

Appendix B

Response by Colin Elliff to Call for Evidence for House of Commons Transport Select Committee Inquiry into Integrated Rail Plan

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House of Commons Transport Select Committee
Inquiry into Integrated Rail Plan

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1 Introduction

1.1 Commentary

This submission is made in response to the Transport Select Committee's Call for Evidence in December 2021 in respect of its Inquiry into the Integrated Rail Plan (IRP), specifically its implications for connectivity and capacity of the national rail network and hence for the economy, and for the Government's Levelling-up agenda.

It is recognised that this submission is made considerably later than the nominal closing date (i.e. 27th January 2022). However, this submission is based upon a detailed technical study of the Integrated Rail Plan which was not possible to complete within the timescale allowed for responses.

This study (*Dissecting the Integrated Rail Plan*) will provide crucial evidence which is believed to be unique, unprecedented and unmatched by any other submission that the Transport Select Committee is likely to have received.

1.2 Professional experience

I am a Chartered Civil Engineer, and since 1980 I have worked in the UK railway industry, first with British Rail until privatisation in 1995, then with a major railway consultant until 2013. Although my work was focussed upon the design and construction of physical railway infrastructure (such as bridges, stations, and civils works for electrification and resignalling schemes), I always maintained a keen interest in the development of the railway network, and in the need for new routes to supplement the existing railway system.

I have published two major professional/academic papers:

- *Rails around London – in search of the Railway M25* (Institution of Civil Engineers, 2001) – arguing the case for the creation of an orbital railway system around London, focussed on Heathrow Airport.
- *High Speed Rail – Where are the Engineers?* (Permanent Way Institution, 2008) – arguing the case for a more structured, specification-driven approach to the development of a UK high speed rail network.

Regrettably, the ideas set out in these papers were ignored in the headlong rush to develop HS2, and they also brought me into conflict with my then railway consultant employers, who were dependent upon the HS2 project for lucrative consultancy commissions. Accordingly, since 2013 I have worked independently on the development of High Speed UK (HSUK), a proposal for a UK high speed rail system which has been designed from the outset to perform as a network, capable of interlinking all UK primary cities. The HSUK initiative is documented on www.highspeeduk.co.uk.

I am therefore primarily qualified to comment on matters of railway engineering and network performance. I have no professional experience in the compiling of detailed cost estimates, and I can only comment on issues of comparative cost based on comparison of quantities.

1.3 Basis of my evidence

My evidence is supported by my study entitled *Dissecting the Integrated Rail Plan – A plan with little integration, less benefit and no levelling-up*.

This is available as document A16 on www.highspeeduk.co.uk, with supporting technical appendices setting out connectivity comparisons for the Midlands Engine (A17), Northern Powerhouse (A18) and Anglo-Scottish routes (A19). An abridged 'Stand-Alone Executive Summary' is available as document A20.

Dissecting the Integrated Rail Plan (DIRP) is a study primarily devoted to understanding the implications of the Integrated Rail Plan for the national rail network, and to quantifying the improvements (if any) that it will bring to the overall system's connectivity and capacity. Clearly, it is desirable that the IRP delivers the greatest possible improvements in connectivity and capacity to enable the greatest possible levelling-up of the UK economy.

To determine the Integrated Rail Plan's overall network performance, it is necessary to look far beyond the IRP's remit, which is focussed upon the Midlands and the North. It is necessary to consider major towns and cities across the national network, and to this end, a network with 55 origin/destination points and 1485 possible journeys has been modelled for the **DIRP** study.

It is also not appropriate to investigate the Integrated Rail Plan in isolation. To determine the IRP's efficiency and capability to Level-up, it is necessary to baseline its performance against that of the existing rail network, and also to compare its performance with that of other schemes. Accordingly, 3 'Candidate Schemes' are considered:

- The 2021 Integrated Rail Plan, including HS2 Phases 1 and 2a;
- The 'Predecessor Scheme', comprising the HS2 'Y-network', Northern Powerhouse Rail and Midlands Rail Hub (the official schemes which existed until IRP publication);
- The High Speed UK Exemplar Alternative.

1.4 Reopening of the TSC Inquiry into the Integrated Rail Plan

Given the crucial issues of national interest at stake, I would respectfully request that the Transport Select Committee reopens its Inquiry into the Integrated Rail Plan. I will of course be happy to provide evidence to the Committee.

Colin Elliff BSc CEng MICE

2 Preamble to Response

2.1 Public Policy Logic of Integrated Rail Plan

This submission accepts the fundamental public policy logic of the Integrated Rail Plan:

- The development of new, upgraded and restored railways is the principal lever in the Government's strategy to deliver step-change improvements in the connectivity and capacity of national, regional and local transport networks.
- These transformations are in turn vital to delivering key aspects of the Government's policy programme, namely:
 - **Levelling-up** the UK economy;
 - Achieving **Net Zero** transport CO₂ emissions;
 - **Building Back Better** after the Covid-19 pandemic.

2.2 Direct Linkage between Connectivity Gain and Levelling-up

This submission is based upon the precept of a direct linkage between rail network connectivity/capacity improvements, and the achievement of Levelling-up. In other words, the greater the measured gain in connectivity and capacity relative to that enjoyed by London and the South-East, the greater the Levelling-up.

Although this submission concerns itself primarily with the issue of Levelling-up, in accordance with the questions set by the Transport Select Committee, the same basic linkage applies for the achievement of Net Zero greenhouse gas emissions, in particular carbon dioxide (CO₂). The greater the gain in connectivity and capacity, the more high-emitting road journeys can be converted to lower-emitting rail, and hence the greater the overall reduction in transport CO₂ emissions.

The same fundamental logic applies for 'Building Back Better'.

2.3 The Need for Step-Change Gains

It must be recognised that the goal of a Levelled-up, Net Zero and 'Built Back Better' United Kingdom cannot be brought about by minor incremental improvements to specific lines. What is required is a transformational improvement in connectivity and capacity across the entire national network.

This can be best appreciated through the example of road traffic flows between the principal conurbations of the Northern Powerhouse, as set out in **DIRP** Section 2.3.

Figure 1 on the following page shows a huge disparity in traffic flows between adjacent conurbations, a disparity that can be accounted for not by the conventional 'gravitational' model – by which the flow between the most populous conurbations i.e. Greater Manchester and West Yorkshire should be the greatest – but by the capacity and quality of the roads linking the conurbations.

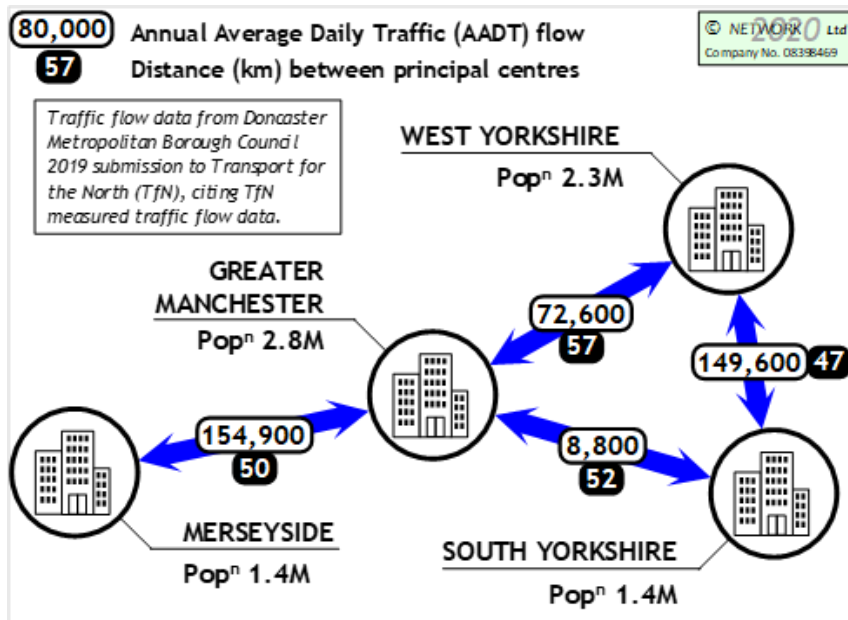


Figure 1 :
Annual Average Daily (road) Traffic flows between Northern Conurbations

Whereas Merseyside and Greater Manchester to the west of the Pennines are linked by at least 2 motorway-quality roads, with the same applying for West and South Yorkshire to the east, there is only a single motorway (the M62) offering a transpennine link from Greater Manchester to West Yorkshire. Between Greater Manchester and South Yorkshire, there is no motorway at all – only the congested and dangerous single-carriageway A628T Woodhead Road.

This demonstrates the huge impediment that the hills of the Pennine present to connectivity – and therefore economic development and Levelling-up – across the North. It would take 2 new motorways between Manchester and Leeds, and 2 new motorways between Manchester and Sheffield to redress this impediment, and enable Transpennine road traffic flows to match the flows on either side of the Pennines

This is a plainly unacceptable proposition from any perspective, either CO₂ emissions or impact upon sensitive environments. However, it sets the scale on what a railway solution, capable of bringing about Levelling-up, would have to look like – not incremental capacity improvements upon existing routes, but the laying of entirely new track and (probably) the building of new railways.

2.4 Contradictions between Integrated Rail Plan and HS2

It is crucial to understand the central contradiction on which the Integrated Rail Plan is founded. The IRP's ostensible purpose is to create an improved and integrated national rail network capable of supporting the Government's Levelling-up, Net Zero and Building Back Better agendas – yet by its own Terms of Reference its design is predicated upon the established HS2 proposals (Phases 1 and 2a) which were designed with no worthwhile consideration either for integration or for national network. These issues are discussed further in **DIRP** Section 6.5.12.

So far, the Government and its advisors appear to have failed to comprehend the risks that this self-evident contradiction poses to future network performance. There appears to have been a common, complacent assumption – that an efficient and optimised national network would somehow result from the act of building HS2's disconnected, superfast routes.

The consequences of this extraordinarily dangerous assumption are revealed in the findings of *Dissecting the Integrated Rail Plan*. The vastly superior performance of the High Speed UK Exemplar Alternative proves one very fundamental truth – that if an integrated, efficient and optimised national network is the desired outcome (as per the IRP Terms of Reference), all elements of this network should be designed with this objective in mind.

Integration cannot be retrofitted – it has to be designed into all elements from the start.

2.5 The Ideal of Comprehensive Connectivity

The fundamental philosophy underpinning the development of the High Speed UK Exemplar Alternative is an ideal for comprehensive connectivity:

- All principal cities to be fully interconnected with direct (i.e. no change of trains), frequent (i.e. hourly or better), intercity-quality high speed services.
- All principal cities to see a transformation of local networks, with the development of high speed intercity services also delivering a corresponding step-change capacity gain for local services.
- Intercity and local services to be fully integrated at city centre ‘hub’ stations.

Optimum performance against the principles listed above, with connectivity between regional communities elevated towards that which applies for London’s links to the UK regions, plainly indicates optimum performance in Levelling up, in achieving Net Zero and in Building Back Better.

The extent to which HSUK succeeds in achieving comprehensive connectivity, and the Integrated Rail Plan fails, can be seen from the comparisons set out in **DIRP** Figure 6.1H, and also the regional and local network diagrams set out in **DIRP** Section 6.4.

2.6 Report of Transport Select Committee Integrated Rail Plan Inquiry

The Transport Select Committee’s report of its Inquiry into the Integrated Rail Plan, published in July 2022, raises many well-justified criticisms, in particular:

- a) *“There has been no levelling-up impact assessment of the (Integrated Rail Plan) on the North of England.”* (Para 26, quoting Greater Manchester Mayor Andy Burnham)
- b) The IRP’s proposed upgrading strategy for Transpennine routes lacks the *“transformative”* scale necessary *“to end regional imbalances”*... i.e. to Level-up. (Para 31)

These criticisms are fully endorsed by the findings of *Dissecting the Integrated Rail Plan*. However, the Transport Select Committee’s examination of the Integrated Rail Plan was greatly limited by the scope and the quality of the technical evidence that was presented to the Inquiry. There is no indication that any substantive evidence was given as to how the national rail network would perform, with the Integrated Rail Plan in place and the Crosscountry rail corridor severed in Birmingham (refer Section 3.3b) of this submission); certainly, this issue was never raised in the evidence presented by West Midlands Mayor Andy Street (09/03/22), and no mention is made in the TSC’s July 2022 report.

The work of the Transport Select Committee is discussed in **DIRP** Sections 4.9 and 4.10.

3 Response to Call for Evidence

The Transport Select Committee has requested specific responses on the following issues in its Inquiry into the Government's Integrated Rail Plan (IRP):

1. The contribution that the IRP will make to rail capacity and connectivity for (a) passengers and (b) freight in (i) the Midlands and the North and (ii) the UK;
2. Whether and how the IRP will "level up" communities in the Midlands and the North;
3. How the IRP will affect rail infrastructure and services outside the Midlands and the North;
4. The challenges to central Government, Great British Railways, regional and local authorities, transport bodies and other stakeholders in delivering the IRP;
5. How the rail schemes in the IRP will integrate and interact with HS2;
6. How the rail improvement schemes in the IRP were selected, and whether those selections represent equity between and within regions;
7. Whether the IRP represents value for money for UK taxpayers.

Responses to the above 7 issues are set out in Sections 3.1 to 3.7.

3.1 The contribution that the IRP will make to rail capacity & connectivity for (a) passengers and (b) freight in (i) the Midlands and the North & (ii) the UK

a) Passenger Connectivity and Capacity

The connectivity delivered by the Integrated Rail Plan for passenger services is assessed and quantified in Section 6 of the **DIRP** study. Whilst the assessment specifically focusses on 10 Midlands centres (9 towns/cities plus Birmingham Airport) and 18 Northern centres (17 towns/cities plus Manchester Airport), it also examines connectivity from the Midlands and the North to principal cities across the UK. The following findings are made:

- The IRP creates very few new direct intercity links between UK principal cities, and it fails to redress the heavily London-centric nature of the existing rail network. Currently London enjoys high quality services to all major regional cities, while many of these regional cities have either very poor interconnecting services, or no direct link at all. This will generally remain the case with the IRP in place. Refer to **DIRP** Figures 6.1C, 6.1F and 6.1H.
- The IRP offers poor overall performance in reducing journey times (7% average across 10 Midlands centres and 9% average across 18 Northern centres). Journey time reductions tend to be concentrated along the specific routes where high speed line construction is proposed e.g. Birmingham-Nottingham, while other major centres such as Wolverhampton and Walsall see no improvements at all. Refer to **DIRP** Tables 6.1D and 6.1G.
- The IRP's journey times on the key links between principal Northern cities will fail to meet any of the journey time targets set by Transport for the North in 2016. Refer to **DIRP** Section 6.2.
- No evidence is offered to demonstrate how the IRP's proposed interventions – either new build routes or upgrades – will integrate with local services, or achieve significant capacity increases for local networks, in either the Midlands or the North. Refer to **DIRP** Section 6.4.

- The IRP's proposed on-line upgrades of key sections of transpennine route between Huddersfield-Dewsbury-Leeds and Bradford-New Pudsey-Leeds will cause critical conflicts with emerging plans for a West Yorkshire Mass Transit System. Refer to **DIRP** Section 6.3.
- In all cases the Integrated Rail Plan is massively outperformed by the High Speed UK Exemplar Alternative.
- The primary reason for the IRP's very poor performance appears to be its poor overall integration with the existing network, and this fault can in turn be attributed to the IRP's predication upon HS2 – which was of course designed with no thought either for integration or for network performance (refer to **DIRP** Section 6.5.12). Whereas HSUK was designed from the outset as a fully integrated national network.
- The IRP's chronic underperformance renders it – and all its constituent schemes, in particular HS2 – unfit for purpose as a national railway intervention.

b) Freight Connectivity and Capacity

The Integrated Rail Plan offers no substantive proposals for any major transformational improvements for railfreight that might be consistent with the Government's ambition for a Levelled-up, Net Zero economy.

This issue is best viewed from the perspective of Transport for the North's vision for a "*freight superhighway connecting Liverpool and the Humber*", as set out in the 2018 *Draft Strategic Transport Plan*. The need for such a 'freight superhighway', a coast-to-coast railway largely dedicated to freight, is demonstrated both in the huge constrictions of traffic flows imposed by the Pennine barrier outlined in Section 2.3 of this submission, and also in the massive volume of railfreight (approximately 180 trains each 775 metres long) that could result from one single post-Panamax 20,000 TEU container ship unloading at Liverpool.

Regrettably, the Integrated Rail Plan fails to offer any vision for a transformed railfreight network, either in the Northern Powerhouse, or elsewhere.

These issues are discussed in greater detail in **DIRP** Section 6.4.7. This also sets out the HSUK vision for a dedicated Liverpool-Humber railfreight route crossing the Pennines via a restored Woodhead route.

3.2 Whether and how the IRP will "level up" communities in the Midlands and the North

The Government's Levelling-up agenda depends upon a raft of major enhancements in the UK regions, ranging from education and training, to health and life opportunities, to jobs and incomes. However, none of these enhancements will bring about Levelling-up without commensurate enhancements in the UK's strategic transport system. These are essential so that connectivity between and within the UK regions more closely matches the high standard of connectivity on routes from the UK regions to London, and within the Greater London conurbation.

This means that the Integrated Rail Plan must bring about transformational connectivity and capacity benefits in the UK regions if it is to deliver optimum Levelling-up.

However the analysis set out in **DIRP** Section 6.1 demonstrates clearly that the Integrated Rail Plan will not bring about the necessary transformation in connectivity or capacity across the railway network of either the Midlands or the North. Any improvements that it might deliver can only be characterised as incremental, certainly not the step-change necessary to Level-up the economy or reduce transport CO₂ emissions to Net Zero.

The Integrated Rail Plan's failure to bring about Levelling-up is demonstrated in a more quantified fashion in its extremely poor connectivity performance when compared with the HSUK Exemplar Alternative. HSUK is shown (refer **DIRP** Section 6.1) to outperform the IRP by a factor of 9 in the Midlands, and by a factor of 5 in the North; moreover (as demonstrated in **DIRP** Figures 6.1D and 6.1G), whereas the IRP delivers greater connectivity gains for London than for regional cities, HSUK delivers its greatest connectivity gains for regional cities. HSUK's comprehensive superiority in connectivity should translate directly into a similar superiority in delivering Levelling-up.

An insight on the Integrated Rail Plan's Levelling-up potential can also be gained by assessing its connectivity performance for the 12 communities that it specifically cites – Grantham, Newark, Retford, Doncaster, Wakefield, Kettering, Market Harborough, Leicester, Loughborough, Stalybridge, Huddersfield and Dewsbury – as beneficiaries of its new, more integrated strategy.

It is certainly true that these communities were due to suffer major blight under the Government's previous 'Predecessor Scheme' strategy (by which the HS2 Y-network and Northern Powerhouse Rail would have bypassed these towns, and left them with reduced intercity services); and it could be inferred that under the revised IRP strategy of upgrading existing routes, these communities might suffer reduced blight. However, analysis documented in **DIRP** Section 6.6 demonstrates clearly that any benefit that these 12 (mostly) 'Small Town' communities might gain from the Integrated Rail Plan will be confined to the particular main line corridor on which each is located; there will be no significant wider network benefits.

Again, the HSUK Exemplar Alternative's fully integrated national network delivers far greater connectivity benefits for the 12 cited communities, outperforming the Integrated Rail Plan by a factor of 9; and again, this will result in vastly superior performance in Levelling-up.

The Integrated Rail Plan's failure to deliver optimum Levelling-up benefits, either for the major cities of the Midlands and the North, or for a range of 'Small Town' communities, would appear an entirely unsustainable situation. It is clear that, for a policy so central to Government thinking, and so fundamental to the national economy, the Midlands and the North (and indeed all UK regions) must see the greatest possible Levelling-up. Second-best is not an option that any politician, or indeed any transport professional, can contemplate.

3.3 How the IRP will affect rail infrastructure and services outside the Midlands and the North

The Integrated Rail Plan stems from a recommendation in the 2019/20 Oakervee Review for an 'Integrated Rail Plan for the Whole GB Network'. Yet it was remitted by Government as the 'Integrated Rail Plan for the North and the Midlands', and this (amongst other issues) has prevented the necessary holistic consideration of the full national network.

It is fair to characterise the intention behind the IRP interventions as having the role of promoting connectivity within the Midlands and within the North, while HS2 has the more strategic intended role of providing north-south connectivity between the London, the Midlands and the North.

This would indicate that there has been little or no attempt on the part of the Government to understand the effects of the Integrated Rail Plan (i.e. the IRP's revised interventions in the Midlands and the North, and HS2 Phases 1 and 2a) across the wider national network. It is possible that Government believes that this wider network consideration lies within the remit of the Union Connectivity Review, with its aspiration for 'UKNET', a strategic transport network extending across all four UK nations. However, no such definitive plan is noted in the Integrated Rail Plan published on 18th November 2021, and *Dissecting the Integrated Rail Plan* draws the following key conclusions:

- the schemes set out in the Integrated Rail Plan fail to significantly improve connectivity between the four UK nations, and many inter-nation connections will be made worse (refer **DIRP** Section 6.5.11);
- the UK remains without any guiding vision (refer **DIRP** Section 6.5.12) for how its railway network should develop to better connect the nation.

Without the necessary holistic pan-network overview, the Integrated Rail Plan simply replicates the faults that have been present in the HS2 project from the start, including:

a) No Proposal for Dedicated HS2 Route to Scotland

From the outset of the HS2 project, published maps have shown an HS2 route extending northwards from the (English) North-West into Scotland, to provide high speed links to Glasgow and Edinburgh. Yet this aspiration has never translated into definitive proposals for a new cross-border high speed line which might deliver the required step-change in Anglo-Scottish connectivity; it would appear that the engineering, environmental and cost implications of constructing a new high speed line through the sensitive mountainous terrain of the English Lake District fringes and Scottish Southern Uplands are just too great. Refer **DIRP** Sections 6.5.6/8.

Instead, HS2 services to Edinburgh and Glasgow are planned to run via the existing 2-track West Coast Main Line, with an ill-defined programme of online upgrades to increase its capacity to accommodate the additional traffic. This raises several major concerns:

- There is no practicable upgrading strategy (short of extensive 4-tracking as semi-continuous 'dynamic loops', which has never been proposed, presumably due to its high cost and environmental impact) by which high speed passenger traffic, local stopping traffic and freight traffic can all be efficiently accommodated on a 2-track railway. This will restrict the speed at which 'high speed' services can operate.

- The difficult terrain compels a sinuous track alignment which also has the effect of limiting train speeds; most available practicable options to realign curves to increase linespeed have already been exploited.
- The capacity and track alignment concerns outlined above prevent HS2 from delivering any journey time reductions north of Preston, and this dictates London-Glasgow and London-Edinburgh journey times of around 220-230 minutes (rising to circa 230-240 minutes with the June 2022 cancellation of the Golborne Link), significantly greater than the 180 minutes (3 hours) threshold at which significant air-to-rail modal shift might be anticipated.
- HS2's proposed Anglo-Scottish services will link Edinburgh and Glasgow to only 2 English primary cities – Birmingham and London. No direct links to any other English primary cities are proposed. See **DIRP** Figure 6.5J.
- No HS2 services to any Scottish city north of the Forth-Clyde line – for instance Dundee, Aberdeen or Inverness – are proposed.

HS2's primary focus upon the West Coast Main Line corridor in pursuit of the fastest possible journey times from London to Birmingham and Manchester has prevented proper consideration of an 'East Coast' high speed route to Scotland, running via Newcastle to Edinburgh, and onwards.

The High Speed UK Exemplar Alternative (see **DIRP** Figure 5A) demonstrates the multiple advantages of an East Coast high speed route to Scotland:

- Edinburgh and Glasgow directly linked to all GB primary cities (see **DIRP** Figure 6.5K), thus greatly enhancing economic benefit of any cross-border high speed line.
- Services extending via Forth Bridge to Scottish cities further north.
- Far easier and less sensitive topography on east side of the country, greatly reducing costs of both construction and environmental mitigation.
- Far superior economic case for building full-length high speed line from London via Newcastle and Edinburgh to Glasgow, with London-Glasgow journey times well below 3 hours.
- Hence much greater air-to-rail modal shift, and much greater potential to reduce CO₂.

b) Crosscountry Route effectively severed in Birmingham

The HS2 proposal for a new terminus station in Birmingham (Curzon Street) has consistently ignored the need for through routeing of Crosscountry services, extending from Scotland and Northern England to the West Country. Instead, HS2 has effectively 'cherry-picked' elements of the Crosscountry route, with improved HS2 services from Glasgow, Edinburgh, Manchester, Newcastle and Leeds all projected to terminate at Curzon Street.

Existing Crosscountry services heading south-west from Birmingham New Street will be inaccessible to passengers arriving at Curzon Street via HS2. Instead, passengers to South Wales and the South-West will be compelled to make a walking transfer to the adjacent Birmingham Moor Street station to catch a 'Midlands Rail Hub' service to Bristol or Cardiff, where a further change of trains will be required for destinations further south and west.

Strangely, the Integrated Rail Plan (refer IRP p16/162) represents this as some sort of improvement. This issue is discussed further in **DIRP** Section 6.5.3.

By contrast, the HSUK Exemplar Alternative offers a programme of 4-tracking enhancements to the key radial routes focussed upon Birmingham New Street (see **DIRP** Figures 6.4R & 6.4S) to radically increase the capacity of the entire West Midlands rail system, and free up platform space at New Street.

This will enable HSUK to maintain and enhance the integrity of the Crosscountry rail corridor that does more than any other to connect the nation. One single planned HSUK service (HSUK01) will interconnect the following principal cities:

- **Glasgow, Edinburgh, Newcastle**, Darlington, York, **Leeds, Sheffield**, Derby, **Birmingham**, Cheltenham, **Bristol**, Exeter and Plymouth.

The cities listed in **bold** type represent 7 of the 11 GB primary cities outside London. HS2 and the Integrated Rail Plan cannot come close to matching this level of connectivity.

3.4 The challenges to central Government, Great British Railways, regional and local authorities, transport bodies & other stakeholders in delivering the IRP

The challenge facing all the official bodies listed above lies with the basic fact that the Integrated Rail Plan is a scheme that is clearly neither integrated, nor capable of delivering the greatest possible improvements in rail network connectivity and capacity. All this is demonstrated by the vastly superior performance of the High Speed UK Exemplar Alternative.

It will become increasingly difficult for politicians to represent the Integrated Rail Plan and all of its constituent elements as representing the correct and proper way forward, the project most capable of delivering a Levelled-up and Net Zero economy for the people of the UK regions. It will also become increasingly difficult for the transport professionals who support the politicians to represent a national railway 'network' that plainly fails to connect the nation (refer **DIRP** Figure 6.1H) as being somehow better than one that succeeds in this fundamental aim.

These issues render the Integrated Rail Plan totally unsustainable.

3.5 How the rail schemes in the IRP will integrate and interact with HS2

There is little indication of any meaningful integration between HS2 (Phases 1 and 2a) and the revised rail schemes in the Midlands and the North set out in the Integrated Rail Plan.

No new connections have been introduced along the length of HS2's core route from London to Crewe, that might enable HS2 to better serve the major communities – in particular Milton Keynes, Coventry and Stoke – that it leaves bypassed and blighted with reduced intercity services. This is because, with HS2's route set, and under construction, it is not now possible to make the fundamental changes in alignment that would be necessary to introduce new links to the existing network.

This demonstrates a very fundamental truth. It is not possible to retrofit integration. Integration has to be designed into a project from the very start.

3.6 How the rail improvement schemes in the IRP were selected, and whether those selections represent equity between and within regions

The basic notion of any overt scheme selection process in the development of the Integrated Rail Plan must be challenged. The published document offers no evidence of a rigorous and holistic process aimed at developing a viable and coordinated programme of railway proposals most capable of Levelling-up the UK economy. There is no structured consideration of optimised network performance; the only required qualification in scheme selection appears to be conformance with the established HS2 proposals.

It would be more appropriate to characterise the Integrated Rail Plan as a process of ‘managed retrenchment’ from the exorbitantly expensive and unaffordable ‘Predecessor Scheme’ of 2020 and previously to the slightly more affordable present IRP scheme of 2021. In this retrenchment, the HS2 ‘Y-network’ that covered all principal main line corridors to the north of London is now reduced to a ‘Telegraph Pole’ format, primarily focussed upon the West Coast Main Line. There is now no direct HS2 service from London to Leeds or Newcastle; instead, these cities’ connections to London will be via an upgraded East Coast Main Line.

Journey	Journey time (minutes)				
	Existing Network	Predecessor Scheme	Integrated Rail Plan	IRP Assessment by HSUK	HSUK Exemplar Alternative
London-Leeds	133	81	113	123	77
London-Manchester	127	71	71	71	76
Difference	+6	+10	+42	+52	+1

Table 2 : Differences between Leeds & Manchester Journey Times from London

The adoption of an upgraded East Coast Main Line as the primary rail route from London to West Yorkshire and the North-East introduces a huge inequity into the service offers for Manchester and Leeds, the cities at the heart of the Northern Powerhouse’s two largest conurbations. Currently, both enjoy similar journey times to London, slightly above 2 hours, with a difference of 6 minutes in favour of Manchester that most travellers would consider immaterial. This broadly equitable situation would not have been greatly worsened under the previous ‘Predecessor Scheme’ proposals for the HS2 Y-network.

All this is changed by the Integrated Rail Plan, with its cancellation of HS2 Phase 2b (east) and its adoption of an alternative East Coast Main Line upgrade strategy. This is claimed to deliver a London-Leeds journey time of 113 minutes, a difference of 42 minutes. However, analysis demonstrates (refer **DIRP** Section 6.7.3) the claimed journey time to be wildly optimistic; a more realistic figure for the London-Leeds journey time is 123 minutes, a difference of 52 minutes. This will have a huge impact on the relative attractiveness of Leeds and Manchester as business destinations from London.

The retrenchment of HS2 from ‘Y-network’ to ‘Telegraph Pole’ format essentially strips the Government’s UK high speed rail project of all legitimacy as a national project. All its interventions are confined to the west side of the country, there will be no new construction to the east side, and there

is a huge inequity in critical journey times to key Northern cities that would seem to greatly favour Manchester over Leeds and other Yorkshire cities.

This is plainly not the balanced and independent approach required to deliver the greatest possible Levelling-up for the UK regions.

3.7 Whether the IRP represents value for money for UK taxpayers

The analysis set out in **DIRP** Section 6.1 shows the Integrated Rail Plan to deliver a similar improvement in connectivity to that which might be achieved by its Predecessor Scheme i.e. the HS2 'Y-network' plus Northern Powerhouse Rail – but for a much reduced quantum of new-build high speed line that would appear to indicate a significantly reduced capital cost. On this basis the Integrated Rail Plan might be inferred to offer a superior benefit-to-cost ratio, and hence better value for money to UK taxpayers.

However, any discussion of value for money must be informed by the more fundamental question of functionality and fitness for purpose. If both the Integrated Rail Plan and its predecessor scheme are so comprehensively outperformed by the High Speed UK Exemplar Alternative, they can be neither functional nor fit for purpose as a means of a) connecting the nation, and b) delivering on national 'public policy' goals of Levelling-up, Net Zero CO₂, and Building Back Better post-pandemic.

This is the basic issue that needs to be determined; it is only when a national infrastructure project can be shown to work efficiently and optimally in the national interest, that any 'value' can be attributed. Until the fundamental concerns with the Integrated Rail Plan (as raised in this response, and as documented in *Dissecting the Integrated Rail Plan*) are resolved, issues of 'value for money' cannot be properly considered.

4 Conclusion

In summary (noting the 7 Consultation questions set out in Section 3):

1. *(The contribution that the IRP will make to rail capacity and connectivity for (a) passengers and (b) freight in (i) the Midlands and the North and (ii) the UK)* The Integrated Rail Plan will fail to bring about the necessary step-change gains in connectivity and capacity for passengers and freight. This failing as an integrated national network can be primarily attributed to the IRP's predication upon the established HS2 proposals, which were designed with no thought of integration or national network.
2. *(Whether and how the IRP will "level up" communities in the Midlands and the North)* As a consequence, the Integrated Rail Plan will fail either to Level-up the UK economy, or reduce transport CO₂ emissions in line with legally-committed Net Zero targets, or assist in 'Building Back Better' after the Covid-19 pandemic.
3. *(How the IRP will affect rail infrastructure and services outside the Midlands and the North)* With no holistic consideration of the whole GB network, the Integrated Rail Plan replicates the failure of the HS2 project either to develop a viable high speed route to Scotland, or to maintain the integrity of the Crosscountry corridor through Birmingham.
4. *(The challenges to central Government, Great British Railways, regional and local authorities, transport bodies and other stakeholders in delivering the IRP)* The Integrated Rail Plan not only fails to deliver its Levelling-up and Net Zero political goals, it is also exposed as a technical failure by the vastly superior performance of the High Speed UK Exemplar Alternative. This renders the IRP politically unsustainable.
5. *(How the rail schemes in the IRP will integrate and interact with HS2)* The Integrated Rail Plan offers no worthwhile integration with HS2, and cannot remedy HS2's connectivity deficiencies.
6. *(How the rail improvement schemes in the IRP were selected, and whether those selections represent equity between and within regions)* There is no evidence of a rigorous process to ensure that the best schemes were selected for the Integrated Rail Plan; the only criterion for selection appears to be compatibility with the established HS2 Phase 1 and 2a proposals. This dependency condemns the IRP to hugely suboptimal performance as a network, and – with the IRP's cancellation of HS2 Phase 2b (east) greatly favouring Manchester and the North-West at the expense of Yorkshire and the North-East – the IRP is also left stripped of any legitimacy as a national transport project.
7. *(Whether the IRP represents value for money for UK taxpayers)* The Integrated Rail Plan's hugely suboptimal network performance, considered from either a national, regional or local perspective, means that it cannot possibly offer value for money to UK taxpayers.

All these failures are confirmed by the massively superior performance of the High Speed UK Exemplar Alternative, and collectively they render the Integrated Rail Plan – and all its constituent elements including HS2 – unfit for purpose as a national railway intervention.