Stoke-on-Trent City Council
response to
HS2 Phase 2 Consultation
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EXECUTIVE SUMMARY: THE PROPOSAL IN OVERVIEW

Stoke-on-Trent is proposing an alternative, greener, route through Stoke-on-Trent to Manchester (the ‘Stoke Route’) which:

- **Saves the UK taxpayer over £5bn** in capital cost, and delivers HS2 Phase 2 western leg key benefits seven years earlier than the 2032/33 target completion date, offers significantly faster trip times than HS2’s 2026 ‘interim’ service, and performance comparable to, or better than, the Consultation Route to all major destinations in the long term.

This proposal responds to the *HS2 Growth Taskforce: The Challenge*, optimising HS2 impact to create supercharged growth in a new super-economy bringing together the North West and Midlands, accelerating the rapid and radical growth of Stoke-on-Trent – the UK’s 13th largest city

- **100% growth** in the city’s output - from £5bn to £10bn
- **50% population** growth to 700,000
- **125,000 new jobs** generated by HS2 – total new jobs could reach 300,000 by 2033
- **40% increase** in property values
- **85,000 new houses.**

To achieve these nationally significant benefits, we propose that around 38km of new build high speed line is legislated and constructed as an integrally-planned extension of HS2 Phase 1. This would largely follow the Consultation Route from the end of Phase 1 at Fradley to a point south of Stoke-on-Trent.

From that point northward we propose that around 61km of the existing West Coast Main Line (WCML) route through Stoke-on-Trent to Manchester is upgraded to the 230 km/h standard successfully proven on the Hamburg - Berlin Ausbaustrecke.

This line would be ‘captive’ gauge-cleared to Kidsgrove, north of Stoke-on-Trent. ‘Classic compatible’ trains would operate north of Kidsgrove, routing via the important Stockport and Macclesfield markets into Manchester Piccadilly.

A full-scale HS2 station would be sited in Stoke-on-Trent. Supported by a full array of local and regional connectivity measures, the Stoke Route would serve as:

- The primary point of access to HS2 for a major market of 750,000 within 30 minutes drive time.

- A key accelerator for the genuinely strategic programme of urban transformation and economic growth, which is already the driving principle of Stoke-on-Trent’s *Mandate for Change*, as we pursue Core City status. By 2033 our city target population is over 700,000; 85,000 new homes; and GVA uplift from £5bn to £10bn.

**Over 80km of new build HSL through sensitive rural Staffordshire and Cheshire is deleted** – including the complex triangular junction near Knutsford and 15.3 km of very costly tunnels, both under Crewe and on the 230 km/h branch line into Manchester. **This is replaced with only 61km of upgraded existing railway.**

The estimated capital cost of the Stoke Route, as outlined above, is approximately £3.2bn. Overall, the **Stoke Route saves around £5.2bn in capex**, versus the projected £8.4bn capital cost of reaching Manchester using the Consultation Route.
Using the Stoke Route, the public timetable trip time for a London – Manchester service would be 1h 28, stopping in Old Oak Common and Stoke-on-Trent en route. This is a substantial improvement over the 1h 40 proposed for HS2’s 2026 interim service.

Actual running time for fast London – Manchester services would be around 1h 18. This is only around 5 min slower than 2032/33 services on the £5bn more expensive Consultation Route, assuming HS2’s 330 km/h service speed and taking into account that route’s speed restrictions (notably 230 km/h into Manchester).

Using the Stoke Route, Liverpool services would also be between 5 and 10 minutes faster than under HS2’s 2026 interim proposals. Precise trip time savings will depend on connector route configuration.

At over £5bn lower capital cost, the Stoke Route will deliver direct high speed trains to the key Manchester and Liverpool HS2 markets in 2026, seven years earlier than the Consultation Route, and with journey times that are faster than in HS2’s 2026 scenario when Phase 1 ends near Lichfield.
SUMMARY RESPONSE TO CONSULTATION QUESTIONS

Stoke-on-Trent City Council (SOTCC) offers this document as a comprehensive response to the HS2 Phase 2 consultation, as set forth in the July 2013 DfT publication High Speed Rail: Investing in Britain’s Future – Consultation on the route from the West Midlands to Manchester, Leeds and beyond. With a view to formal process, we provide very short high level answers to the consultation questions below.

Our proposals do not affect the Eastern Leg to Leeds (although we do make one suggestion regarding a possible Leeds service). We are concerned primarily with the Western leg to Manchester and Wigan, with its onward link via the West Coast Main Line (WCML) to the NorthWest of England and Scotland. We intend this document as a holistic and integrated answer to all of the questions pertaining to the Western leg, as set out below, quoted from the consultation document.

(i) Do you agree or disagree with the Government’s proposed route between the West Midlands and Manchester as described in Chapter 7? This includes the proposed route alignment, the location of tunnels, ventilation shafts, cuttings, viaducts and depots as well as how the high speed line will connect to the West Coast Main Line.

We propose that the western leg north of km 32.6 should be comprehensively rerouted and replaced by our proposed Stoke Route which, in its initial form, saves the taxpayer around £5 billion, whilst delivering a railway that better serves the Government’s stated intention of leveraging the investment in HS2 to “rebalance regional development” (p27) and to “enhance and support cities’ own ambitions for growth” (p31). South of km 32.6, the route is identical.

(ii) Do you agree or disagree with the Government’s proposals for:

a) A Manchester station at Manchester Piccadilly as described in Chapter 7 (sections 7.8.1 – 7.8.7)?

Yes, and we would support any proposal Manchester may make for early development of this key strategic facility. We ‘take Piccadilly as read.’ Our proposal is, in part, about how HS2 should get to Manchester, with better services, seven years earlier than under the Consultation Route.

b) An additional station near Manchester Airport as described in Chapter 7 (sections 7.6.1 – 7.6.6)?

Our proposals include services to the existing Manchester Airport station, which would enable many passengers from anywhere on the HS2 system south of Manchester to reach the airport terminals faster than via the proposed station on the Consultation Route’s 230 km/h branch line from the Knutsford Triangle. However, nothing in our proposals precludes construction of branch or station in the future.

(iii) Do you think that there should be any additional stations on the western leg between the West Midlands and Manchester?

Yes. Our proposal includes a major HS2 station in Stoke-on-Trent, supported by a comprehensive array of classic rail and road connectivity measures, serving an existing market of 750,000 population within 30 mins access time, with 470,000 of those in the immediate ‘Greater Stoke’ catchment. This is already the biggest market on the western leg after Manchester and, as such, absolutely requires and justifies direct access to HS2. Population of 590,000 in the immediate catchment by 2033 makes the case all the more compelling.

The station will have full security segregation, to allow for direct international services and to enable the station to serve as a ‘remote terminal’ for LHR, MAN and BHX airports. Stoke International would be the first HSR station in the world designed to provide remote check in for more than one airport.
RESPONDING TO THE GROWTH CHALLENGE

INTRODUCTION – THE CONTEXT

Stoke-on-Trent has already embarked upon a major drive to deliver rapid and radical growth for the city and the region. Our Regeneration Strategy is already transforming the city and the region, with new international companies moving here, thousands of new jobs being created, and the development of a new business heart to the conurbation. We are creating a modern city centre offer, with the professional services and lifestyle designed to move Stoke-on Trent to “Core City” status.

Stoke-on-Trent has massive economic potential, and is the economic link in the industrial heartland of the UK, providing essential connectivity between Manchester and Birmingham. The city has unrivalled potential with a capacity for growth which could supercharge the UK economy, ensuring we rebalance the north/south divide. Stoke-on-Trent is in prime place to plug the gap and get UK plc firing on all cylinders.

The city council’s Mandate for Change to make Stoke-on-Trent a great working city sets out the scale of our programme, and has constructed a coherent and integrated schedule of investments and incentives which is delivering the goods.

Stoke-on-Trent is open for business and open for opportunity. The city has halted the decline of the 20th Century and is now building momentum for a new industrial renaissance for what is still known as the World Capital of Ceramics. The city is bursting with energy, with new strategic development partnerships with Staffordshire County Council and the private sector factored into a developing City Deal with Government.

Our universities are working together, and at the heart of the city the University Quarter is rapidly developing as a centre of academic excellence. This is reinforcing the city’s growing reputation as the UK’s centre for new-materials technology, an international centre of research and development for applied materials and as a city leading the field in sustainable energy. Housing development is bouncing back and the population is growing.

As the UKs 13th largest city we have space to breathe and grow with a quality of life offer which is bursting with opportunity. Our vision is ambitious but eminently achievable, growing an economy that will sustain a population of up to one million. This will generate a bow wave of prosperity that will ripple through to neighbouring communities between Manchester and Birmingham.

Stoke-on-Trent is on its way.

Professor Michael Parkinson CBE

“Major infrastructure investments like HS2 are essentially about economic place making. They should be made in terms of their wider implications and impact. Therefore there must a serious economic analysis of the impact of an HS2 location at Stoke.

In my judgment there is serious economic case for a Stoke HS2 station to be examined. The decision about the location should be made in terms of the contribution to economic place making. It would be a significant missed opportunity if this was not fully explored.”
HS2 – High Speed Stoke for High Speed Growth

HS2 could be the game-changer for Stoke-on-Trent and the region. It would supercharge our strategy and multiply its impact exponentially. An HS2 station in Stoke-on-Trent – the UK’s 13th largest city – would accelerate our ambitions and deliver maximum impact for UK Plc. This would only happen with the Stoke-on-Trent solution.

The current HS2 Consultation Route proposal would be a massive lost opportunity for UK plc. It would by-pass Stoke-on-Trent and its pre-eminence potential, leaving a major gap in the explicit HS2 objective of maximising regional impact and rebalancing the national economy. This is something the city council, business leaders and the community cannot accept. Our counter proposal redresses the balance and demonstrates what HS2 really could achieve.

Sara Williams, Chief Executive of the Staffordshire Chambers of Commerce

“The Government says High Speed Rail should be all about transforming the national economy. The Stoke-on-Trent model liberates the nation’s enormous industrial potential, supercharging our economy and creating a massive trans-regional economic powerhouse, spanning from Birmingham to Manchester, ensuring the nation is firing on all cylinders. This has to be the number one choice for Government because it delivers the biggest bang for every pound of tax payers’ cash.”

This is a once in a lifetime opportunity to spark up a massive arc of industrial energy, creating a new economic powerhouse, a "super-economy” joining the North West and West Midlands.

This new economic fast lane along the spine of the UK would help rebalance the national economy, complementing London’s energy, absorbing new growth and generating new wealth and opportunity. It would maximise the diffusion of growth and opportunity to communities at the heart of the UK.
Stoke-on-Trent is perfectly placed to deliver the optimum connections to opportunity. We are centrally located directly between Manchester and Birmingham, with natural transport and entrepreneurial synergies established for over 200 years. An HS2 station in Stoke-on-Trent would reinvigorate this massively influential axis of industrial energy, and ensure that HS2 delivers the very best outputs for individuals, communities and the national economy.

Our technical submission explains the technical, cost, delivery and environmental benefits of the Stoke Route. Here we explain the opportunity it represents to truly rise to the “HS2 Challenge” and deliver the strongest, widest, sustainable growth and overall return on investment for HS2.

Stoke-on-Trent is one of the few cities in the UK both committed to radical and rapid growth, and capable of delivering on it. As a result it offers the opportunity to maximise return on investment in HS2 by re-shaping the distribution of the UK economy.

The city is the perfect size to benefit from this injection of energy. It has the existing infrastructure, the development-ready brownfield capacity, a growing community of specialist manufacturing and services, high-tech research and international household names. We also have the political will to push the button as a national growth point. We have industry and the community behind us and are primed to make HS2 a success.

Stoke-on-Trent is fully prepared to integrate HS2 into its urban fabric and its transport system, working with its partners across Staffordshire and the region. The workforce of the conurbation is prepared for the skills and technical demands of both constructing HS2 and delivering the enormous development opportunities flowing from the catalyst that is HS2.

This is, after all, the conurbation that boasts Alstom – a global leader in the rail sector – amongst its crown jewels. We are also the home of JCB, bet365, Steelite International, Michelin Tyre plc, Goodwin plc, Fuchs Lubricants and Ceram Research.

An HS2 station in Stoke-on-Trent will take the brakes off growth, creating a multiplier effect. Stoke-on-Trent is emerging from a period of significant economic challenge, growing rapidly and building momentum. HS2 would accelerate this trajectory and ensure the city and the region started to pull its weight in contributing to gross domestic output.

It is not just about economic growth. This city stands ready to deliver radical and rapid growth in the delivery of new homes – servicing the new super-economy and easing the enormous pressure on the south east housing market in the process.

Routing HS2 through Stoke-on-Trent will help double the size of the economy by 2033

100% growth in the city’s output - from £5bn to £10bn
50% population growth to 700,000
125,000 new jobs generated by HS2 – total new jobs could reach 300,000 by 2033
35% increase in industrial land values
40% increase in house values
85,000 new houses
Connecting Markets, Businesses and People

Our proposal responds to the HS2 Challenge by building on our location, distribution and logistics strengths - accelerating our internal infrastructure improvements to open up access to new and developing markets and by ensuring HS2 integrates with our existing transport network, including the potential of the M6 and M6 Toll growth corridor.

We are planning big spatially, to ensure our station best aligns with the existing city and empowers new development on a city, city-region and a ‘super-economy’ scale.

By placing our proposed station adjacent to existing interchanges on the A500, and thus offering seamless access to the M6, we will provide great connectivity to the station, with plenty of initial capacity and future-proof capability for expansion.

We have identified a significant area of associated development potential, including the huge opportunities for our fast developing city centre, as well as access to strategic centres across our wider sphere of economic influence - from South and East Cheshire and across Staffordshire, linking seamlessly with Manchester and Birmingham and bringing Stockport and Macclesfield into the group of HS2 beneficiaries.

Kevin Oakes – Chief Executive of Steelite International.

“Steelite, as a global player at the cutting edge of the international ceramic industry, is fully behind the drive to bring HS2 to Stoke-on-Trent. It will create a significant stimulus to enterprise and jobs in the region and connect us to international markets. We will be delighted to work with our business colleagues and the city council to lobby Government to make this a reality. It’s a once in a lifetime opportunity and we have got to seize it,” he said.

We are already hard at work with partner agencies on developing a host of integrated highway and passenger transport improvements to create more capacity and interconnectivity within the city, with neighbouring communities, and through to other regional centres. The Stoke-on-Trent model offers excellent national and international connectivity.

It’s not just about people and business. Our proposal offers the same connectivity for freight to travel from the north of the country direct to the continent, crucially accessing the existing logistics and distribution strength, connectivity and central location of Stoke-on-Trent and the untapped space between Manchester and Birmingham.

HS2 in Stoke-on-Trent would open up international connections to reinforce the existing airports at Birmingham, Manchester and Heathrow – offering a population of well over 1 million a direct link to continental and international markets.

Stoke-on-Trent International would offer full passport and customs connectivity – acting as a gateway to business and enterprise.

Unlocking Regeneration & Development: “From Dependent to Independent”

The central policy driver for Stoke-on-Trent is economic, urban and social transformation – moving from a net recipient to a net contributor accelerated by HS2 supercharged growth in a new ‘super-economy’ of the North West and Midlands.
Our strapline is ‘From Dependent to Independent’. We are determined that this city becomes a powerful net contributor to the UK economy. We have the plans in place to take us into that space – HS2 is the opportunity to rapidly accelerate that seismic economic shift for the area.

A “Once in a generation opportunity to re-shape the economic geography of the country” is the proposition of HS2 Growth Taskforce.

Nick Cooper – London.

“As a regular visitor to Stoke (I have friends in the city) I am always struck by the massive potential of the city…. The economic situation is changing with new employment and homes, but Stoke needs new infrastructure and better links to other UK cities. Bringing an HS2 station to the area would be a huge boost and also a logical stop in between the major cities of Birmingham and Manchester.”

Our proposal will not only allow businesses in Manchester and Birmingham to compete for customers in London, Paris and beyond, it will allow the economies of Manchester and Birmingham to work together with Liverpool, Leeds and Stoke-on-Trent and brings sub-centres such as Stockport and Macclesfield into the growth corridor, to present a real alternative to the overheated South East.

The growth this generates and the resultant jobs will enable the existing, work-ready workforce of this conurbation, together with the new workers that will be attracted, to gain access to the higher value, sustainable jobs that can lift this city from dependency to an independent new Core City.

The result will be a shift to a strong, positive contributor to the UK balance sheet as part of the wider new ‘super-economy’ which offers the same proposition on a broader geographic scale, encompassing a swathe of sub-regional centres and the vital city economies of Manchester, Birmingham, Stoke-on-Trent and Liverpool.

**Delivering HS2 through our Industries and Workforce**

Stoke-on-Trent’s vision is to build on its existing strengths to become the UK Centre of Advanced Manufacturing and an International Centre of R&D in Applied Materials.

The Staffordshire Chambers of Commerce, the Stoke-on-Trent and Staffordshire Local Enterprise Partnership, our leading businesses and international brands, plus a myriad of SMEs, have already given their full backing to our plans for an HS2 station. They are already on board for the journey to prosperity and are keen to contribute to ensure it is a success.

We are already developing the new skills, technology and business networks which are vital to maximising the benefits. Companies such as Olympus Engineering, Alstom – world leaders in rail infrastructure, and Michelin, to name but a few, are already based in the conurbation. We have the track record to deliver on our promise.

Our two universities (Keele and Staffordshire) represent a compelling higher education and research offer, and with our colleges we are developing the University Quarter at the heart of the city. The partnership with industry and the City Council is creating a critical mass which is already propelling the city into international educational markets. The universities, colleges and schools are working closely with industry to ensure we supply the skilled graduates and technical experts that we need to achieve our ambitions.
Professor Nick Foskett – Vice Chancellor of Keele University and Vice Chancellor Prof Michael Gunn of Staffordshire University.

“If High Speed 2 is happening we need to reduce the cost and its environmental impact, improve its speed and delivery and make sure it serves the entire conurbation. This means it must serve Stoke-on-Trent. As Vice Chancellors of the two universities in Staffordshire we are wholly supportive of the city's proposals to bring HS2 to Stoke-on-Trent.”

Staffordshire University

Our universities have already given their wholehearted support to our bid for a place in the European High Speed network. In a joint statement, the first of its kind, the two Universities have signed up to a new era in connectivity.

The central thrust of our development programme is to create new opportunities for job creation and education, to improve social and physical mobility locally, regionally and nationally and to create a virtuous circle of growing local talent and attracting the very best of international expertise to contribute to a renaissance of enterprise and creativity for the region.

Stoke-on-Trent is increasingly gaining a reputation as the UK’s centre for Advanced Materials Technology manufacturing, research and development. Companies such as CERAM are pushing the boundaries in exploring the potential for developing new products and opportunities for the sector.

This growth point for training and research excellence also offers a major opportunity to establish the UK centre for High Speed Rail technology and training. The city already hosts CoRE (the Centre for Refurbishment Excellence) the national training centre and showcase for sustainable building research.

There is the expertise and the organisational convergence here in Stoke-on-Trent to provide a centre for High Speed engineering excellence too.

The city, working together in a public private initiative, driven by a strong political leadership has recently developed significant momentum in its growth agenda. The ability to translate aspiration and policy into development activity is clearly demonstrated by a £1.5bn investment programme which includes a £270m Building Schools for the Future programme, our £200m University Quarter and a £15m brand new iconic bus station and transport interchange. The emerging £250m Central Business District at the heart of the city centre is anchored by the council's multi million pound investment, which has been capitalised on by the private sector and the exciting commercial activity being generated. This clearly demonstrates the city's ability to conceive, plan, design, integrate and drive through the delivery of an HS2 station in the city.
SUMMARY OF BENEFITS

We note the Government’s view stated in that document that “this is only the very beginning of the engagement process. This consultation is the main opportunity to help shape the proposed Phase Two route.” We intend our response not simply to ‘shape the route’ in terms of its geography but, more importantly and strategically, to optimise the entire Phase 2 proposition, so that HS2 can deliver substantial benefits sooner, and at half the cost. The table below provides a high level overview.

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<th>Stoke Route Feature</th>
<th>Benefit compared to Consultation Route</th>
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<td>£5 bn lower cost</td>
<td>£5bn lower capital cost versus the c. £10bn cost of the western leg in initial configuration, by using a combination of full HSL south of Stoke and 230 km/h upgrade to the benchmark Hamburg – Berlin standard from Stoke-on-Trent to Manchester.</td>
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<td>Benefits seven years earlier</td>
<td>Delivers journeys to Manchester that are faster than HS2’s 2026 ‘interim’ services at completion of Phase 1, and seven years earlier than 2032/33 Consultation Route trips which would be only marginally faster. Liverpool trips faster at all stages.</td>
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<td>Optimised route</td>
<td>In initial configuration, 19 km shorter overall, and massively environmental gains with 80 km less new build HSL at outset. Entirely avoids the cost and complexity of Crewe junctions / tunnels, the Knutsford Triangle, and the 230 km/h branch (much of it tunnelled) into Manchester. Puts major Stockport / Macclesfield market on the high speed map.</td>
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<td>Serves the key current market between Birmingham and Manchester</td>
<td>The 470,000 population of the immediate ‘Greater Stoke’ catchment is already the biggest market on the Phase 2 western leg after Manchester. Including the 470,000 above, a total market of 755,000 lies within 30 mins access time. Resolves a key weakness of the Consultation Route, which simply bypassed the biggest market between Birmingham and Manchester, centred on Stoke-on-Trent.</td>
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<td>Rapid growth of future market size</td>
<td>Stoke-on-Trent is already committed to, and its policy direction fully coordinated around, the Mandate for Change to make Stoke-on-Trent a great working city. This underpins the city’s aggressive pursuit of population growth, economic development and urban transformation on a genuinely strategic scale, as we drive for Core City status. With the station acting as an accelerant to our existing programmes, we project GVA uplift in the City from £5bn to £10bn by 2033, and the conurbation to have grown to a population of 709,000, with 85,000 new homes. Thus in addition to the economic and transport merits of serving today’s vital Stoke-centred market, major HS2 station in the heart of our city will serve a rapidly growing market. Journey times of 55 mins to London, and around 25 mins to Birmingham and Manchester, will put our city at the heart of the country.</td>
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<td>Accelerates transformation in a City already strongly committed to the growth agenda</td>
<td>‘Enhancing and supporting cities’ own ambitions for growth’</td>
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<td>‘Enhancing and supporting cities’ own ambitions for growth’</td>
<td>Regeneration Will stimulate transformational change in a city with a significant amount of brownfield land, turning a liability into an regeneration asset. The increase in land value brought about through and HS2 station will ensure that currently fallow brownfields will become financially viable development opportunities.</td>
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<td>Fiscal</td>
<td>At present, Stoke-on-Trent is a net beneficiary of public sector spend. We are already pursuing a programme of physical and economic growth, delivering transformational change, which will see the Stoke-on-Trent and Staffordshire become a net contributor to the exchequer by 2026. HS2 will complement and further accelerate this transformation.</td>
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### Wider National demographic benefit

With the UK population set to continue to grow, and with much of that growth focused in an already overheated South East, Stoke-on-Trent is a city with an appetite for growth. An HS2 station offers the opportunity to accommodate much of that population growth at less than one hour from London. At less than 60 minutes from London, Stoke-on-Trent also becomes an affordable location for London Key Workers, who are increasingly being priced out of the 1 hour commuting zone.

### Rapidly deliverable

Planned to be legislated and constructed as an integrally-planned extension of HS2 Phase 1, designed to deliver benefits immediately Phase 1 is complete in 2026.

### Scaleable

Phased development possible and designed in from the outset. An addition of only 14 km of new build HSL (Package 2) enables further benefits to be delivered, whilst still saving over £3bn versus the Consultation Route.

### Widespread support

With a strongly positive profile in the local media, public opinion in Stoke-on-Trent is strongly in favour of HS2, and the economic and urban development benefits the station will bring are widely understood. The business community unanimously backs the proposal. Staffordshire County Council, neighbouring authorities, and the LEP have been fully appraised of these proposals.

### Environmental benefits

Independent review (BRE) concludes that the Stoke Route beats the Consultation Route on 8 out of 11 environmental measures and gives an 88% better CO2 outcome. Essentially brownfield route through the Potteries, using existing rail corridor, means by definition less land-take in sensitive rural Staffordshire and Cheshire.
**SUPPORTERS: STATEMENTS IN FINAL CHAPTER**

We the undersigned fully support Stoke-on-Trent’s proposals for a High Speed Rail Integrated Hub railway station in Stoke-on-Trent.
BASELINE: THE HS2 PHASE 2 CONSULTATION ROUTE

Baseline: HS2 Phase 2 Consultation Route western leg

Our starting point is the Lichfield to Manchester section of Consultation Route published by HS2 Ltd to inform the present consultation exercise, as highlighted out with the two shades of red lines on the map below.

From analysis of this information, and Phase 1 data that is also pertinent, we note that:

• Phase 2 western leg will build north from the end of HS2 Phase 1 at Fradley near Lichfield.

• The Consultation Route bypasses Stoke-on-Trent and thus fails serve the largest market after London, Birmingham and Manchester on entire western leg corridor.

• When combined with the immediately adjacent ‘greater Stoke’ catchments of Newcastle-under-Lyme and Staffordshire Moorlands, a population of 470,000 (709,000 by 2033) would be directly served by an HS2 station in Stoke-on-Trent, and that’s before any of the already-planned major population growth in the city has taken place.

• The approximate capital cost for the western leg as per the Consultation Route is around £10bn.

• The Manchester route accounts for £8.4bn of this total. This £8.4bn is the baseline against which all comparisons are made for the Stoke Route proposal.

• To ensure ‘like-for-like’ overall cost appraisal, at no stage do our cost comparisons delete the Consultation Route’s sections shown as HSM21, 22 and 30 above.

• The western leg, like the whole Phase 2, is not scheduled for completion until 2032/33, and will be subject to empowerment by a second Hybrid Bill, additional to the Phase 1 Bill now before Parliament.
• HS2 intend to provide Manchester, Liverpool and other key northern destinations with an interim service from the planned completion of Phase 1 in 2026, using ‘classic compatible’ units.

• These trains are capable of running on the UK’s loading gauge-constrained existing rail network.

• HS2 ‘captive’ trains (up to 400m long when two units are coupled together, and potentially double-deck as per TGV practice) would be confined to London – Birmingham until 2032/33 under HS2’s current plans.

• Phase 1 will include a direct connection, at full ‘captive’ loading gauge, to HS1 via a tunnel from Old Oak Common (OOC) to just outside the station throat at St Pancras International. This will enable through services from HS2 to the Continent.

Baseline: HS2 Phase 2 Consultation Route Western leg estimated capex

We have reviewed the estimated capex for the entire Consultation Route from Fradley to Manchester, as tabulated here.

From the above, we calculate that the Consultation Route from Fradley to Manchester comprises a total 119.19 km of new build HSL, for which we have calculated a total capex of £8.43 bn working from HS2’s published cost base. The total distance includes 3.4 km of duplicated route south of Crewe, where a junction to WCML is provided for Liverpool trains to diverge, over 10 km further south than the point (Occlestone Green) where it is geographically optimal to do so.

We are using a simple average of HS2’s Phase 1 and Phase 2 “target cost” assumptions (£78.57 million/km and £62.80 million/km respectively). We informally ‘sense checked’ this derived average of £70.68 million/km with DfT and HS2 personnel on 16/01/2014. During that meeting there was consensus that any simple application of the (lower) Phase 2 target cost base to the Fradley to Manchester section of Consultation Route would be likely to produce underestimated capex, due to the above-average complexity and expense of the route, including 15.3 km of tunnels (3.5 km of which is at 400 km/h design spec under Crewe), the grade separated WCML junction south of Crewe, and the triangular junction with the Manchester HS2 branch near Knutsford.

As with all major infrastructure projects, we would expect detailed engineering work to iteratively refine the cost estimates in the future (both for the Consultation Route and for its Stoke Route replacement).

To ensure consistency, we note that the HS2 cost base includes a 44% uplift for risk and optimism bias and have applied this same factor to estimated costing for the Stoke Route alternative too.
We propose to replace the Consultation Route with the “Stoke Route” mapped and described below. We propose that the Stoke Route should be legislated and constructed as an integrally-planned extension of HS2 Phase 1.

With reference to the map, please note that, to ensure fair comparison, the Consultation Route section northwest bound from the Knutsford triangle (greyed out, top left) is retained, but for cost comparison purposes only at this stage.

- The Stoke Route could, as shown at this stage, simply replace the entire western leg (and its entire £10bn capex) with its alternative route to Manchester at only £3.2bn.

- However, HS2 will wish to retain the ability to offer benefits to the Greater North West and over WCML onwards to Scotland, so we retain the northern sections (HSM 21, 22 & 30) in the cost base to allow for this. This is the reason why we are deleting only £8.4bn, not £10bn of western leg capex.

We recognise that ‘bolting on’ this proposal to the Phase One Hybrid Bill currently before Parliament may be difficult. If this proves to be the case, it would be possible to promote a much smaller, additional Bill for the Stoke Route, which only involves the construction of 36.1 km (22.5 miles) of new railway. The rest of the route is simply an upgrade to existing railways. Expert advice on Parliamentary Process will be taken during the next stage of project development.

As with other major rail projects, the necessary works on the upgrade section could be carried out under Network Rail’s existing powers, either by Network Rail itself (or by a suitably-constituted SPV able to deploy those powers) with no need for legislation, and no call on Parliamentary time.

The Stoke Route in overview

The Package 1 Stoke Route has four main elements, as indicated on the map. It entirely replaces the Consultation Route north of the 32.6 km marker, via Crewe and the Knutsford triangle and the branch line into Manchester (shown as ‘whited out’). Existing WCML is shown by the black dotted lines.

**Element One** The Stoke Route follows the Consultation Route for the first 32.6 km to a point west of Stone, on the southern approaches to Stoke-on-Trent. This has the considerable advantage of “keeping the blight where it is already located” for this section of route. **Shown purple on map, bottom, labelled HSM03.**
• Under Package 1, Liverpool trains would use the Kidsgrove to Crewe line (the West to East dotted line on the map) to access WCML and run north via Weaver Junction.

• Trip times to Liverpool will be around 5 mins faster than under HS2’s 2026 ‘interim’ plans for a 1h 50 service, by virtue of these trains covering more of their journeys to the north at higher speeds than if Phase 1 ends at Lichfield. This saving is slightly greater if the Kidsgrove – Crewe line is also upgraded to Hamburg – Berlin standards. This Kidsgrove – Crewe link is discussed in detail later.

**Element Two** A 3.5km (maximum) connector line to a point north west of Stone, built to full HS2 design spec, over which trains would decelerate to 230 km/h and gain access to the existing electrified WCML Colwich – Stone – Stoke – Kidsgrove – Stockport – Manchester line. We allow an additional 2.15 km at HS2 cost base (making a total of 38.25 km) to cover junction work affecting the classic lines in this area. **Shown green on map.**

**Element Three** Upgrade of 60.75 km of the existing WCML line from that point northwards to 230 km/h Hamburg – Berlin standard, through the Potteries, via Stockport, to Manchester Piccadilly. **Shown blue on map. Reading south to north, the two blue circles are Macclesfield and Stockport.**

• This line would be ‘captive’ gauge-cleared as far north as Kidsgrove. This would allow operations with full UIC loading gauge trains, in twin-coupled sets.

• The gauge clearance allows for future infill of a short (14 km) SE – NW new build HSL connector from Kidsgrove to rejoin both the northwest-bound HS2 Consultation Route and WCML at Occlestone Green **north** of Crewe. This is Package 2, and is discussed later.

• We cost the core upgrade works at the German Hamburg-Berlin capex, updated to Q4 2013.

• We allow a further £200m to address points along the route where more intensive work is required.

• 44% Risk and OB uplift is applied as per HS2 cost base.

**Element Four** A full-specification HS2 station in the Stoke-on-Trent city area, in the historic Etruria Valley between Kidsgrove and the existing Stoke-on-Trent station. **Shown as green circle on map.**

We estimate capex for the HS station at £250m, on the precedent of Liège Guillemins (illustrated here). We have taken the Liège example in part because it serves a similar purpose to that intended for the Stoke-on-Trent HS2 station, namely:

• Serves both the existing city and acts as a gateway to its wider regeneration and economic development areas.

• Serves as an architectural icon and ‘brand anchor’ for a city transforming itself from a heavy industrial past to a connected high-growth future.

• Functions as a key HSR/classic junction and interchange point between full 300 km/h HSL, 200 km/h upgraded lines and 160 km/h conventional routes.
The Stoke HS2 station will be equipped for the fullest possible range of rail operations, including:

A) Domestic HS2 services with captive and classic compatible units. Approximate journey times from Stoke-on-Trent’s domestic HSR platforms include:

<table>
<thead>
<tr>
<th>Destination</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euston</td>
<td>55 min</td>
</tr>
<tr>
<td>Old Oak Common (CrossRail interchange)</td>
<td>50 min</td>
</tr>
<tr>
<td>Birmingham Curzon Street HS2 Station</td>
<td>25 min</td>
</tr>
<tr>
<td>Manchester Piccadilly</td>
<td>26 min</td>
</tr>
</tbody>
</table>

B) Direct services to the UK’s world gateway at Heathrow in around 70 min (T123) and 80 min (T5).

- Common User Self Service (CUSS) check-in will be provided to allow passengers of any participating airline, at any airport with a direct link from Stoke HSR station, to check in themselves and their baggage and to travel to that airport by train.

- From the outset, high speed trains from Stoke HSR will be able to reach multiple airports, as follows:

  - **LHR** Routed initially into existing station, joining Great Western Main Line at Old Oak Common (OOC) and routing via Airport Junction into existing T123 and T5 using Classic Compatible units in the existing Heathrow tunnels. Fundamental feasibility has already been proven by operation of a 373/2 Eurostar into the existing Express tunnels and stations. In the fullness of time, HS2’s proposed Heathrow Spur may provide more direct access, presumably to full ‘captive unit’ loading gauge.

  - **MAN** (existing station, via Crewe and Wilmslow route initially, further route options discussed later).

  - **BHX** Using Birmingham Interchange HS2 station, assuming this is directly connected to the airport.

- These potential connections make Stoke the first HSR station in the world designed from the outset to act as a remote terminal for more than one airport. This feature alone would galvanise economic development in the city region.

- Outbound baggage check-in will be provided with segregated baggage loading on to trains provided as per the precedent established by the design of the end of platform 6/7 at Paddington during the years when Heathrow Express offered a full service connection to the airport on the model which remains in successful operation in Hong Kong.

C) Direct through services to the Continent. Select approximate journey times from Stoke International are set out below. These have been calculated on the basis that Stoke to OOC takes 50 min + 5 min transit time on interconnector to HS1 + HS1 fastest current, or currently proposed, journey time.

<table>
<thead>
<tr>
<th>Destination</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brussels</td>
<td>2h 55</td>
</tr>
<tr>
<td>Paris</td>
<td>3h 10</td>
</tr>
<tr>
<td>Rotterdam</td>
<td>3h 55</td>
</tr>
<tr>
<td>Köln</td>
<td>4h 55</td>
</tr>
<tr>
<td>Amsterdam</td>
<td>4h 55</td>
</tr>
</tbody>
</table>

- Full border controls and passenger segregation will be provided on the Ebbsfleet and Ashford International model, and designed to the requirements of HS2 Technical Appendix 2009, Section 2.3.3, p7, which states that “design of any station for international traffic shall make provision to segregate international outbound and inbound passengers from UK domestic passengers and carry out security and customs procedures required by UK Border Agency.” See “Station Design” later in this document for detail.
D) **Classic rail** platforms arranged to provide simple cross-platform interchange between domestic classic and domestic high speed services, thus reducing modal shift disincentives to passengers to the absolute minimum.

- The 400m length of the platforms (dictated by the design spec on the *high speed* side) allows for two trains to be accommodated on each of the two *conventional* rail platforms. This could provide considerable operational flexibility (cf Edinburgh Waverley, York southbound).

Because the line speed through the station on the upgraded line will be 230 km/h (not 330 km/h), no land-hungry ‘bypass’ lines are needed from a purely passenger safety point of view (e.g. as per the central running lines at ‘wayside’ TGV stations with platform loops like Haute-Picardie and Aix-en-Provence, or the bypass viaduct at Ashford).

The Hamburg – Berlin standard merely calls for a low barrier set approximately 2m back from the edge of platforms which are passed by 230 km/h trains. However, platform edge doors (cf LUL Jubilee Line, uprated for high speed passing traffic) will provide a better solution for the Stoke HSR station, particularly in view of its requirement for international passenger segregation, and have thus been included in the initial scoping design. All matters of station configuration are matters for detailed design evolution at a later stage.
COST SAVINGS: PACKAGE 1 VS CONSULTATION ROUTE
Costs for Stoke Route Package 1 are built up as shown in the following table.

<table>
<thead>
<tr>
<th>Item</th>
<th>Notes</th>
<th>Capex £m</th>
</tr>
</thead>
</table>
| **38.25 km new build HSL, to HS2 standards.** Runs from end Phase 1 (Fradley) to a point north of Stone, on the existing railway south of Stoke. | - First 32.6 km follows HS2 route.  
- Then 3.5 km of HSL connector  
- Include allowance for 1.9 km junction work on classic lines.  
- Uses HS2 cost base, and includes HS risk & OB uplifts. | £2,256 |
| **60.75 km upgrade** to 230 km/h Hamburg – Berlin standard on existing line from Stone to Ardwick (Manchester approaches). | - Operating speed 230 km/h using Hamburg – Berlin precedent, but timings allow for speed restrictions at some constrained locations.  
- Full UIC gauge-cleared through Stoke HSR station to Kidsgrove to enable twin-unit, double deck TGVs (“captive units”) to access and to future-proof for Package 2.  
- Classic-compatible units only north of Kidsgrove. | £131 |
| Capital allowances for specific works | Harecastle Tunnel  
Kidsgrove track geometry  
Macclesfield tunnel and geometry  
Cheadle Hulme capacity  
Longport Stn solution / classic connections etc | £200 |
| Risk & Optimism Bias for above elements | Use HS2 44% risk and OB uplift. | £143 |
| HSR Station in Stoke-on-Trent. | Liège Guillemins costs, less complex urban context in Stoke-on-Trent. | £250 |
| Local and Regional Connectivity | Budget £250m intrinsic to scheme, £260m potential contributions from other programmes identified. | £250 |
| **Total**                          |                                                                       | £3,230   |

As mapped and described earlier in this submission, the Stoke Route requires approximately £5.2bn less capital expenditure than the Consultation Route and is capable of delivery in 2026, to immediately extend the benefits of Phase 1 further north.

Delivering broadly the same benefits by means of the Consultation Route would, by contrast, cost some £8.4bn and would not be operational until 2032/33. For capex estimates for the Consultation Route, please refer to p8.

The cost side of the cost:benefit equation is clear: at £3.2 billion, the Stoke Route is £5.2 billion cheaper than the £8.43 billion estimate for the Consultation Route.
BENEFITS: RAILWAY AND CONNECTIVITY

Stoke Route Package 1 journey times

A London – Manchester journey would have public timetabled schedule of around 1h 23, stopping only at Old Oak Common (where all HS2 trains are intended to call). With a stop in Stoke-on-Trent, or stops in Stoke-on-Trent and Stockport timetabled schedules would be as follows.

<table>
<thead>
<tr>
<th>Stoke Route HS2 Timetable to Manchester 2026</th>
<th>3 stops</th>
<th>2 stops</th>
<th>1 stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>London Euston dep</td>
<td>10:00</td>
<td>10:00</td>
<td>10:00</td>
</tr>
<tr>
<td>Old Oak Common dep</td>
<td>10:07</td>
<td>10:07</td>
<td>10:07</td>
</tr>
<tr>
<td><em>Pass Fradley (End of HS Phase 1 for ref only. Not a station.)</em></td>
<td>10:46</td>
<td>10:46</td>
<td>10:46</td>
</tr>
<tr>
<td>Stoke-on-Trent High Speed Station dep</td>
<td>10:55</td>
<td>10:55</td>
<td></td>
</tr>
<tr>
<td>Stockport dep</td>
<td>11:20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manchester Piccadilly arr</td>
<td>11:32</td>
<td>11:28</td>
<td>11:23</td>
</tr>
</tbody>
</table>

| Actual running time for each service          | 1h 24   | 1h 20   | 1h 16 |

Important note: the above public times include allowances in line with accepted railway best practice. These total approximately 5 minutes (varying slightly with stopping pattern) for recovery time and allowances for speed restrictions at locations on the Stoke – Manchester section where infrastructure constraints may render full 230 km/h upgrade unfeasible.

We have commissioned expert advice on timetabling from The Railway Consultancy team led by Dr Nigel Harris. As their modelling work progresses, and as our engineering understanding of the Stoke – Manchester section evolves, we expect some further saving on running times and, consequently, published timetable timings to emerge.

The published public timings, achievable in 2026 with the Stoke Route are around 40 min faster than WCML today, and up to 17 min faster than Manchester services under HS2 2026 ‘interim’ plan.

As modelling and upgrade engineering studies progress, we expect to be able to validate a Euston – Old Oak Common – Manchester running time of between 1:15:00 and 1:18:00 via the Stoke Route.

Stoke Route timings, achievable in 2026, will be only around 5 min slower than the running times we believe to be realistically achievable (at £5bn greater cost, and seven years later) on the Consultation Route, even in its fully-built 2032/33 scenario.

A note on HS2 Consultation Route timings. Whereas HS2’s website claims a 1h 08 trip time to Manchester (exactly an hour less than today’s WCML timings), our analysis suggests that 1h 11 is the fastest Euston – Old Oak Common (OOC) – Manchester Piccadilly trip achievable, assuming HS2’s standard timing of 45 minutes for passing the end of Phase 1 (which implies 330 km/h running and includes an OOC stop), and then 26.1 minutes to reach Manchester. This latter figures takes into account the need to decelerate to 230 km/h from 3.5 km south of the Knutsford Triangle and to observe that speed limit over the 28.28 km into Piccadilly. Allowance for final deceleration to 0 km/h is included in the estimate. In line with accepted practice, recovery time should be added (say 2 min given the reasonably predictable nature of a HSL). This would give a public timetable schedule of 1h 13.
All timings assume 330 km/h service cruising speed. HS2 timetable modelling assumes this too, even though the alignment is designed for 400 km/h (an economically unfeasible speed, due to the excessive maintenance burden it causes). HS2’s train specification only calls for 360 km/h maximum speed capability, to provide a 10% overspeed capability over an intended service speed of 330 km/h. See Arup: London to West Midlands Route Corridor Reviews Journey Time Analysis for HS2 Ltd, January 2012, pp 4-5: “In line with guidance from HS2 Ltd, the maximum permissible linespeeds were reduced in order to provide performance and engineering allowances in the timings...[this]...follows the approach to calculating journey times on the French high speed network...[ ]“a design speed of 360kph is coded as 330kph, and the train attains 330kph (i.e. it still has a performance buffer)”.  

Under Package 1 **London – Liverpool** public timetable journey times would be around 1h 49 (around 1h 45 actual running time) via the Kidsgrove – Crewe line and using WCML north thereof via Weaver Junction. **Running time to Liverpool is thus around 5 minutes faster than the HS2 2026 proposal** for a 1h 50 Liverpool service. The Liverpool journey time falls by a further 5 minutes under Package 2 discussed later.

**London – Wigan, Preston and Scotland journey times under Package 1 are at least as fast as HS2 2026 plans.** In essence, the marginal disadvantage of a routing a few kilometres to the East of the WCML Trent Valley line (which HS2 trains would otherwise use to access Liverpool and the north west from Fradley at the end of Phase 1 in 2026) is offset under the Stoke Route by trains travelling further north at 330 km/h.

**Potential additional strategic benefit: through route to Yorkshire**

For the avoidance of doubt, we support the Eastern Leg proposal. The possible Yorkshire benefits described in this section are simply an extension of the ‘lower cost, earlier benefits’ logic on which our core Western leg proposals are based. They are conceptual only at this and are not included in our costings.

We observe that a ‘Whole North’ option opens up as a result of the Stoke Route. Electrifying the little-used Stockport to Stalybridge line would give Classic Compatible access to the trans-Pennine route to Leeds (which is already planned for electrification and capacity enhancement) whilst avoiding adding to congestion in the Manchester area.

This is simply a potentially useful additional benefit (and a strategically helpful diversionary route), and would be entail very little additional cost.

Early work by The Railway Consultancy indicates that the following schedule could be achievable from Euston (including a stop at OOC):

<table>
<thead>
<tr>
<th>Journey</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euston dep</td>
<td>10:00</td>
</tr>
<tr>
<td>Old Oak Common dep</td>
<td>10:17</td>
</tr>
<tr>
<td>Stoke-on-Trent HSR dep</td>
<td>10:55</td>
</tr>
<tr>
<td>Stockport dep</td>
<td>11:20</td>
</tr>
<tr>
<td>Huddersfield dep</td>
<td>11:56</td>
</tr>
<tr>
<td>Leeds arr</td>
<td>12:13</td>
</tr>
</tbody>
</table>

The above service, using existing railways north of Stoke-on-Trent, would be **identical** from London to Leeds than today’s 2h 13 East Coast Main Line direct services, and could bring direct HS2 connections to Leeds several years earlier than the Phase 2 Consultation Route plans for the Eastern Leg.

Thinking further about the above potential service, we observe that a Stockport – Stoke routing also gives the sizeable West Yorkshire market centred on Huddersfield much faster services to London than would be achieved under other scenarios, probably even including a fully-built Eastern Leg HSL.

**A Leeds – Huddersfield – Stoke HSR – Birmingham Curzon Street timing of around 1h 30 would also be achievable.** This is a significant saving against the 1h 56 – 2h 12 timings for today’s conventional services from Leeds to New Street. A transformed strategic connection of this nature will strengthen the cohesion of the
non-London economy on a super-regional scale. Although a ‘straight down and turn left’ Leeds – Sheffield – Toton – Birmingham service would be possible on HS2 Phase 2 under the Consultation Route plans, that network configuration would prevent a useful ‘diagonal’ service of this nature.

Thinking more radically, and for the longer term. The north east from Stockport route described above could be connected to the redundant Woodhead line to Sheffield at Guide Bridge. Assuming the 1954 tunnels were once again made available for railway use, and the line reinstated over the currently lifted sections, this could provide an additional route option for serving the South Yorkshire market. We are fully aware that numerous proposals have been made for reinstituting this valuable route and that nothing has come of them to date – but the sheer fact that a modern railway tunnel to a generous loading gauge under the Pennines exists is surely worth keeping ‘on the radar’ at the very least.

**WCML capacity Benefits**

The initial work by The Railway consultancy indicates that significant capacity will be released on the Trent Valley trunk route of the West Coast Main Line.

In essence, of HS2’s proposed 2026 service, up to 3 tph to Manchester, 2 tph Liverpool and 2 tph to Preston and Scotland could now run via the Stoke Route, with the Liverpool and Preston/Scotland services initially rejoining WCML immediately south of Crewe under the Package 1 Stoke Route.

This removes up to 7 tph each way from the key WCML section through the Trent Valley. The resulting paths could be used for a variety of services, including notably providing a better service to Stafford, where a major expansion of the MOD presence is planned. (Note, Stafford will always be served by trains running off HS2 at Lichfield on to WCML, the Consultation Route for Phase 2 does not have a station at Stafford.)

The capacity thus liberated could also be used for a variety of services not possible under HS2’s current 2026 thinking, given that so much capacity on the WCML Trent Valley route north of Lichfield is consumed with HS2 paths.

Indicatively, these could include improved WCML London – Milton Keynes – Tamworth/Nuneaton – Stafford – Crewe – Wigan/Warrington – Preston services, or more frequent Chester / North Wales services to London.

Clearly, there are potentially very large benefits for freight using the liberated capacity too. We have not yet addressed this in any detail and would look forward to doing so, collaboratively with HS2 Ltd and Network Rail in due course.

When the Stoke Route is expanded with Package 2, essentially all HS2 western leg services would route via Stoke. In this ‘endgame’ state, up to 9 or 10 paths each way each hour would use the Stoke Route, and none of these services would use the Trent Valley WCML trunk route until Occlestone Green, north of Crewe, where only the 2 tph Liverpool trains would rejoin WCML to access the Weaver Junction line.
Benefits of Stoke HSR station location: access to a major market

Road access

A key benefit of a Stoke HSR station is direct access to HS2 for the existing ‘Greater Stoke’ market of 470,000 population, consisting of the City of Stoke-on-Trent itself, and the immediately neighbouring Newcastle-under-Lyme and Staffordshire Moorlands local authority areas.

Road-borne travellers will enjoy superb access via existing first rate A500 trunk road, which connects with the M6 at J15 and J16. This provides access to the catchments shown graphically in the isochrone below.

A scaleable P&R facility connected to the station, capable of expansion up to 10,000 car park spaces will be provided at Stoke International. Passengers will park directly at the station and catch their trains; no shuttle buses are involved.

The populations within the drive time bands are as follows.

Within 15 min ................................................................. 387,000
Within 30 min ................................................................. 755,000
Within 45 min ................................................................. 1,399,000
Within 60 min ................................................................. 2,490,000
Public transport access

‘One change’ public transport access is available to Stoke HSR station for a major super-regional market, using current provision as tabulated and shown graphically on the left below. The trip time effect of the Stoke Route high speed line itself is shown on the right.

<table>
<thead>
<tr>
<th>Current Public Transport Access Times</th>
<th>Public Transport Access Times with Package 1</th>
</tr>
</thead>
</table>

The considerably reduced trip times to Birmingham reflect the impact of the high speed line itself. These post-Package 1 trip times are included simply as a strategic representation of the transformational effect of connecting Stoke-on-Trent and Staffordshire to HS2. Obviously, in demand terms, we recognise that those better served by accessing high speed services at Manchester or Birmingham will, in general, do just that.

At £5bn less capital cost than the essentially rural Consultation Route, the Stoke Route Package 1 proposal transforms what is already the UK’s 13th largest city into the fulcrum of a Midlands-to-Manchester super-region, of sufficient scale for significant GVA-uplifting agglomeration effects to occur. The Consultation Route does not deliver this benefit.

The Stoke Route delivers considerable benefits for business travel, and a HS2 station in Stoke-on-Trent would be a key point of access to high speed rail (both domestic and international), and fulfil an important function as a ‘remote terminal’ to business-critical airports, including LHR and MAN. The map below shows the distribution of businesses with a turnover £50-million plus, within easy travelling distance of a station in Stoke. The benefits of agglomeration are clear. These blue-chip companies form part of a much wider business community of 14,000 VAT-registered businesses within the Stoke area.
Connectivity enhancements to deliver greater benefits

We recognise that Stoke HSR will deliver its full benefits only if integrally planned with a comprehensive package of supporting connectivity measures. We would seek to programme such measures for delivery to support Stoke HSR station. We have commissioned independent expert advice (from JMP) on this subject. On the basis of JMP’s advice, a package of connectivity improvements has been developed, as shown at high level on the map below.
The connectivity package is built up as shown in the tables discussed below. (all tables in the section from JMP report to SOTCC: Stoke on Trent HS2 Station Accessibility January 2014).

Note: the "rail redoubling" measure is discussed separately (and is budgeted as a specific potential programme within the Stoke Route proposals). See “Potential Interim Package” later in this document.

JMP’s report is informed by the following key principles.

1. The proposed “Stoke International” HS2 station would need a full revision to the current highway and public transport networks to ensure maximum value is secured. Surface access is an important aspect of the operation of any large railway station which will attract users locally and, in the case of an HS2 station, from a wide ranging catchment area.

2. An HS2 station aims to provide both local access to capture the economic value to the North Staffordshire of an HS2 station and more strategic access for the wider north-west to access HS2 without the need to enter central Manchester.

3. The key to the strategy is making better use of the existing transport corridors for access. Key to unlocking strategic access to the HS2 station will be upgrades to M6 junctions 15 and 16 and improvements to rail services which would allow effective access to the station. An effective local rail and bus network is essential to provide sustainable local access. A new or upgraded road junction on the A500 to give direct access to the HS2 station is essential.

Working from these principles, potential schemes were appraised by JMP, starting with schemes assumed to be complete before Stoke HSR goes live.

### Schemes assumed to be delivered before 2026

<table>
<thead>
<tr>
<th>Schemes</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highways Agency: M6 Smart Motorway - Junction 16 to 19</td>
<td></td>
</tr>
<tr>
<td>Highways Agency: M6 Smart Motorway - Junction 13 to 15</td>
<td></td>
</tr>
<tr>
<td>Highways Agency: A50 Uttoxeter improvements</td>
<td></td>
</tr>
<tr>
<td>Highways Agency: Pinch Point / RBS Programme Schemes (scope to identified)</td>
<td></td>
</tr>
<tr>
<td>Highways Agency: Partial Smart Trunk Road / UTC scheme on A500</td>
<td></td>
</tr>
<tr>
<td>Network Rail: Derby - Stoke - Crewe modular re-signalling / re-control</td>
<td></td>
</tr>
<tr>
<td>Network Rail: Norton Bridge grade separation</td>
<td></td>
</tr>
</tbody>
</table>

A number of potential schemes were then addressed, as set out in detail in the Appendices. The potential of all the identified schemes to enhance access to Stoke-on-Trent from various quadrants is then summarised in the table below.
We have included £250m relating to the connectivity measures in the Stoke Route budget. JMP have identified a further £265m which could be leveraged from other programmes to support the access enhancement programme. These indicative potential external co-funding inputs are tabulated below.

<table>
<thead>
<tr>
<th>Area</th>
<th>Issues</th>
<th>Schemes</th>
<th>JMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>North of Stoke-on-Trent</td>
<td>M6 to station via A500. Opportunities to extend classic rail services to new station</td>
<td>Junction 16 improvements - grade separation</td>
<td>A500 third lane</td>
</tr>
<tr>
<td>West of Stoke-on-Trent</td>
<td>Limited road links to west avoiding Newcastle</td>
<td>M6 Junction 15 / A500 improvements - grade separate Hanchurch Roundabout and continue A500 to A53</td>
<td>Keele area access, using BRT or LRT for access to HS2 station.</td>
</tr>
<tr>
<td>East of Stoke-on-Trent</td>
<td>A50 / A500 capacity - operation of A50/A500 junction</td>
<td>New A50 / A500 fully grade separated junction A50/A500 Smart Roads study</td>
<td>Local rail service and stn improvements e.g. Longton + Blythe Bridge, Moorland City Railway proposals to Leek</td>
</tr>
<tr>
<td>South of Stoke-on-Trent</td>
<td>M6 to station via A500. Improved local rail services from Stone, Stafford, consider service potential from Wedgwood / Barlaston, Trentham / Trentham Lakes,</td>
<td>M6 Junction 15 / A500 improvements - grade separate Hanchurch Roundabout and continue A500 to A53</td>
<td>A500 third lane</td>
</tr>
<tr>
<td>North Staffs Area</td>
<td>Links to City Centre and Newcastle</td>
<td>BRT / LRT system linking Keele to City Centre via Newcastle and HS2 station</td>
<td>Local rail service and station improvements</td>
</tr>
</tbody>
</table>
## Stoke-on-Trent response to HS2 Phase 2 consultation

<table>
<thead>
<tr>
<th>Ref</th>
<th>Scheme</th>
<th>Cost (£m)</th>
<th>Funding and Delivery Partners</th>
<th>Potential External Inputs. (£m) and source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>A500 third lane sections</td>
<td>175</td>
<td>Highways Agency – schemes already subject to study / assessment e.g. inch-point and All Purpose Trunk Road UTC system</td>
<td>175 Highways Agency or DfT – All purpose road ATM trial</td>
</tr>
<tr>
<td>3</td>
<td>A500 new junction to access station - or use existing junction(s) with major upgrade</td>
<td>25</td>
<td>Highways Agency – study required</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>New A50 / A500 fully grade separated junction</td>
<td>25</td>
<td>Highways Agency – study required</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Upgrade Blythe Bridge A50 roundabout</td>
<td>5</td>
<td>Local delivery and funding</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>M6 Junction 15 / A500 improvements - grade separate Hanchurch Roundabout and continue A500 west to A53</td>
<td>75</td>
<td>Highways Agency – local improvements at Hanchurch already under assessment</td>
<td>35 Highways Agency</td>
</tr>
<tr>
<td>6</td>
<td>Junction 16 improvements - grade separation</td>
<td>35</td>
<td>Highways Agency - scheme already subject to study</td>
<td>35 Highways Agency</td>
</tr>
<tr>
<td>8</td>
<td>Etruria Access Bridge</td>
<td>30</td>
<td></td>
<td>5 LTSF + planning gain</td>
</tr>
<tr>
<td>12</td>
<td>BRT system linking Keele to Hanley via Newcastle and HS2 station</td>
<td>100</td>
<td>Builds on ‘Streetcar’ concept. Detailed business case and route alignment to be developed</td>
<td>5 Planning gain</td>
</tr>
<tr>
<td>13</td>
<td>Extend Shrewsbury and Crewe - Newcastle bus routes to HS2 station</td>
<td>2.5</td>
<td>Local delivery and funding in partnership with bus operators</td>
<td>0</td>
</tr>
<tr>
<td>13</td>
<td>Bus regulation / partnership changes</td>
<td>2.5</td>
<td>Start up costs for revenue neutral scheme</td>
<td>0 Revitalise Stoke QBP</td>
</tr>
<tr>
<td>17</td>
<td>Rail links from Crewe - redoube Crewe to Alsager line, Extend North Wales - Chester - Crewe service / Manchester - Crewe locals and Shrewsbury to Crewe locals to SOT.</td>
<td>0</td>
<td>Rail Franchises and Network Rail. Wales and Borders (Oct 19) Northern (Feb 16) which would require action to place new services in spec for 2026 opening.</td>
<td>5 Note: Capex budgeted separately in Stoke ‘Interim Package’</td>
</tr>
<tr>
<td>17</td>
<td>Local Highways Schemes</td>
<td>15</td>
<td>City and County Councils</td>
<td>2.5 Planning gain</td>
</tr>
<tr>
<td>14</td>
<td>Local rail service and station improvements</td>
<td>25</td>
<td>Network Rail and TOCs e.g. services to Barlaston / Wedgwood. Station improvements at Kidsgrove / Longton / Blythe Bridge. New turnback at Blythe Bridge for local services.</td>
<td>2.5 Network Rail / TOCs</td>
</tr>
</tbody>
</table>

**TOTAL** 515

Included in Stoke Route budget £250m Potential external inputs £265m
BENEFITS: ECONOMIC
Stoke-on-Trent is making this proposal for direct HS2 connection in full alignment with the city’s existing strategic commitment to growth and transformation, via its Mandate for Change.

Stoke-on-Trent is seeking to grow rapidly to become a new Core City, with a population of upwards of one million people. It will become a major economic driver for the entire sub-region, occupying the central economic space between Birmingham and Manchester and, along with these two partner cities, will form a growth corridor of national significance. Crucially, it is part of a deliverable programme to ensure that Stoke-on-Trent makes the transition from being a net beneficiary of public funding, to become a net contributor to the UK Exchequer.

In short, although the Stoke Route delivers some very significant rail benefits, notably including better service to Manchester seven years earlier than the Consultation Route, this proposal is not just about the railway itself. It is about ensuring that the once-in-a-century investment in connectivity and competitiveness HS2 represents delivers maximum impact for every pound of taxpayers’ spend.

Lest the top line benefit be overlooked, it is worth recalling that the Stoke Route requires the taxpayer to spend £5bn less in the first place. This saving is clearly, in and of itself, a potentially decisive rationale, and we look forward to engaging further with HS2 Ltd and with HM Treasury in this connection.

However, the Stoke Route proposal does far more than simply save capital costs. We are focussing our plans and policies so that High Speed Stoke will also deliver additional, long-term, benefits of a similar order of magnitude by stimulating and accelerating economic growth. We take the view that only Stoke, where the potential for transformation is greater than anywhere else on the western leg, can offer HS2 the potential to deliver maximum economic benefit.

Expert Support – Prof Michael Parkinson CBE

[There is considerable evidence that, when part of a wider economic development strategy, such projects [High Speed Rail connections] can and do have significant regeneration and economic impact upon particular places. Stoke’s scale, location at the heart of a substantial sub-regional economy, specific economic opportunities as well as need suggest it could derive substantial potential long term economic benefit. I strongly endorse the proposal that a full examination of the case should be undertaken to assess the potential economic benefits. It would be a significant missed opportunity to help regenerate a city and city region and transform it into a net contributor to the UK economy, if the decision was taken simply in terms of current rail routes.

Excerpted from
Parkinson: A High-Speed2 Station at Stoke-on-Trent: Why the Case Must Be Considered
European Institute for Urban Affairs, Liverpool John Moores University, January 2014
This document is included in full in the Appendices.

Stoke-on-Trent: the location where HS2 delivers maximum economic benefit

HS2 will maximise the potential for Stoke-on-Trent to achieve the economic transformation to which we are already committed as a city with:

• An appetite for rapid growth, aiming to become a city of over one million people, and able to relieve growth from the South East.
• An established track record in attracting Inward Investment. Stoke-on-Trent and Staffordshire Local Enterprise Partnership have been identified (2012) as the third most successful (out of 39) LEPs in attracting investment. An HS2 station would significantly accelerate the offer.

• A substantial supply of brownfield land, much of which currently has a negative value. An increase in commercial land prices stimulated by HS2 would flip this scenario enabling private-sector development of prime real estate within the city.

• A critical mass of businesses to ensure that agglomeration benefits are maximised.

• A peerless location between the economic powerhouses of Birmingham and Greater Manchester, offering opportunities for supply chain developments to support the auto, aero and distributive industries, amongst others.

This is in direct contrast to the Consultation Route, which would actually damage the area’s economy.

Under the Consultation Route, according to KMPG analysis for HS2, the ‘Greater Stoke’ area would be the only city between London and Manchester lose economically as a result of being bypassed by HS2. KPMG show Birmingham, Manchester and Crewe amongst the “winners” on the western leg, a result of improved business productivity associated with HS2. However, for Stoke-on-Trent in the Consultation Route scenario KPMG estimate shrinkage in the value of the local economy of some 0.9%, equivalent to up to £78m p.a.

In other words the HS2 Consultation Route would have a negative impact on the city in terms of reducing the amount of investment that would normally be expected as it flows to locations which have better connectivity

The Stoke Route proposal is designed to remedy this unacceptable situation. We have modelled the positive economic impact HS2 would have on the immediate Stoke-on-Trent & Newcastle-under-Lyme conurbation, as set out in overview in the following table.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Estimated Benefit</th>
<th>Current</th>
<th>Uplift by 2033</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross additional GVA</td>
<td>101%</td>
<td>£5,142</td>
<td>To £10,329m (+£5,187m increase, of which £1,540m net to UK)</td>
</tr>
<tr>
<td>Employment</td>
<td>+44,029 net new (125,795 total including relocation)</td>
<td>198,000 jobs</td>
<td>323,795 total</td>
</tr>
<tr>
<td>Industrial land prices</td>
<td>35% increase</td>
<td>£150,000 per acre</td>
<td>£202,500 per acre</td>
</tr>
<tr>
<td>Property Prices (Average detached house)</td>
<td>40% increase</td>
<td>£166,884</td>
<td>£233,638</td>
</tr>
<tr>
<td>Overall Average Weekly Wage</td>
<td>1.3% increase p.a.</td>
<td>£449.60</td>
<td>£575.50</td>
</tr>
<tr>
<td>Additional Net Population</td>
<td>51%</td>
<td>470,000</td>
<td>+239,700 (to 709,700)</td>
</tr>
<tr>
<td>Additional Net New Houses</td>
<td>51%</td>
<td>209,000</td>
<td>+85,000 (to 294,000)</td>
</tr>
</tbody>
</table>
SOTCC takes the view that High Speed Rail (HSR) has the potential to be a catalyst to attract new activities and add significant value to regeneration initiatives within cities. A range of studies (e.g. KPMG, Arup etc) plus the experiences of provincial cities in Europe (Lyon, Hamburg, Cordoba and Turin) demonstrate that when HSR links are incorporated into wider land-planning initiatives, then major improvements are recorded in economic activity.

SOTCC has undertaken economic modelling of the impact of a major HS2 station in the Stoke-on-Trent city core. The following paragraphs summarise the underlying principles and key findings of that work.

- An HS2 station in Stoke-on-Trent would align with the city’s wide-ranging policy, resource and program commitment to facilitate rapid (but planned) growth to become one of the UK’s Core Cities.

- Combining the effects of the policies to which we are already committed with the accelerant effect of a major HS2 station, our modelling projects that the North Staffordshire conurbation will grow rapidly by 2033, as it becomes a Core City of upwards of one million population.

- HS2 and the Core City objective clearly have a symbiotic relationship:
  - On one hand, the presence of an HS2 station less than one hour from London will be a major driver for investment, increasing the attractiveness of the area for both housing and commercial investment and acting as a key tool to realise the Core City objectives.
  - Equally, the fact that the conurbation is seeking to grow rapidly to become a major city makes it more imperative to have a station located there, to maximise the economic benefits of agglomeration.

There are three things likely to stimulate such a rapid population growth:

- A local authority with an appetite to grow rapidly less than 60 mins from London.

- The well-established lifestyle and leisure offering (both outdoor leisure, Peak District, canal network, etc., and a rapidly developing culture, leisure and retail offering including five theatres, etc).

- Most strikingly, the affordability of house prices. Based on comparisons with established commuting areas, the difference is remarkable.

<table>
<thead>
<tr>
<th>Area</th>
<th>Average Detached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stoke-on-Trent</td>
<td>£166,884</td>
</tr>
<tr>
<td>Cheshire East</td>
<td>£348,035</td>
</tr>
<tr>
<td>Oxfordshire</td>
<td>£479,327</td>
</tr>
<tr>
<td>Reading</td>
<td>£433,760</td>
</tr>
<tr>
<td>Buckinghamshire</td>
<td>£592,508</td>
</tr>
<tr>
<td>Kent</td>
<td>£392,006</td>
</tr>
<tr>
<td>West Berkshire</td>
<td>£457,281</td>
</tr>
</tbody>
</table>

Source: Land Registry House Price Index November 2013

From the above it is clear that our city has hugely affordable housing, whilst the surrounding area also offers great quality of life. Our planning regime and pro-development policies are aligned to facilitate the development of new housing and commercial development on a very significant scale. Two interlocking key principles of Mandate for Change are that:
a) Stoke-on-Trent must transition from being a net recipient of Central Government support to being a dynamic net contributor to the UK economy; and that

b) the key to that transition is transformation of our city itself.

Our 30 year target is to secure the business inward investment and residential in-migration to grow the population of the Greater Stoke area on a genuinely SuperCity scale. A population of one million is the ultimate goal. That more than doubles the existing population of 470,000 within the City plus Newcastle-under-Lyme and Staffordshire Moorlands.

The Stoke-on-Trent conurbation is almost certainly the only remaining major urban centre in the Heart of England with the capacity to accommodate development on this scale, without demolishing itself in the process.

It is because Stoke-on-Trent is already committed to a multi-decade programme of transformation that our city’s strategic agenda aligns so closely with the once-on-a-century investment in national transformation HS2 will deliver.

Professor Parkinson’s paper (op cit) supports this view.

There is evidence that if properly planned and integrated into a wider economic strategy, HS can bring regeneration benefits to particular cities. There is greater agreement that HS does have favourable impact on places which get it as opposed to those who do not get it - even if others suffer. Examples from France, Spain, Belgium show benefits for individual places.

But a wider approach is needed

But the evidence also shows that transport links are only part of economic success – skills, other infrastructure also matter.

• High speed only makes a contribution if it is integrated to wider economic development strategy.

• It also only makes contribution where there is small p political agreement on the desirability and possibility of the strategy and if partners exploit the opportunity.

• Such major infrastructure projects are rarely determined by the narrow economic cost benefit analyses but a series of wider economic and policy considerations.

What relationship with wider national economic development context?

The key messages from the Lord Heseltine ‘No Stone Unturned’ Review were:

• Go for added value where land values are low and capture the uplift.

• Go for brownfield.

• Go for scale and agglomeration.

These all support the principle of taking the Stoke case seriously.
Affordability: a key Stoke-on-Trent advantage to kick-start growth

It is rare for there to be a ‘quick win’ in either urban development or infrastructure, but our two projects do interlock very closely from the outset. We are targeting 85,000 new homes by 2033 in Stoke-on-Trent City alone. Thus, in the period when the Consultation Route would only be in its planning and construction phases, an HS2 connection using the Stoke Route would be ‘live’ and would both accelerate this growth and directly profit from it as market size expands rapidly.

If we add HS2 trips of 55 min to London, and under 30 minutes to Birmingham and Manchester, to Stoke’s already potent mix of housing affordability and supportive approach to development, we will transform the choices individuals and families make as to where they choose to live. We do not overlook the fact that economic development is ultimately about people, so we are determined to capture the maximum possible advantage from an HS2 connection, by foregrounding the hard-nosed value proposition Stoke-on-Trent can make to potential new residents.

With HS2, Stoke-on-Trent becomes as rapidly commutable to London as Aylesbury, Brighton and Canterbury are today, and offers even quicker links to two of Britain’s other great cities. In short, Stoke-on-Trent becomes one of the most accessible places in the UK. This process which will only accelerate as the project develops, with access to Liverpool and the Greater North West also being vastly enhanced.

We predict, and positively welcome, the likelihood that Stoke-on-Trent, with connectivity thus transformed, will attract commuter relocation, notably amongst ‘capital refugees’ from the overheated South East. Indeed we will proactively market an HS2-connected Stoke-on-Trent to potential relocators.

From our policy perspective, a strong initial cohort of relatively affluent new residents, whose post-tax disposable income will actually increase as a result of significantly lower housing costs, is a great ‘kick-start.’

Their in-migration provides the initial impetus for housing development, their new local spend boosts the existing city economy, and the increasing presence of a higher-skilled, higher-aspiration, workforce in the city underpins the slower-burning agglomeration effects that will unfold as businesses cluster in the core employment zones which will develop around the area.

From the point of view of the potential relocator, the proposition is compelling. We have analysed an example of a household relocating from Aylesbury to Stoke-on-Trent. We taken into account season ticket costs for the 65 minute commute on the relatively basic Chiltern Line, versus a higher assumed season ticket price for the 55 minute trip from Stoke HSR (which we have benchmarked against Grantham, a long distance commute of 64 minutes on a reasonably high quality ECML train) and to which we have added a “TGV premium”.

When relative housing costs are taken into account, the balance tips massively in Stoke-on-Trent’s favour. In December 2013, the Land Registry recorded average detached house price in Aylesbury Vale as £374,601. It was £166,884 in Stoke-on-Trent. Selling up in the South will therefore clearly liberate capital for the relocator.

Even if their move simply involves ‘porting’ a Southern mortgage to Stoke-on-Trent, then the household will be around £11,000 a year better off when the sum total of mortgage savings and season ticket differential is taken into account.

If the move allows the relocator to clear their mortgage, as they trade-in to “better value living” in Stoke-on-Trent then the benefits are staggeringly positive in terms of household disposable income (much of which will be spent in the Stoke-on-Trent economy, thus multiplying benefits).
Assuming a mortgage-clearing move from an average price detached house in Aylesbury Vale to an average price detached house in Stoke-on-Trent, and an annual season ticket for a 55 minute commute on a world class high speed train replacing 65 minutes on rolling stock designed before the turn of Century, a household with a single commuter would be around £18,500 a year better off.

To put it in another way, which is of direct financial relevance to the individuals and families concerned, moving to England’s new HS2-connected SuperCity will increase after-tax disposable income on a life-changing scale.

- A ‘relocation benefit’ of £10,800 (achievable when porting a mortgage) is equivalent to an increase in salary, at 2013/14 tax rates from £50,000 to £68,635.

- A ‘relocation benefit’ of £18,550 (achievable when clearing a mortgage) equates to a £100,000 salary increasing to £138,489.

HS2 via the Stoke Route will make it possible, in effect, for individuals to award themselves a pay rise in the high 30% range. Furthermore, Stoke with HS2 becomes an affordable location for London Key Workers, who are increasingly priced out of the one hour commuting zone.

The relocation benefit in the case of each specific relocation decision will, of course, vary from case-to-case. The principle, however, is clear: new residents of the vibrant new city supercharged by its HS2 connection will have plenty feel good about. And that should raise a smile as they speed to work at 330 km/h. On a much nicer train, too…

Even allowing for a predicted increase in house prices as a result of HS2 transforming Stoke-on-Trent connectivity, the average remains markedly below established commuting areas. By 2033, we predict the average detached house price to have risen by 40% to £233,638.

Even at these level – galvanised by HS2 – sheer affordability will remain a “High Speed Stoke” advantage well into the future, alongside the very significant positive effects we expect from business inward investment into what will become one of the best connected places in Britain.
Conclusion & recommendation by Prof Michael Parkinson

We have shown above how Stoke-on-Trent, at the policy level, is already committed to, and already delivering, a wide-ranging and coordinated programme of urban transformation and economic development.

We have shown how, at the business decision-maker level, we are already securing significant inward investment.

We have shown how the entire range Stoke-on-Trent’s pro-development policy is already coordinated by Mandate for Change.

We have shown how our revitalised and dynamically growing city will make a compelling offer at the level of individuals and families making life-choices about where they live and work.

In short, everything is already in place to drive Stoke-on-Trent through the key economic transition, from net beneficiary to net contributor.

We are already making this key change. An HS2 station in the heart of Stoke-on-Trent will enable us to transform our city faster, more profoundly, and with greater benefit to the UK economy.

HS2 is seeking to demonstrate its potential to deliver strategic economic benefit. There is simply nowhere else where it will do so more effectively, more rapidly and to the benefit of so many people.

We’ll leave the final word to the expert in the field.

Major infrastructure investments like HS2 are essentially about economic place making. They should be made in terms of their wider implications and impact. Therefore there must a serious economic analysis of the impact of HS2 location at Stoke. It should assess:

- Its current economic strengths and potential and how the different economic sectors would be affected by HS2 location.
- The economic strategy for Stoke and the sub-region and how they fit with the potential HS2 investment.
- The extent of commitment by the public and private sectors in the sub-region to the development and the extent to which it fits with their long term strategic and financial planning. […]

The evidence should determine the policy stance. But in my judgment there is serious economic case for a Stoke HS2 station to be examined. The decision about the location should be made in terms of the contribution to economic place making. It would be a significant missed opportunity if this was not fully explored.

Professor Michael Parkinson CBE
**BENEFITS: ENVIRONMENTAL**

We have commissioned an initial Environmental Appraisal from BRE (Client report number 292706 v2, dated 23 January 2014). Although BRE's work is at a preliminary stage, we are greatly encouraged by their initial findings, of which the Executive Summary is quoted verbatim below.

Please note that BRE's brief was to compare Stoke *Package 1* proposals with the HS2 Consultation Route. We explicitly acknowledge that the balance of benefits will shift if and when further packages are added. For instance, the 14km of new build HSL that would be required under Package 2 (see below).

As a high-level desktop review, this report should be only seen as a first stage in assessing the complex sustainability issues surrounding the two proposed routes. A further more detailed review would provide additional knowledge and confidence around sustainability issues that are associated with the proposed routes.

The routes under consideration in this assessment are:

- The HS2 Consultation Route as proposed by HS2 – via Crewe and on new track
- An alternative involving 40km of new track and 60km of upgrades to existing track – via Stoke

After this short review of the two high speed route options traveling from Lichfield to Manchester Piccadilly, BRE has identified that there are sustainability issues with both options which would need to be better understood and managed.

However, of the eleven aspects BRE have reviewed (at a high level) the following summary can be postulated:

<table>
<thead>
<tr>
<th></th>
<th>HS2 proposal</th>
<th>Stoke proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potentially worse performing</strong></td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td><strong>Potentially better performing</strong></td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

There were two aspects where it was not possible with the information provided to interpret which option offered the most sustainable outcome.

The study has not sought to weight the aspects considered and as a result it cannot be assumed that the option performing better in eight aspects is more sustainable than that performing better in the one aspect.

The considerable improvements in CO₂ emissions reductions for the Stoke option should also be highlighted as they are considerable, an approximately 88% improvement over the HS2 Consultation Route. Nonetheless, these calculations do assume that the Stoke option would provide for an equal number of rail users and that upgrading track will require only 50% of the CO₂ emissions of building new track.

Given the apparent better performance of the Stoke Route we are able to conclude that the Stoke Route is a potentially viable alternative which should be given due consideration and fully evaluated against the HS2 Consultation Route prior to any final decision being made.

We propose working collaboratively with Network Rail and HS2 Ltd, to further study this important aspect, as the project moves ahead. In all aspects of future project development, for example the next stages of detailed engineering which will materially affect how the project delivers its potentially huge environmental benefits, we propose and would welcome a collaborative approach.
PACKAGE 2: HSL CONNECTION TO THE NORTH WEST
As indicated previously, the Stoke Route has been designed from the outset to permit phased development.

A critical inclusion in Package 1, therefore, is full UIC gauge clearance as far north as Kidsgrove, north of the Stoke HS2 station site. The purpose of this is to permit the addition of a short (14 km) new build high speed line, to full HS2 (continental loading gauge) design specification, running northwest from Kidsgrove to rejoin both the original Consultation Route and WCML at Occlestone Green (OG), north of Crewe. This is mapped below.

In Package 2 configuration, the Stoke Route is still £3.1 bn less expensive than the Consultation Route, yet delivers all the “beyond HS2” benefits of through-running over WCML to Liverpool, the North West, and Scotland, whilst still requiring 47 km less new build high speed line.
In the case of Liverpool, the distance covered on slower, conventional, WCML track is actually reduced compared to the Consultation Route. Thus with a stop in Stoke-on-Trent replacing a stop in Crewe, Liverpool trains are actually faster than under the Consultation Route. Including a stop in Runcorn, The Railway Consultancy timetabling work indicates running times for London – Liverpool services of around 1h 43, some seven minutes faster than the Consultation Route even in its 2032/33 condition.

Services to Wigan, Preston and onward Scotland have essentially identical trip times compared to the Consultation Route.

And all the above benefits are delivered whilst still eliminating the need for over 47 km of new build HSL: the speed-limited 230 km/h Manchester Branch with its 11.8 km tunnel and the sensitive rural Staffordshire/Cheshire section from km 32.6 to OG remain “whited out”.

OG is the most northerly point where a NW-bound HSL can rejoin the original Consultation Route and the WCML at a point which still allows Liverpool trains to diverge on to the planned Weaver Junction route to Merseyside.

Connecting north of Crewe has three main advantages:

1. The cost and complexity of the enormously expensive 400 km/h specification tunnel under Crewe is entirely avoided.

2. The HS2 route does not have to be threaded through the complex existing railway south of the town.

3. The junction required for Liverpool trains to diverge is moved north, thus allowing Liverpool services to spend longer running at HSL speeds, rather than branching off south of Crewe and travelling up the low speed 200 km/h WCML for longer than is necessary.

Again, by retaining the original Consultation Route north of OG, “the blight stays in the same place” for that section of HS2, a considerable advantage in its own right.

The routing of the 14 km link line is yet to be studied in detail, although preliminary intelligence suggests that a redundant railway alignment can be used at its South East end, thus minimising impact on Alsager.

Two items of additional capex are incurred for Package 2, namely £0.82 billion for the Kidsgrove to OG connector line, and £1.25 bn for re-inclusion of the 19.95 km of the Consultation Route northwards from OG to the southern apex of the Knutsford Triangle, which was not required under Package 1. Recap: the approx £1.6bn capex for the section of Consultation Route north of Point H on the map to Barmfurlong south of Wigan was always retained in the cost base, primarily to enable like-for-like comparisons to be made when Package 2 is tabled.

Again the effect of transformed connectivity is well captured by a side-by-side comparison (below) of today’s public transport access times to Stoke-on-Trent with those enabled by HS2, in this case when Package 2 is completed. The Midlands-to-Manchester Super-Region, of which Stoke was the fulcrum in Package 1, has now expanded to take in a good slice of the Greater North West too.
The populations within the public transport access time zones is as tabulated below, showing the dramatic reduction in travel times within the super-region the Stoke Route creates.

<table>
<thead>
<tr>
<th>Model</th>
<th>15 min</th>
<th>30 min</th>
<th>45 min</th>
<th>60 min</th>
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<tr>
<td>Current</td>
<td>95,145</td>
<td>461,548</td>
<td>924,111</td>
<td>2,051,963</td>
</tr>
<tr>
<td>With Package 1</td>
<td>95,145</td>
<td>484,020</td>
<td>1,357,419</td>
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<tr>
<td>With Package 2</td>
<td>95,145</td>
<td>498,854</td>
<td>1,546,258</td>
<td>3,834,823</td>
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</table>

The table compares the current public transport access times with those expected with Package 1 and Package 2 of the Stoke Route. The dramatic reduction in travel times is evident, especially at the 60-minute mark, where the population within the access zone increases significantly with the implementation of the packages.
The Stoke Route, from its Package 1 configuration onwards, is designed to deliver significant benefits to Manchester seven years earlier than the Consultation Route plan. However, it is important to note that nothing in the Stoke Route proposal precludes construction of the Consultation Route's proposed 230 km/h branch line into Manchester from the Knutsford Triangle at any future date.

This configuration, blending the early benefits of the Stoke Route with the original North West proposals of the Consultation Route, is shown on the map above. It leverages Package 2 of the Stoke Route to enable trains to operate via the Consultation Route Manchester Branch as originally proposed.

By this means, we enable the operation of UIC loading gauge HS2 ‘captive’ units into Manchester, via the site of the proposed station on the M56, near to the Manchester Airport perimeter.

Please note that funding for this Manchester Airport station, and for the necessary ‘shuttle’ connection into the airport itself is assumed by HS2 to be separately provided by Manchester Airports Group and/or other investors.

Whilst we have not yet estimated comparative costs to the same detail as for Packages 1 and 2, we expect that Stoke Route in this configuration will still be in the region of £1.5 billion cheaper than the original Consultation Route proposal via Crewe. This is because:

a) The Stoke Route uses inherently cheaper 230 km/h upgraded line through the Potteries, on an easy corridor with plenty of uncontentious railway land available, plus a short HSL stretch to Occlestone Green. The Consultation Route, by contrast, uses new build HSL to 400 km/h design specification for the entire distance from km 32.6 to Occlestone Green. Thus Stoke Route still saves approximately 18.5 km of new build HSL, even in the configuration mapped above. Using the per-km estimates discussed earlier, that equates to around £1.3bn HSL capex saved at average costs.

b) The junction with WCML at Occlestone Green is more efficiently located than the Consultation Route proposed junction south of Crewe. It also has the benefit of allowing Liverpool trains to run further north at higher speeds.

c) The Package 2 Route entirely eliminates the extremely costly 400 km/h twin tunnels under the town of Crewe. With this in mind, the actual costs are likely to be significantly higher than the per km average estimates, hence our ~ £1.5bn saving estimate.
NW CONNECTION INTERIM PACKAGE

If circumstances at the time mean that Package 2 takes some time to deliver after completion of Package 1, then it would be advisable to spend a relatively minor capital sum (see table) on redoubling and upgrading the short Kidsgrove to Crewe line.

<table>
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<th>Capex</th>
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<tr>
<td>Redoubling using Chiltern Line precedent.</td>
<td>£71m</td>
</tr>
<tr>
<td>Includes Level crossing elimination, viaduct renewal &amp; other structures, Crewe junction remodelling.</td>
<td>£40m</td>
</tr>
<tr>
<td>Upgrade to 230 km/h standard, classic compatible loading gauge, except at western extremity where full UIC clearance required to enable any retrofit of Package 2.</td>
<td>£44m</td>
</tr>
<tr>
<td>All costs include Risk &amp; OB allowance as per HS2 cost base</td>
<td>44%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>£115m</strong></td>
</tr>
</tbody>
</table>

This link is shown by the east – west blue line on the map below.

The line is already electrified, but around 4.5 km of it was singled in recent years. We have made prudent capex allowances in the table above to cover the costs of upgrading it to 230 km/h Hamburg – Berlin standards, and specific works to remediate the major issues on the route.

With only a marginal increase over ‘Package 1’ costs, this additional short section of route delivers the following benefits:

- Enables a robust service pattern to Liverpool and the North West.
- Capacity release on Trent Valley section of WCML by allowing Fradley – North West high speed traffic to route via Stoke-on-Trent without using paths on the busy Stafford, Colwich and Norton Bridge sections of the Trent Valley route.
- Allows HS2 (and other, e.g. ex-East Midlands regional) services to reach Manchester Airport without requiring Package 2 connector. Indicatively the public timetable for a Euston – OOC – Stoke – Manchester Airport service using this route would be around 95 minutes.
MANCHESTER AIRPORT INTERIM PACKAGE

If circumstances at the time dictate that the Consultation Route branch line to Manchester Airport is delayed for whatever reason, the Stoke Route offers a helpful alternative or interim package. The minor addition of a chord near Sandbach, diverging from the Kidsgrove – OG connector and joining the existing railway via Wilmslow, enables Stoke Route trains a very convenient routing to the existing Manchester Airport station (where we note the fourth platform programme is already addressing capacity issues). Again the route avoids the complexities and costs of Crewe. See map below.

The indicative incremental capex for this package over Package 2 is £0.3 bn, allowing £0.2bn for the chord and £0.1bn for capacity enhancements on the Wilmslow – Airport line.

In Manchester Airport interim configuration, the Stoke Route is still £2.8 bn less expensive than the Consultation Route, and delivers a cost-effective connection directly into Manchester Airport itself, not to a station site outside the airport, as is proposed on the Consultation Route.

An additional benefit of this Package is that the existing line north of the airport (via Heald Green and Gatley) can be used to provide an additional access route into Manchester for classic compatible Stoke Route HS2 trains. This provides useful strategic redundancy and operational flexibility.
This route also enables direct HS2 services from Wilmslow, as per the Consultation Route plan. These trains would join true HSL a few km earlier than under the Consultation Route (again avoiding the complexities of Crewe) and would thus be marginally faster.

Timetabling work by The Railway Consultancy indicates that a service routing Euston – Old Oak Common – Stoke – Wilmslow – Manchester Airport would comfortably achieve a public timetabled schedule of around 1h 28 minutes. A Euston – OOC – Manchester Airport service would take around 1h 23 minutes.

These two timings compare extremely favourably both to the 1h 44 (hypothetical) non-stop London – Manchester Airport that HS2 postulate as the fastest service that would be theoretically achievable on WCML.

These service also compare well with the 0h 59 timing (62 min with recovery time) claimed for a Consultation Route Euston – OOC – Manchester Airport service.

Note: the economic justification for such a service remains to be proven. On this train a passenger would board at Euston, then pass Old Oak Common where she/he has access to frequent trains to one of the world’s major airports – LHR – which she/he could in all likelihood reach from any origin in Central London with less changes via CrossRail anyway. Is it likely that many passengers will then spend a further hour and a quarter travelling (including an inconvenient shuttle trip at MAN, see below) to go to a more distant airport?

In fact, under The Manchester Airport Interim Package, passengers may well arrive actually in some parts of the airport itself earlier than under the Consultation Route plan. Bear in mind that Stoke Route trains would be using the existing station, which is directly connected by walkway to the airport terminals and immediately adjacent to the Metrolink platforms, whilst the Consultation Route foresees an underground station outside the airport (near the current Premier Inn location).

Passengers using the Consultation Route station would therefore have to exit the HS2 platforms, walk to the concourse, then wait for some kind of shuttle / PRT, then transit to the airport itself. Prudently a journey-time penalty of around 15 minutes should be allowed for this inefficiency. Depending on where they are going within the airport complex, Stoke Route passengers whose train deposits them at the airport in 83 minutes may actually arrive marginally quicker than a hypothetical passenger using arriving near the airport on the Consultation Route.

It is also important to note that the capital costs of fitting out the Manchester Airport HS2 station box, and of connecting it to the airport are not included in the HS2 costings. If we assume costs in the region of, say, £0.5 billion for these works, a further major saving is made possible by the Stoke Route.
STATION DESIGN
We have commissioned an initial architectural and urban context design exercise from Ryder Architects. Their team is led by Paul Bell, whose previous experience includes major rail facilities in Kowloon and at Korea’s international airport HSR interchange.

The brief to Ryder was for a full specification HSR station with full airport check-in and border controls for direct services to the continent. The functional design brief is summarised in the following schematic.

- A central “inner island” platform will serve both northbound (inbound into UK) and southbound (outbound from UK) International trains. Access to this island from the station will be via a fully segregated international concourse with full border controls.

- Access to the inner island platform from the trains will be managed by Selective Door Opening (SDO) on the ‘international side’. We note that SDO is required by the HS2 technical specification, as per HS2 Technical Appendix 2009, Section 2.4, p12.

- Domestic HS2 services will use SDO on the opposite, ‘domestic side,’ to serve passengers on the inner faces of two outer island platforms (one northbound, one southbound).

- To make multiple use of precious paths on the southern section of HS2, a two-coupled 400m train could even use SDO to combine both an international service (doors opening on right on the front unit) and a Euston service (doors open left on the rear unit). The train would split into 2 x 200m units at Old Oak Common. At this UK domestic station, the front unit would simply uncouple, not open any door, and proceed to the continent via the HS2/HS1 interconnector. During the time that passengers are detraining from the the rear unit (e.g. for CrossRail connections) the junction ahead would clear after the international service has passed, and the rear train would proceed separately to Euston via the normal HS2 route.

The initial outputs from the Ryder programme are illustrated below.
**Urban context**

Reflecting the policy thrust of *Mandate for Change*, the HSR station is located centrally within Stoke-on-Trent itself. This is not a ‘Parkway’ station near a city; this is the hub, brand anchor and icon which defines a city intent on transformation.

In this location it optimally supports the regeneration programme in the City Centre (spotlighted in purple), and the University Quarter (turquoise) which are both already several years into delivery. The station also opens up substantial brownfields for development on the genuinely strategic scale the city intends to facilitate and support (bright blue).

This location is also directly adjacent to the A500 trunk road (shown by the line left of the bright green upgraded railway), which provides access to the large-scale P&R, directly at the station where passengers would park and board trains on the same site. The site is also the natural hub point in the city for public transport feeder/distributor connectivity, including the potential East West BRT (or tram) route linking Keele University to the West, Newcastle-under-Lyme and Hanley in the City Centre.

**Stoke High Speed Rail Station**

Responding to the brief, Ryder’s initial design for the station is illustrated below.

The uppermost image illustrates the station interior, seen from the international island platform. The international concourse is ahead and above. The domestic island platforms are to left and right, with HSR services using their inner faces. Classic rail uses the outer faces, providing simply cross-platform interchange. The P&R car parks are to left.

The lower image provides an aerial view, showing the general layout of the station. For orientation, the segregated international concourse (centre) is in blue. The car parks to the rear adjoin the A500 road.
Plan View & Section
Further design development will be conducted in due course.
STONE HSL CONNECTOR: INITIAL APPRAISAL

Alongside their broader-scoped work providing the initial timetabling and capacity assessment of the Stoke Route proposal, we instructed The Railway Consultancy to undertake a high level appraisal of the ‘missing link’ section between km 32.6 of the Consultation Route and the existing railway to the north of Stone.

An indicative route of 3,773m resulting from that appraisal is mapped here. The HS2 Consultation Route is shown by the purple line adjacent to the M6, the existing rail line by conventional OS mapping.

In the next stage of work, this alignment would be subject to a full engineering study, in partnership with HS2 Ltd and Network Rail, with both of whose systems it connects.

It is important to note that this route is a benefit for Stone, as set out in the following paragraphs.

In 2026, under HS2’s ‘interim’ service plans, when Phase 1 is completed, Classic Compatible high speed trains to Manchester would travel through the heart of Stone, on unimproved existing railway, and proceed to their destination without stopping in Stoke-on-Trent.

Some of these trains may take the Norton Bridge to Stone route (SE to NW on the map). This line is highly curved where it joins the Colwich line at Stone station. Wheel flanges on this section are likely to produce considerable noise. By contrast, the new build line will be engineered to the far gentler curve parameters permissible for a section of line to be traversed by high speed trains travelling at 230 km/h (at the north end) and
accelerating to HS2’s operating speed of 330 km/h as they pass south along it. (By the same token, northbound trains will be decelerating as they traverse the connector line.)

Under the Stoke Route proposals, trains will bypass Stone to the west and north. The new connector link will be built to the environmental standards of the 21st Century, not the 19th, as is the case with the existing line. Both the connector and the upgrade line to the north of Stone will be quieter than the existing railway.

It is worth emphasising that Stone residents will be able to access Stoke HSR station in a matter of minutes, either by train or car, and then enjoy a 55 minute journey to London, and around 25 to Manchester and Birmingham.

With commuting times slashed to Buckinghamshire / Bedfordshire / Oxfordshire durations, Stone residents are certain to see a substantial increase in property values.

The same benefits apply to residents of Barlaston and Wedgwood too: further clear examples of how the Stoke HSR station benefits the wider area around Stoke-on-Trent, not just the city itself.

An initial ten contour sections were taken, from which the elevations and indicative vertical profile of the alignment shown below were derived. The new connector line railway linking the HS2 Consultation Route (to the left of the graph) and the existing classic line north of Stone (to the right) is represented by the green line. The initial ten section points are indicated by the orange lines.

As can be clearly seen from the profile, no major elevation changes affect the line, with simple cuttings and embankments suitable for those parts of the line not requiring bridges. The minor road about 1.25 km along the route would be raised to cross the line by overbridge. In all other cases (the Stone – Norton Bridge conventional railway line, the River Trent, the A34 and the Trent & Mersey canal) the new line would cross over the obstacle by means of bridges.
Further work is ongoing. A more detailed route sectioning is currently in progress, with focus on the northern end of the alignment. A summary is shown on the working map here.

The Railway Consultancy have noted the data recorded in the table overleaf during the route appraisal.

It is stressed once again that all data relating to this route section is approximate and indicative at the present early stage. Detailed engineering route development work will be required as the project progresses. The purpose of the initial appraisal exercise was simply to form a preliminary view as to whether this alignment would, in principle, be practicable.

The team concludes that construction of the proposed connector alignment is indeed technically feasible in principle, noting a reasonably convenient topography, through largely open country, with little habitation, with little elevation change, and no insurmountable infrastructure or natural obstacles.
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</table>

- from HS2 proposed route alignment at (chainage of 32), bridge under B5026
- over Norton Bridge - Stone Railway line (embankment above stream)
- under Yarnfield Lane, minor road
- private drive realigned over or under. Or reroute drive along next field boundary further up the hill, and route it over the railway
- over River Trent
- over A34
- Lane (Siddle’s Bridge) over Trent & Mersey Canal will have to be reworked - unclear if it needs to be usable for road traffic
- need flying junction on to Stone-Stoke line at approx -4m in cutting
FREIGHT AND DEPOT CONSIDERATIONS

Continental gauge freight

As noted elsewhere, the Stoke Route would be ‘captive’ gauge-cleared as far north as Kidsgrove, in part to allow for future infill of the Package 2 connector running north west from Kidsgrove, which rejoins the northwest-bound Consultation Route and WCML at Occlestone Green North of Crewe.

Another key reason for full UIC gauge clearance is to future-proof for access by continental gauge freight trains, which would run south from Stoke-on-Trent along HS2, the Old Oak Common – HS1 interconnector line, and then onward via CTRL and Eurotunnel in to mainland Europe. This would occur as and when HS2 adopt the same operating policy as HS1, and allows freight in ‘out of hours’ paths.

The Package 1 Stoke Route would allow full-size freight trains, as per current DB Schenker services on HS1, to operate to a major European freight terminal on a brownfield site in Stoke, where superb road is available via the A500/M6 connection.

Examples of traffics which would benefit from a direct international connection without the constraints of classic loading gauge would include:

- Inbound time-critical foodstuffs and perishables from Spain and other producing areas for onward distribution to UK supermarkets.

- Outbound export (exploiting the loading gauge) of manufactured products, such as heavy plant items. This significant traffic already originates in and around Stoke but is currently transported by road.

The Stoke and Staffordshire area has significant tracts of brownfield land adjacent to the rail corridor that lend themselves to development of rail-connected terminals, some of which are already home to distribution facilities. A compelling freight proposition in the city would reinforce the case for switching existing traffics from road to rail. Furthermore, Stoke-on-Trent’s location at a key central point on the main trunk road network is ideal to support distributive industries with trunk rail freight movements.

At its fullest extent, a fully gauge-cleared major terminal in Stoke-on-Trent has the potential to become a full-scale inland port, offering a “faster-than-truck and cheaper-than-air” freight service to the European mainland. The potential traffic to/from such a facility (and the capacity of HS2 to accommodate it) will require further study. We look forward to collaborating with partners on this subject in the months ahead. For now, though, let us simply state that we are already aware of sizeable potential freight flows, which would add to the Stoke Route business case.

High speed freight and logistics

We observe that gauge clearance also allows full continental-sized dedicated high speed, high value freight and logistics TGVs (or similar) to operate as far north as Stoke-on-Trent. In this connection, we observe that:

- The fundamental ‘fit’ of such units with UK high speed infrastructure was proven by the visit of a La Poste TGV to St Pancras International (illustrated here).
• There should be no objection to operating such trains in off-peak daytime HS2 operating hours, given that any suitably-powered unit would be fully ‘able to keep up’ with the passenger rolling stock from which they are derived, and thus not impact HSL capacity.

• To save paths on the southern section of HS2, it would be possible to operate a 200m ‘fast freight’ unit in multiple with an off-peak (200m) passenger service, splitting the trains at Old Oak Common, with the freight proceeding to the Continent and the passenger unit going to the London terminus.

• With a sizeable DHL operation already located within 20 metres of the railway in Stoke-on-Trent, the ability to offer high-speed, high-value parcels and freight services on the Stoke Route has obvious attractions – and a potential launch customer.

Notes on freight to inform design development

On freight generally, we note the HS2 design specification which states that: “The project shall design the route horizontal and vertical geometry plus civil engineering support structures to values which do not preclude conventional freight service operation over HS2 should the business requirement materialise”. (HS2 Technical Appendix 2009, Section 2.4, p9)

Stoke-on-Trent City Council strongly supports the option for future freight operation over HS2, noting that the successful operation of freight on UK high speed infrastructure is already proven on HS1. Furthermore, we would urge the HS2 detailed design optimisation process to ensure that the ‘recess loops’ – which are to be provided along the route for maintenance purposes anyway – are appropriately configured, signalled and controlled to allow freight operations. Furthermore, we observe that one of the reasons freight is not initially part of the HS2 ‘Day 1’ business plan is the planned “five hour overnight maintenance window.” Again, this should be a matter for design optimisation: now that the timetabled operational speed on HS2 is accepted to be only 330 km/h, do we still need to plan for the same level of overnight maintenance as we did when the line originally designed to 400 km/h specification?

We further note that perhaps the greatest (and certainly immediate) freight benefit of the Stoke Route is that, from 2026 onwards, the vast majority of HS2 traffic to Manchester and the North West will route via Stoke-on-Trent. Once Package 2 is integrated, around 9 tph in each direction will then be travelling via the Stoke Route.

Therefore, in addition, some of the paths liberated on the Trent Valley WCML route could be used for enhanced passenger services (e.g. to Stafford), and some could be exploited for freight on the UK’s key North – South rail axis. Needless to say, this would enable fuller, and more sustainable, use to be made of the rail-connected terminals which are already in place along WCML. Similarly, this would allow greater benefit to be leveraged from the major sunk investment in W12 gauge clearance across key Network Rail routes.

A note on the HS1 to HS2 connector line

Although this is a Phase 1 issue, and thus theoretically outwith the scope of the present consultation, the limitations of its ‘bottleneck’ design will have a material impact further north, with the current design limiting capacity for direct international services to the continent, both passenger and freight. If built ‘as is,’ the 1 km or so of single track in the interconnector tunnel could become one of the most congested strategic transport ‘pinch points’ in Europe. We would urge Government to review the single track design and instruct a redesign to double track whilst there is still time, before the tunnel is built and the geometry of the link set in stone.

We also urge Government to ensure that the end junction between the interconnector and HS2 is laid out to enable 400m trains to split into “Euston” and “Europe” services at Old Oak Common.
Route and Rolling Stock Maintenance Depots

As mentioned above, there are a number of large (or very large) brownfield sites in the Stoke-on-Trent area which could host rail-connected freight depots. By definition, these sites are also suitably-sized for route and rolling stock maintenance depots.

We note that HS2’s original Phase 2 optieering identified a number of suitable sites in the area. We offer the following map to indicate potential locations for depots. The sites are:

- Chatterley Valley (appraised in HS2 initial work)
- Meaford (ditto)
- Alsager (ditto)
- Axiom works site near Britannia Stadium.

Our initial work also supports a planning assumption that one or more of these sites would be capable of hosting a major rolling stock maintenance depot.

As an approximate sizing guide, we have used Temple Mills depot as the template.

In this connection we point out that the Stoke-on-Trent area already has a strong rail and heavy engineering skill base – e.g. Axiom Rail and JCB.

We include further detail on depots in the Appendices.
PUBLIC HEALTH BENEFITS

A position statement from the Director of Public Health

Current position

The Government is committed to reducing health and social inequalities. Within the general Staffordshire area, Stoke-on-Trent represents a particular challenge. Stoke-on-Trent is a large, mainly urban, city in the North of the West Midlands region. With a population (in the city itself) of approximately 250,000 people, Stoke-on-Trent is one of the most deprived cities in England, and is ranked the 16th most deprived local authority in England. As a consequence, just over 50% of the city’s population live in the top 20% most deprived areas in the country.

Many of the major health outcomes in Stoke-on-Trent are poor. Life expectancy levels, along with healthy life expectancy, are significantly lower compared with England, whilst mortality rates from the country’s three major killers – circulatory disease, cancer, respiratory disease – are significantly higher in Stoke-on-Trent. Infant mortality rates are increasing locally and, across a range of lifestyle indicators, – teenage pregnancy, smoking, physical activity, obesity, smoking during pregnancy, breastfeeding – outcomes remain poorer in the city.

Health Benefits of HS2

Alongside a range of employment and income benefits to the local economy, the health benefits of HS2 coming to Stoke-on-Trent and Staffordshire include:

- improved social and psychological wellbeing through increased employment;
- increased opportunities for participation in society and increased access to healthier lifestyle choices (through increasing wealth), which is associated with improved mental and physical health;
- reduction in health inequalities through increased employment.

In general, health benefits are likely to be greatest in more urban areas, as these typically contain higher proportions of people fitting the profile of those who would benefit most from a major investment of this nature: working age; with existing skills in the construction sector, who would be lifted out of the current well-above average levels of levels of unemployment and deprivation.

Summary

This is a major opportunity to address health and social inequalities in Stoke-on-Trent and North Staffordshire, with a particular focus on the area most in need.

The Consultation Route proposal would actually widen the health inequality gap still further, as a consequence of the damage it will do to the Stoke-on-Trent economy (see KMPG report for HS2 Ltd, which identified Stoke-on-Trent as the only net loser between London and Manchester, discussed elsewhere in this document).

In contrast the Stoke Route will deliver significant health benefits in the medium to long term.

HS2 is one of the most important public sector programmes the country has embarked upon, and has economic prosperity as a key goal.

We believe that this major national initiative should be used to reduce health inequalities. We propose that a Health Impact Assessment should be undertaken on all the options to specifically assess the impact on health inequalities.

Dr Rob Carr: Interim Director of Public Health, Stoke-on-Trent City Council.
STATEMENTS OF SUPPORT RECEIVED

The following section provides verbatim quotes of support received, some excerpts from which have been quoted throughout this submission. The statements are in alphabetical order, by company or organisation.

Facsimiles of printed letters of support received are included in the Appendices.

Graham Forrester – Almec Fencing

‘We at Almec Fencing Ltd heartily support the idea of a HS2 Connection to Stoke on Trent to help rejuvenate an old industrial City that desperately needs new industries.’

John Carr – Barrington Engineering Limited

‘Both from the perspective as being a LEP Board member and also being the owner of a local based SME Engineering business I give my fully backing to the proposal to have a HS2 stop within the environs of Stoke-on-Trent – as part of the initial build out of HS2 from London to the midlands region.

When the idea of a station in Stoke was first mooted I was initially surprised after having reviewed the proposed route maps – but I know it makes sense and fits with the upcoming regeneration plans. There is a great need for the region to be radical in how it must drive its regeneration and lift its game – this is the type of radical development we need, therefore:

• I fully endorse the proposal and submission to Central Government for the HS2 phase one termination point to be taken further North than Lichfield to Stoke-on-Trent.

• A termination point in Stoke-on-Trent would give a true “City environment” as an (intermediary) terminus which has good road links both north / south with the M6 and also east / west with the A50 trunk route which will be soon enhanced with the round improvements in support of the JCB growth plans.

• The presence of the line would be a further enabler with the City and wider LEP regeneration plans which are about to be signed of with London.

• The potential for the line to come into both a “welcoming” area whilst also offering a mileage reduction on track length with the associated reduction in build out cost must be a fantastic sell point to London.

• Local regeneration would become a positive gainer in having a City based station reversing the present position of Stoke being a possible loser with the HS2 line planned out to the West of the City.

• We need as a City both from the public sector and private sector to be radical in our ambition and drive to regenerate our region and become a focal point of growth over the next 50-100 years. This is a radical ask which is needed and necessary to ensure we make our mark and position Nationally.

• We perhaps need to consider how to start a dialogue with the Chinese delegation as appears to be happening with Birmingham – as per link below:


Let’s be radical and offer a real workable alternative HS2 routing with growth and economic benefits for our region and the UK Tax payer and make London sit up.’
Phil Wood – Barringtons

‘I fully support the Staffordshire Chambers of Commerce position in favour of the revised HS2 line to include a station in the Stoke on Trent / Etruria area. This area is in dire need of this facility and the absence of it would inevitably lead to further decline as more businesses relocate to areas closer to better connectivity. Stoke needs this, North Staffordshire needs this. The alternative is unthinkable.’

Kevin Barnsley

‘I would like to register my support for the HS2 Station in Stoke-on-Trent. I agree the HS2 is a once in a lifetime opportunity that we need to embrace.’

Mark Inskip – Brewin Dolphin Ltd

‘I do hope that Staffordshire/Stoke on Trent submission is looked at favourably. I work in both Stoke and Manchester and unfortunately I believe that the perception of Stoke (from outside the area) is that it is a dying city. I know different as I feel that we are getting stronger with some excellent companies and professional services.

I think if we can get the green light for HS2 to come to Stoke it will give a huge positive message to the Midlands and the surrounding area that Stoke is a great place to work and live.’

Adam Elliott – Centerplate UK

‘Yes we are fully behind your bid to have the HS2 train travel through Stoke-on-Trent.’

Doug Wardle – The City Centre Partnership

‘I am responding to you as Chairman of The City Centre Partnership, (CCP) representing and encompassing all businesses in the City Centre both large and small, to include Retail, Banking, Legal, Police, Entertainment, Leisure and Culture.

As Chairman of Wardle Property and Wardle Travel I also give my personal support help and commitment; as you will be aware I have attended a meeting relevant to HS2.

The City Centre Partnership, (CCP) offers its full support and co-operation to The City of Stoke-on-Trent in order to achieve a High Speed Rail Integrated Hub railway station in Stoke-on-Trent.

“The regeneration strategy currently being delivered in our city centre, as identified by the city council and city businesses, is dependent upon establishing a strong ‘City Centre Spine’. Foundational and at the base of the ‘spine’ is the city centre train station.

HS2 is vital to ensure a strong City Centre Spine, the benefit of which will impact the whole city.”

Nick Cooper

‘As a regular visitor to Stoke (I have friends in the city) I am always struck by the massive potential the city has but saddened by the slow progress in improving the area. The economic situation is gradually changing with new employment and homes, but Stoke needs new infrastructure and better links to other UK cities to make it a destination for business and leisure and as a focus for much needed new residential development. Bringing a HS2 station to the area would be a huge boost and also a logical stop in between the major cities of Birmingham and Manchester.’
Jonathan Mitchell – Cornwell’s Chemists

‘Wonderful news that our City is making a bid for an HS2 station….you have our absolute support.

From the UK’s point of view, Stoke is a very good place to invest, and the Country would reap a huge dividend from an HS2 investment, in terms of achieving a competitive industrial city.’ ‘Aspirational.’

Michael Frewer

‘I write to register my full support for a Stoke station stop en route to Manchester, as proposed by Stoke City Council.

At present, the existing Stoke station enjoys an excellent service to/from London and Manchester.

Under the current proposed HS2 plans, all this would be lost by bypassing Stoke, leading quickly to a doomed local economy. If HS2 does proceed, it is essential that the greater Stoke-on-Trent/Newcastle and wider conurbation has the advantage of its own station stop.

This will provide the major boost to regeneration, which has been overdue for so long.’

Sue Frost – Direct recruitment

‘I am in full support of building a new railway station to replace Stoke Station. It will create lots of new jobs, which Stoke on Trent are very short of, as our manufacturing / Industrial jobs are very limited, not everyone wants to be in a Service Industry.

The time between locations would be a lot better, and from the reports that I have read, it will be cost effective to build the station in Stoke. It is about time that Stoke on Trent had some good news.’

Wayne Pearce – Eaglet Business Ltd

‘We fully back this bid to have a Stoke-on-Trent city based hub and link.’

Andrew Brindley – Global Ceramic Materials Limited

‘Global ceramic Materials Ltd fully supports Stoke on Trent City Council’s proposal to bring HS2 to the City. Access to the new high speed rail line with a station in Stoke on Trent would bring business investment and much needed jobs to the area and create a direct high speed link with our major European Customers and Markets. If the Government are serious about rebalancing the economy from London and the South East to the Cities of the Midlands and the North then it would be irrational to exclude Stoke on Trent and the wider North Staffordshire conurbation from access to the HS2 Line.’

Gransnet North Staffordshire

‘On behalf of Gransnet North Staffordshire I would like to endorse the bid to have an HS2 station for Stoke-on-Trent if the project goes ahead.’

Debra Streeton – HSBC Bank

‘I fully endorse that a station be located in Stoke. This will aid continued business and growth in the area.’

Dan Stubbs – Inspired film and video

‘We would like to register our interest and support for the campaign to bring HS2 to North Staffordshire. We strongly believe that it would prove vital to the business interests of the area and would help local businesses and the local economy thrive. I would be interested in being kept updated with any future developments.’
Kenneth Stepney – JCB
‘JCB supports any initiative that creates growth of the local economy and in particular helps the company achieve its growth and development plans.

Any initiative that improves connectivity either by rail or road by improving commercial delivery logistics to and from the area would be welcomed and positively supported.’

Jayne Spiers – K S Print service Ltd
‘I am in support of the HS2.’

Wayne Culbertson – Michelin Tyre Public Limited Company
‘Michelin Tyre PLC fully supports the Stoke-on-Trent initiative and the response to the HS2 consultation. We can also confirm our longstanding commitment to the Stoke-on-Trent and Staffordshire region and wish you every success with this proposal.’

Colin Perry – Midlands Leadership
‘This project has our full support’

Richard Mounsey – Mounsey
‘We at Mounsey Chartered Surveyors are fully behind the bid for a North Staffordshire to have a HS2 Station.’

Gavin Dransfield – Renishaw PLC
‘This could be just what Staffordshire needs to stimulate growth!!!’

Caroline Foster – Resimed Ltd (a Safeharbor)
‘We would be in support of the HS2 rail in Stoke.’

Daren Wallis – RSBP Limited
‘I can confirm our support for HS2 in Stoke’

Dave Sawyer
‘I would like to register my wholehearted support for these proposals.’

‘We simply cannot afford to miss out this time around.’

‘We must make this happen’

Rob Dale – Strata Group Ltd
‘I would like to place on record my very keen support of an HS2 station based within Stoke on Trent

I would add, Stoke on Trent has for far too long been overlooked as a potential rival for both Manchester and Birmingham as a major investment city.

With the existing transport links and excellent road network, Stoke on Trent would provide a first class option for this HS2 stop, allowing major international companies to invest in an area with excellent labour availability.’

Rt Revd. Geoff Annas – Bishop of Stafford
‘Just to register my full support for the plans for a station in Stoke.’
Barry Pitts – Staffordshire Housing

‘More than happy to support this proposal’

Robert Curtis – Staffordshire University

‘I would like to add my wholehearted support for a station on the HS2 line to serve Stoke-on-Trent. My interest is educational, as you can see from my title, and it would be churlish to assume that students would often use the service. But education and industry/commerce/business are inextricably linked, and the advantage of a booming business community would bring benefits to the resident and non-resident communities. The massive expansion of business and retail in places such as Sheffield, Liverpool, Newcastle-upon-Tyne, Birmingham, Bristol and Manchester has proved an added attraction to the student population such that university education has grown proportionately. Together, the two communities thrive and feed off each other. Stoke is, to put it mildly, struggling to compete in both business and education markets, and I believe, as a relative newcomer to the area, that the same level of investment seen in the cities mentioned above has not been provided to Stoke. The city sits at the heart of the country and is surrounded by beautiful countryside – it has fantastic advantages for new businesses and will be an attractive place for an expanded population. We must not miss out on the chance to link to other great cities, to London and of course to Europe via a high-speed line.’

‘Happy to contribute to further debate on this important issue’

Yvonne Kirkham – Traction Equipment

‘I would be very pleased if you could keep Traction Equipment (Stafford) Ltd up to date with any developments regarding the progress of the HS2 plan.’

Alan Ault – Valentine Clays Ltd

‘We unquestionably support the Stoke link to HS2, we worry that Stoke-on-Trent will become a lost city. The regeneration progress seen over the past few years has had a major impact to Stoke on Trent, and Ceramic companies are posting promising growth but it is essential that we have direct links to HS2 to maintain growth and prominence for Stoke on Trent.’

JRA Ward – Vistage

‘The proposal for a High Speed Rail Integrated Hub Railway Station in Stoke-on-Trent makes eminent business, commercial and environmental sense and you have my full support.’

Anthony Jones – Waterford-Wedgwood-Royal Doulton

‘I would like to register my support for the above mentioned campaign. I believe this major infrastructure project is critical to the future development of Stoke-On-Trent and both myself and my company, WWRD (Waterford-Wedgwood-Royal Doulton), a major employer in the City, offer our full support.’

Mo Chaudry – Waterworld UK Holdings Ltd

‘We write to confirm our full support for the HS2 campaign to site a terminal in Stoke on Trent.

We own and manage a Unique Visitor attraction and there are no other similar scale attractions in any of the major cities including London.

As a national visitor attraction it is essential that HS2 has a terminal at Stoke. Our Google analytics reveal that 30% of the 800,000 annual website visits are from the London region and this would consequently increase as a result of the HS2. Our 2nd and 3rd most popular visitor areas are Manchester and Birmingham and therefore this is likely to see a corresponding increase. Undoubtedly other visitor attraction within the region will also see
similar benefits as well. As a consequence our local economy will benefit from the “attract and disperse” strategy.’

**Nige White**

‘Good luck with the bid for a HS2 station in Stoke - fingers crossed it’s successful. ‘

‘It’s the logical place to have a hub station & would be a massive boost in the regeneration of the city.’

**Jeremy Mellor – Wood Goldstraw Yorath**

‘As a local business working nationally we are in full support of the Stoke-on-Trent proposal for the High Speed Integrated Hub Railway Station in Stoke-on-Trent, this is an exciting proposal and will put our city and region firmly back on the map where it belongs.’

**Chris Maddocks – WRS Ltd**

‘We really support Stoke-on-Trent in getting HS2 Station.

It would boost business development within area and would help create more jobs and bring more visitors to the city.’
Stoke-on-Trent City Council
response to HS2 Phase 2 Consultation
Appendices
High Speed 2 Phase 2 Consultation

Response by: Stoke-on-Trent City Council

31 January 2014

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RAIL TECHNICAL ADVICE SUMMARY

By e-mail

Dr A James,
Expert Alliance,
Warksburn House,
Wark,
Northumberland.
NE48.

Dear Alan,

Re: Technical Support for Stoke HS2 Option

At our meeting on 15th January, we were asked to carry out a range of detailed railway planning tasks to support your strategic optioneering of HS2 options to support the regeneration of Stoke. The note below sets out brief answers to these, although you may also find helpful the attached spreadsheet, which contains our calculations.

Following your note of 25th, the sub-options have been described as follows:

Package 1: high-speed line Fradley – Stoke plus upgrade Stoke – Cheadle Hulme
Package 2: 1 plus new line Kidsgrove – Ocklestone Green (South of Winsford)
Interim Package NW 1 plus upgrade Stoke – Crewe
Interim Package MAN 2 plus chord to Sandbach

At this stage, we were not asked to address the option which adds the original HS2 Knutsford Triangle and the branch line from the Triangle to Manchester to the Stoke Route Package 2.

We have amended the order of our answers to enable us to explain our analysis sequentially.

1 Station stop penalty from 330kph
There appears to be conflicting information available from HS2 about (a) the exact acceleration rate of high-speed rail services (by speed band), (b) the exact service braking rate, and (c) the expected duration of the station stop itself. However, the range of values we deduce is from 267 to 320 seconds, so an assumption of “about 5 minutes” is clearly about right.

2 Stone bypass line
See separate plan and spreadsheet with infrastructure calculations.

3 Stoke-Kidsgrove corridor
This is to be to UIC gauge, including through Harecastle Tunnel.

Whilst planning on the basis of 3-minute headways is reasonable for future scenarios, the hourly EMT Derby – Crewe service takes 10 minutes over this line section, whilst LM and Northern trains take 7 and InterCity services calling at Stoke only 6. Taking a 75% capacity utilization as the UIC’s recommendation for continuous railway line usage, the three local trains are using the line for 24 minutes, leaving us (45-24=) 21 minutes for InterCity services i.e. only 7 paths per hour. This might comprise 3tph to Manchester, 2tph to Liverpool and 2 tph for stations further North on the West Coast main line, which might not be regarded as sufficient.
The junction at Kidsgrove is a flat junction (with little realistic ability to grade-separate it). However, the width of the railway corridor through Stoke (including through the HSR station, and as far as the Southern portal of Harecastle Tunnel) would enable the easy four-tracking of this line section, and we recommend this, as it would enable the robust operation of at least 7 InterCity paths per hour. Furthermore, the existing WCML route between Fradley and Crewe remains available, and various potentially-conflicting services could of course be re-routed along it.

We also understand that the Rail Residuary Body recently proposed selling the 'old' (longer) Harecastle tunnel which is not presently in railway use, as all trains currently use the 'new' shorter tunnel. Given the intended gauge clearance on this section of route (to allow for Package 2 and other operational benefits), it could be helpful to bring the old tunnel back into use. Subject to engineering validation, it should be possible to use both tunnels (one Southbound, the other Northbound) each to carry one track to full UIC gauge, not the two British-specification lines for which they were designed. This would allow continental gauge trains to reach Kidsgrove without the need for major expensive new civils work. We would recommend that Stoke-on-Trent City Council engage with DfT to ensure that the old tunnel is safeguarded and remains in public ownership.

6 Hourly paths freed up Fradley-Crewe by removal of 3-4 Manchester high-speed services
If (as understood) HS services using the conventional network are limited to the speeds of the fastest trains currently operating on those lines, then there is no consequential scaling up or down of the capacity impact of the HS trains. So removal of 3-4 Manchester trains per hour would liberate the equivalent number of passenger paths between Fradley and Crewe, like for like. However, it should be noted that, owing to the position of Fradley within the British railway network, the paths liberated could either be used by London- or Birmingham-based services (e.g. Bristol – Birmingham - Manchester). That flexibility makes the capacity potentially slightly more valuable.

7 Journey Times Fradley – Crewe via WCML and Stoke HS
The current journey time Fradley (pass) – Crewe (arrive) on the WCML is 25 minutes (including 2 minutes' recovery time, one each at Colwich and Basford Hall Jcs). It is not possible to be 100% accurate regarding timings, because of the lack of detail of both infrastructure and timing points in the Lichfield/Fradley area, but our best estimate is that it is perfectly feasible to reach Crewe from Fradley, calling at Stoke en route, in about 22 minutes. This includes a 90-second station stop at Stoke, one minute of recovery time approaching Crewe (to avoid conflicts at the South end of the station) and a maximum speed of only 150kph between Stoke and Crewe (which seems eminently achievable, even given some potential speed restrictions at Kidsgrove Junction etc.)

9 Stoke – Crewe Timings at 230kph
We estimate that increasing line speed between Stoke and Crewe to 230kph reduces the end-to-end journey time from 11 minutes 39 seconds to 9 minutes 15 seconds, or a conservative saving of 2 minutes. Both estimates include an allowance of 1 minute as a junction margin, either approaching Crewe (Northbound) or Kidsgrove (Southbound).

15 Impacts of new line Kidsgrove – Occlestone Green
A new link line between Church Lawton LC (between Kidsgrove and Alsager) and the West Coast Main Line about 7.5km North of Crewe (in the vicinity of Occlestone Green) could save further time for all journeys to Liverpool and the Northern end of the West Coast Main Line. It should be noted that the Southern end of this link could re-use part of an old railway alignment through Alsager.

The current journey between Stoke and Occlestone Green via Crewe is 22 minutes 25 seconds (including a 2-minute station stop at Crewe), but this would be expected to fall to 17 minutes 4 seconds if the line through Alsager to Crewe were upgraded to 150kph, or 14 minutes 41 seconds if a 230kph linespeed were to be achieved. However, introduction of this new link could save up to a further five minutes.

8 & 13 (Euston -) Stoke – Crewe – Wilmslow – Manchester Airport journey times
Existing timings are Crewe – Wilmslow of 16 minutes and Wilmslow – Airport of 7 minutes. Combined with the expected non-stop Stoke – Crewe time of 12 minutes and appropriate station stop allowances, a Stoke – Airport time of 37 minutes, a Euston – Stoke - Manchester Airport times of 92 minutes could be achieved. Upgrading the line between Stoke and Crewe to 230kph shaves another 2 minutes off these journeys.

It would be possible to save further time by constructing a SE-NE curve near Elworth. However, the limited radius of this curve (c. 1km) would limit speeds to perhaps 100kph across the pointwork at both ends and
the curve itself. Extra recovery time would also be needed for the flat junctions at each end of this route, and the associated diverging/converging train movements. Nevertheless, the curve would save a further 5 minutes on journeys between London and Wilmslow/Manchester Airport, with the latter reachable in about 85 minutes from Euston.

This route would also offer a useful diversionary/backup route to the route via Stoke in maintenance or emergency scenarios.

11 Stoke – Manchester Piccadilly Timings

As already identified, there are a number of constraints to the potential upgrade of this line to 230kph standards, as was undertaken between Hamburg & Berlin. Unlike that line, this route goes through more hilly country, and is more urbanised; examples of these are Harecastle Tunnel and Macclesfield respectively, and we note that some allowance for those has already been made.

Increasing the speed of the fastest trains causes a generic problem for the timetabling of a mixed-traffic line, such as Stoke – Stockport. The slow train on this line is already constrained to run in the 40-minute gap between services (there not being enough time in the 20-minute interval to complete its journey without a need to be overtaken). That problem is exacerbated with faster London services, especially if a residual conventional service continues to run, although a solution should still be possible.

It seems likely that the minimum hourly service between Kidsgrove and Cheadle Hulme is likely to be:

- 2tph Manchester – London HS2
- 1tph Manchester – London WCML
- 2tph Manchester – Birmingham etc. Cross-Country
- 1tph Manchester – Macclesfield - Stoke local

The local service currently takes 43 minutes from Stoke to Stockport, where multiple track enables overtaking and eases capacity constraints. However, the faster trains take 30 minutes over this section. Realistically, London and Birmingham trains need to operate at approximately half-hour intervals. The minimum amount of capacity that could be consumed would therefore occur if two of the faster trains ran consecutively, taking up 6 minutes’ worth of headway, leaving 24 minutes’ worth in that half-hour. However, the slow train would take up another 16 minutes (being 13 minutes slower, and leaving 3 minutes later), giving a total of 22 minutes. This is just about acceptable – without having to resort to the ‘second-best’ solution of having the slow train overtaken by faster ones at Macclesfield (which is inherently unsatisfactory for local passengers).

On the basis of previous work for other clients, and the further analysis we have now conducted, we believe that the approach to Manchester presents a number of challengers and constraints, which your plans will need to address as the project evolves. A major issue is the volume of other rail traffic, which is such that the line (as presently configured) could not accept London trains travelling at higher speed, because this would increase the speed differential and reduce the capacity of the line such that other trains would have to be displaced entirely.

The problem is exacerbated at Slade Lane Junction (where the Manchester Airport branch joins the line from London) because at that point (a) more trains join the line, and (b) the track configuration changes, so that there are some conflicting train movements. The graph shown below highlights some of these issues.
There are possible infrastructure solutions to the line speed/capacity problems in the Stockport – Manchester corridor. It is doubtful that there are sufficient benefits to invest in improvements in the Stockport area, because the area is hilly and a stop at Stockport is very desirable. Nearer Piccadilly, however, line congestion increases, and new platforms are proposed at Piccadilly anyway. It would be possible to build a tunnel from the Levenshulme area to Piccadilly, which would avoid the junctions at Slade Lane and Ardwick, and enable faster unconflicted journeys. Although the effective saving might only be of the order of two minutes, removal of conflicting train movements might justify the project through improved performance.

We are also concerned about the section of line between Cheadle Hulme and Stockport. The junction at Cheadle Hulme is quite obtuse, is in a station in a built-up area and is slightly elevated, with a viaduct over Lady Brook immediately to the North of the station. Increasing speed over the 1.5 miles between Adswood Road (to the North of that viaduct) and Edgeley no. 1 Jc (where the Sheffield line converges) doesn’t help, given the proximity of the stop at Stockport anyway. Both Edgeley no. 1 and no. 2 Jcs are flat junctions, meaning that including some pathing time is sensible.

Given the above constraints, our best estimates for Fradley – Manchester Piccadilly journey times are as follows:

- non-stop: 32.6 minutes
- Stoke only: 36.6 minutes
- Stoke & Stockport: 40.8 minutes
- Stoke, Macc & Stock: 42.8 minutes

Station stops do not cost as much as 5 minutes (see answer to question 1) because these stations are not on a 330kph section of route and Macclesfield is on a section of line subject to a speed restriction.

Please also note that all the quoted London – Manchester times in the Stokese proposals include the relevant margins for recovery, pathing and arrival within the designated punctuality window. However, it is not clear whether these latter allowances (typically 3 minutes) have been included in HS2’s schedules.

### Possible Extension to Leeds

Although it would be possible to construct a South-East curve in the Ardwick area, the lines from Manchester Piccadilly to Stockport and Guide Bridge are both elevated at this point. It would be simpler to use the existing line from Heaton Norris Jc (at the North end of Stockport viaduct) to Guide Bridge. Although this line
is single between mileposts 0.75 and 3.1, is not electrified, and is accessed only via a single-lead junction at Guide Bridge, removing those constraints would be very significantly cheaper than any new construction.

A non-stop journey between Stockport and Stalybridge via Guide Bridge currently takes about 20 minutes, whilst Stalybridge – Leeds (with one call at Huddersfield) takes 35 minutes. The line between Stockport and Guide Bridge could easily be improved to yield some journey time improvement. It would therefore be a possible alternative (either during disruption/maintenance) or as a competitive alternative, to serve Leeds from Euston via HS2 stage 1 and Stoke in about 133 minutes. Whilst this is identical in end-to-end time compared to the East Coast route for journeys to Leeds, Huddersfield would be reached significantly faster - in about 116 minutes and without a change, compared to about 150 minutes with a change using the East Coast. This is understood to be the rationale behind Alliance Rail’s current “open access” proposal to run Euston – Leeds services.

5 Demand Impacts
The provision of detailed demand forecasts requires knowledge of trip patterns (from original origins/final destinations, not station:station, as railheading can occur, especially for those with a car available). However, logic shows that demand is likely to rise from places whose service is improved (which, in the case of HS2, generally relates to journey time reductions, as frequencies are less affected). Any changes in demand are also a function of the size of the initial market, so a good first indication of any demand impacts can be proxied by a combination of ranked market size and changes in journey times to/from London, as set out in Table 1 below. Demand problems can only really arise if, when reading from left to right in a row, journey times increase (these values are shown in red). Nevertheless, these figures should be treated with caution, since some markets are not improved (or even worsened); for instance, Milton Keynes does not lie on HS2, so trips between Milton Keynes and Manchester are not speeded up by the new line and there is a danger that frequencies might fall.

<table>
<thead>
<tr>
<th>Mkt size (rank)</th>
<th>Journey times to London Euston (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mkt size</td>
<td>WCML 2014</td>
</tr>
<tr>
<td>Man (Pic) non-stop from OOC</td>
<td>1</td>
</tr>
<tr>
<td>Man (Pic) stop OOC, Stoke &amp; Stockport</td>
<td>1</td>
</tr>
<tr>
<td>Man Airpt (4)</td>
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<tr>
<td>Wilmslow</td>
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</tr>
<tr>
<td>Chester (3)</td>
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</tr>
<tr>
<td>Crewe</td>
<td>8</td>
</tr>
<tr>
<td>Stockport</td>
<td>5</td>
</tr>
<tr>
<td>Stoke</td>
<td>4</td>
</tr>
</tbody>
</table>
Table 1. Journey Times Using Consistent Stopping Patterns, by Option

Notes: 1 Warrington includes all of the WCML North to Glasgow
2: Liverpool includes Runcorn
3: Chester includes North Wales, but is not assumed to be electrified. Once this becomes an hour longer than via Crewe for the 20-minute extra journey time, passengers would be expected to change at Crewe to/from high-speed services, unless diesel haulage of electric sets were continued.
4: Manchester Airport currently requires a change at Crewe or Wilmslow. Provision of a through service at an earlier date would be possible, typically taking about 40 minutes longer than Stoke if routed that way. Also note, in HS2 Consultation Route, the ‘Manchester Airport’ station is not physically connected to the airport terminal. As noted in the Stoke submission a 15 minute interchange penalty must be allow to access the airport terminal via some form of shuttle (tbc).
5: Service not proposed under HS2 Phase 1 plans, but ~ 64 mins should be achievable
*: Theoretical non-stop timings from Old Oak Common. Manchester Picc time including 3 mins performance margin, to be consistent with other timings

However, the summary message from this table is that a Stoke HS2 variant does not quite appear to be able to offer the same end-to-end non-stop journey time to Central Manchester as claimed by HS2 for its published route, although the time savings will still be substantial – and achieved 7 years earlier through a cheaper less disruptive project. The Stoke option is of course far better to many other parts of the Greater Manchester area (e.g. via Metrolink connections etc. from Stockport).

Please feel free to contact me if you need any further information or if you have any questions.
Yours sincerely,

(Nigel G Harris,
Managing Director
RCJOBS\ST1212\AJ TECH QUERIES NOTE 140130rev.DOC)
A High-Speed2 Station at Stoke-on-Trent: Why the Case Must Be Considered

Professor Michael Parkinson CBE
This note assesses the case for examining the HS2 line being routed though Stoke on Trent. It is based upon a review of evidence about the impact of High Speed trains upon cities in Europe. It shows that there is a range of views about the potential impact of such schemes on national economies. Nevertheless there is considerable evidence that, when part of a wider economic development strategy, such projects can and do have significant regeneration and economic impact upon particular places. Stoke’s scale, location at the heart of a substantial sub-regional economy, specific economic opportunities as well as need suggest it could derive substantial potential long term economic benefit. I strongly endorse the proposal that a full examination of the case should be undertaken to assess the potential economic benefits. It would be a significant missed opportunity to help regenerate a city and city region and transform it into a net contributor to the UK economy, if the decision was taken simply in terms of current rail routes.

WHAT IS THE KEY QUESTION?

If the proposed HS2 route and station were moved from Crewe to Stoke would Stoke benefit economically how, how much and why?

WHAT DO WE KNOW ABOUT IMPACT?

As with other dimensions of HS2 – transport, environmental, financial – there is a wide range of divergent opinions about the potential spatial economic impact. The debate has generated as much heat as light. There is no single or right answer as far as we can assess. There is little agreement on nature and scale of spatial impact within UK.

However it is not surprising that there is a range of views about the potential economic impact because the evidence base is not very robust indeed it is very mixed. There are different studies with different purposes for different audiences with different methodologies, quality, data, and time frames. Sometimes reviews are based upon aggregate data, sometimes case studies, sometimes literature reviews summarising studies with different methodologies. Sometimes individual studies arrive at internally contradictory conclusions.

Much of the debate has been about the impact of HS2 on the overall national economy and in particular the question of whether it would reduce or increase the economic gap between the south and the north.

Contested national impact
- There is little agreement on the net overall national economic benefits and cost.
- There is little agreement about the impact on rebalancing national economies and some evidence about increased unbalancing.

But more significant local impact
- At an individual city level, there is a different story. There is evidence that, if properly planned and integrated into a wider economic strategy, HS can bring regeneration benefits to particular cities. There is greater agreement that HS does have favourable impact on places which get it as opposed to those who do not get it - even if others suffer. Examples from France, Spain, Belgium demonstrates the benefits for individual places.

But a wider approach is needed
- The evidence shows that transport links are only part of economic success – skills, other infrastructure also matter.
- High speed only makes a contribution if it is integrated into to wider economic development strategy.
- It also only makes contribution where there is small p political agreement on the desirability and possibility of the strategy and if partners exploit the opportunity;
- Crucially the evidence is that major infrastructure projects are rarely determined by the narrow cost benefit analyses but by a series of wider economic and policy considerations.

WHAT RELATIONSHIP TO WIDER NATIONAL ECONOMIC DEVELOPMENT CONTEXT?

Some key messages from the Lord Heseltine report ‘No Stone Unturned’ were:
• Go for added value where land values are low and then capture the uplift.
• Go for brownfield.
• Go for scale and agglomeration.

These all support the principle of taking the Stoke case seriously.

WHY MIGHT STOKE BENEFIT?

• Agglomeration advantages - the Stoke sub region has a potential population 350-500k. It is a big market.
• It has a number of high performing firms in key sectors.
• There is expansion potential in Stoke - it is not physically constrained.
• There is inward investment potential – low cost base, time savings London.
• It would be environmentally sustainable since the Stoke project would encourage brownfield as opposed to green field development.

WHAT ISSUES SHOULD BE ASSESSED?

• What are Stoke’s economic strengths and what is the potential uplift in performance and values?
• What level of agreement is there upon future economic strategy? The LEP draft Strategic Economic Plan indicates there is an emerging agreed long term strategy about infrastructure, image, connectivity, place making.
• Does it have a land and transportation strategy? Is there integrated sub-regional transportation system? Again the LEP plan addresses these issues.
• Will the skills sector respond and deliver, how responsive is the HE and FE system?
• Who control key assets, what are the patterns of ownership, what leverage can they bring to bear upon development?
• Are the major partners across the different committed? we are advised there is a degree of public and private support at sub regional level for a Stoke station.

MY RECOMMENDATION

Major infrastructure investments like HS2 are essentially about economic place making. They should be made in terms of their wider implications and impact. Therefore there must a serious economic analysis of the impact of HS2 location at Stoke. It should assess:

• Its current economic strengths and potential and how the different economic sectors would be affected by HS2 location.
• The economic strategy for Stoke and the sub-region and how they fit with the potential HS2 investment.
• The extent of commitment by the public and private sectors in the sub-region to the development and the extent to which it fits with their long term strategic and financial planning.
• A comparison of similar issues in Crewe.

The evidence should determine the policy stance. But in my judgment there is serious economic case for a Stoke HS2 station to be examined. The decision about the location should be made in terms of the contribution to economic place making. It would be a significant missed opportunity if this was not fully explored.

THE EVIDENCE BASE

There are a variety of studies attempting to assess the impact of high speed trains. I list those I have reviewed below.
• Efficiency and spatial equity impacts of high-speed rail extensions in urban areas. Andres Monzon, Emilio Ortega, Elena Lopez. Cities journal, 2013.
• High-Speed Rail: Lessons for Policy Makers from Experiences Abroad. Daniel Albalate & Germa Bel, GiM-IREA, Universitat de Barcelona, 2010.
• High Speed Two (HS2): the debate. Louise Butcher, House of Commons Library, 2011.
• High Speed Two (HS2): Regional Economic Impacts. KPMG LLP for Department for Transport, 2013.
• High Speed Rail. Parsons Brinkerhoff, 2011.
• High Speed Rail, Transport Investment and Economic Impact. Bridget Rosewell, Tony Venables, HS2 Ltd.
• Local and Regional Impacts of High Speed Rail in the UK: A Review of the Evidence Session 2010-12. High Speed Rail. Written evidence from Professor John Tomaney (HSR 14).
• Maximising the economic impact of HS2 investment in Sheffield. Sheffield City Council and South Yorkshire Passenger Transport Executive, 2012.
• Next Stop: California. The Benefits of High-Speed Rail Around the World and What’s in Store for California. CALPIRG Education Fund.
• The Economic Impact of the High-Speed Train on Urban Regions. Peter M.J. Pol, Erasmus University Rotterdam.
• The impacts of high-speed trains on British economic geography: a study of the UK’s InterCity 125/225 and its effects. Chai-Lin & Peter Hall, Journal of Transport Geography, 2011.
• HS2 Full Steam Ahead? Centre for Cities, 2013

WHAT LINE DO THEY TAKE?

On balance most studies argue that caution is needed when assessing the spatial and regional economic impacts. They will only be achieved as part of a wider economic and political tray nationally and locally. But many studies of individual places show that there have been and could be significant potential economic impact on particular places.

I provide some selective messages and sections from some of the work I have examined. It does not pretend to be comprehensive. Rather it is designed to illustrate the diversity and complexity of the issues and interpretations. But they again underline the need for a case by case approach and detailed analysis of individual places before decisions are taken.

High speed can have a clear regenerative effect. Places have used it to regenerate either business districts or out of city centre locations. In Lille, Rotterdam, Brussels midi it was used to regenerate the central city – in Amsterdam Zuid, Lyon Part Dieu, la Sagrare new business or commercial districts. The lesson was that it must be linked to a larger strategy. It has the capacity to reinforce the regional role of the city. Eurolille achieved this. Zaragoza used it to develop city centre master plan including for the world exhibition. Nevertheless it has also been shown that the benefits may not flow out to the surrounding areas of regional capitals.

Maximising the economic impact of HS2 investment in Sheffield. Sheffield City Council and South Yorkshire Passenger Transport Executive, 2012. Gemecon

Sheffield has commissioned analysis of the potential impact of HS2 on the city region and in particular whether it should be located in the city centre or at the edge of city. The Sheffield discussion has been entirely about the regenerative role of HS2. It has based its case on the fit of HS2 with the long term regeneration of Sheffield city centre. It has made a powerful case how it its development would be tied into the sub-regional economic strategy. Their arguments reflects the view of many other cities who already have - or who are competing to attract - HS stations. Although the long term impact cannot necessarily be quantified, it is much better to be on it rather than not on it. Stoke is and should be exploring the regeneration potential of HS2 for it.


This work has analysed the effect of high speed trains on cities which are 1 hour from the capital and those which are 2 hours from the capital. Those within 1 hour from London will clearly benefit. They also that that cities which connected to HS2 will probably do better - but it is not guaranteed. They underline the need for strategies to develop cities which do receive HS2 and there is also a need for strategies for places which are not on HS2. In their view there is good individual study evidence that HS2 can be used as an agent for change for city region development.

HS2 Full Steam Ahead? Centre for Cities, 2013

The Centre has undertaken a review of the existing evidence and literature. It argued that HS2 will not revive struggling places on its own. Improved transport connections cannot produce economic benefits in cities if other economic fundamentals, such as skills, business premises, housing and other infrastructure, are not in place. Its key findings were:

’HS2 will have different impacts on different places, and there will be losers as well as winners. However, the evidence suggests that this is not a zero sum game, and high-speed rail has the potential to have a positive impact on the national economy overall. The debate surrounding the merits of HS2 has been characterised by claim and counter claim, study and counter study, as to the true nature of the economic benefits and environmental damage it could produce or inflict. The truth is that the kind of long term cost-benefit analyses undertaken for projects of this scale can never be perfect.

The evidence is inconclusive overall.

- Most empirical studies show that high-speed rail usually has a centralising effect at a national scale. This is often the result of the network shape. A hub-and-spoke network centred around the capital city naturally offers it the greatest connectivity gains. This was observed in France30 and in Spain where the connection of struggling peripheral cities to Madrid has fuelled the rapid growth of the capital since the late 1990s. By contrast, in Germany, where no single city stands out as the dominant centre, the introduction of a high-speed network has resulted in very little geographic shifts in economic activity.
- Studies of regional impacts of the Shinkansen high-speed rail network in Japan have shown that regions connected to the network have seen higher population and GDP growth than those bypassed by it. However, the network was designed to connect the most dynamic cities in the country to start with, which suggests that the impact of high-speed rail might be overstated.
• At the urban and city region level the areas around new stations tend to benefit the most from improved transport links. Often, as in the cases of Lyon and Lille, this can be a result of regeneration schemes linked to station development which incentivise businesses to relocate from elsewhere in the sub-region.

• The study of the impact of the previous West Coast Main Line (WCML) upgrade, finished in 2008, showed that while key urban centres on the network benefited from faster connections, regional disparities widened during and after the completion of the upgrade.

• Benefits to the city-wide economy of high-speed rail are less clear and, as the Lyon case study illustrates, individual researchers tend to come to rather contradictory conclusions.’


This provided one of the most balanced review of the impact of high speed trains. His essential argument is that high-speed rail services theoretically reduce the locational imbalance between the core cities and the periphery, notably by bringing provincial centres within easier reach of the capital. On the other hand, the economic imbalance between the centre and the periphery may well increase. Consequently, much argument surrounds the regional and local impact of high-speed railway investment. Does a high speed line boost the image and accessibility of regional centres, with accompanying investment and employment effects? Or does a new line merely strengthen the competitive advantage of the dominant city, for example by extending the area of commuting, thereby producing detrimental effects on smaller cities, and in particular on those which are by-passed by the line? How do new lines affect property prices, office costs, and land and labour markets? Circumstances vary, and much depends on the positioning of HSR stations, both terminals and intermediate ones, and the pattern of services.

In terms of urban regeneration, in particular around the major termini, Lille is often cited as a success story, and expectations about the St. Pancras/King’s Cross area in London are high, as they are near Brussels Midi station and at Rotterdam Central. It has also been suggested that Britain’s creative industries would benefit from the agglomeration or ‘clustering’ effects which High Speed 2 would encourage. And yet caution persists. Mannone found that the revitalisation of areas around Lyon Part-Dieu and Grenoble stations produced locational shifts from within the region rather than new activity. And in Lille, the critical factors were not only the HSR service, but its location in northern Europe and the determination of the local authority planners to make the ‘Eurolille’ district a success. They gave considerable thought to internal transport links, including a tramway system, which stimulated development in the new commercial district, though we must be careful not to exaggerate its success.

Regional benefits, then, are not axiomatic, and while new railways and their stations may be a necessary condition, they are not a sufficient condition for successful development. We must not discount the prospect of a regional growth stimulus from HSRs but it would be wise to remain agnostic. It emphasise that each project must be analysed carefully on its own merits.


This study underlines that the question of scale is crucial. Are we looking at the impact on the overall national urban system or upon a particular city region? At a national level this review suggests that it can increase regional inequality and territorial polarisation. The review also suggested HS does not generate new activities or attract new firms and investment may drain away economic activity. It argued that medium sized cites may lose out to bigger cities. It can lead to centralisation of activities in big concentrations. It can favour service sector cities and not help industrial or agricultural based economies.

But the evidence is patchy and contradictory. And at an individual level this showed that in Spain the image of cities improved and land values gone up in some places. In Germany which already has a decentralised urban system there was a conscious decision to spread not concentrate benefits. So it did not have the same centralising effects. In France Lyon and Lille it had positive effects because increased economic cooperation and exchange with Paris. So a key message is that depends what you do with HS and how you do it.
RELOCATION BENEFIT

The table below sets out the calculations used to quantify the potential financial benefit to a household relocating from one of today’s traditional London commuter zones to Stoke-on-Trent.

Not only will HS2 to the city offer the benefit of a quicker commute, but the city itself offers the substantial financial incentive of massively lower housing costs.

This work is discussed in the Economic Benefits section of the main document.

<table>
<thead>
<tr>
<th>Location cost comparison</th>
<th>Currently reside</th>
<th>Relocate to Stoke-on-Trent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aylesbury</td>
<td>Stoke-on-Trent Detached</td>
</tr>
<tr>
<td></td>
<td>Buckinghamshire</td>
<td>Ditto mortgage free</td>
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<td>Detached Average House Price (Dec 2013)</td>
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<td>Assumed deposit on mortgage</td>
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<td>Monthly payment standard HSBC 25 yr mortgage (quoted: 30/01/2014)</td>
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<td>Annual mortgage payments</td>
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<td>Commuting time to London terminal (min)</td>
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<td>55</td>
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<td>Annual standard class season ticket. Stoke = 2014 cost (£6,920) + 10% ‘TGV premium.’ Cross-checks with c. £7k Grantham season price for 64 min long distance commute.</td>
<td>£3,732</td>
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<td>Annual housing + season cost for a 1-commuter household</td>
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<td>Annual headline benefit of relocating to Stoke</td>
<td>£10,808</td>
<td>£18,548</td>
</tr>
<tr>
<td>25 year benefit of relocating to Stoke</td>
<td>£270,200</td>
<td>£463,700</td>
</tr>
</tbody>
</table>

25 year benefit of relocating to Stoke

£270,200

£463,700
ARCHITECT’S STATEMENT
The development of an International HS2 station in Stoke-on-Trent will provide the economic stimulus to change the urban landscape of the city, enhancing current urban strategies and supercharging a new vision for the city.

The vision is for the station to create a new landmark at Cliff Vale maximising the potential for economic regeneration, transforming Etruria Valley to the north, connecting the University Quarter to business and enterprise, and creating a new urban area around the station to anchor the extension of the city centre and central business district of Hanley.

The station will be a multi modal transport hub with international and domestic HS2 platforms, direct connections to local and regional train services, facilities for secure airport baggage check-in, integrated smart parking solutions and bus interchange. The platform concourse will conform to the HS2 specification with 10m wide by 450m long platforms to accommodate double length trains and provide a world class, safe and congestion free environment for passengers.

A major new city-scaled public space will lead to the arrival and departure concourse providing ease of wayfinding and passenger orientation. The open plan arrangement of the station at ground level ensures that ticket, information, and check-in services will be easily identifiable and accessible for all. Access routes to the paid areas of platforms are clearly visible and designed to accommodate peak hour flows without congestion. Lifts and escalators lead to generous retail and catering opportunities on multiple levels and the international check-in lounge and border control facilities all beneath the dramatic station roofline.

The station will be the major civic building in Stoke-on-Trent. Its expressive form and the dramatic scale of its translucent roof are inspired by the new age of travel that HS2 represents. The roof will provide cover to the full length of the platform environment, the translucent material allowing excellent levels of natural daylight whilst minimising heat gain and incorporating natural ventilation to reduce energy use. The lightweight roof is supported by columns that are widely spaced minimising the visual impact of structure within the station environment and allowing freedom of movement.

The station will enjoy excellent vehicular access off the primary A500. New loop roads will tie in with existing intersections to facilitate efficient, safe and convenient access and egress. The integrated parking pods provide secure car storage with direct access from the parking areas to the public concourses and platform environment optimising transfer times between car and train. The parking pods are important expressive elements that enjoy high visibility from the adjacent A500. The pods will be veiled in a ceramic filigree that is a contemporary expression of the excellence of the traditional craft of the city.

The station vision embodies the bold ambition of Stoke-on-Trent, it will be a strong manifestation of the city’s Mandate for Change and a beacon for a new and exciting urban landscape generating an extended commercial heart, connecting the historical towns and creating a new and unique identity for the future city.

Paul Bell
BA(Hons) DipArch RIBA
Partner
Ryder
**DEPOT LOCATION STUDY**

**Depots**

HS2 have identified a requirement for an Infrastructure Maintenance Depot (IMD) and Rolling Stock Depot on each arm of phase 2.

An IMD is proposed at Crewe on greenfield land adjacent to the existing Basford Hall freight terminal as mapped below.

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**HS2 Crewe IMD plan and profile sheet**

Chapter 5 of the HS2 West Midlands to Manchester - Route Engineering Report explains that the proposed Crewe IMD at Basford Hall:

- is single ended therefore requires a headshunt to provide access onto and from the proposed HS2 line to the north
- existing WCML connection to the significant Basford Hall freight terminal would need to be moved south (disruptive to current freight operations)
- requires A500 bridge realignment (longer span indicated) to cross the connection to HS2
- requires farmland and a section of the depot would cross Basford Brook and its floodplain
• new highway access to the depot would be constructed from B5071 Gresty Road this would be over 1km from both the A500 and the A534 running to the front of Crewe station – traffic from the depot would impact on communities along this B road.

With connection to proposed HS2 line the footprint of the depot is approx 3km long. The connection to HS2 is complicated as it is in the same location as the HS2-WCML connection, and furthermore there are existing connections to the Basford Hall freight terminal. The footprint of the Staveley IMD on the proposed eastern leg of HS2 to Leeds is shorter at around 1km and has a spur both North and South to connect with HS2.

HS2 identified a preferred West Leg rolling stock depot at Golborne, between Wigan and Warrington on the connection between Manchester and the WCML. The land for the depot is over 2km long plus has grade separated connections to the proposed HS2 route and connection to the WCML.

The HS1 Temple Mills Eurostar maintenance depot located near Stratford International on the edge of the Olympic Park has a 450 metre long by 64m wide eight siding main servicing shed, designed to accommodate 400 metre long trains as defined in the High Speed Technical Standards for Interoperability (TSI).

In summary depots require level land, long thin site (over 1km), connection to line north & south, and highway access.

Potential Depot sites along the Stoke Route

Possible sites for IMD were identified by HS2 in ‘Options for phase two of the high speed rail network’. However those not alongside the final route options were not progressed.

We believe that a number of these site have merit as potential depot locations an comment
Alsager

Alsager West (IN3) was a final option, immediately to the south of the existing Radway Green industrial site, on a greenfield site within Cheshire East.

This was connected to the HS2 route option alongside the M6. Connections to the Kidsgrove to Crewe line were also indicated, and could be installed whilst upgrading this line.

The B5078 connects to the nearby M6 J16.

However this site is further to the West than the former mineral line (possible connection to NE) and the Kidsgrove junction with the North Staffordshire line is south facing only.

Chatterley Valley

Option IN9 in the HS2 initial work

Chatterley Valley includes vacant brownfield land to the west of the existing North Staffordshire line with south facing rail connections. This site within Newcastle-under-Lyme has been granted outline permission for employment use.

The vacant land at Chatterley Valley is a Strategic Employment Site, listed in draft Stoke-on-Trent and Staffordshire Strategic Economic Plan.

JCB occupy the large Blue Planet warehouse on Chatterley Valley the other side of the tracks.

North and south connections would be possible to include in the upgrade of the existing line.

The site is bounded by the A527 Tunstall bypass, A500, and Peacock Hay Road.

Close proximity to A34/A500 junction via Peacock Hay Road.

Site access would need improving from Peacock Hay Road and/or A527 Tunstall By-pass.

Earthworks may be required to create a large enough level site.

Brownfield status would score better for sustainability than greenfield depot locations.
Meaford
Option IN13 in HS2 initial work. St Modwen owned 207Ha former power station site in Stafford Borough with outline planning consent for major employment development.

Separated from the existing North Staffordshire rail line by the Trent and Mersey canal, but the site is on the alignment of our proposed link from HS2 proposed alignment to Barlaston – suitability of the site would be dependent on the detail of the alignment.

Strategic Employment Site, listed in draft Stoke-on-Trent and Staffordshire Strategic Economic Plan. Staffordshire County Council developing a scheme to enhance access from the A34.

Recent planning applications for power station use risk the site not being vacant.

Brownfield status would score better for sustainability than greenfield depot locations.

Expansion of Axiom Rail Works
In addition to the options identified by HS2, a further option is expansion of the existing Axiom wagon works (formerly Marcroft works) at Sideway to the south of the existing Stoke-on-Trent station. The existing rail connection is near to the Britannia Stadium running under the A50 trunk road bridge.

The site is accessed by road off Whieldon Road, in close proximity to the A500/City Road junction and Stoke town centre. Site access off Whieldon Road would need to be improved as part of the development.

5.5Ha of vacant land to the north of the existing works between the Trent and Mersey Canal and North Staffordshire rail line makes the total site approx 1km long.

Upgrading of the line into Stoke-on-Trent could include improved rail connections to this location.

Brownfield status would score better for sustainability than greenfield depot locations.

Employment opportunities
The government’s initial preferences policy paper explains that locating the depots in areas with existing industrial and redundant railway land would encourage the growth of associated businesses and new jobs.
locally, with depots helping to transform previously neglected areas of land. Jobs and apprenticeships would be created during the construction of these facilities, and then permanent employees would be required for day to day running of the operations (total of 500 permanent employees in the 4 phase 2 depots – an IMD and rolling stock depot on each leg).

The Government and HS2 Ltd will work with local delivery partners on options for using these depots to leverage in other employment to the area. It is possible that firms in the supply chain who might benefit from proximity to these new depots may be attracted to the area.

The employment would have a strong fit with the advanced manufacturing applied material sector identified as a strength and potential growth sector in the draft Stoke-on-Trent and Staffordshire Strategic Economic Plan. These depot sites are also options for freight operations too.

**Note:** The Phase 1 Washwood Heath Rolling Stock Maintenance Depot is contentious – as it is key employment land for the West Midlands. A Stoke-on-Trent alternative could provide a less contentious solution.
CONNECTIVITY SCHEMES IDENTIFIED

The JMP Surface Access strategy report identified the following schemes, which will enhance surface access to Stoke-on-Trent high speed railway station.


2. HA – Smart trunk roads – provision of intelligent traffic management and speed control. Feasibility study to DfT Gateway 0 underway.


4. HA – Super-pinch point schemes. + £10 millions pinch point schemes on the A500 by 2020 (from Stoke Road junction to Porthill). Feasibility and costs currently being examined.

5. HA – M6 Junction 15 Motorway junction improvements + link to A53. Rebuild non-standard junction and provide link to relief local approach roads. Feasibility study needed.

6. HA – M6 Junction 16 Motorway junction improvements - grade separation. Feasibility study needed.

7. HA – Uttoxeter A50 improvements committed scheme announced in 2013 Autumn Statement.

8. Local road scheme – Etruria Valley SPD connectivity. New bridge and access roads to Etruria Valley major employment site. Feasibility study undertaken. Awaiting private sector commitment to the development and funding streams.

9. City Centre ring road completion – committed regeneration scheme

10. City Centre to Bentilee link – within core spatial strategy and local transport strategy.

11. Stoke Town Centre improvements – Liverpool / City Roads

12. ‘Streetcar’ BRT or tram: Keele to Hanley + Hanley to Kidsgrove. Bus Rapid Transit or Tram system for these key routes. Feasibility study already undertaken for an LDF scheme - within core spatial strategy and local transport strategy. (Could be light rail or tram-train, to be evaluated.)

13. Local bus service improvements within core spatial strategy and local transport strategy.

14. Local station improvements – Alsager / Kidsgrove / Wedgwood / Barlaston / Stone / Longton / Blythe Bridge. Improved stations to provide access to local train service. Feasibility designs and timetable assessment required.

15. New stations: Fenton / Meir. New stations to provide access to local train services. Feasibility designs and timetable assessment required.

16. Blythe Bridge rail turnback for local services. Feasibility designs required – opportunity for this when Derby to Stoke re-signalled.


19. Enhance Moorlands City Railway plans with potential for new stations at Bucknall, Endon, Leek and others. Negotiations and feasibility studies needed.

20. Local road junction improvements. To provide local connectivity to new station. Initial schemes identified in LDF and LTP.
Executive Summary

This report outlines the findings from the BRE team who have spent a combined four man days reviewing two different routes for the northern section of the High Speed 2 rail link – going from Lichfield to Manchester Piccadilly.

As a high-level desktop review, this report should be only seen as a first stage in assessing the complex sustainability issues surrounding the two proposed routes. A further more detailed review would provide additional knowledge and confidence around sustainability issues that are associated with the proposed routes.

The routes under consideration in this assessment are:

- The HS2 Consultation Route as proposed by HS2 – via Crewe and on new track
- An alternative involving 40km of new track and 60km of upgrades to existing track – via Stoke

After this short review of the two high speed route options traveling from Lichfield to Manchester Piccadilly, BRE has identified that there are sustainability issues with both options which would need to be better understood and managed.

However, of the eleven aspects BRE have reviewed (at a high level) the following summary can be postulated:

<table>
<thead>
<tr>
<th></th>
<th>HS2 proposal</th>
<th>Stoke proposal</th>
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</thead>
<tbody>
<tr>
<td>Potentially worse performing</td>
<td>8</td>
<td>1</td>
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<tr>
<td>Potentially better performing</td>
<td>1</td>
<td>8</td>
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</tbody>
</table>

There were two aspects where it was not possible with the information provided to interpret which option offered the most sustainable outcome.

The study has not sought to weight the aspects considered and as a result it cannot be assumed that the option performing better in eight aspects is more sustainable than that performing better in the one aspect.

The considerable improvements in CO₂ emissions reductions for the Stoke option should also be highlighted as they are considerable, an approximately 88% improvement over the HS2 Consultation Route. Nonetheless, these calculations do assume that the Stoke option would provide for an equal number of rail users and that upgrading track will require only 50% of the CO₂ emissions of building new track.

Given the apparent better performance of the Stoke proposal we are able to conclude that the Stoke alternative is a potentially viable alternative which should be given due consideration and fully evaluated against the HS2 Consultation Route prior to any final decision is made.
Contents

Executive Summary 3
The brief – as provided verbally by Stoke 5
  Route options under investigations 5
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Findings 7
Conclusion and recommendations 14
Reference 16
The brief – as provided verbally by Stoke

Stoke City Council have commissioned BRE to complete an independent, high level sustainability comparison between two alternative high speed routes going north from the town of Lichfield to Manchester Piccadilly.

The following assumptions have been produced using documents supplied by the City of Stoke project team and stated in the reference section of this report. In addition, an initial briefing was provided by Dr Alan James via a telephone conversation on the 10th January 2014.

Route options under investigations

Route 1 – “HS2 Consultation Route”

The Consultation Route, runs from Lichfield to Manchester Piccadilly through Crewe. It includes:

- 119.2km of new high speed track, from the end of Phase 1 at Lichfield to Manchester Piccadilly, through Crewe, with a trip time of 1 hour and 8 minutes.
- This proposed route entails a 3.5km tunnel under Crewe and an 11.8km from Manchester Airport to Manchester Piccadilly.
- The Crewe proposal travels through the Trent Valley. This is primarily rural, with large amounts of farmland and areas of Sites of Special Scientific Interest (SSSI).
- A junction to the south of Crewe will allow HS trains to transfer onto the existing West Coast Main Line (WCML) to enable links with other cities such as Liverpool.
- Phase 1 (up to Lichfield) is expected to complete in 2026 at a cost of £17bn. Lichfield to Manchester through Crewe Phase 2 will be completed in 2032 at a cost of £8.4bn.

Route 2 – City of Stoke presented option

Stoke City Council have proposed an alternative plan, which will travel from Lichfield to Manchester Piccadilly, though Stoke-on-Trent, Macclesfield and Stockport, allowing more cities to benefit from the High Speed rail investment. The proposal includes:

- Creation of 41 km of new high speed track from Lichfield to Stoke. Then upgrading of 57km existing from Stoke to Manchester Piccadilly, through Macclesfield and Stockport, to accommodate high speed train travel.

1 (Temple-ERM, 2013)
2 (Stoke City Council, 2014)
The new HS tracks from Lichfield to Stoke will travel through mainly farmland, passing to the west of the town of Stone, and close to Trentham Gardens.

To the north of Stoke the proposed track passes through brown field (and possible contaminated) industrial land in the Potteries.

There are currently an average of 3 trains an hour in each direction between Stoke and Manchester Piccadilly, travelling at maximum of 125 miles an hour. Once upgraded the trains will travel at 140 miles an hour.

Stoke’s proposed route would result in a London to Manchester time of 1 hour 38 minutes (30 minutes slower that the Crewe proposal, however 30 minutes faster than current travel times).

The full route could be completed in 2026 – allowing a faster London to Manchester service 10 years ahead of the HS2 proposal. It is expected that the cost of the Stoke proposal is around £2.7bn.

Stoke council is also looking at a number of additions to the proposal such as an additional spur to allow linkage to Manchester airport a link to the current west coast mainline. These additions have not been considered in this report.

**Methodology**

BRE have carried out a short analysis on the two alternative high speed routes going north from Lichfield to Manchester Piccadilly. BRE have looked at a series of sustainability issues, such as distance travelled through rural land, possible impacts on communities and places of cultural heritage.

Due to the limited timescale, BRE assessed the sustainability issues of the two proposals by assessed documentation for both options. In addition, Ordinance Survey maps of the local areas where used to determine the impact on surrounding areas of the proposed HS tracks. This analysis is shown in the section below.
Findings

<table>
<thead>
<tr>
<th>Criteria</th>
<th>HS2 Consultation Route</th>
<th>Stoke proposed route</th>
<th>Commentary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Zoning Profile</td>
<td></td>
<td></td>
<td>The Consultation Route will disrupt more designated, and therefore economically productive, agricultural land due to the longer lengths and the wider buffers required to mitigate the impacts of trains traveling at high speeds (particularly air turbulence, noise and visual impacts)</td>
</tr>
<tr>
<td>The distance travelled (km) in:</td>
<td>94 km (90%)</td>
<td>63 km (60%)</td>
<td>7 km (7%)</td>
</tr>
<tr>
<td>• Rural (agriculture)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Rural (non-agriculture)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Urban (residential)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Urban (industrial)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(excludes tunnel)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terrain profile</td>
<td>Approx. 30 large areas on the route could require significant earthworks and levelling (i.e. they contain gradients above 2.5%).</td>
<td>Approx. 9 large areas on the new track route could require significant earthworks and levelling (i.e. they contain gradients above 2.5%).</td>
<td>The Consultation Route is likely to require more disturbances to the land topography and this is expected to result in increased costs, greater environmental damage and local disruption as levelling works take place</td>
</tr>
<tr>
<td>Road Crossings</td>
<td>13 major road crossings and 3 motorway crossings including two large crossings over the M6 (Grid References: SJ6951250 and SJ703804).</td>
<td>14 major road crossings, with one crossing of the M6 at Stockport (Grid Reference: SJ6899903), and another on the A635/60 close to Manchester Piccadilly station (Grid Reference: SJ655975).</td>
<td>The Consultation Route is likely to cause more disruption on major road networks as the majority of the roads impacted by the Stoke proposal are on the existing track and therefore some upgrade work will be required</td>
</tr>
</tbody>
</table>

Chance of Flooding:
Rating used:
3 – Strong chance of flooding
2 – Mild chance of flooding.

<table>
<thead>
<tr>
<th>Area</th>
<th>Rating</th>
<th>New full speed line</th>
<th>Rating</th>
<th>Upgrade line</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trent Valley</td>
<td>3</td>
<td>Trent Valley</td>
<td>3</td>
<td>Stoke-on-Trent</td>
<td>3</td>
</tr>
<tr>
<td>Checkley</td>
<td>3</td>
<td>Checkley</td>
<td>3</td>
<td>Middlesport</td>
<td>2 and 3</td>
</tr>
<tr>
<td>Chorlton</td>
<td>3</td>
<td>Chorlton</td>
<td>3</td>
<td>Lingsmere Hoy</td>
<td>2 and 3</td>
</tr>
<tr>
<td>Crewe</td>
<td>2 and 3</td>
<td>Crewe</td>
<td>2 and 3</td>
<td>Chartley</td>
<td>2 and 3</td>
</tr>
<tr>
<td>Moore Ho</td>
<td>2 and 3</td>
<td>Moor Ho</td>
<td>2 and 3</td>
<td>Hempsthorpe</td>
<td>3</td>
</tr>
<tr>
<td>Trentham</td>
<td>2 and 3</td>
<td>Trentham</td>
<td>2 and 3</td>
<td>Brookhouse Farm</td>
<td>2</td>
</tr>
<tr>
<td>Stratford</td>
<td>2</td>
<td>Stratford</td>
<td>2</td>
<td>Greenwoods</td>
<td>3</td>
</tr>
<tr>
<td>Heanor</td>
<td>2</td>
<td>Heanor</td>
<td>2</td>
<td>Matlock</td>
<td>3</td>
</tr>
<tr>
<td>Higgin</td>
<td>2</td>
<td>Higgin</td>
<td>2</td>
<td>Walton Tree Farm</td>
<td>3</td>
</tr>
<tr>
<td>Temple Field</td>
<td>2 and 3</td>
<td>Temple Field</td>
<td>2 and 3</td>
<td>Lonsdale</td>
<td>3</td>
</tr>
<tr>
<td>Redbrook fm</td>
<td>2 and 3</td>
<td>Redbrook fm</td>
<td>2 and 3</td>
<td>Wortley</td>
<td>3</td>
</tr>
<tr>
<td>Hayfield</td>
<td>2 and 3</td>
<td>Hayfield</td>
<td>2 and 3</td>
<td>Wippeham Wood</td>
<td>3</td>
</tr>
<tr>
<td>West Suttons</td>
<td>2 and 3</td>
<td>West Suttons</td>
<td>2 and 3</td>
<td>West Gortons</td>
<td>2 and 3</td>
</tr>
</tbody>
</table>

The stoke proposal appears to suffer from a greater risk of flooding and also suffers from higher densities of non-permeable surfaces.

It should be noted that many of the flood risk areas occur for upgraded line as opposed to new line. Nonetheless, the process of upgrading the line is still likely to require additional hard standing worsening flooding in surrounding areas and requiring additional flood mitigation measures.

(Environmet Agency, 2014)
### Large Water Bodies

The proposed lines requires new track within 2km of several large water bodies, including:
- Blithfield Reservoir
- Hopton Pools
- Hatton Bogs
- The Wistow Crests
- Rostherne Mere
- River Bollin
- River Mersey

Both proposals pass near to a similar number of water bodies. Given the limitations of this study neither can be said to cause more impact.

### Sites of Special Scientific Interest (SSSI)

#### Requires new track within approx. 2km of 13 SSSI sites

- Blithfield Reservoir
- Rawbones Meadow
- Pasterfield Salt Marsh
- Belley Mere
- Black Firs & Cranbury Bog
- Sandbach flashes
- Wimboldsley
- Plumley Lime Beds
- Tabley Mere

#### Requires new track within approx. 2km of 3 SSSI sites

- Blithfield Reservoir
- Rawbones Meadow
- Pasterfield Salt Marsh

The upgraded track passes by 7 SSSI sites and some additional impacts due to higher speeds and more trains may be observed.
- Hings and Hargreaves Woods
- Metallic Tithes
- Roe Park Woods

The Consultation Route passes near to more SSSI sites. It is therefore possible that this route will have a greater negative impact on those sites and will require a greater number of impact assessments and mitigation measures undertaken.

---

4 (DEFRA, 2012)
The proposed track may also impact approximately 30 small towns and villages which could potentially be affected by noise pollution, air pollution and visual impact issues.

Heritage

Requires new track within approx. 3km of 4 scheduled monuments which could be negatively impacted. Requires new track within approx. 3km of 4 scheduled monuments which could be negatively impacted. The Consultation Route could potentially have a greater negative impact on heritage as it passes closer to a greater number of scheduled monuments. The track upgrades in the Stoke proposal are not considered to be more of a threat to monuments than the exiting line.

Land Values

Requires approx. 75km in track through rural and agricultural land and 1km of urban land. 15km will be tunnelled, with limited impact on the value of the surrounding land. All land and buffer zones will require compulsory purchases and this is likely to devalue land immediately surrounding these areas. Requires approximately 40km of new track through agricultural land and 1km in urban areas. All of which will require compulsory purchases which is likely to devalue land immediately surrounding these areas. Requires upgrade of track for approximately 30km in built up areas and 30km in rural areas. It is likely that using existing track will have a lower impact on surrounding land values however some compulsory purchase may still be required. The Consultation Route will impact on large areas of valuable land. The Stoke option is likely to have a lower effect, as it upgrades existing track.

Resources used

Requires 104km of new track and 15km of tunnel and all associated infrastructure for the operation of the new track. Could require the provision of extensive new temporary roads and bridges to allow access to the construction site as it progresses down the proposed route. Wide buffer (land) zones will be required to manage visual and noise nuisance and to reduce the impact of turbulence. Requires 41km of new track and all associated infrastructure. Could require extensive new temporary roads and bridges to allow access during construction. In addition, wide (land) buffer zones may be required to manage visual and noise nuisance and to reduce the impact of turbulence. It should be noted that the Stoke proposal intends to use sound barriers close to the track reducing the requirement for buffer zones below that required for a full high speed line. Requires access to 65km of existing track and infrastructure such that upgrades can take place. Land buffer changes will be minimal due to the slower speeds during this section of the route. Temporary infrastructure requirements are higher for the Consultation Route in addition to greater areas of land required in its operation. New track and associated infrastructure, together with the banking requirements of high speed trains when diverting to approach Manchester will likely require significant road haulage and disruptive, escorted (heavy / wide / long) loads mean the Consultation Route is likely to be significantly more resource intensive.

Carbon Dioxide Emissions

Carbon dioxide emissions calculated based on figures used for phase 1. Construction: 2.2 MCO2. Operational savings* (60 year lifetime): 3.5 MCO2. Lifetime savings (60 years): -1.3 MCO2. *Saving over the 60 years

Carbon dioxide emissions calculated based on phase 1 figures with 50% reduction factor for upgrading track. Construction: 1.0 MCO2. Operational savings* (60 year lifetime): 3.4 MCO2 (switching). Lifetime savings* (60 years): 2.4 MCO2. Based on the lifetime of the two proposals is appears that stoke route may save an additional 1.1 MCO2 emissions above the Consultation Route, an 88% improvement. However, it should be noted that this calculation assumes that the Stoke option will provide for an equal number of rail users and uses rudimentary data analysis and significant assumptions. Further investigation would be required to provide...
| Includes reduction in emissions due to transport switching | *Saving over the 60 years includes reduction in emissions due to transport switching | confidence. |
Conclusion and recommendations

After this short review of the two high speed route options traveling from Lichfield to Manchester Piccadilly, BRE has identified that there are sustainability issues with both options which would need to be better understood and managed. The limited information provided and the extremely reduced timescales to conduct this work mean that the review and this report can only be considered an interpretation of the plans as currently formulated and presented to us.

However, of the ten aspects BRE have been able to review (at a high level) the following summary can be postulated:

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There were two aspects where it was not possible with the information provided to interpret which option offered the most sustainable outcome.

The study has not sought to weight the aspects considered and as a result it cannot be assumed that the option performing better in eight aspects is more sustainable than that performing better in the one aspect. Neither can it be assumed that the eleven aspects considered here cover the full range of issues which would need to be considered. Additional studies, including but not limited to the following, would be needed as:

- Economic impact assessments of the two options
- Social impacts (both positive and negative) of the two options
- A full study of the existing track and the extent of the upgrades required to bring the line, points, signals and associated platforms up to a sufficient level to run trains more frequently and at higher speeds
- Access reports to determine temporary infrastructure requirements and any compulsory purchasing requirements
- Heritage studies

Any further studies and comparative work could benefit from visual representation of outcomes to allow greater clarity against the broad sustainability issues that would need to be covered. An example of an approach BRE has used to allow options comparisons in the past is provided for reference in Figure 1.
Given the better performance of the Stoke proposal on eight of the eleven aspects considered we can conclude that the Stoke alternative is a potentially viable alternative. It should therefore be given due consideration and fully evaluated against the Consultation Route prior to any final decision is made.

BRE has extensive knowledge of evaluating different development options and have advised and worked alongside design teams and clients as projects are iterated and improved. BRE would be happy to offer this on-going advisory service to the Stoke team so that the scheme, as it develops further, becomes a more sustainable and attractive option for long term infrastructure funding.

Figure 1: Visual representation of different development options
Reference


LETTERS OF SUPPORT RECEIVED
Letter 1

29th January 2014

John van de Laarschot
Chief Executive
City of Stoke on Trent
Civic Centre
Glebe Street
Stoke on Trent
ST4 1RN

Dear John

The Alton Towers Resort is the largest and most popular themed attraction in the UK and the only top 10 visitor attraction in the West Midlands. The Resort is centrally located near the borders of the East and West Midlands regions. It lies within the Staffordshire Moorlands District some 19 km from Stoke on Trent.

Mode of travel to the Resort is predominantly by car; public transport accounting for around 10% of trips. Our guests’ primary considerations around use of public transport are cost, reliability, journey time, frequency and location of stations to them and to us.

Strategically we are committed to encouraging the use of public transport amongst our guests and would therefore welcome any development that has the potential to encourage more people into the area via rail. Stoke on Trent is the key public transport hub for the majority of our guests who use rail, so we would in principle be supportive of any sustainable development that improves journey times from major cities such as London and Manchester.

Yours sincerely

Mark Kerrigan
Development and Park Operations Director, Alton Towers Resort
John van de Laarschot  
Chief Executive  
City of Stoke-on-Trent  
Civic Centre  
Glebe Street | Stoke-on-Trent  
ST4 1RN

Dear John

Reference to the Stoke-on-Trent HS2 revised proposal.

As an organisation that deals on a daily basis with high value, high growth businesses within Staffordshire we fully understand the need for the proposed integrated hub railway station in Stoke-on-Trent.

North Staffordshire has the potential to grow its high value businesses but only if the conditions are right for the business to access UK and European markets. The proposed Stoke-on-Trent Hub would enable the kind of connectivity that will attract both clients and new businesses to the area.

The BIC and myself are fully supportive of the proposals.

 Regards

Geoff Riley

Geoff Riley  
Chief Executive  
Staffordshire & Black Country  
Business Innovation Centre
30th January 2014

Mr. J. Van de Laarschot
Chief Executive
Stoke on Trent City Council
Civic Centre
Glebe Street
ST4 1RN

Dear Mr. Van de Laarschot

Re: HS2 Consultation

Cannock Chase Council has given conditional support for HS2, subject to improved connectivity between the District and Birmingham including Chase Line electrification, an upgraded line speed, faster and more frequent services and the introduction of inter-regional services from London and the north-west. The District considers that HS2 will lead to new investment as well as bringing economic regeneration benefits to the area. It will also bring London that much closer as a market, with reduced journey times by rail.

The District as a member of the Stoke-on-Trent and Staffordshire LEP welcomes any initiative that will result in Staffordshire gaining the maximum benefits from HS2, in terms of leading to new investment and economic regeneration. Cannock Chase District Council therefore gives its support in principle to Stoke-on-Trent City Council and its initiative to realize the maximum benefits from HS2 to Stoke on Trent City and North Staffordshire provided that this is not to the detriment of services on the west coast classic line.

Yours sincerely

Stephen Brown
Chief Executive

Councillor George Adamson
Leader of the Council
TO WHOM IT MAY CONCERN

Dear Sirs

Ceram Research is pleased to offer its support for an HS2 station in Stoke-on-Trent. As our company becomes ever more internationalised, it would offer us fast links to international markets and would also give a tremendous boost for regional business, putting us on line for new investment and put Stoke on the map as a prestige city.

It would also deliver High Speed Rail connections to Manchester 7 years early (2026) and overall the impacts on the environment would be far less but with much greater economic impact.

Yours faithfully

Tony Kinsella
Group Chief Executive
23rd January 2014

Mr. John van de Laarschot
The Chief Executive
City of Stoke on Trent
Civic Centre
Glebe Street
Stoke-on-Trent
ST4 1RN

Dear Mr. van de Laarschot

We write in total support of Stoke on Trent’s proposal to have a High Speed Rail Integrated Hub railway station in Stoke-on-Trent that increases the efficiency of current road and rail transport and offloads current capacity issues.

We support the need to service the larger population of this area and its business and commerce over and above that of Crewe.

We support the need to reduce project costs and time scales which we are told will materialise by adopting the Stoke-on-Trent plan and proposal.

We consider transport efficiency essential to our future business in Stoke on Trent. Our group employs in excess of 1,000 people and has a turnover of £126 million, of which approximately 80% is exported. We consider that without good transport we and our subcontractors in Stoke-on-Trent will be disadvantaged.

We believe the Government has a duty to consider the Social Value in its public sector procurement and to consider its Social Return on Investment. In our opinion, the current plan leaving Staffordshire and, more particularly, the area of Stoke on Trent out of this equation requires serious re-evaluation.

Yours sincerely

J. W. GOODWIN
Chairman
To whom it may concern

Stoke-on-Trent City Council’s alternative proposals for the High Speed 2 route

I wish to place on record my full support for the alternative proposals for the High Speed 2 (HS2) route submitted by Stoke-on-Trent City Council.

The proposed route for HS2 as it stands would be a disaster for Stoke-on-Trent. If this route was ultimately agreed upon then it would seem inevitable that there will be a negative impact on the City and, indeed, a report by KPMG suggests that the Stoke-on-Trent and Staffordshire North area would lose out to the tune of a decrease of 0.9% of GDP per annum. There would be a reduction in existing rail services, the environment around Stoke-on-Trent would be damaged by the proposed new line, and it would be extremely difficult to attract businesses to the area when other nearby cities such as Manchester, Sheffield and Nottingham are either on the HS2 line or have their connectivity to London greatly improved.

According to the KPMG report, Stoke-on-Trent would be the only city in the West Midlands to suffer a negative impact from HS2 and after the economic shocks suffered by the city in the last few decades this is a further blow that the city simply cannot take.

On the contrary, the proposals put forward by the City Council make a great deal of sense. A hub station in Stoke-on-Trent and a HS2 route which follows the current West Coast Mainline would provide enormous benefit, not least in terms of cutting many billions of pounds from the already inflated HS2 budget. The impact on the environment from there no longer being a requirement to take the line through the countryside to the west of Stoke-on-Trent to Manchester will be greatly reduced, as will the impact on residential property.

Whilst I appreciate that HS2 Ltd wished to avoid urban areas, I feel that in the case of Stoke-on-Trent a proper analysis is warranted before it can be discounted. This would show that, in actual fact, the existing West Coast Mainline as it passes through Stoke-on-Trent runs through very few built-up residential areas and for much of the route runs through brownfield or industrial land with plenty of space for development alongside. Though there may be some areas on the route which ultimately require difficult engineering work. These will pale in comparison to those which will be encountered during construction work on the current proposals.

Furthermore, the City Council’s report details the enormous benefits that will be
gained by a HS2 stop in Stoke-on-Trent, not just for the city but also for the line itself. There is no doubt that Stoke-on-Trent would provide adequate passenger numbers to justify a stop and the potential of the city - as has been shown by numerous reports - means that there is every likelihood that HS2 could be the driver for huge growth and a consequential further increase in passenger numbers.

I therefore call on the Government and HS2 Ltd to accept the proposals put forward by Stoke-on-Trent City Council and commit to a stop in Stoke-on-Trent. Anything less would be completely unjustifiable and a dereliction of its duty to the people of North Staffordshire.

Yours sincerely

[Signature]

Rob Flello MP
Date: 28th January 2014.

To Whom It May Concern:

Please take this memo as an official confirmation that we (SIBCO Europe Ltd) agree and wholeheartedly support the proposed HS2 Programme.

Yours sincerely,

Jean Inskip, Director
SIBCO Europe Ltd