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Dear National Infrastructure Commission,

## **Rail needs assessment for the Midlands and the North**

Railfuture is Britain's leading and longest-established national independent voluntary organisation campaigning exclusively for a better railway across a bigger network for passenger and freight users, to support economic (housing and productivity) growth, environmental improvement, and the socio-economic benefits of better-connected communities. We seek to influence decision-makers at local, regional and national levels to implement pro-rail policies in transport and development planning.

Please find below our consolidated response to your Call for Evidence.

Yours faithfully,

Roger Blake BA, MRTPI (Rtd), MTPS  
Railfuture  
Director for Infrastructure & Networks

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## Introduction

We have taken due note of the context for this rail needs assessment, beginning with government's announcement on 11 February 2020 and followed 10 days later by the terms of reference for an integrated rail plan for the Midlands and the North. The scope of the Integrated Rail Plan, informed by the needs assessment and taking into account value for money, levelling up, affordability and deliverability considerations, might be summarised as:

- S1. how best to integrate HS2 Phase 2b and wider transport plans in the north and Midlands, delivering benefits from investments more quickly;
- S2. how best to reduce cost, including opportunities to reconsider HS2 Phase 2b scope and design standards;
- S3. the recommended approach to sponsorship and delivery, including governance and delivery models;
- S4. how best to deliver rail connectivity with Scotland.

The Commission itself has indicated that in undertaking its assessment it will:

- C1. consider how best to integrate HS2 Phase 2b and wider transport plans in the Midlands and the north, delivering benefits from investments more quickly;
- C2. assess options for scoping, phasing and sequencing delivery of HS2 Phase 2b, Northern Powerhouse Rail, Midlands Rail Hub and other proposed rail investments;
- C3. consider how best to deliver rail connectivity with Scotland.

We note in particular that the Commission has already identified two key areas of analysis –  
~ Connectivity (“faster and more direct place-to-place travel”) and  
~ Capacity (“the potential for more trains to run where they are needed, particularly on crowded commuter routes”).

We advocate a third ‘C’: ~ Carbon reduction (“the potential to reduce greenhouse gas emissions from the rail industry directly, and indirectly through mode shift of passenger and freight traffic from road and air transport”).

Mindful of the context set by the foregoing, we turn to the Commission's specific questions.

### **Q1. What potential investments should be in scope of the Commission's assessment of the rail needs of the Midlands and the north?**

We take as given the three principal packages: HS2 phase 2b, Northern Powerhouse Rail, and Midlands Rail Hub (itself one of the seven packages in Midlands Engine Rail). Each by itself is substantial, taken together they're colossal. Recognising the competing even conflicting pressures – expeditious delivery and specification for optimal effectiveness, value for money and affordability – we err on the side of a focus on securing sustained strategic benefit from infrastructure investment.

*Railfuture* has developed a palette of projects which are intended to decarbonise the majority of freight movements on the British mainland, with particular emphasis on long distance connectivity between the deep sea ports in the south and the principal freight terminals serving the regional economies of the main population centres in the Midlands and the North. They mainly call for the electrification of existing routes but also include sections of new line which are either already committed (e.g. East West Rail) or where modest interventions can be made to release capacity for passenger as well as freight traffic on the network. These schemes are described as **i-v** below.

Taken together they serve to demonstrate that meeting the rail needs of the Midlands and the North, as centres of gravity in a national network, cannot – for infrastructure investment to be fully-effective strategically – be confined to interventions solely within the geography of the Midlands and the North.

## **i) The Manchester Area Strategic Freight Package** (in short, 'Package F', for freight).

This package is a recently-developed proposal by *Railfuture*, in liaison with other stakeholders, designed to increase the use of rail for meeting the future needs of the Greater Manchester economy while avoiding the notorious choke-point that is 'Castlefield corridor'. It is important to appreciate that this package contains three inter-dependent elements; driven by meeting output specifications not cost targets, they are not 'options' or 'phases' which can later be de-scoped to meet a budget constraint. The whole package should we believe come in at under £400m in any case and deliver benefits well in excess of this figure. The three inter-dependent elements are:

- a) a new freight terminal situated at Carrington Park (former oil / chemical depot on brownfield land). This would link to the rest of the network by reinstating the line through to Skelton Junction;
- b) a new junction created to provide a western access to the existing freight terminal at Trafford Park. This new route would turn south from the Warrington line just west of Flixton to link with the new Carrington Park terminal;
- c) a new connection with the West Coast Mail Line at Adswold, near Cheadle Hulme. This connection again uses brownfield land and joins the WCML at a point where capacity is available.

A full description of this proposal is set out in our paper '*The Castlefield Problem – a Great Opportunity for Freight*'. Click on:- <https://railfuture.org.uk/article1855-Relieving-Castlefield> and follow the link to the full report at the foot of the summary.

## **ii) The Felixstowe to Nuneaton (F2N) strategic freight route**

This we contend is too often overlooked as being of strategic importance to the Midlands and North since Felixstowe is in East Anglia and Nuneaton, though in the Midlands, is not a significant population centre. However, the terms '*Northern Powerhouse*' and '*Midlands Engine*' are used to convey the potential value of these regions to the UK economy. It goes without saying that a successful economy relies on the free movement of both people and goods, whether materials for manufacturing, components for assembly into finished products or finished products for distribution. Businesses in these regions rely on trade with the Far East which, in turn, means moving high volumes of freight from the deep-sea ports of Felixstowe, Southampton and London Gateway. If 'F2N' stood instead for '*Far East to Northern Powerhouse*' its role and importance in an international not just national context would become clear. Currently this vital economic pipeline is constrained by a lack of capacity, particularly around Ely. We develop this theme in part 2 'Freight' of our paper '*From Rural Branch to Main Line*': <https://www.railfuture.org.uk/east/docs/Railfuture-East-Anglia-20191030-Mid-Anglia-from-branch-to-main-line-proposals.pdf> .

F2N has been identified on the 'Julian Worth' list as a prime candidate for **electrification**. Electrification schemes in the UK have tended to follow passenger density in regions with high commuter flows or for longer distance journeys linking major population centres, typically the main lines radiating from London. However, the principal gain from electrification comes with greater payload. Even the heaviest passenger trains weigh only around a fifth or less of the heaviest freight trains and in our view future electrification schemes must therefore focus on the strategic freight network to achieve the maximum carbon-reduction benefit per unit of investment.

## **iii) Electrification between Southampton and the East and West Midlands (see ii F2N above) and North of England**

Southampton – Eastleigh – Winchester / Romsey – Andover – Basingstoke – Reading – Didcot – Oxford – Bicester – MK-Bletchley / Banbury – Solihull / Coventry – Birmingham Terminals – Nuneaton (formerly known as "the electric spine")

Electrification of all currently unelectrified sections of the route to 25kV overhead line.

**iv) Electrification of the entire new East West Railway: Bicester – MK-Bletchley – Bedford – Cambridge, linking to the F2N ii) electrification described above**

This scheme would allow electrically-powered freight trains to operate directly between Felixstowe to the Northampton area and Daventry via Cambridge and MK-Bletchley (a new East to North curve required at Bletchley) and other terminals throughout the West Midlands and North of England. Electrification of this route is supported by the East West Rail Consortium of local authorities.

**v) Electrification of the railway between Werrington Junction and Spalding – Sleaford – Lincoln – Gainsborough – Doncaster**

Route: leaving F2N ii) at Peterborough then via Spalding – Lincoln – Gainsborough – Doncaster. This route has received significant investment in track and signalling in recent years making it, in effect, the “3rd and 4th slow lines” of the ECML north of Peterborough. Currently considerable more investment is taking place at Peterborough in the form of the Werrington dive under. This enables the increasing freight traffic to / from East Anglia and off the ECML to / from North Thameside / London Gateway to access the route. Over one third of ex-Felixstowe intermodal traffic continues north via the Spalding ‘Joint Line’, as well as mineral trains serving e.g. the South Yorkshire glass industry. Electrification of this route would provide additional resilience to the ECML long distance passenger services, as a parallel route would be available in times of perturbation using the existing fleet, thus avoiding both leasing and carbon costs. The Peterborough – Lincoln – Gainsborough – Doncaster passenger service would also convert to electric traction.

Additionally, to ensure that the Midlands is supported in playing its full part in both mode shift to rail and decarbonising transport, investment in the completion of full electrification and route upgrade of the Midland Main Line northwards as far as Leeds should be in scope.

We are very pleased to note that through the government’s ‘*Restoring Your Railway*’ Ideas Fund the Leicester – Burton-on-Trent ‘Ivanhoe / National Forest’ line is now to be taken forward for business case development, as are ‘reinstatement of the Barrow Hill line between Sheffield and Chesterfield’ and two other local schemes north of Manchester, while the Matlock – Buxton ‘Peaks and Dales’ route is a known candidate applying for such funding.

**Q2. Which set of rail investments do you believe would, together:****a. best unlock capacity within the Midlands and the north?**

Project i) above, the Manchester area ‘Package F’, unlocks the most capacity. Currently, the problem of congestion along the Castlefield Corridor is felt across the whole of the north of England. The average freight train takes between two and three times the network capacity of a passenger service. By finding a dedicated route for freight, sufficient capacity is released on the Castlefield Corridor to restore reliability to existing services and, in combination with the Northern Hub’s ‘Package C’ proposals for additional platforms at Manchester Piccadilly – which we support, to integrate Northern Powerhouse Rail and HS2 – permit additional services in future. The electrification of routes i) to v) would enable longer, heavier freight trains to be operated, thus providing significantly more capacity for both ‘deep sea’ and ‘domestic’ intermodal rail traffic as well as those serving the construction market.

**b. best improve connectivity within the Midlands and the north?**

Connectivity can be viewed in two ways. One is to look at the number of services which can be supplied on a given route, and the other by assessing their reliability. The Manchester Package F i) provides both. By improving reliability, passengers are more confident of meeting connections elsewhere in the network, thus connectivity is improved.

A dedicated freight route also improves connectivity for freight with the major UK ports. This applies to ii) F2N. It is well-enough known that freight as well as passenger services run to a timetable, with oft-rehearsed consequences. A freight train presenting late at a junction is more difficult, due to its length and slower acceleration, to slot into the next available signalling path; a few minutes’ delay can

have consequences measured in hours. Electric freight trains operate at faster speeds than under diesel traction, thereby releasing more capacity for other services, which in turn improves connectivity through the Midlands and the North. Electrification of these routes throughout will then allow larger volumes to be carried by rail while allowing a more resilient, sustainable passenger service.

The Northern Hub's 'Package C' proposals for additional platforms at Manchester Piccadilly will also improve connectivity by integrating HS2 with Northern Powerhouse Rail, while the Camp Hill Chords will integrate HS2 with local / Cross-Country services.

### **Q3. Within the set of investments you identified, which individual investment(s) should be the highest priority?**

**i) Manchester and ii) F2N.**

In the case of Manchester, the Castlefield corridor problem transmits knock-on delays and cancellations throughout the whole of northern England, even beyond. There is widespread acceptance that while Northern Hub's 'Package C' proposals to increase platform capacity for passenger trains will go some way towards easing congestion on the corridor itself, it does little to resolve congestion between Manchester Piccadilly and Slade Lane junction.

For F2N, the lack of investment in this corridor is having a negative impact on a) the competitiveness of the Haven Ports b) carbon emissions and c) the competitiveness of the UK economy.

The electrification of schemes **i) to v)** in response to Q1 provide a continuous network to decarbonise the majority of freight movements while enabling more electric passenger services to be operated. We would not be the first to characterise electrification as a rolling programme of decarbonisation.

### **Q4. What supporting policies need to be in place to deliver the benefits of the investments you identified?**

For project **i) Manchester Freight Package F**, there need to be relevant policies in the Local Plans of both Stockport and Trafford Metropolitan Districts. For all policies described above, there needs to be a national policy recognition that growing the long-distance movement of freight by rail cannot be achieved without investing in rail freight infrastructure. This investment needs to include **electrification of the strategic freight network** to encourage investment in new electric traction to replace end-of-life diesel units.

### **Q5. What impact would the investments you identified have on greenhouse gas emissions? In particular, how would they affect the UK's ability to meet its domestic and international targets, including the Paris Agreement and net-zero?**

Both projects **i) Manchester and ii) F2N** will have significant beneficial effects on greenhouse gas / CO2 emissions. Long-distance freight movement by lorry is stranded technology incapable of conversion to electricity through battery power or by 'on route' energy transmission (overhead wires or induction loops in the road), which makes electrification of the railways look cheap by comparison. Neither is it economic to use hydrogen which uses more energy to create than it stores.

Freight on rail uses about one third of the energy per tonne/Km compared to road. This energy ratio improves to around 10:1 when rail is electrified. Assuming that the UK energy supply moves progressively towards zero carbon (renewables and nuclear), CO2 emissions are removed altogether. As indicated in section Q1 ii) above, with average passenger trains weighing only a fraction of average freight trains, mode shift of freight to an electrified rail network is likely to yield a greater carbon-reduction return per unit of investment than mode shift to or electrification of passenger trains.

### **Q6. In addition to greenhouse gas emissions, what are the potential environmental effects (positive and negative) of the investments you identified?**

Air quality improvement (and including 'Oslo-effect' particulates), road congestion relief and reduced levels of noise pollution. For some however the infrastructure of rail electrification can be unacceptable visual intrusion, especially in environmentally-sensitive urban and rural landscapes, although the rail industry now has no shortage of examples of acceptably-sensitive design responses.

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**Q7. Aside from those delivered by improved connectivity and greater capacity, what broader impacts on people's quality of life could the investments you identified have?**

Better health, more secure employment opportunities, and competitive consumer prices as cost is stripped out of the distribution network especially if transshipment of freight by electrified rail can be brought ever closer to its origin and final destination.

**Q8. How would the costs and benefits of the investments you identified be distributed economically, socially and geographically?****Costs**

The reduction in pollution resulting from a better rail freight network benefits the economy and physical wellbeing of a broad swathe of the population. The costs of improving the rail freight network should therefore expect a contribution from the public purse and not be limited to local taxation of a particular geographical community. Operational costs in the distribution network will obviously benefit freight operators and commercial businesses directly involved in the transport sector, but as these businesses become more profitable so does the return to the national exchequer through corporation tax and business rates. More locally there will be uplift in the value of land (e.g. the brownfield sites associated with the Manchester Package F proposal) which could be captured through taxation. The costs of land acquisition and infrastructure installation on a new freight depot site would be a commercial proposition borne by the private sector through commercial borrowing.

**Benefits**

The benefits of reducing direct costs of freight distribution will be felt across the whole of the Midlands and the North and in particular among lower income groups who are proportionately more reliant on the availability of cheap food and other basic commodities. Lower income groups are also more likely to suffer from poor health and thus measures to reduce airborne pollution will have a differential benefit resulting from investment in alternatives to lorry transport. The increase in passenger numbers on our railways over the past two decades has been driven largely by younger people who have less car-dependent lifestyles than their parents' generation. It follows that improvements to the capacity and connectivity of passenger services, and their reliability, will have a disproportionate benefit among the economically active as well as those for whom car ownership is out of reach.

**Q9. Which set of investments would best improve rail connectivity with Scotland?**

Both Edinburgh and Glasgow have services to / from Manchester Airport via the Castlefield corridor which suffer from poor reliability and will continue to do so until the corridor's problems are resolved. Project i) Manchester seeks to achieve this. For the wider strategic freight network, sustained investment in F2N ii) which improves connectivity between the Haven Ports and both the East and West Coast Main Lines will improve capacity and reliability for freight to Scotland from the South.

**Q10. What would be the impact of the investments you identified on connectivity between the Midlands and the north, and other parts of the UK?**

The nation now has a new 'levelling up' policy agenda, with some other parts of the UK (including Northern Ireland) arguably in no less need than the Midlands and the North. In the same way that meeting the rail needs of the area cannot be confined to interventions within its own geography, its pivotal location in the nation's inter-connected, inter-dependent rail network means that investments within it have beneficial repercussions extending to other regions. A higher-capacity / more resilient network within the area enables faster and more direct 'place-to-place' travel reaching far beyond it.

**Q11. What would be the impact of the investments you identified on international connectivity across the Midlands and the north?**

Improved connectivity for freight between the Midlands and the North and the southern ports is to facilitate the movement of traded goods between these regions and the rest of the world, principally the Far East. The Manchester Package F i) brings the additional benefit of relieving congestion and improving reliability of passenger services between Manchester Airport and the rest of the north of England and Scotland.