

Rail Delivery Group

Response to:

**National Infrastructure Commission call for
evidence:
Connecting northern cities**

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Introduction: The Rail Delivery Group (RDG) was established in May 2011 to lead the industry in delivering a higher performing, more cost effective and sustainable rail network for Britain's rail users and taxpayers. The RDG brings together the chief executives of passenger and freight operator owning groups with Network Rail. RDG develops policies, strategies and plans for the coherent management of the rail industry and advances the provision of a safe, efficient, high quality rail service for users and taxpayers.

The RDG mission is to promote greater co-operation between train operators (passenger and freight) and Network Rail through leadership in the industry and by working together with Government, the supply chain and stakeholders. It is committed equally to the long-term health of the railway as well as the need to see improvement in the shorter term. It does this by developing strategies for the industry to put into practice and by proposing solutions for policy makers to implement.

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To what extent are weaknesses in transport connectivity holding back northern city regions (specifically in terms of jobs, enterprise creation and growth, and housing)?

The economic underperformance of the North relative to other parts of the UK and similar regions in other parts of the world has been cited in a number of studies and strategy documents. David Higgins' HS2 Plus report included statistics which showed that 66 of UK FTSE 100 companies are located in London and South East, and highlighted the lack of investment in transport per head, compared with London and South East. An article published by the Economist in 2014 found GDP per capita in Chicago to be 80% higher than in northern cities, despite their shared post-industrial context. One explanation put forward by the article is the strength of transport links between the central city and its metropolitan area. City centres provide the environment in which the knowledge economy thrives, so enhancing their accessibility is vital in supporting growth in this sector.

The Long Term Planning Process (LTPP) has been developed to provide robust, consistent growth forecasts; and to allow the rail industry to respond flexibly to the challenge of growing demand and plan the long-term capability of the rail network. The LTPP consists of a number of studies:

- Market Studies forecast demand over a 10 and 30 year period for freight and for three passenger 'markets' – long distance, regional urban and London & South East.
- Route Studies then develop options for all future train services, local as well as long distance, based on the demand forecasts and priorities set by the market studies.
- Network wide issues, including the requirements of freight and the potential for technological innovations, will be addressed through a series of network studies (also known as Network RUS).

The Long Distance Market Study cited several pieces of research which suggested a statistically significant link between time/cost of travel between businesses and economic output. Transport improvements have the potential to achieve agglomeration economies by bringing firms and their employees closer to business rivals and partners, enabling firms to access a wider labour supply and market and reducing trading costs. The market study suggests that the impact on business travel is particularly significant where travel times are currently moderate (e.g. for journeys of around 90 minutes).

These themes were explored further in the 2014 Steer Davies Gleave report *Transport Constraints and Opportunities in the North of England*. This highlighted the potential to enhance:

- Journeys between city regions – for example a 2009 study by economists at the Spatial Economics Research Centre (SERC) suggested that there was 40% less commuting between Manchester and Leeds than one would expect, given the cities' characteristics. High overall commuting costs (as measured by generalised journey time) have been identified as the main cause of this lower level of commuting.
- Journeys within city regions – demand for rail travel has grown significantly in recent years and crowding now poses a constraint to accommodating future growth. The quality of rolling stock and the environment around stations are also considered to be barriers to supporting higher levels of commuting by rail.
- Journeys to/from international gateways – in particular access to Manchester Airport, where rail connectivity is seen as a restricting factor in terms of a limited range of direct connectivity, the hours of rail's operation not aligning with the daily pattern of

airport passenger and employee demand, train service unreliability and airport services being affected by on-train congestion elsewhere on the network. The limited availability of gauge-cleared routes for freight is considered to be a constraint to the growth of the North's ports.

The transformational opportunity of creating a single functional economic area was identified by the One North; A Proposition for an Interconnected North report. Network Rail as part of the Transport for the North Partnership is contributing to the economic case being developed by Transport for the North to support the Northern Powerhouse.

What cost-effective infrastructure investments in city-to-city connectivity could address these weaknesses? We are interested in all modes of transport.

The recently announced plans for the new Northern and TransPennine franchises include faster and more frequent services between a number of cities, for example the Newcastle to Carlisle and Leeds to Nottingham routes. Network Rail is in the process of improving the capability of the infrastructure to support improvements in city-to-city connectivity across the north of England. The North West Electrification and Northern Hub programmes have been combined in the North of England programme and will provide the opportunity for the new Northern and TransPennine franchises to improve connectivity across the north.

Through the Trans Pennine Route Upgrade Network Rail is developing a scheme that will improve connectivity by reducing the journey time between Manchester and York via Leeds by up to 15 minutes and electrify the railway between Manchester, Leeds, York and Selby. The detailed development work will be completed by December 2017 and could be implemented for the December 2022 timetable. Under the new TransPennine franchise 125mph-capable electric rolling stock will be introduced, offering a dramatic improvement in service quality.

Maximising the benefits of this upgrade plan will require the digital modernisation of signalling and train control. Not only will this deliver large operating cost efficiencies it will provide lower cost options to meet local priorities for:

- Putting more trains on the existing network to enable new services for passenger and freight customers. Utilising digital technology will deliver these benefits earlier than conventional infrastructure upgrades.
- Providing better connections that convert capacity into new choices about where trains start, stop, and where they go to. Digital signalling delivers greater flexibility to rapidly change service patterns and increase capacity.
- Delivering greater reliability, enabled by the removal of dated trackside assets and through the introduction of modern digital traffic management.

Through the Transport for the North Partnership Network Rail is undertaking development work to inform the Northern Transport Strategy. For rail this focuses on the development of a Northern Powerhouse Rail Network offering transformational journey times which in some instances could be half of what is possible today. The city-to-city corridors being considered by the Strategy comprise:

- Liverpool to Manchester Airport/Manchester – upgrades to deliver aspirational journey times of 20 minutes, including a connection onto the HS2 network.

- Manchester to Leeds/Sheffield – options to deliver a 30 minute journey time, including options for tunnelling where necessary to improve speeds and/or a completely new route across the Pennines linking with HS2.
- Leeds/Sheffield to Hull – moving towards the Transport for the North vision of Leeds to Hull in 45 minutes and Sheffield to Hull in 50 minutes through electrification and the construction of additional tracks.
- Sheffield to Leeds – assessing the scope to use HS2 to provide fast regional services between the two cities and for construction of this part of the route to be accelerated.
- Leeds to Newcastle – investigating options to improve capacity and speed, including 140mph running. Amongst the options to be considered for relieving the two-track section of the East Coast Main Line between Newcastle and Northallerton is a possible re-opening of the Leamside Line through County Durham and Washington. When combined with transformed east-west links this has the potential to reduce journey times from Manchester to Newcastle by up to 35 minutes.

Network Rail's work is being undertaken in two sequences. Sequence One, which informed the Northern Transport Strategy update in November 2015, identified that;

- The baseline infrastructure makes best use of the available capacity.
- That there are very few small scale interventions which can deliver any notable uplift in capacity or reduced journey times. Significant infrastructure intervention is required even for small improvements.
- In order to get near delivery of the Northern Powerhouse Rail conditional outputs, interventions equivalent to a new two-track railway are required between many of the cities.

Sequence Two which is scheduled for completion in late 2016 will identify the options and associated costs for these upgrades to the equivalent of Network Rail's GRIP 2. This work will make further use of the Digital Railway solutions described earlier.

Which city-to-city corridor(s) should be the priority for early phases of investment?

The immediate priority is the completion of the committed programme of enhancements set out in the Hendy review in tandem with Northern and TransPennine franchisee-led enhancements to timetables and rolling stock. The remainder of CP5 will see the completion of the North West electrification project and the Northern Hub including the Ordsall Chord. This will be followed in CP6 by the upgrade of the cross-Pennine route linking Leeds and Manchester via Huddersfield and accompanying new trains. The focus will then shift to the delivery of the Northern Powerhouse Rail programme alongside further upgrades to the 'classic' network.

The Long Distance Market Study produced connectivity based conditional outputs for key city pairs on the basis of long-term demand forecasts and potential to deliver against a range of strategic goals, including improving business to business connectivity and reducing road congestion. The conditional outputs relating to connectivity are expressed as aspirations for services of differing characteristics, with the 'best possible' category used to denote the flows for which service improvements might be expected to deliver the highest value. The following flows within the north fall into this category:

- Leeds to Manchester
- Leeds to Sheffield
- Manchester to Sheffield

There is not yet sufficient evidence to identify which corridors should be the priority for early phases of investment, although poor east-west connectivity is most frequently cited as a key concern which will not be fully addressed by HS2. Network Rail continues to work with Transport for the North to develop the priorities for the transformation of the economy envisaged by the Northern Powerhouse which will inform the priorities.

In the longer term, completion of HS2 will be vital in strengthening connectivity with the Midlands and London. A revised option recently announced for Leeds station will help ensure strong linkages between HS2 and the existing network, strengthening integration between HS2 and future Northern Powerhouse rail options. A similar opportunity to integrate the station solution for Manchester between the existing network, HS2 and future Northern Powerhouse Rail expansion has led Network Rail, Manchester City Council, Transport for Greater Manchester, HS2 Ltd and the Department for Transport to come together in creating a station board chaired by Network Rail's chief executive Mark Carne.

What are the key international connectivity needs likely to be in the next 20-30 years in the north of England (with a focus on ports and airports)? What is the most effective way to meet these needs, and what constraints on delivery are anticipated?

The focus for international passenger connectivity in the north is Manchester Airport, currently the third largest in the UK in terms of passenger traffic and the largest outside London. The Northern Powerhouse Rail Network has Manchester Airport at its heart and proposes further development of options to reduce rail journey times from major cities. City regions will work with other northern airports to develop plans for improved connectivity.

For freight, the priority will be on access to the North's major ports. The Freight Market Study identifies the importance of the northern ports. Forecasts indicate the highest volumes to be to/from Immingham, where by 2043 more than 2 paths per off-peak hour are expected to be required comprising intermodal and coal traffic; and Teesport, which is expected to generate a requirement for between 1.5 and 2 paths an hour. It is expected that the Transport for the North freight strategy work stream will identify the importance of Port of Liverpool and other ports which have seen significant investment since the forecasts that inform the market study were produced.

The Northern Transport Strategy recognises the need to respond to freight growth through the following measures:

- Accommodating longer trains with greater tonnages
- Providing sufficient gauge clearance
- Supporting the development of further Strategic Freight Interchanges
- Working with freight operators to identify demand for additional freight capacity
- Examine the scope for the electrification programme to facilitate the greater use of electric traction for freight.

Any potential new cross-Pennine tunnel could also be used to support future freight growth.

Transport for the North is developing a strategy to enhance international connectivity, which will include improving surface access to airports and interventions to support the

attractiveness of northern ports. This evidence base will further inform Network Rail's development work on potential interventions.

Digital modernisation will transform the economics of the Northern rail freight industry – increasing business competitiveness and the region's place as a hub for international trade. It unlocks capacity that allows more freight paths that compete more cost effectively with road, and improved connectivity to major ports, such as Liverpool. Traffic Management creates the scope for more flexible timetabling that responds to demand.