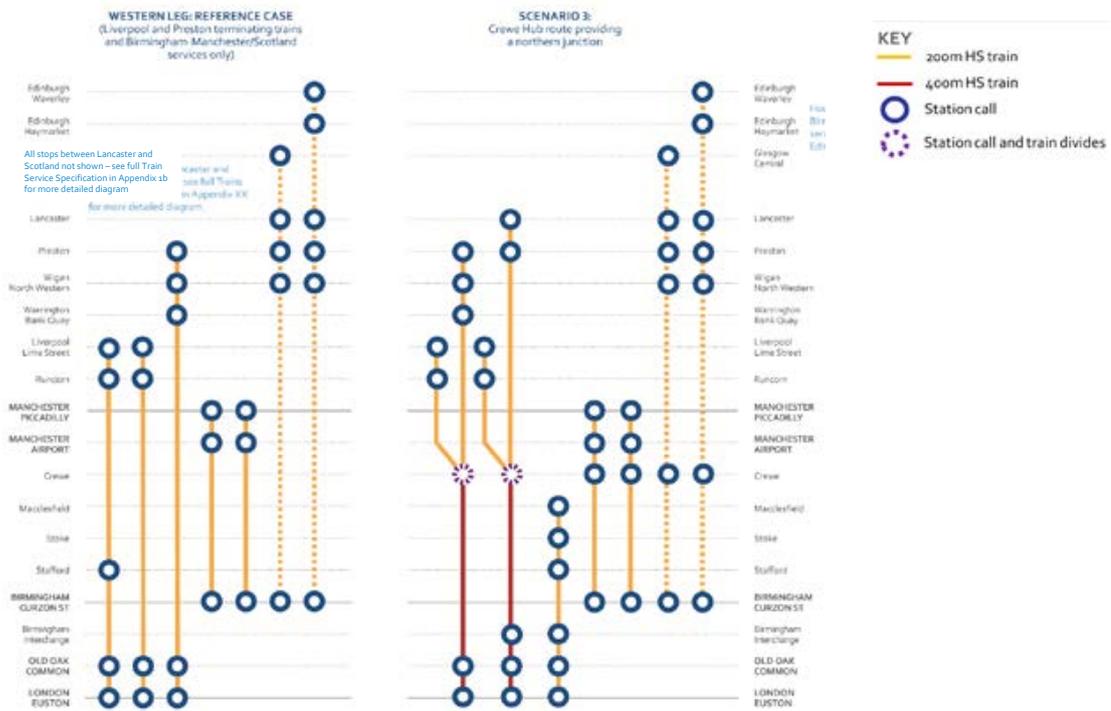
When it comes to assessing the benefits of Phase 2a, it should be noted that service plans are not yet committed, either for HS2 services or for the 'classic network'. DfT has published an assessment of three train service scenarios in its assessment of the potential value for money of developing a 'Crewe Hub'⁹:

- › **Scenario 1** – Crewe Hub route upgrading capacity with one additional 200m unit travelling to Crewe each hour and adding Stoke-on-Trent as an additional destination;
- › **Scenario 2** – Crewe Hub route upgrading capacity with two additional 200m units travelling to Crewe each hour and adding Stoke-on-Trent as an additional destination; and
- › **Scenario 3** – Crewe Hub providing a new Northern Junction – which is in addition to scenario 2.

Source: HS2 Economic Case Phase 2a and 2b, DfT, July 2017

8. Note that in this and the following diagram, only those HS2 services that are relevant to Crewe are shown.

9. HS2 economic Case Phase 2a and 2b, DfT, July 2017.



Source: HS2 Economic Case Phase 2a and 2b, DfT, July 2017

These scenarios serve to illustrate some of the additional HS2 service opportunities that arise with Phase 2a & Crewe Hub. Under Scenario 1, Liverpool and Preston services are combined between London and Crewe into a 400m train. Both destinations would still be served as this train divides at Crewe, with one 200m unit continuing to Liverpool, and the second 200m unit continuing to Preston.

Combining services between London and Crewe frees up a path on the Phase 1 route. The July 2017 economic case assumed that this freed path was used to provide an additional service between London Euston and Macclesfield, with stops at Stafford and Stoke-on-Trent.

This option would slightly increase the journey times of the Liverpool and Preston services that use the divided 400m train, as extra time would be needed to accommodate dividing or merging the train at Crewe. However, the Liverpool service has a net journey time reduction, due to the timesaving of removing the Stafford stop and using the Phase 2a high speed line, rather than an extended trip along the existing west coast line to reach HS2 at Handsacre junction.

Scenario 2 was defined as per Scenario 1, but with the addition of another 400m train between London and Crewe for the second Liverpool service. This service would also divide at Crewe, with a 200m unit continuing to Liverpool and the remaining 200m unit terminating at Crewe. This provides an additional 200m trainset between London and Crewe compared to the core HS2 service assumption and the additional capacity relieves overcrowding.

Scenario 3 is as per Scenario 2, but with the addition of a high speed junction between the WCML north of Crewe and the high speed line that will be built as part of Phase 2b. As such, this scenario could only operate from 2033. The junction enables more high speed services to stop at Crewe. The junction also means that instead of terminating the second 200m unit at Crewe as in Scenario 2, this train could now be sent to another destination north of Crewe (Lancaster was chosen for modelling purposes).

Government has concluded that it wants to see a Scenario 2 type service plan adopted when Phase 2a is complete, since this allows the addition of Stoke-on-Trent to the HS2 service plan; when Phase 2b, is complete, it favours creating the northern junction that would allow a train service such as that shown above as Scenario 3 to operate. The HS2 junction north of Crewe, could allow five to seven trains an hour to call at Crewe, improving the connectivity to the lines from Crewe to Shrewsbury, Chester and Stoke-on-Trent.

By dividing and joining trains at the start/end of the high speed line at Crewe, utilisation of the new line can be optimised while at the same time a wider set of towns and cities can be provided with direct HS2 services.

Serving Staffordshire

Train paths on HS2 are limited, and there are several towns and cities with ambitions for a direct HS2 service. Staffordshire has an advantage in that it is possible to serve Stafford, Stoke-on-Trent, Macclesfield and Stockport with a single train path. On their own, HS2 services to these locations might be hard to justify (the original plans for serving Stafford, for instance, meant slowing down London – Liverpool services quite significantly); served together as a string of key North Staffordshire/Cheshire destinations they would be viable for HS2 service. The route to be used would be London Euston – HS2 – (via Handsacre junction, the original northern limit of Phase 1) – Stafford – (via the recently modernised junction at Norton Bridge which has a new flyover, rather than a ‘flat’ crossing of tracks) – Stoke-on-Trent and onwards to Macclesfield and Stockport. Services could be terminated at the planned new HS2 terminus alongside the existing station at Manchester Piccadilly. Fast HS2 trains to/from Manchester would use the route via Crewe.¹⁰

The West Coast Partnership – a new rail franchise that will incorporate the existing intercity services on the West Coast Main Line and the start-up of HS2 services – was announced by DfT in January 2017. It is seeking rail operating company partners that will help design and specify the early years of HS2 train service.

10. Source: <http://www.greengauge21.net/wp-content/uploads/Staffordshire-a-key-HS2-beneficiary-Final-GG21-September-2014.pdf>

Crewe Hub

We have seen that the development of Crewe Hub can allow for enhanced HS2 services. It will also of course, provide for a very wide set of connecting trains, acting as feeders both to HS2 services and to one another (as happens today). The creation of the Crewe Hub will add value to (and improve the economics of) existing Crewe services and help make the case for further enhancements. By 2013/14, Crewe accounted for more originating London rail passengers than Warrington, Stafford, Chester or Stoke-on-Trent, reflecting its wide catchment for access by car.

The work to create Crewe Hub will require modernisation and rationalisation of the out-of-date track layout. Re-signalling could take place in the years 2019-24 (CP6). If this is combined with digital railway technology, the capacity constraints on the routes north of Crewe which, following Phase 2a will experience additional demand in terms of train paths, might be relieved.¹¹ This is an area where some of the costs incurred are likely to replace expenditure that would be needed in any event (as renewals).



Currently, road access to Crewe station is very constrained.

Photo: CreweandNantwich.co.uk

11. <http://www.greengauge21.net/publications/stakeholder-perspectives-the-west-coast-partnership/#more-3334>.

Service	Key places served
South Wales – Manchester	Cardiff, Hereford, Shrewsbury, Stockport, Manchester
North Wales – London	Holyhead, Bangor, Llandudno, Chester
London – Glasgow	Glasgow, Carlisle, Lancaster, Preston, Wigan, Warrington, London
Crewe – Derby	Stoke-on-Trent, Derby
Manchester – Crewe	Manchester Airport, Wilmslow
London – Manchester	Manchester, Wilmslow, London
Birmingham – Scotland	Edinburgh, Glasgow, Carlisle, Lake District, Preston, Stafford, Wolverhampton, Birmingham
Liverpool – Birmingham	Liverpool, Runcorn, Stafford, Wolverhampton, Birmingham
Crewe – Euston	Stoke-on-Trent, Stafford, Lichfield, Tamworth, Rugby, Milton Keynes, Watford Junction, London

Crewe's direct rail connections

Access to the new rebuilt Crewe station will be from the east and west sides, rather than the tightly constrained arrangement currently from an overbridge carrying the Nantwich Road. These works are likely to be funded by local authorities/LEP. It is worth noting that without HS2 services and the accessibility benefits they provide, there were no plans to fund the type of major station improvements now being jointly considered by Network Rail and local partners.

While Crewe is a focal point of the Phase 2a scheme, HSRIL believes the plans for Crewe Hub can serve as a useful model for other locations – Preston would be a good example – that will benefit from HS2 services at an existing – but somewhat outdated – railway station.

The redevelopment needed at Crewe station is complex. The availability of alternative routes and tracks through the station area will help minimise disruption to existing services while the works are carried out. Network Rail can point to having overcome similar challenges in its rebuild of Reading station completed in 2017.

High speed Anglo-Scottish services

London-Glasgow trains will be able to enjoy a journey time of just 3h45 on completion of HS2 Phase 2a.

These time savings are a key stepping stone towards achieving the 3-hour target London – Glasgow/Edinburgh agreed between Holyrood and Westminster Ministers in March 2016.

All steps towards the 3-hour target will help rail to increase further its market share in this important travel market. This should lead to less demand for short-haul air travel, easing pressure on scarce South East England runway slots and bringing environmental savings, with lower carbon and other unwanted emissions. The carbon saving we estimate is approximately 77,000 tonnes per year (as shown earlier in Table 2). With the scope to displace the major domestic air market between Scotland's central belt and London, the case for high speed rail in Britain as a whole is hugely strengthened.



Ministers Keith Brown and Robert Goodwill meet at Waverley station March 2016.

Photo: Greengauge 21

Released capacity

Without Phase 2a, HS2 trains from the north of England and Scotland need to use a section of the West Coast Main Line that remains a bottleneck where four tracks narrow down to two between Colwich and Stafford. This section is bypassed by HS2 Phase 2a.

Today, this junction and two-track section of line through Shugborough Tunnel acts as a constraint on the whole timetable. Once Phase 2a is in place, more railfreight services can be run over the busiest trunk route for railfreight in the country (so fewer lorries on the M6 motorway). It also means more and better local and regional passenger rail services can be run.



Colwich Junction – speed and capacity constraints where four tracks become two.

Photo: Greengauge 21, 2015

According to DfT's update of the Strategic Case for HS2, released in July 2017:

“HS2 will deliver a step change in capacity on the UK’s long-distance rail network. By providing direct intercity services on dedicated high-speed lines, HS2 will free up train paths and platforms on the heavily congested WCML and ECML. This presents a once in a generation opportunity to improve services on these corridors, including passenger services to locations not directly served by HS2, and freight services. This will not only improve passenger experience by reducing overcrowding on peak time trains but will also allow train operators to run more varied and frequent services.”¹²

“No decisions on the use of this released capacity have yet been taken. As the scheme develops we will consider options for inclusion in the final HS2 timetable.... For Phase 1 and Phase 2a, the West Coast Partnership will work to maximise the benefits of both HS2 and WCML services, including to places not directly served by HS2. This work will include consultation with passengers, communities and freight operators in order to finalise options.”

12. Op cit DfT Strategic Case July 2017 paragraphs 3.38 et seq.

This report also provided an overview of DfT's perspective on how the capacity released by Phase 2a might be used:

“As well as faster journeys, Phase 2a will also release capacity on the conventional rail network. Phase 2a extends the HS2 route from north of Birmingham to a junction with existing lines just to the south of Crewe station. This means that six trains per hour can be transferred onto Phase 2a lines, freeing up capacity on the WCML from Lichfield to Crewe. Subject to future decisions about the railway, Phase 2a could free up capacity in the following areas:

- › **increasing the frequency of services to Nuneaton, Tamworth, Lichfield and Rugeley from hourly to half-hourly or better, subject to capacity at Crewe or Stoke-on-Trent. In order to provide wider connectivity, these services could be combined with Manchester and Liverpool commuter services to the north and with services from London to Northampton to the south**
- › **increasing the frequency of services from London to Chester, from one to two trains per hour. These services could be extended to destinations in North Wales**
- › **capacity released by Phase 2a could instead be used for freight services as far as Crewe. Additional freight services from the London area, Southampton and Felixstowe beyond Crewe would be subject to constraints elsewhere on the network. For example, freight services beyond Crewe towards Liverpool would be possible if capacity improvements could be delivered between Crewe and Weaver Junction.”**

With regard to additional freight services, it is true that network capacity north of Crewe might remain a constraint. But consideration is being given to creating a multi-modal freight terminal at Crewe itself and this could be served by additional freight services from the south as soon as Phase 2a is open.

The supply chain

Supply chains thrive when it is possible to plan ahead. Government commands the flow of work on major infrastructure investments through decisions on planning policy and funding. Parliament determines whether major rail projects should proceed (while more local projects may proceed under other approvals regimes, most of which require public consultation and inquiries) after taking into account local concerns.

There is every sign that Government understands the burden of responsibility – to shoulder political risk – that is involved in bringing major infrastructure projects to fruition. For its part, the supply chain is now, in addition to being engaged through contracts for preliminary works on Phase 1 of the scheme, actively examining how it can, in partnership with the UK Government help build the nation's high speed rail (HSR) capability, and seize the opportunity to build an export capability across a very wide range of disciplines and skills.

With the passage of the HS2 Phase 2a bill through Parliament, the opportunity is now to focus on and harness the supply chain benefits for Phase 2a, and the £3.48bn part of the HS2 programme excluding the Crewe Hub. The goal is that 60% of contracts for HS2 will go to SMEs.

It is fair to say that HS2 has already attracted a lot of international interest. The planning, funding and procurement processes in the UK are seen as being of an exceptionally high standard. Compared with the approaches used in other highly developed nations, the development of HS2 from conception in 2009 to the start of delivery in 2018 is seen as a model of good progress. HSRIL members are determined to make the delivery of this most exciting of national projects a success and to use it as a platform for industrial regeneration of the wider rail sector.

About High Speed Industry Rail Leaders

Representing companies with relevant experience and an interest in high speed rail, HSRIL (High Speed Industry Rail Leaders) is committed to supporting the successful delivery of a world-class high speed rail network in Britain. Our members have helped deliver major infrastructure projects in the UK and around the world, ranging from creating entirely new high speed networks through to maintaining and improving the UK's existing rail network.

This gives us a unique insight into both the shortcomings in the current network, and the transformative capacity and connectivity benefits that high speed rail can bring.

HSRIL supports investment in high speed rail including expansion of the high speed network through HS2. It also supports high speed rail's integration with the existing rail network, and the investment needed to spread the wider economic benefits of HS2, and supports related rail investments such as Northern Powerhouse Rail and Crossrail 2.

The aim of High Speed Rail Industry Leaders is to support, promote and champion the principles of high speed rail in the UK. Our members come together to coordinate and share the expertise and experience within the industry and help assure that Britain's national high speed rail network is delivered successfully to world class standards.

A list of our current members, and details of how to join can be found here: www.rail-leaders.com

You can follow us on Twitter here [@RailLeaders](https://twitter.com/RailLeaders)