Derby City Council

Economic Impact of HS2 to Derby

Summary Report

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Ove Arup & Partners Ltd
Admiral House
Rose Wharf
78 East Street
Leeds
LS9 8EE
United Kingdom
arup.com

Job number 218891-00

ARUP

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1 Summary of Main Findings

This report considers the potential economic impacts of high speed rail (HS2) to Derby and the Derby, Derbyshire, Nottingham and Nottinghamshire Local Enterprise Partnership (D2N2 LEP) area. There are five main recommendations on developing Derby's economic case for rail investment.

1. **Develop a coherent rail strategy for Derby and the D2N2 LEP area.** There is a positive economic case for high speed rail to Derby and the D2N2 LEP, but it is essential that the HS2 project is positioned within a wider strategy for improving the inter-urban rail network as a whole. The aim should be to create benefits in the short, medium and long term for all places in the LEP area.

2. **Position Derby's rail strategy within the context of rebalancing the economy.** Derby's rail strategy should be based on the strong economic rationale for improving connections between Derby and Nottingham, and for bringing the D2N2LEP area functionally closer to other city regions: London and Heathrow, as well as the Greater Birmingham and Solihull, Sheffield and Leeds City Regions. Rail improvements can help rebalance the economy by creating more coherent and powerful economic zones outside London. HS2 will create significant economic benefits to Derby through increased business productivity and investment. Derby should develop a powerful economic case for rail investment, reflecting the city's strengths and potential in advanced manufacturing (including rail), and associated R&D and business services.

3. **Make the case for upgrading and Electrifying the Midland Main Line and Birmingham to Derby Line.** The upgrade and electrification of the Midland Main Line is essential to create economic benefits to Derby, Nottingham and the LEP area in the short to medium term. There should also be schemes to improve and electrify the Birmingham to Derby, Sheffield to Leeds and Nottingham to Derby / Chesterfield routes. These improvements will deliver greater capacity, faster journeys, carbon savings, and will reduce costs.

4. **Encourage further work on the interface between HS2 and the existing rail network.** There would be significant benefits from HS2 being integrated closely with the existing "classic" rail network. Full consideration should be given to the benefits of inter-operability using classic-compatible high speed services to access a wide range of locations, the opportunities presented by capacity release on existing lines, and the potential for a connection between stage one of HS2 and the Birmingham to Derby line to enable Derby, Sheffield and Leeds to benefits from classic compatible high speed services in 2026.

5. **Align wider land use, regeneration, economic development and transport plans with those for high speed rail.** There would be clear advantages to Derby of a city centre HS2 station. It would create greater economic and regeneration benefits compared to a parkway station, be integrated more closely with existing public transport networks, and result in lower carbon emissions from journeys to access the station. Derby City Council and its partners should develop land use and development proposals, based on a clear economic vision, for the area around the station, and transport proposals to spread the benefits and increase the station's local accessibility. Derby should work through the LEP to manage the cross boundary impacts of HS2.

2 Background and Context

2.1 Objectives of This Study

- To produce a research report which quantifies the economic benefits to Derby and the D2N2 economy of a high speed rail station constructed at or near Derby.
- To produce an estimate for the number of jobs that might be created from building a station at or near Derby.
- To analyse the environmental benefits that might be created in Derby from building a station at or near Derby.
- To identify, analyse and attempt to attach an economic value of the risks to Derby and Nottingham that could arise from the HS2 eastern leg not proceeding or for the East Midlands station to be constructed outside either of the two urban areas.
- To summarise the economic impact generated in other urban areas following investment in high speed rail facilities.
- To consider the relative value for money between constructing a station at or near Derby and outside either of Derby or Nottingham.
- Make recommendations on specific local interventions that could be delivered by Derby City Council, the DRB and D2N2 Board to influence Government about both the route decision and the location of the East Midlands station.

The research has involved estimating the potential impact to Derby and the D2N2 LEP area of different scenarios for high speed rail to the East Midlands. The purpose of these scenarios is to inform the analysis of strategic issues for Derby, and the conclusions and recommendations on Derby's strategy relating to high speed rail.

2.2 Background

The Government's proposed national high speed rail project could transform the shape of the national economy. By reducing journey times and increasing rail capacity between some of the largest cities in England, high speed rail has the potential to generate significant economic benefits. Experience from elsewhere shows that for these benefits to be maximised, high speed rail networks need to be planned in the right way, with stations in the right locations integrated closely with the wider transport network, and there needs to be alignment with economic development, regeneration and land-use plans at local and city region level.

The Government confirmed in 2012 the details of the proposed high speed rail network.

Detailed proposals were set out for the first phase of HS2 which will connect London and the West Midlands. This will be completed in 2026. This first stage of HS2 will include a link in the West Midlands to enable "classic compatible" high speed services to run on from the high speed route on to the North West and Scotland using the West Coast Main Line.

The second phase of HS2, which is planned to be completed in 2032/3 will create a Y-shaped network with two extensions north of the West Midlands, one to the North West, and one to the East Midlands, South Yorkshire, Leeds (with a link to the East Coast Main Line near York). Specific details of this route, including station locations, are yet to be published.

Figure 1 below shows the proposed full HS2 network.

Figure 1: The proposed national high speed rail network

Source: DfT (2011) High Speed Rail: Investing in Britain's Future, Consultation Summary

2.3 What Benefits can High Speed Rail Create?

2.3.1 Lessons from High Speed Rail Internationally

With only one existing high speed line (HS1 – the Channel Tunnel Rail Link) of only 50 miles long, Britain lags behind many other countries; having a smaller high speed rail network than Morocco, South Africa and Saudi Arabia. Evaluating the benefits and disbenefits of the implementation of high speed rail in other countries is useful as it indicates the type of benefits that could be created from HS2. Literature on this subject indicates that high speed rail:

- **Creates significant economic and regeneration benefits:** in order to maximise these benefits it is important to integrate plans with wider land use planning, economic development and transport networks.
- **Generates greater economic benefits when the station is located city centres:** these benefits are greatest for knowledge intensive sectors, and financial and business services, which tend to be clustered in city centres;
- **Creates different types of benefits depending upon the journey time savings:** for example if journey times are reduced to around or below 60 minutes this may lead to significant changes in commuting patterns;
- **Generally exceeds passenger demand forecasts:** the creation of a high speed network has led to a modal shift from air and car to rail, and increases the size of travel markets; and
- **Benefits from being integrated into the wider public transport network:** greater benefits of high speed rail can be created if this integrated into the wider public transport network.

2.3.2 The Case for HS2

The main reason HS2 is needed is because existing north – south rail routes will be full to capacity in forthcoming years, and HS2 is the best option for providing the significant increase in rail capacity that is needed. This new capacity will create benefits for existing rail routes, on which there will be less crowded trains and scope for new service patterns which will benefit places that will not have stations on the high speed rail network.

HS2 will enable trains to run at 200mph. This will transform journey times to London, and between main cities outside London. There is a clear and proven link between the levels of transport accessibility and the economic competitiveness and performance of cities. HS2 will improve the ability of businesses in cities on the route to access markets, knowledge producers, and a skilled workforce. It will increase the attractiveness of these cities for business investment.

2.3.3 The Case for Improvements to Existing Rail Lines

Improvements are needed to existing rail routes to create benefits in the short to medium term, in advance of the opening of the full HS2 network in over 20 years time. There is a particularly strong business case for improving and electrifying the Midland Main Line. There is also a need to ensure local and regional transport networks enable people to access quickly stations on the HS2 network.

3 Analysis of Potential Impacts of a HS2 Station in or Near Derby

3.1 Introduction

Four different scenarios were considered:

- Scenario 1 – a HS2 station in the centre of Derby;
- Scenario 2 – an out-of-town parkway station between Derby and Nottingham;
- Scenario 3 – a HS2 station in the centre of Nottingham, with Derby not part of the HS2 network; and
- Scenario 4 – a connection in the West Midlands between HS2 phase 1 and the Birmingham and Derby line to enable classic compatible trains to run at high speed on HS2 between London and the West Midlands, and then continue on existing rail routes at lower speeds to Derby and beyond. It would reduce journey times from Derby to London from 2026 instead of 2032/33 which is the earliest date for when the full HS2 network could be completed).

The following types of impacts were considered for each scenario:

- Wider Economic Impacts – the productivity benefits from business clustering created by improvements in accessibility (we have followed relevant Department for Transport guidance), these impacts are additional to conventional transport benefits based on the value of time of transport users;
- Land Use Regeneration Impacts – based on estimates of the potential of high speed rail to act as a catalyst for development in the areas surrounding or with good access to stations; and
- CO2 emissions as a result of journeys of passengers to access the HS2 station.

3.2 Main Findings

3.2.1 Summary of Impacts of Different Scenarios

Scenario	Wider Economic Impacts to Derby (60 year NPV)	Wider Economic Impacts to D2N2 LEP area (60 year NPV)	Potential Gross Land Use Regeneration Impacts for Derby (jobs)	Total annual CO2 emissions (tonnes) resulting from Derby passengers travelling to / from the station	Journey time saving to London from Derby
1. City centre through station	£145m	£295m	c.12,300	894 – 1,189	35 mins
2. Parkway station	£55m	£275m	c.615	2,817 – 3,749	19 mins
3. Nottingham (not Derby) HS2 station	£10m	£400m	c. -8,000	2,723 – 3,624	3 mins
4. Link from Derby to stage 1 of HS2	£70m	£140m	c. 10,500	894 – 1,189	26 mins

3.2.2 Scenario 1 – Derby City Centre HS2 Station

A Derby city centre HS2 station would create the greatest economic benefits for Derby, and would create significant economic benefits for the LEP area as a whole. It would also create substantial regeneration benefits as a result of accelerating the delivery of city centre developments that are in the pipeline, and leading to intensification and more productive use of sites that are occupied currently. A Derby City Centre station would be highly accessible, including by public transport, and create lower carbon emissions compared to the other scenarios as a result of journeys of Derby residents to and from the station.

The wider economic impacts of this scenario would be over £200m greater (60 year NPV) if a fast link was created between Derby and Nottingham. An important conclusion from the analysis is that to maximise the economic impacts to the LEP area, both Derby and Nottingham need improved rail accessibility.

3.2.3 Scenario 2 – Parkway Station

Of the three scenarios associated with the full HS2 Y network, a Parkway station would create the lowest wider economic impacts to the LEP area. This is because the accessibility benefits to businesses based in city centres will be reduced because of the additional time required to access the station. We estimate there will be on balance modest positive development and regeneration benefits to Derby. However these benefits will be mainly in the outer areas of Derby; there will be a negative impact on regeneration in Derby City Centre (and also Nottingham City Centre). Our estimates assume there will be no major out of centre development around the parkway station. A parkway station will result in higher carbon emissions as a result of journeys to access it. It would require substantial and expensive road infrastructure, and it could cause road congestion.

3.2.4 Scenario 3 – Nottingham City Centre HS2 Station

A Nottingham city centre station would create greater productivity benefits for the LEP area as a whole. However a route through Nottingham is likely to be far more costly than a route through Derby, and could have a lower overall Benefit to Cost Ratio. Also, we are of the view that there are weaknesses in the Department for Transport's methodology for estimating wider economic impacts. The methodology (which was developed to make the case for Crossrail in London) underestimates the impacts of high speed rail in general, and the potential positive impacts to places such as Derby which are hubs for advanced manufacturing.

3.2.5 Scenario 4 – Classic Line Connection to Phase 1 of HS2

This scenario would result in a substantial journey time saving to London of around 26 minutes (compared to the 35 minutes that the full HS2 schemes could create). It would create benefits to Derby at least 6-7 years earlier than the full HS2 scheme. It will also secure Derby's position on the high speed network should the East Midlands station be elsewhere on phase 2 of the full Y network, or if phase 2 is delayed or cancelled. However it would not reduce significantly journey times to places other than London, and therefore would create lower Wider Economic Impacts than the full HS2 scheme. It could also weaken the business and economic case for the full HS2 scheme to Derby.

4 Main Conclusions and Recommendations

4.1 Develop a coherent rail strategy for Derby and the D2N2 LEP area

4.1.1 Overview

Whilst the is a positive economic case for high speed rail to Derby and the D2N2 LEP, it is essential that the HS2 project is positioned within a wider strategy for improving Derby's accessibility by the inter-urban rail network as a whole.

This rail strategy should comprise:

- Stage one (within the next 10 years – can be delivered incrementally) –line speed, capacity improvements and electrification for the Midland Main Line, including add-on schemes such as Derby – Nottingham improvements, and electrification of the Birmingham to Derby line (see section 4.3 below);
- Stage two (2026) – a connection between HS2 phase 1 and the Birmingham to Derby line, to enable classic compatible trains to run on HS2 between London and the West Midlands, and continue on existing lines to Derby, Sheffield and Leeds and potentially also to Nottingham (see section 4.4);
- Stage three (2032-3) – completion of the full Y HS2 network accessing Derby City Centre, enabling (including through integration with existing rail routes) fast journeys to city centres in Birmingham, Nottingham, Sheffield and Leeds.

Figures 2-4 on the following pages set out the details of each of these three stages of improvement, with indicative journey time savings

4.1.2 The Case for a Multi-Stage Strategy for Rail Improvements

HS2 is a long term project. The full Y scheme will not be completed until 2032-3 at the earliest. There is a need for rail improvements in the short to medium term.

There are also various risks to Derby in relation to HS2. Phase 2 of the network, north of the West Midlands could be delayed or may even be cancelled. Derby may not be on the route. The finite capacity of route between London and the West Midlands, and the fact that a service pattern to the North West will be established once phase 1 opens, will limit the number of destinations that can be served in the East Midlands. HS2 is likely to only have one station in the East Midlands. This is despite the fact that our analysis shows the economic benefits to the D2N2 LEP area would be greatest if both Derby and Nottingham city centres are on the network. Stage one of the rail strategy set out above, upgrading and electrifying the Midland Main Line, will secure benefits to the entire LEP area regardless of whether or how the full HS2 scheme is implemented.

Improvements to existing lines will not weaken the case for HS2. Indeed they will help ensure the benefits of capacity release on existing lines are maximised. By upgrading and electrifying existing lines, and connecting them to HS2, there will be greater options for HS2 (particularly the regional services) to access a wider range of places, particularly city centres.

Figure 2 – Stage One of Derby Rail Strategy – Upgrading and Electrifying the Midland Main Line, Birmingham to Derby Line, and Add-on Schemes

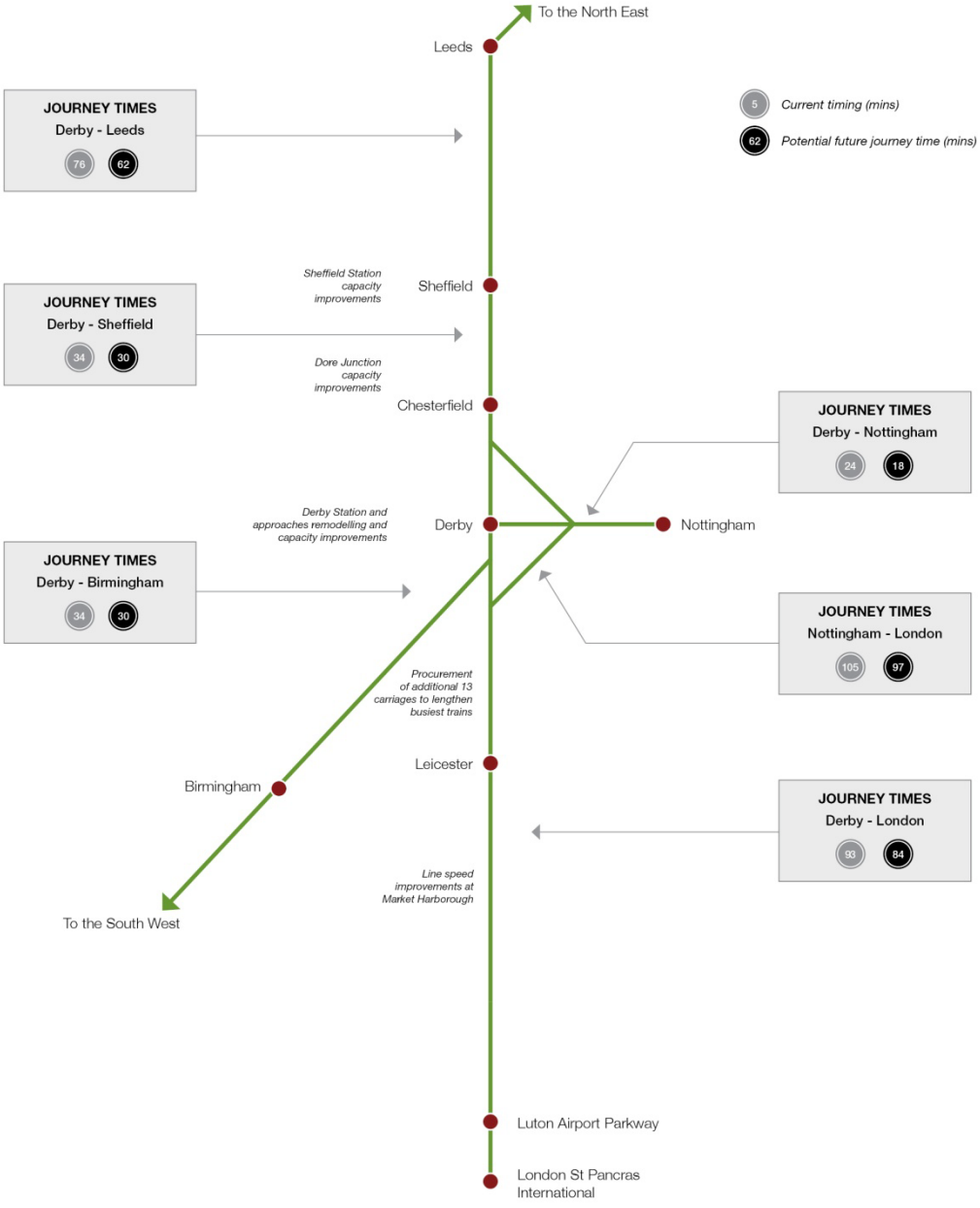


Figure 3. Stage Two of Derby Rail Strategy – Potential Connection to Stage One of HS2 to Enable Classic Compatible HS2 Services to Derby and Beyond in 2026

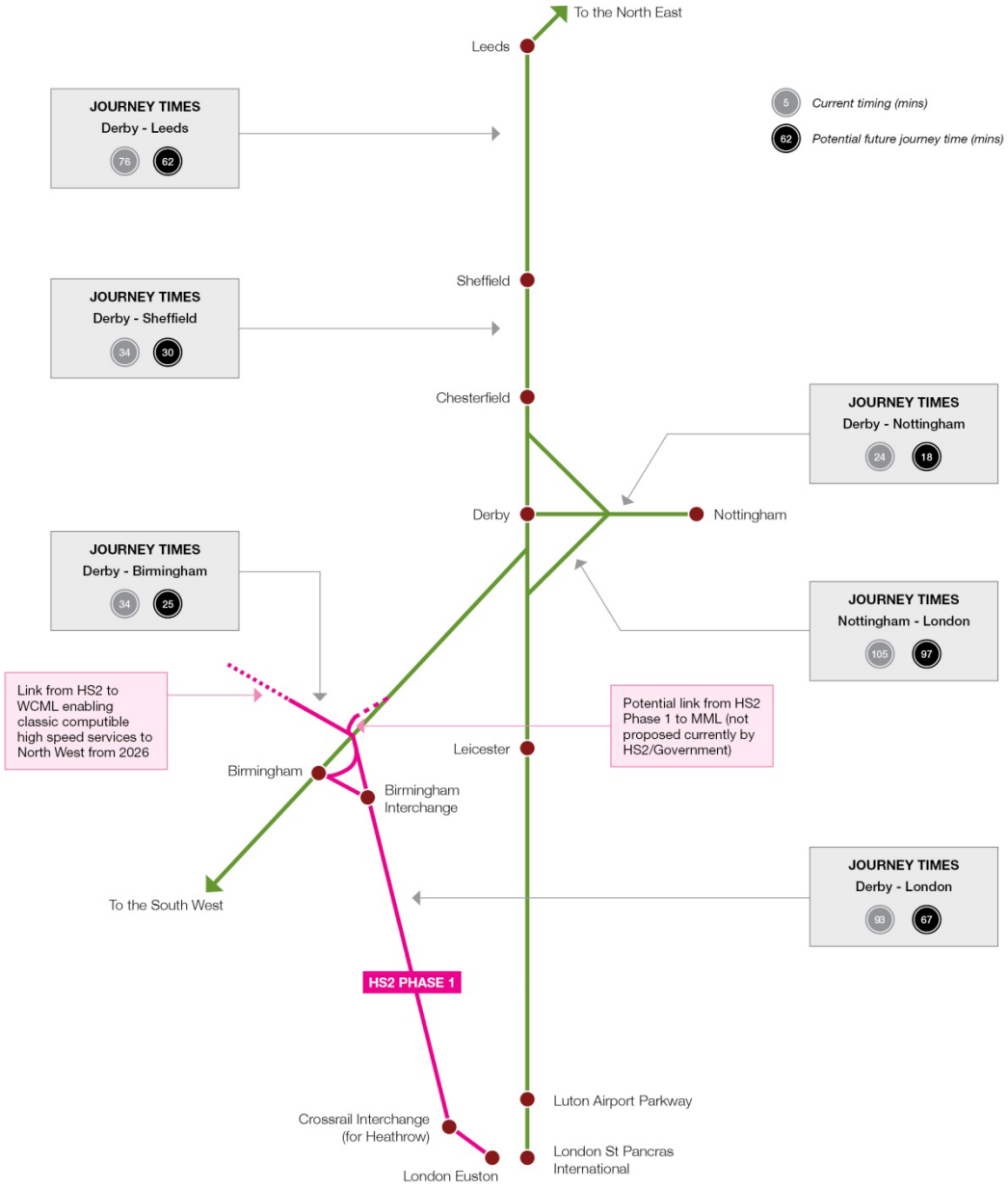
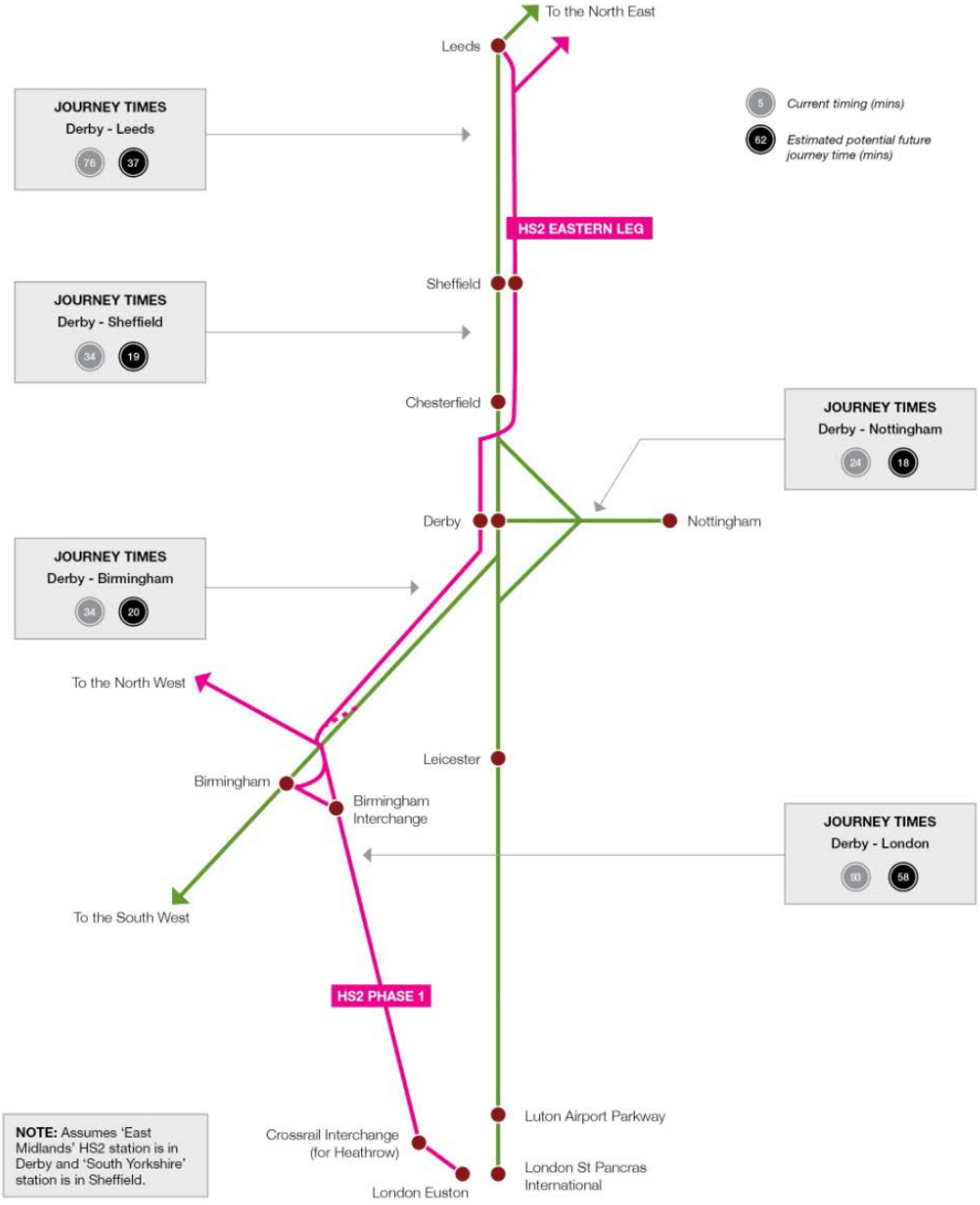


Figure 4. Stage Three of Derby Rail Strategy – Full HS2 Network Enabling Fast Services to City Centres



4.2 Position Derby's rail strategy within the context of rebalancing the economy.

4.2.1 Making the case for HS2 to serve Derby City Centre

The benefits to Derby of high speed rail will be maximised city centre station in close proximity to the existing rail station. A city station would:

- Create the greatest wider economic impacts to Derby: productivity benefits of £145m to Derby and £295m (60 Year NPV) to the LEP area;
- Provide a focus for future regeneration and intensification in the area surrounding the station, with the potential to create over 12,000 jobs from development and construction;
- Have a 68% lower carbon impact compared to a parkway station as a result of local trips to and from the station;
- Maximise the benefits of capacity release on existing rail routes; and
- Drive up demand and enhance the case for local transport improvements to provide connections between the station, the city centre, development sites, and major employment locations.

4.2.2 A case for rail to Derby that goes beyond the limitations of existing standard appraisal methods

Derby should not rely solely on the DfT's Wider Economic Impacts methodology in identifying the economic benefits to Derby of high speed rail. This methodology results in the highest estimated benefits being to centres that already have large concentrations of jobs in the producer services sector. A station in Nottingham would be estimated to create greater benefits than one in Derby. The methodology does not take into account the potential for structural economic change as a result of transport schemes. Derby should articulate a wider case for high speed rail, based on its role as an advanced manufacturing hub, and its potential to grow the business services sector linked to advanced manufacturing. Over 9.5% of Derby's jobs are in advanced manufacturing, a sector for which city accessibility is important to enable businesses (including potential inward investors) to access markets, knowledge producers and a skilled workforce.

4.2.3 Positioning Derby as part of a more coherent and powerful economic zone

Derby's rail strategy should be based on the strong economic rationale for improving connections between Derby and Nottingham, and for bringing the D2N2LEP area functionally closer to other city regions. By improving links to London and Heathrow, rail improvements can bring Derby functionally closer within the area of economic influence of London, which would increase Derby's attractiveness as a location for investment.

Improved rail links between Birmingham, Derby and Nottingham, Sheffield and Leeds can help create a more powerful and competitive economic zone outside London. The rail strategy for Derby should be to improve accessibility to the Greater Birmingham and Solihull, Sheffield and Leeds City Regions. These city

regions, along with the D2N2 LEP area form a 120 mile long corridor with a population of around 8.6 million, and 3.7 million jobs. This is of strategic significance to the national economy. The cities in this corridor have complementary economic specialisms in sectors such as aerospace, advanced metals and materials, pharmaceuticals and medicine, automotive, and financial and business services. Rail links between the main centres in these city regions are generally slow (they generally have an average speed of 35mph to 60mph), and limit the ability for businesses to benefit from synergies across the area in terms of markets, research and development, and skilled workers.

4.3 Make the case for upgrading and Electrifying the Midland Main Line and Birmingham to Derby Line.

It is essential to make the case for upgrading and electrifying the Midland Main Line in the short to medium term, as the first stage in creating a modern, competitive rail network to Derby and the East Midlands. This scheme would result in faster journeys, greater rail capacity, lower operating costs (which on their own outweigh the capital costs), and carbon savings.

Many of the line-speed and capacity improvements that are required are already in Network Rail's investment plans. Electrification is also needed to maximise the benefits of other improvements and to enable interoperability with high speed rail in the future. Because electric trains accelerate more quickly than diesel trains they are faster and use up less rail capacity. Because they are lighter they create less wear and tear on the track. However as yet there is no commitment to electrifying the line, despite the scheme having the strongest business case of all the potential electrification projects set out in the Network Rail electrification RUS. Indeed the scheme will pay for itself through reduced operating and maintenance costs over a 60 year period.

There should also be schemes to improve and electrify the Birmingham to Derby, Sheffield to Leeds and Nottingham to Derby, and Nottingham to Chesterfield routes. These improvements will deliver greater capacity, faster journeys, carbon savings, and will reduce costs. They will also increase the flexibility of running a unified fleet of electric trains, and enable faster journeys between some of the largest cities in England.

4.4 Encourage further work on the interface between HS2 and the existing rail network.

Derby should make the case for HS2 to be integrated closely with the existing "classic" rail network. Links between the HS2 high speed lines and existing rail routes would enable classic-compatible high speed services to access a wide range of locations (including city centres), and would maximise the opportunities presented by capacity release on existing lines. Derby should make the case for the eastern route of the HS2 Y network to be configured and linked with existing lines to faster journeys between Derby city centre, and the centres of Nottingham, Birmingham, Sheffield and Leeds (see section 4.2).

There would be many benefits of a link to Derby from stage one of HS2. This would enable Derby to be connected to the first stage of the high speed network by classic compatible trains. It would provide a journey time saving to London of around 27 minutes. It would generate benefits well in advance of the full HS2 scheme. It would future proof Derby against risks of the full HS2 scheme being delayed, cancelled or not serving Derby. This scheme has been advocated by the Parliamentary Transport Select Committee and the well-respected high speed rail think tank Greenguage 21. Derby should make this scheme to be considered carefully, including pressing Government to undertake a full cost benefit analysis.

4.5 Align wider land use, regeneration, economic development and transport plans with those for high speed rail.

4.5.1 Local Interventions to Maximise the Economic Benefits

It will be important to align land-use and development proposals with those for a high speed station – taking into account the different types of land-use impacts (acceleration of implementation of existing proposals, scope for intensification and redevelopment of sites occupied currently). Consideration should be given to the risks of potential blight of development sites, given the long timescales for high speed rail.

A strategy should be developed that identifies a role and economic function for the area surrounding the station to strengthen the producer services sector in Derby in a way that complements and re-enforces Derby's position as a hub for world class advanced manufacturing.

There should be interventions to support Derby's role as a hub for rail manufacturing and maintenance linked to HS2 and wider plans for upgrading the rail network. This should include the scope for train and rolling stock manufacturing; rail engineering; and storage and maintenance depots related to HS2 and an electrified Midland Main Line.

In the context of the Enterprise Zone, consideration should be given capturing and re-investing in local transport and economic development interventions some of the financial benefits of high speed rail through tax increment financing or planning gain mechanisms.

4.5.2 Local Transport Interventions

There will be a need for a high quality public transport solution to link the station, the city centre and main business locations and development sites. Based on a review of the Interfleet study, the most appropriate approach would appear to be a (non guided) bus rapid transit system, which could be developed incrementally.

There will be a need to ensure appropriate highways capacity and parking provision to accommodate those who wish to access the station by car.

The majority of these improvements would need to be funded from outside the HS2 budget, including potential local contributions

4.5.3 Managing the Cross Boundary Issues

There should be joint-working with partners across the D2N2 LEP area and beyond to manage the cross-boundary impacts of high speed rail, including ensuring appropriate land use policies if there is a parkway station.

It is important to secure the upgrading and electrification of the Midland Main Line as this will benefit the entire LEP area, and also Leicester.

The analysis for this project shows that the benefits to the D2N2 LEP area will be maximised if the high speed network provides access to Derby and Nottingham city centres.

In the context of the LEP it is important to be aware of the implications for Nottingham of the various scenarios. Nottingham are not supportive of a link to Derby from stage one of HS2. There may be merit in considering how Nottingham could benefit from this scenario, for example through an improved link between Nottingham and Derby.