LONG TERM RAIL STRATEGY

A twenty-year vision to develop rail in the North of England

RAIL NORTH

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COMMISSIONING CLIENTS' FOREWORD

We want rail in the North to grow. The reason for this is simple: growing rail will support a growing economy. More than this, a growing rail network will help the North's economy meet its full potential.

We want rail in the North to grow. The reason for this is simple: growing rail will support a growing economy. More than this, a growing rail network will help the North's economy meet its full potential.

This Long Term Rail Strategy sets out how rail can support the growth of the North of England's economy over the next twenty years. It demonstrates how this can be done by improving connectivity for passengers and freight across the North, while at the same time providing a better customer experience and delivering a more efficient and cost-effective railway. Delivering the Strategy creates an opportunity to increase the North's economy by up to £50bn over a 60 year appraisal period, equivalent to an annual benefit of £900 million. The North's railway has more than just an economic function; it has a social function too. As well as supporting economic growth, the Strategy sets out how rail's contribution to the North's social progress can be grown and enhanced.

Achieving these outcomes will be challenging and will not be possible without the commitment from key partners from across the rail industry: Network Rail; passenger and freight operators; Local Transport Authorities; and, the Department for Transport. The Strategy is not, however, a shopping list for rail in the North. It defines what Conditional Outputs rail needs to provide, but how these are actually delivered will be for the industry to decide. The Implementation Plan included within this Strategy sets out a path to identify cost-effective and value for money interventions to deliver the benefits the Strategy identifies.

The Strategy is separate from discussion on how rail provision in the North should be specified, managed and governed. The key outputs defined are appropriate and necessary whatever governance regime is in place for delivering rail services.

In parallel to the development of this Strategy, the Secretary of State for Transport and Rail North have agreed to develop a partnership approach to the re-franchised Northern and Transpennine services. These franchises will commence in April 2016. A shared set of principles has been agreed to underpin this Partnership. These acknowledge the importance of growing the railway to maximise the benefits of infrastructure investment and linking this to railway efficiencies and having a platform for determining investment priorities within the Partnership. The Secretary of State has welcomed the principle of risk and reward sharing between members of the Partnership. Rail North and the Department for Transport are now working closely on the specification of these franchises, The parties are now working to agree detailed arrangements to ensure that the franchises will be jointly designed and managed by the Partnership, with DfT running the procurement processes to a common timetable.

A Consultation Draft of this Strategy was developed between August 2012 and January 2013. This Draft Strategy was commissioned by Merseytravel, Metro, Nexus, SYPTE and TfGM, with day to day management undertaken by SYPTE. Technical advice was provided by consultants Steer Davies Gleave.

We are grateful for the inputs of the Task and Finish Group of officers which has overseen the process. Task and Finish Group Members were drawn from across the North's Local Transport Authorities and Group members sought to represent the views of the whole of the North. We are particularly grateful for the work Task and Finish Group Members did in canvassing views and comments from local authorities and other interested parties. We would also like to acknowledge the participation of Network Rail in the Task and Finish Group and the participation of many stakeholders at events and meetings in developing the Strategy.

A consultation process on this was held between July and October 2013. A website was established to host the consultation documents, with a facility to submit online responses. Local Transport Authorities, the rail industry and other organisations were contacted to raise awareness of the Strategy and the consultation. A number of presentations and meetings were held with interested parties and two articles about the draft Strategy appeared in the rail media.

In total, 111 responses were received from individuals and organisations during the consultation process. Rail North would like to thank all those who responded to the consultation. These responses have been considered and the Strategy has been refined accordingly. In the main, the draft Strategy was supported by the consultees. From the consultation, it was clear that consultees did not consider wholesale redrafting or restructuring to be required and the focus in redrafting the Strategy has been on refinement and points of detail. A separate report summarising the consultation responses and how the Strategy has been developed and is available separately.

EXECUTIVE SUMMARY

OVERVIEW

The North's rail network has experienced decades of under-investment that has now started to be addressed. Key routes will be electrified, and the North's biggest rail bottleneck will be rectified as part of the Northern Hub programme. The Government is promoting a national high speed rail network that will by 2033 link cities in the North to Birmingham and London.

The North has a very substantial rail network with around 500 stations, yet achieves only around 3.7% market share. Given rail demand is forecast to grow more strongly than that for car, the rail mode share is expected increase to 5.7% by the mid-2020s. Even with this growth, rail in the North of England will still not reach its full potential. In this Strategy, there is an ambition to create the conditions for this market share to double again over the same period, as well as for there to be strong and sustained growth in rail freight. The latest industry projections indicate growth from 23bn tonne-km carried by rail in 2011/12 to 48bn tonne-km by 2033/34 nationally.

The high levels of annual growth in patronage that have been experienced in recent years across the North with a less vibrant economy (+66% between 2002 and 2012), will only continue if connectivity and capacity is improved further, and if rail offers a wider solution to travel needs in the North.

There are three over-arching objectives that drive this Strategy for the North's rail services:

- Supporting sustainable economic growth;

- Enhancing service quality, improving the appeal of rail and, by encouraging more rail use, reducing environmental impacts and carbon emissions; and

- Improving efficiency, reducing the cost per passenger and per tonne of freight carried.

The key device that shapes the Long Term Rail Strategy is the creation of an integrated network out of the set of separate routes and franchises that exist today. The current disparate arrangements limit rail's potential to play its full part. They present an overly-complex fares regime that leads to a belief that rail is too expensive and a network that is not easy for people to plan and undertake journeys that involve a change of train. There are 75 train routes in the North, all inter-connected, yet only 12% of today's passengers' transfer between trains (fewer than 1 in 8 trips). The railways are not being used as fully as they could be.

Across Europe, rail operators have put in place the measures needed to address these weaknesses, and our aim is to do the same for the North of England. This entails a vision of a radically simplified fares structure, spanning Local Authority boundaries, and a timetable designed to meet customers' differing needs, rather than operational convenience within the confines of individual franchises.

APPROACH

The Local Transport Authorities (LTAs), Local Enterprise Partnerships (LEPs) and other business groups across the North of England, along with LTAs in the North Midlands, have been involved in the development of this Strategy, working under the leadership of the northern Passenger Transport Executives (PTEs) and with the input and support of the rail industry.

The Strategy builds on previous work: City Region Rail Strategies, DfT's Delivering a Sustainable Transport System (DaSTS) programme and Network Rail's Long Term Planning Process. Having set out a Vision (Chapter 2), the baseline for the Strategy is described in terms of the North's economy (Chapter 3) and its transport system (Chapter 4).

A review was undertaken to identify the **strategic gaps** between the ambitions of the Vision and the reality that is likely to be delivered by current rail industry plans. This analysis is set out in Chapter 5.

The outcomes of the Strategy are set out in Chapter 6, and its implementation is described in Chapter 7.

VISION

The Vision for this Strategy, presented in Chapter 2, is driven by clear objectives and the dominant one is supporting a growing and more productive economy. Across the North, rail use is growing – and more strongly than on other transport modes. We want to see this continue with rail extending its reach and relevance across the North. Our ambition is for rail's market share to double over the next twenty years when compared with what would happen without this Strategy. The central proposition is that attention is turned to creating a connected network similar to those seen elsewhere in Europe. The focus is on broadening the appeal of rail to address a wider set of markets. Additional rail usage means more revenue and better value from committed and future investments.

EVIDENCE

Evidence underpins the Strategy. The North's economy, as discussed in Chapter 3, accounts for about a quarter of the national economy, yet underperforms economically in comparison to other parts of the UK, particularly the South East.

There are over 8 million people in the North's workforce, with 75% in the services sector, 12% manufacturing and 7% in construction; the remainder are in other sectors such as agriculture. The lack of city region inter-connectivity limits effectiveness of the northern economy. Markets may be perceived as extending no further than a single city region; the North misses out on 'agglomeration' economics.

A significant challenge facing the North's economy has been and continues to be economic restructuring to diversify and move beyond its traditional industrial past. There has been a steady expansion of financial and business services, nuclear and renewable energy, biotechnology, chemicals, service sectors, health sciences, and creative and knowledge-based industries. For the North's economy to meet its full potential, businesses need dependable access to wider markets and customer bases; individuals need to be able to reach a wider number of prospective employers; for business to prosper, there is also a need to overcome limitations in terms of international connectivity, through airports, ports and the Channel Tunnel.

ACHIEVING THE VISION

Sustainable economic growth will be supported by improving **connectivity**:

- Between the cities of the North;

- By expanding commuter networks;

- Connecting areas of economic disadvantage with areas of economic opportunity;

- Providing capacity to accommodate the expected growth in freight by rail;

- Addressing the differing needs of the North's evolving and rebalanced economy; and

- Providing direct and efficient links to London, the other major centres of Great Britain and international airports and to ports and freight terminals.

A fundamental requirement will need to be met which is to ensure that there is adequate provision of **capacity** across the North. It is a core customer requirement to have a reliable service and not to be forced to use overcrowded services.

There will be a transformation of quality leading to a more **coherent** network achieved through a focus on an easy-to-use network, integrated across the modes, with a connecting timetable of local and express city to city services and a transformed fares system.

The planned electrification of key northern routes will be used to trigger the achievement of a consistently good standard of train quality and, to ensure that antiquated rolling stock does not damage the perception and appeal of the North's new network.

Together these measures will support a doubling of the forecast rail market share by the mid-2020s.

Cost-effectiveness will be improved and efficiencies will be delivered through:

- Network Rail's on-going investment programme, especially in signalling and electrification;

- Exploring alliancing and other means of better industry cooperation;

- The creation of cross-city services, with the goal of enhancing fleet utilisation;

- Fine-tuning services to match demand and facilitate better integration with bus and tram;

- Electronic ticketing with reduced retailing costs and simplified fares;

- Revised operating practices, more closely attuned to customer service and using new technologies; and

- Reducing costs per seat by, for example, deployment of longer trains and through revised approaches to train procurement.

EXECUTIVE SUMMARY

The economy of the North will be stimulated through improved **connectivity**:

- Better rail services between the North's major centres creating larger markets for growing business sectors as the economy recovers;

- Better services for commuters that help stimulate a return to the pre-recession expansion of the North's major city centres as hubs for economic activity and increased opportunities for accessing work, avoiding wasteful congestion and over-crowding and improving productivity;

- Better connections to international gateways that help support the accessibility of northern businesses to international markets;

- Better connections between areas of economic disadvantage and areas of economic opportunity;

- Better connections between the North's major towns and cities and more rural parts of the North including National Parks and Areas of Outstanding Natural Beauty;

- Better connections within and between the North's more rural areas that will help maintain communities through providing access not just to jobs, but also other important services (e.g. tertiary education, health), as well as supporting a visitor economy;

- Better connections with London and major centres across the rest of the Great Britain that help re-balance the economy away from the South East and further stimulate development and impact on key northern economic sectors, including tourism;

- Better access to ports and freight terminals with a network that has sufficient capacity for growth and is gauge-cleared for 9'6" container traffic; and

- Better connectivity and integration between rail and other modes of transport, including light rail and Metro networks, buses, walking and cycling supported by comprehensive park and ride provision in appropriate locations.

Better **customer experience** concerns easy to use and understand fares, the timings of services and connections, getting a seat in a comfortable carriage and a parking space at the station. It reflects changing travel demand. Better connectivity and improved customer experience will be achieved through the adoption of integrated network thinking. Stations can be integrated into wider economic planning, as part of wider regeneration plans.

Greater **efficiencies** will be derived by investing to replace old technology, re-assessing existing services and striking a balance of between what passengers pay and what comes from the public purse. In some cases, stations with low demand do not justify current rail service provision and there is no prospect that this position would change, rail fares are not priced competitively with other modes and high operating costs stem from the use of antiquated infrastructure and outdated operating practices.

When **HS2** reaches the North, it will be important to ensure that the benefits are spread widely, with complementary measures adopted to ensure good connectivity to/from new high speed rail (HSR) stations, and the utilisation of capacity released on the classic rail network for both better freight and passenger services. Investment in the established network may need to be targeted where (net) additional volumes for services are expected with the opening of HS2, and options for early adoption and acceleration of at least key elements of the HSR programme will also be worthy of consideration. Not all of the North will benefit equally from HS2, so continued investment in the classic main lines linking the North to London is also important and this need is not replaced by HS2.

 The Northern Hub - the investment package focussed on Manchester which will address the North's biggest rail bottleneck and capacity shortfall and electrification in Yorkshire, the North West and potentially elsewhere will see considerable improvements in rail services in the North. These investments will need to be exploited to achieve the network connectivity aims.

THE NORTH'S INTEGRATED NETWORK – EIGHT KEY PRINCIPLES

1. A harmonised and simplified fares system

2. The adoption of a categorised service specification, comprising:

    1. high-speed and inter-city

    2. inter-regional express (Transpennine Express and others)

    3. urban commuter

    4. community railways

    5. (metros/LRT – related but outside the direct scope of this strategy except as interfaces)

3. Timetables designed to provide good connections between connecting rail services

4. Information provided in a user-friendly manner throughout the journey, across the network including on connecting modes using the latest, ever-evolving systems and databases

5. Stations designed and operated to facilitate transfers for all users between rail services and onward connections by bus, tram, cycle, car and walking routes

6. Operational practices designed to facilitate through journeys including those involving interchange and including between different operators

7. Investment in infrastructure and rolling stock designed to create a pleasant and safe travelling and waiting environment that is accessible for all, to avoid overcrowding and to facilitate the design of a connectional timetable

8. A progressive introduction of these principles achieved through franchise specifications and input to on-going railway planning processes and through supporting activities of local planning authorities

EXECUTIVE SUMMARY

OUTPUTS & BENEFITS

High level identification of rail network outputs required to achieve the Vision is set out in Chapter 7. The ambition to see rail's mode share double means that the 'generalised cost' of rail travel - a weighted combination of how long it takes to travel from door to door and the cost of travel - needs to be reduced by around 25%: an improvement judged to be ambitious but achievable. It will require attention across all elements of the rail journey, including journey times, frequency, punctuality and reliability, interchange, fares, information, marketing and access to the network.

Delivering a more efficient railway which will contribute towards a reduction in unit cost (through both increased patronage and reduced operating costs) and requires both enhanced attractiveness and relevance for off-peak travel and reduced operating costs using modern technology.

Journey times will need to reduce. The valuation of the benefits that this Strategy will bring assumes a 20% reduction in journey times. Reductions are needed whether or not HS2 is delivered.

The service categories will combine to create a network with transformed attractiveness for travel across the North. Alongside local services there will be a recognisable strategic network, much of it electrified, and able to offer the many advantages that investment in this area brings, in terms of customer experience, faster journey times, better network utilisation and greater efficiencies.

CONCLUSION

The potential benefits of delivering the Vision are very considerable indeed. These have been quantified at up to £50bn (PV 2010 over a 60 year appraisal period) and GVA benefits (2025, nominal inflation) equate to £0.9bn per year.

Industry forecasts suggest that rail demand will increase by 40% by the mid-2020s. If realised, this growth would increase rail's mode share. For forecast rail mode share in the mid-2020s to double from 5.7% to 11.3%, then rail demand will need to grow at around 8% per annum; an increase of 180%.This would not be achievable without the combination of delivery of committed investments (electrification, the Northern Hub, Inter City Express (IEP), the electrification programme) *and* the adoption and implementation of this Strategy.

The Vision will be used as a guide for the various franchise specifications needed over the next few years. It will also be used to provide a single coordinated stakeholder voice. Local and/or sub-regional plans and programmes will need to be either updated or developed. The Strategy will need to be updated, and a formal periodic review process is proposed. This Strategy sets out the ambitions and determination of stakeholders in the North to ensure that the rail network becomes a real asset to the North, to those living in the North, and to existing and prospective businesses in the North.

1. INTRODUCTION

This Long Term Rail Strategy sets out the role that rail should fulfil in future in the North of England. It is objective-led and sets out the challenges and opportunities facing the North's rail network together with how these can be addressed and met.

LONG TERM RAIL STRATEGY

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The Strategy considers the needs of both passengers and freight. It builds on existing plans of the North's Local Transport Authorities (LTAs) and the rail industry's transformative plans for the Northern Hub and for network electrification.

While the focus of the Strategy is long term – through to the mid-2020s and beyond into the mid-2030s, one of its more immediate uses is to set the vision which should guide the various franchise specifications needed over the next few years and to provide a single coordinated stakeholder voice.

CONTEXT

In parallel to the development of this Strategy, the Secretary of State for Transport and Rail North have agreed to develop a partnership approach to the re-franchised Northern and Transpennine Express services. These new franchisees will commence in April 2016. A shared set of principles has been agreed to underpin this Partnership. These acknowledge the importance of growing the railway to maximise the benefits of infrastructure investment and linking this to railway efficiencies and having a platform for determining investment priorities within the Partnership. The Secretary of State has welcomed the principle of risk and reward sharing between members of the Partnership. Rail North and the Department for Transport are now working closely on the specification of these franchises, The parties are now working to agree detailed arrangements to ensure that the franchises will be jointly specified and then managed by the Partnership, with DfT running the procurement processes to a common timetable.

Rail North's goal is that this Strategy forms a guiding vision for the specification and management of these and future rail franchises for the North. There is also a wider purpose, including influencing open access operators' ambitions, both for passengers and freight services provision and the investment strategies, policies and programmes pursued by national Government, Network Rail and Local Transport Authorities.

A central part of the approach to developing this Strategy has been working with Local Transport Authorities (LTAs), Local Enterprise Partnerships (LEPs) and other business groups to reflect views of representatives from right across the North of England and indeed beyond, into adjoining areas.

THE LONG TERM RAIL STRATEGY AREA

FIGURE 1.1

SCOTLAND

D – DARLINGTON
H – HARTLEPOOL
MD – MIDDLESBROUGH
RC – REDCAR & CLEVELAND
SN – STOCKTON-ON-TEES

NORTH EAST

CUMBRIA

H
D SN
RC
MD

NORTH YORKSHIRE

CITY OF YORK

EAST RIDING OF YORKSHIRE

LANCASHIRE

BLACKPOOL

KINGSTON UPON HULL

BLACKBURN WITH DARWEN

WEST YORKSHIRE

GREATER MANCHESTER

NORTH LINCOLNSHIRE

NORTH EAST LINCOLNSHIRE

LIVERPOOL CITY REGION

WARRINGTON

SOUTH YORKSHIRE

LINCOLNSHIRE

CHESHIRE WEST & CHESTER

CHESHIRE EAST

NOTTINGHAMSHIRE

WALES

STOKE-ON-TRENT

DERBYSHIRE

NOTTINGHAM

SHROPSHIRE

STAFFORDSHIRE

DERBY

TELFORD & WREKIN

LEICESTERSHIRE

1. INTRODUCTION

Network Rail's investment programme operates on a five-yearly cycle and Control Period 5 started at the beginning of April 2014. Because of the regulatory and funding cycle there is limited opportunity to influence what will happen in the short term. However, looking beyond the short term, Control Periods 6, 7 & 8 (2019-2023, 2024-2028, 2029-2033) are where the greatest uncertainty lies, and it is the purpose of this Strategy to create an updatable consensus on how to respond to this longer term challenge.

GEOGRAPHIC SCOPE

The study area is illustrated in Figure 1.1. It includes the eight city region based LEPs namely: North Eastern; Tees Valley; Leeds City Region; Sheffield City Region; the Humber; Greater Manchester; Liverpool City Region and Lancashire. With the addition of the Cumbria, York, North Yorkshire and East Riding, and Cheshire & Warrington LEPs, eleven of the 39 LEPs in England cover the area considered by this Strategy. There is also a wider area of interest in the Strategy. To the south, the city region catchments (and some commuter rail services) extend into parts of Greater Lincolnshire, Derby, Derbyshire, Nottingham and Nottinghamshire, and Stoke-on-Trent and Staffordshire LEPs. To the north, there are important wider catchments for Carlisle (in Dumfries and Galloway in Scotland) and there are also cross-border services from the study area into Wales. All these neighbouring areas have been considered in the development of this Strategy.

A LEP is a combination of different local businesses working in partnership with local authorities. LEPs offer a new approach to economic development in England, providing greater freedoms to local communities and businesses to drive growth. Each LEP provides individual objectives and leadership to promote sustainable sector-led growth and job creation.

A further development of relevance to this work is the creation of the Local Growth Fund, which will be allocated by Local Enterprise Partnerships to support the delivery of their Strategic Economic Plans. Government has indicated that in total it intends the Local Growth Fund to amount to £2bn per annum over the life of the next Parliament.

Given the size of the area covered by this Strategy, and for ease of presentation, key statistics information has been divided into smaller areas. For this purpose, and reflecting the direction of Government policy, the LEP boundaries have been used.

DOCUMENT STRUCTURE

In the following chapter the Vision of the Long Term Rail Strategy is set out. Then in Chapter 3 both the economic and social context is presented for the North of England. This is followed by Chapter 4 detailing the railway and the use of it in the North of England.

Chapter 5 builds on the earlier chapters and through strategic gap analysis it seeks to identify what is required in order to support the achievement of the vision and objectives of the Strategy. Then Chapter 6 presents a series of conditional outputs that if realised will address the previously identified gaps. Ultimately in Chapter 7 the implementation of the Strategy is proposed, detailing what is to be done and when and how to monitor progress of the delivery of the Strategy in future.

2. VISION

In this Chapter we present the Vision for the Long Term Rail Strategy. First, however, we set out the approach adopted to develop the Vision and the Strategy that flows from it. Instrumental in this approach has been listening to Local Transport Authorities, businesses and other stakeholders to understand views held with the goal of seeking a consensus across the North.

INTRODUCTION

In this Chapter we present the Vision for the Long Term Rail Strategy. First, however, we set out the approach adopted to develop the Vision and the Strategy that flows from it. Instrumental in this approach has been listening to Local Transport Authorities, businesses and other stakeholders to understand views held with the goal of seeking a consensus across the North.

APPROACH

The approach adopted in developing the Strategy has been consensual and has involved engaging stakeholders and working together to help shape the Strategy for the North of England.

Stakeholders have been engaged directly throughout. In some cases one to one meetings with Local Transport Authorities and Local Enterprise Partnerships representatives have taken place. Two stakeholder events were held in late 2012. At the first stakeholder event in Leeds in mid-October, debate took place on several topics including the economy of the North of England and the implications for rail. In a second event held in Manchester in mid-December, a summary of the evidence-base and the strategic direction of the emerging Strategy were presented. It also allowed stakeholders the opportunity to set out their future aspirations for rail in the North of England.

A Task & Finish Group was established to oversee this work. It met monthly and helped shape and guide the resultant Strategy. It included officers from:

- West Yorkshire Combined Authority, SYPTE (South Yorkshire Passenger Transport Executive, TfGM (Transport for Greater Manchester), Merseytravel and Nexus;
- Three local authority officers representing collective interests in the North East, North West and Yorkshire and the Humber; and
- Network Rail.

Technical advice was provided by consultants Steer Davies Gleave. Day to day management of the development of the Strategy was undertaken on behalf of the commissioning clients by SYPTE.

THE VISION

The overall goal is for the railways in the North to be recognised as being a positive feature of living and working in the North, with a central role to play in supporting the growth and regeneration of the North's economy.

There are elements to achieve this goal. The dominant one is supporting a growing and more productive economy. At present, rail in the North has a limited share of travel with the National Travel Survey suggesting a mode share of 3.2%[1] (compared to an English average of 4.3%). Importantly, rail use is growing – and more strongly than other modes. By the mid-2020s it is anticipated the rail mode share will have increased to 6.1%. Meeting the Vision and planned investment could result in market share further doubling to 12.2%[2].

The Vision has four key elements:

i)   Better **Connectivity**, with quicker door-to-door journeys delivered through faster services, more frequent and punctual, and new services where the demand and business case justifies them;

ii) Adequate provision of **capacity**, both on-train so that passengers do not experience overcrowding and on-track so additional demand for economically worthwhile passenger and freight movements can be accommodated;

iii) A transformation of quality, with the creation of a user-friendly network. We want nothing less than the visible marketing **coherence** of the London Underground delivered over the North's wide geography. This needs to be applied to a sophisticated network mix that has defined categories of train services as well as many routes that will be planned to operate together as a single whole, as an explicit alternative to car use across the North;

iv) A more efficient and **cost-effective** railway. As use of the North's rail services grows, costs per passengers carried need to fall; the key to achieving this is investment.

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1   Taken from DfT National Travel survey 2011/12 for the average trips per person and where rail is classified as 'other public' which also includes non-local bus, taxi, ferries etc. Actual rail share will therefore differ slightly.

2   The mode share data is the split between rail and car travel. It is derived from Tempro data but uses factors from the National Travel Survey to exclude trips that are less than 5 miles. Growth in car travel is based on Tempro forecasts while rail demand growth is based on the Northern RUS forecasts.

2. VISION

The economy of the North will be stimulated through improved connectivity:

- Better rail services between the North's major centres can help create larger markets for business sectors that are expected to grow most quickly as the economy recovers;

- Better services for commuters can help stimulate a return to the pre-recession expansion of the North's major town and city centres as hubs for economic activity and increase opportunities for accessing work, avoiding wasteful congestion and over-crowding and improving productivity;

- Better connections to international gateways (ports, airports and the Channel Tunnel) can help support the accessibility of northern businesses to international markets and create more opportunities for business start-ups and existing businesses to grow their activities in the North of England;

- Better connections between areas of economic disadvantage and areas of economic opportunity;

- Better connections between the North's major town and cities and its coastal resorts, for example Southport, Blackpool, Morecombe, Scarborough and Cleethorpes;

- Better connections between the North's major towns and cities and more rural parts of the North including National Parks and Areas of Outstanding Natural Beauty;

- Better connections within and between the North's more rural areas that will help maintain communities through providing access not just to jobs, but also other important services (e.g. tertiary education, health), as well as supporting the visitor economy;

- Better connections with London and major centres across the rest of Great Britain, some of which can be delivered through high-speed rail, will help re-balance the economy away from the South East and further stimulate development and impact on key northern economic sectors, including tourism;

- Better access to ports and freight terminals with a network that has sufficient capacity for growth and is gauge-cleared for 9'6" container traffic; and

- Better connectivity and integration between rail and other modes of transport, including light rail and metro networks, buses, walking and cycling supported by comprehensive park and ride provision in appropriate locations.

Rail provides an important social function in connecting people to jobs. Rail connectivity means that labour pools can be expanded, allowing people to travel further to opportunities.

2. VISION

There is also a strong quality dimension that has an impact on the public perception and use of the rail. Whilst this is beginning to change, the North's railways have suffered from a long period of under-investment. This is very visible in the continuing use of old and poorly equipped train sets, and the unappealing nature of many stations which are perceived to be unsafe to use, particularly after dark. Fare levels are inconsistent across PTE/shire boundaries and good quality information across the full set of services is hard to obtain. The Strategy sets out how this will be addressed.

Many journeys in peak periods involve standing and as do some trains at off peak periods. Station parking is often inadequate. The capacity and capability of the network to accommodate additional services, particularly freight, is limited.

There is an inseparable requirement to achieve greater efficiency through the period of growth projected for the North's rail system over the next two decades. The lessons from the McNulty Review[3] of railways will need to be applied. The unit costs of providing for each passenger and tonne of freight carried must fall, as volumes increase. There are two keys to this:

i)   Having visibility of costs at a local level so that it is possible for railway managers to understand the immediate impact of changes and where effort should be focused, and

ii)   Using the major investment programme on the North's railways to drive efficiencies as well as service enhancement.

The Strategy also recognises the inherent environmental efficiency of rail, in particular that well-utilised rail services have lower emissions of greenhouse gases per passenger kilometre and freight tonne kilometre than road alternatives, regardless of whether rail is diesel or electrically powered. The way to realise this environmental efficiency is simple: maximise rail's passenger and freight mode share. Increased electrification simply reinforces this advantage.

The Vision is about outputs and outcomes. It will be for the rail industry and other partners, including planning and economic development bodies across the North – and especially the Local Enterprise Partnerships, Local Transport Bodies and Local Transport Authorities to help turn the Strategy into deliverable results. The rail industry in particular will itself set out how the ambitions and Vision set out here can best be delivered.

The Vision is heavily weighted towards delivering improved connectivity which is likely to have the single largest impact on supporting economic growth.

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3   Realising the Potential of GB Rail May 2011 http://assets.dft.gov.uk/publications/report-of-the-rail-vfm-study/realising-the-potential-of-gb-rail-summary.pdf

STAKEHOLDER PRIORITIES

Active stakeholder engagement was undertaken to support the development of this Strategy. This established their priorities to meet the Vision and along with baselining work on the economic and social context (Chapter 3) and rail in the North (Chapter 4), informed the identification of Gaps (Chapter 5) and specification of the Strategy's Conditional Outputs (Chapter 6).

Distilling that stakeholders' input has led to the identification of seventeen strategic elements. Stakeholders also identified the importance of the North's railway being locally responsive: inter-regional, local commuter and rural lines each have different requirements and it was stressed by stakeholders that the Strategy should recognise this.

Better connectivity

i) *Between city regions.* The existing train services are in most cases seen as too slow

ii) *To international gateways.* These provide the North of England access to compete in a global market and allow for both the import and export of goods and services (Manchester and other major northern airports; London airports; ports, the Channel Tunnel)

iii) *Within city regions,* where an emphasis is needed on integration between different modes (since rail does not serve everywhere and so bus/LRT/cycle/car/taxi/walk are needed for journey completion)

iv) *Between the city regions and the more rural parts of the North,* in particular the popular national parks and Areas of Outstanding Natural Beauty within the region

v) For the *network as a whole* (since it is not recognised as such) with better service connectivity (including modal integration, harmonised fares system)

vi) For *access to regional centres* for health and education; and for leisure, as well as to work and for business

vii) For *rural connectivity* to education, essential services and employment

viii) That for key journeys especially to/from international gateways, there is an aspiration for *a 24 hour capability*

Stakeholders also identified that better connectivity has significant implications for enhancing **capacity**, not just on trains but also of the rail network (number of trains) It also has implications for access, where the question of station car parks is a key issue to address, as is the need to ensure that linkages between stations and the communities they serve are clear and attractive.

Coherence

ix) *Easy to use and understand* fares, service timings, connecting services

x) Get *a parking space and a seat* noting that people are travelling further to get employment

xi) Reflect *changing travel demands* such as by students and as a result of Sunday trading

xii) *Better information* provided and communication made to customers including during disruptions

Cost-effective

xiii) Fare levels need to *strike a balance* between what passengers pay and what comes from the public purse. They should be affordable yet offer value for money to both the passengers *and* the public purse

xiv) It is right to question whether all services running today need to continue in the future

xv) *Replacing old technology* (e.g. signalling, Driver Only Operation) should lead to significant efficiency savings

xvi) High-speed rail – ensure there are *benefits to all areas across the North from HS2* and the resultant capacity gains

xvii) *Northern Hub and electrification* – avoid post electrification services being split into an electric service and a connecting diesel service with passenger interchange between the two.

ACHIEVING THE VISION

Sustainable economic growth will be supported by improving **connectivity**:

- Between the cities of the North;

- By expanding commuter networks;

- Connecting areas of economic disadvantage with areas of economic opportunity;

- Providing capacity to accommodate the expected growth in freight by rail;

- Addressing the differing needs of the North's evolving and rebalanced economy; and

- Providing direct and efficient links to London, the other major centres of Great Britain and international airports and to ports and freight terminals.

A fundamental requirement will need to be met which is to ensure that there is adequate provision of **capacity** across the North. It is a core customer requirement to have a reliable service and not to be forced to use overcrowded services.

There will be a transformation of quality leading to a more **coherent** network achieved through a focus on an easy-to-use network, integrated across the modes, with a connecting timetable of local and express city to city services and a transformed fares system.

The planned electrification of key northern routes will be used to trigger the achievement of a consistently good standard of train quality and, to ensure that antiquated rolling stock does not damage the perception and appeal of the North's new network.

Together these measures will support a doubling of the forecast rail market share by the mid-2020s.

Cost-effectiveness will be improved and efficiencies will be delivered through:

- Network Rail's on-going investment programme, especially in signalling and electrification;

- Exploring alliancing and other means of better industry cooperation;

- The creation of cross-city services, with the goal of enhancing fleet utilisation;

- Fine-tuning services to match demand and facilitate better integration with bus and tram;

- Electronic ticketing with reduced retailing costs and simplified fares;

- Revised operating practices, more closely attuned to customer service and using new technologies; and

- Reducing costs per seat by, for example, deployment of longer trains and through revised approaches to train procurement.

3. ECONOMIC AND SOCIAL CONTEXT

The North accounts for around 25% (£311 billion GVA) of the national economy. Its economy is much larger than Scotland, Wales and Northern Ireland combined, as well as the individual Scandinavian economies of Sweden, Norway and Denmark.

INTRODUCTION

In this chapter we consider the economic and social context for the Long Term Rail Strategy.

THE NORTH'S ECONOMY

The North accounts for around 25% (£311 billion GVA)[4] of the national economy. Its economy is much larger than Scotland, Wales and Northern Ireland combined, as well as the individual Scandinavian economies of Sweden, Norway and Denmark.

Despite this, the North lacks economic cohesion and transport is a factor in this. The area underperforms economically in comparison to other parts of the UK, particularly the South East. The recession has had a more pronounced effect on parts of the North than it has across the nation as a whole. Recovery is projected to take longer than the national average. The North has a higher share of public sector jobs and reductions in public sector spending are proportionately higher, so the challenge is all the greater.

Government wants to achieve a re-balancing of the national economy, away from the over-crowded South East and away from an undue reliance on financial services. Clearly the North has a contribution to make to this aim, but there is a need to do so in a sustainable manner. In practice this might need to include:

- Accommodating a larger share of expected national population growth;

- Providing a means to avoid congestion in the South East,
  including at its ports and international gateways.

There is consensus that a Northern economic recovery programme needs to:

- Build on the existing diversified strengths of the North's economy;

- Entail an increase in private sector activity across the board
  and an expanding level of trade and exports.

The city regions and urban areas account for a large part of the North's economic output. Compared with international comparators they lack good inter-connectivity and have poor connections with international gateways. The lack of city region inter-connectivity limits perceived market size; the North misses out on 'agglomeration' economics. Within city regions, there are also major locations of high unemployment that have poor accessibility to city centres and other locations of employment.

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4 ONS, 2009 Headline GVA at Current Prices for the following areas (December 2012 release http://www.ons.gov.uk/ons/rel/regional-accounts/regional-gross- value-added-
  -income-approach-/december-2012/rft-gva-nuts3.xls): Greater Manchester, West Yorkshire, Derbyshire and Nottinghamshire, Northumberland and Tyne and Wear,
  Shropshire and Staffordshire, Lancashire, Cheshire, South Yorkshire, Merseyside, Tees Valley and Durham, East Yorkshire and Northern Lincolnshire, North Yorkshire,
  Lincolnshire, Cumbria. ONS data from 2011 shows that the Northern GVA has increased to £328 bn, which is also 25% of the national economy.

3. ECONOMIC AND SOCIAL CONTEXT

It is also true that, over the last 50 years or so, the pattern of development in the North through the period of de-industrialisation has been dispersed, with new business parks typically remote from railway stations. This may continue in some sectors but areas of growth in advanced manufacturing, knowledge-based industries and the broader services sector are more likely to cluster. Some of these clusters will be in city centres, where rail has much to offer, others around Universities which have variable rail accessibility yet have witnessed a growth in the number of students living at home and commuting.

FIGURE 3.1   HISTORIC GVA IN THE NORTH
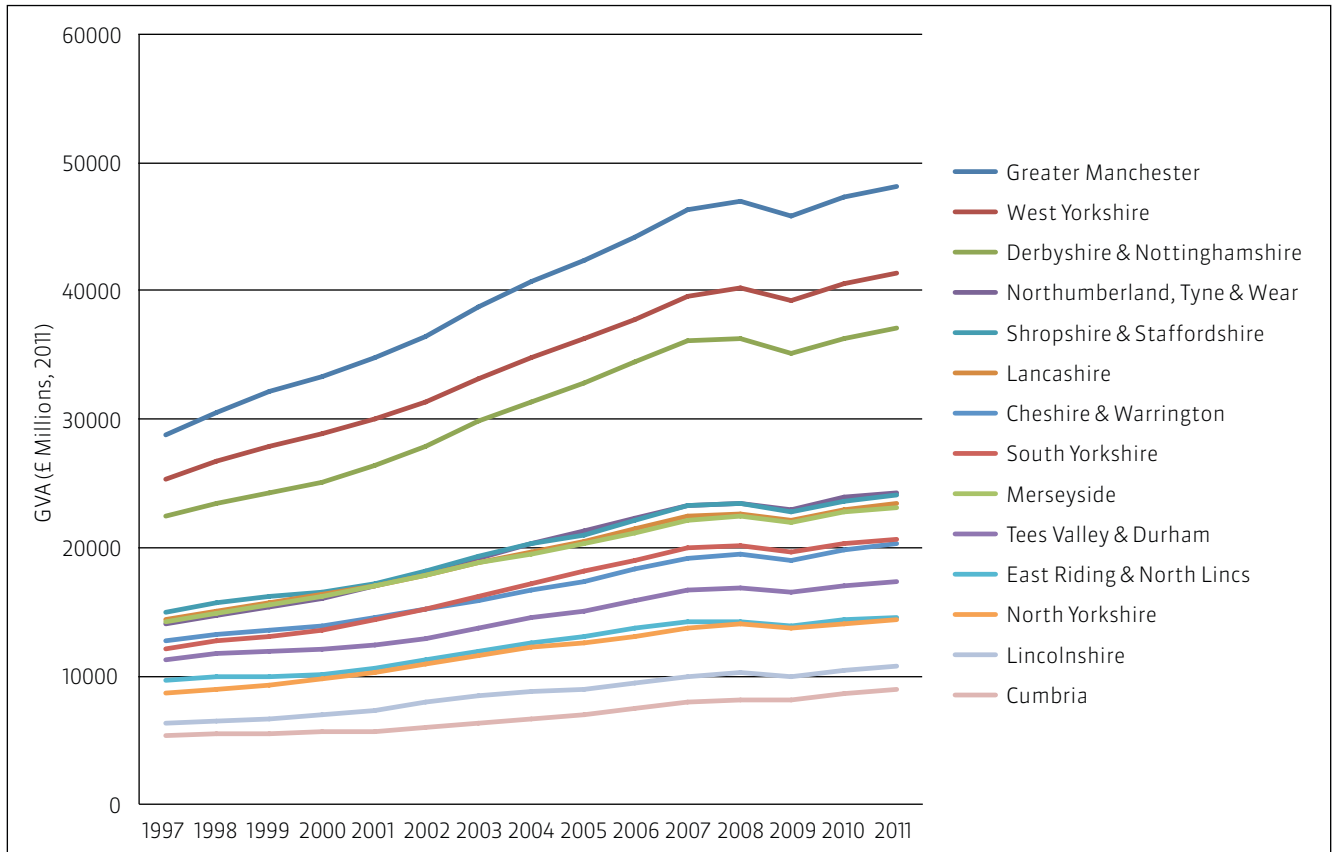
Source: ONS[5]

Figure 3.1 shows the economic growth experienced in recent times has been greatest in the major urban areas demonstrating the importance of Greater Manchester, West Yorkshire and (northern) Derbyshire/Nottinghamshire to the North's economy.

Work by the Institute of Public Policy Research (IPPR) and Northern Economic Futures Commission (NEFC) challenges conventional thinking regarding agglomeration and economic growth and confirms that while recent growth has been focused around major centres, as noted above, future growth could be more centred on second tier cities[6].

There is also a need to think about the wider regional context, building on the North's natural advantages, as expressed in its National Parks and other rural landscapes which offer benefits in terms of quality of life and are a factor in attracting inward investment and helping the North be a great place to live.

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5   www.ons.gov.uk/ons/rel/...gross-value-added.../rft-gva-nuts3.xls

6   IPPR North and the Northern Economic Futures Commission Northern Prosperity is National Prosperity November 2012 p27

FIGURE 3.2   GVA GROWTH BY REGION (INDEXED TO 2011)
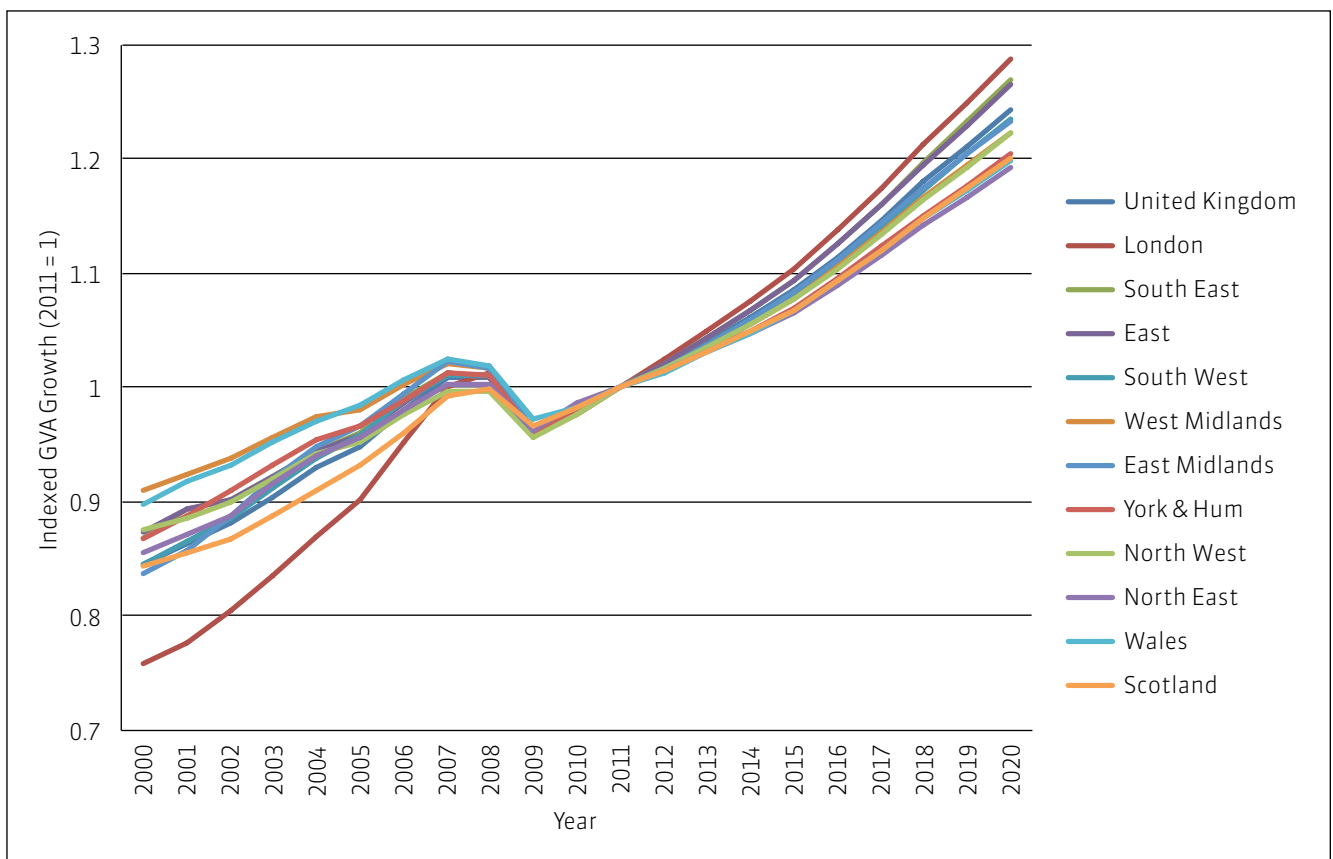
Source: UK Commission for Employment and Skills, UK Employment and Skills Almanac 2011[7]

When considering future growth nationally, forecasts suggest a continuing and growing divergence between the North and the South/South East as shown in Figure 3.2.

Gross Value Added (GVA) in London is the highest in the country, reflecting the concentration of high value businesses such as financial and insurance sectors, and its ability to attract large commuting volumes.

Studies have highlighted the importance of infrastructure enabling connectivity of underperforming regions and a business environment that promotes economic growth.[8]

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7   https://almanac.ukces.org.uk/default.aspx
8   IPPR North and the Northern Economic Futures Commission *Northern Prosperity is National Prosperity* November 2012 p28

The IPPR drew on a classification of regions across Europe into three categories of economic standing: high performing, middle performing and under-performing[9]. The three North of England regions are all in the middle (intermediate) category for which the IPPR concludes that 'faster growing regions are characterised by better infrastructure and connectivity to global markets'.[10]

This is particularly relevant because the North's share of UK exports is growing and the North East outstrips every other English region in terms of export goods per workforce job.[11]

This led the Northern Economic Futures Commission/IPPR to conclude that:

- Transport infrastructure was one of four key drivers that would appear to be particularly important in driving economic growth in the medium to long term.[12]; and

- There is inevitable uncertainty over economic outlook for the North of England. While there is expected to be a decline in the working age population as a result of demographic trends[13], there are forecasts of an increase in jobs of +290,000 over the period between 2012 and 2022[14] or alternatively of +170,000 over the period between 2010 and 2020.[15]

Of course, with suitable policy interventions these projections may be exceeded, reducing levels of unemployment, but it is clearly within the realm of possible outcome that the numbers in employment could fall across the North as a whole over the next ten years. For this reason it is important to consider this Strategy under three scenarios that reflect the uncertainty over economic performance and hence over levels of rail demand, which we take up in Chapter 8 but summarise below:

i)   The North experiences a strong economic recovery

ii)   The economy of the North recovers but lags the national average

iii)   The North experiences greater problems with economic recovery

This is also necessary as the Strategy needs to be robust under a range of possible economic outturns.

The Northern Economic Futures Commission in its November 2012 report also called for 'a national spatial vision' which it says is currently lacking[16]. This too could be an important factor in the economic scenarios that need to be considered because, faced with an expectation of substantial demographic growth at a national level, the question of how this will take shape at a regional level is little understood.

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9   OECD *Promoting Growth in All Regions*, Paris, November 2012

10 IPPR North and the Northern Economic Futures Commission *Northern Prosperity is National Prosperity* November 2012 p28

11 *Ibid* p73

12 *Ibid* p29 The other three are human capital, innovation and business environment, and enhanced institutional capacity.

13 Ibid p37

14 Oxford Economics 2011 *Prospects for the North – 2011* presentation to NEFC October 2011

15 Wilson RA and Homenidou K *Working Futures* Wath upon Dearne: UKCES revised August 2012

16 IPPR North op cit p98

3. ECONOMIC AND SOCIAL CONTEXT

Projections from the Office of National Statistics (ONS) are disaggregated spatially and used to inform the Department for Transport growth forecasts. But the ONS projections essentially assume current patterns of inter-regional migration are unchanged. The trend has been towards a predominance of growth in the wider South East, to the extent that the North as a whole did not grow (in population terms) during the 1990s, but did expand (but at a low rate, relatively) in the 2000s.

Whether this pattern of population growth changes - either as a result of the kind of initiative that the Northern Economic Futures Commission suggests (it proposes following a successful model used in Germany) or as a result of market forces - could make a very significant impact on the scenarios for considering the needs of the North's rail network, which offers the most sustainable approach to providing an increase in capacity for the transport network. The Northern Economic Futures Commission work shows that a number of conditions are already evident which may lead to a change in the pattern of differential population (and employment) growth in the North and South East; of land in the North 4.6% has previously been developed (and is therefore more suitable for fresh development), compared with only 1.7% in the South East[17]; the Environment Agency want housing development to be focused in areas with suitable resources, including water availability which is under greatest stress across the South East[18]; and congestion in the South East is potentially starting to outweigh the benefits of agglomeration.[19] There are also indications that major banks based in London are increasingly looking to decentralise with employment re-located to key regional cities (including those in the North)[20].

CONNECTIVITY

The importance of connectivity to productivity growth has been studied in the North of England, as well as elsewhere. A consistent correlation has been found between areas that have experienced the highest productivity growth in recent years and their degree of connectivity.[21] But the Northern Economic Futures Commission work identifies that connectivity is a *necessary but not sufficient condition* for growth.[22] It notes that connectivity across the North is 'patchy' with some major towns and cities having 'relatively isolated economies' (it cites Blackburn and Burnley as examples). It goes on to note that, for example, commuter travel between Leeds and Manchester is 40% lower than might be expected when compared with other close city pairs in Great Britain.[23] The Commission's report indicates the lessons from the case studies can be extended elsewhere in the North. The majority of the best connected local authorities in England and Wales are found in the South East; there are only four (out of fifty nationally) in the North West and none east of the Pennines[24].

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17 Environment Agency *Water for People and the Environment*, Bristol 2009

18 Evening Standard, December 11th 2012

19 IPPR North *op cit* p108

20 *Ibid* p99

21 IPEG and CUPS *The Northern Connection: Assessing the Comparative Performance and prospects of the Northern Economy*, Northern Way, 2008

22 IPPR North *op cit* p109

23 Overman H *et al* *Strengthening Economic Linkages between Leeds and Manchester: Feasibility and Implications*, Northern Way and the Spatial Economic Research Centre, London School of Economics, 2010

24 ATOC *Accessibility Statistics* 2010

3. ECONOMIC AND SOCIAL CONTEXT

In 2011, the Eddington Report[25] was re-considered by the House of Commons Transport Committee. A key question that the Committee considered was whether in the light of the recession the approach put forward by Eddington remained sound or whether an alternative approach was needed. The Committee's report notes that "despite changes in economic conditions and transport demand, the predominant view of our witnesses, including the DfT, academics, business groups, local authorities and transport professionals was that Eddington's broad analysis of the linkages between transport and the economy held true".[26]

Connectivity enhancements between the North's city regions would support balanced economic growth across the North. This would happen by extending labour markets, and there is evidence that this is already happening[27], and by supporting efficient interaction between businesses and between businesses and their markets.

DEPRIVATION

Indices of Multiple Deprivation are a series of indicators and are a quantitative assessment of which places are the most deprived. These continue to show a widening trend of North-South divide.

Three of the top five most deprived local authorities in the country are in the North West and this has not changed in the last five years. However, data shows a changing picture of deprivation patterns for local areas, including a number of highly deprived areas that have become significantly more deprived[28], places such as Burnley for example, and large increases in relative deprivation for coastal areas in places such as Blackpool and Scarborough.

Despite this the indices show the most deprived areas are generally found in the major urban centres - 98% in fact, with the surrounding suburban journey to work areas typically showing less deprivation. Even so, significant deprivation can also be found in the former coal mining areas of Nottingham, West Yorkshire and County Durham. There are also pockets of higher levels of deprivation in East Lancashire and on the Cumbrian coast.

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25 The Eddington Transport Study, March 2006
26 House of Commons Transport Committee Transport and the Economy, February 2011
27 *Moving Forward The Strategic Direction for Transport* , Northern Way, March 2007
28 https://www.gov.uk/government/publications/english-indices-of-deprivation-2010

ENVIRONMENT

The Government's Carbon Plan[29] acknowledges two key risks over the coming decades:

- Without constraining global greenhouse gas emissions there is the prospect of dangerous climate change; and

- There is a challenge to energy security and current energy supply is reliant on fossil fuels with volatile prices.

The Government's Carbon Plan sets out a strategy to address this by moving towards a low-carbon economy in the UK. There is a clear target for the reduction in greenhouse gas emissions of at least 34% by 2020 and 80% by 2050[30].

In 2012 transport accounted for around 134 $MtCO_2e$ emissions, representing around 23% of the UK domestic greenhouse gas emissions[31]. The overwhelming majority of these emissions are from the oil based fuels relied on for road travel and just 2% of all domestic transport GHG emissions are associated with rail. Of rail emissions, around a quarter are associated with rail freight and the remainder with passenger rail[32].

ACCESS TO EMPLOYMENT

In 2011 the total number of workers in the North was just over 8.2 million. There were 845,500 people out of work.[33] Levels of unemployment vary from a high of 10.8% of the economically active population (Tees Valley) to a low of 5.1% (Cumbria).[34]

In terms of employment type, of 8.2 million workers, 77% work in the service sector, 12% work in manufacturing and 7% in the construction sector. The remainder work in other sectors such as agriculture. The service sector is dominant source of jobs.

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29 http://www.decc.gov.uk/en/content/cms/tackling/carbon_plan/carbon_plan.aspx

30 Reduction from 1990 levels.

31 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/295968/20140327_2013_UK_Greenhouse_Gas_Emissions_Provisional_Figures.pdf

32 DfT Factsheet *UK Transport Greenhouse Gas Emissions*

33 www.nomisweb.co.uk 2011 Census population

34 www.nomisweb.co.uk – Economic Activity Jan 2013-December 2013

A significant challenge facing the North's economy has been economic restructuring to diversify and move beyond its traditional industrial past. Manufacturing remains the largest industry contribution to GVA, with the North producing 27% of the UK's manufacturing output. There has been a steady expansion of financial and business services, nuclear and renewable energy, biotechnology, chemicals, service sector, health sciences, and creative and knowledge-based industries.

As well as the city centre and urban economies there are also important rural tourist based economies across the North. Tourism provides employment in the North. Levels of employment vary from 14.4% in Cumbria, 12.9% in York and Blackpool, with an average of 8.8% for the North.[35]

Travel to work is a key function of rail in the North. Rail can provide employers with access to larger labour pools and workers with access to a wider set of potential jobs, and is also important in linking regional centres to their hinterlands including to areas of higher deprivation. There is evidence that enhancing rail links can support economic spill-over from more to less prosperous areas.

ACCESS TO HEALTH

The majority of health related trips are likely to be to local GP and local health facilities. Rail does not typically serve this type of trips. In general, hospitals are not well placed for access by rail. Most hospitals are located more than a mile from the nearest station. This means that those travelling to hospital will generally use either taxi or local bus services. There are, of course, exceptions to this and a number of major health facilities in the North are within easy access of rail stations.

There is however a concentration of more specialist health facilities at larger town and city centre hospitals and sustainable access, and access for those without car, would seem essential.

ACCESS TO EDUCATION

Across the North there are a wide variety of further education colleges (ages 16-18) and high education colleges and universities (ages 18+). Secondary schools and further education colleges are likely to have a more local catchment with students generally travelling by bus, cycle or foot to reach facilities, although there are some notable exceptions with children crossing LEA boundaries throughout the North. Some rail routes in the North serve a significant function for educational journeys. Higher education and colleges and universities are more specialist and have the potential to draw attendance from a larger catchment area, which rail is better placed to serve.

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35 ONS Percentage of job employment within tourism characteristic activities (2010-11)

3. ECONOMIC AND SOCIAL CONTEXT

An increasing number of students live with their parents and choose to commute by rail and make greater use of rail services both within and outside of conventional peak periods.

SUMMARY OF KEY POINTS

- The North accounts for around 25% (£311 billion GVA) of the national economy. It is much larger than Scotland, Wales and Northern Ireland combined. Despite this, the North lacks economic cohesion and transport is a factor in this and it underperforms economically in comparison to other parts of the UK.

- A Northern economic recovery programme would need to build on the existing diversified strengths of the North's economy and increase private sector activity and expand levels of trade and exports.

- Government's stated aim to achieve a re-balancing of the national economy and the North has a contribution to make to this. Transport and in particular rail has a key role to play here. City regions will continue to account for a large part of the North's economic output and rail is well placed to assist with this. Outside of city regions, patterns of development have been more diverse and in order to capitalise on rail's offer this needs to change in the future.

- Regarding agglomeration and economic growth, while historic growth has been focused around major centres, future growth could be more centred on second tier cities. Rail is important in increasing the size of labour pools and so enhancing employment opportunities, and in spreading 'spill-over' from stronger economic centres.

- Clear evidence suggests better infrastructure and connectivity to global markets result in faster growing regions. Better connectivity is needed in the North to accommodate the growing levels of export, particularly from the North East. Rail provides important connectivity to ports and airports which link to key international markets.

- The importance of connectivity to productivity is well reported. There is a need to improve productivity in the North to ensure its potential is reached, and to achieve this there is also a need to enhance connectivity.

- Despite the recession, the approach put forward previously by Eddington remains sound; that is the strategic economic priorities for transport policy should be congested and growing urban areas and their catchments; together with key inter-urban corridors and access to key international gateways.

- Unemployment is approximately 10% of the 8.2 million economically active population in the North. The services sector is the most dominant source of jobs, with manufacturing and construction sectors accounting for less than 1 in 5 jobs in the North. Tourism provides employment across the North, with just fewer than 9% of jobs in the North related to tourism, rising to over 13% in places such as Cumbria, York and Blackpool. Rail is important in connecting to core cities and major centres, as well as providing access to visitors to tourism destinations.

- Indices of Multiple Deprivation show a widening trend of North-South divide. Three of the top five most deprived local authorities in the country can be found in the North West. Data shows a changing picture of deprivation patterns for local areas, including a number of highly deprived areas that have become significantly more deprived and large increases in relative deprivation of some coastal areas in the North. Despite this, the indices show that 98% of the most deprived areas are found in the major urban centres. Providing it is affordable, rail can help connect people in the most deprived areas to job opportunities.

- Rail has an important role in accessing healthcare facilities in the North but this needs to be planned in conjunction with other modes of transport. Unlike many hospitals, many further education and higher education colleges in the North are well rail connected, particularly those at the tertiary level. Rail plays an increasingly important role in catering for students travel needs.

4. RAIL IN THE NORTH

The rail network in the North comprises a network of routes allowing travel across the North of England and to and from the rest of Great Britain.

INTRODUCTION

The rail network in the North comprises a network of routes allowing travel across the North of England and to and from the rest of Great Britain. The routes include:

- North – south routes such as the East Coast, Midland and West Coast Main Lines which provide links to London and Birmingham as well as the Marches line providing links to Wales;

- East - west routes link the North West with the Yorkshire & Humber and the North East including the Tyne Valley, Settle and Carlisle, Bentham (Leeds, Lancaster and Morecambe), Caldervale, North Transpennine (Huddersfield) and South Transpennine lines, in addition to the route from Manchester to North Wales; and

- A number of important intra-regional (e.g. Leeds – Nottingham), rural (e.g. Carlisle – Barrow) and suburban (e.g. Marple to Manchester) rail routes.

Including the entire area considered by this Strategy there are 684 stations (27% of the UK total). Excluding the LEP areas of Derby, Derbyshire Nottingham and Nottinghamshire, Greater Lincolnshire and Stoke-on-Trent and Staffordshire, the total is 536 stations (21% of the UK total).

The Train Operating Companies (TOCs) serving passengers in the North include Northern Rail, First Transpennine Express, Cross Country, London Midland, East Midlands Trains, Arriva Trains Wales, Merseyrail, Virgin West Coast, First ScotRail, Virgin Trains East Coast, First Hull Trains and Grand Central.

There are also a variety of rail freight terminals with freight services operated by Freight Operating Companies (FOCs) including DB Schenker, Freightliner, GB RailFreight, Colas Rail and Direct Rail Services.

NETWORK OVERVIEW

Inter-Regional and Longer Distance Services

These are operated throughout the North of England, with north-south main line routes as well as the trans-Pennine routes connecting the North East, Yorkshire and the Humber and the North West as shown in Figure 4.1.

Local and Rural Services

Local and some inter-regional services across the North are currently provided by the Northern Rail franchise, providing access to regional centres and onward connections to the rest of Great Britain shown in Figure 4.2.

Within the North there are five Combined Authorities (CA) in Greater Manchester, West Yorkshire, Liverpool City Region, Sheffield City Region and the North East. Historically, services within these boundaries have been developed separately from those elsewhere, supported by local investment. Typically, stations within CA areas have better service frequencies and are better equipped than elsewhere.
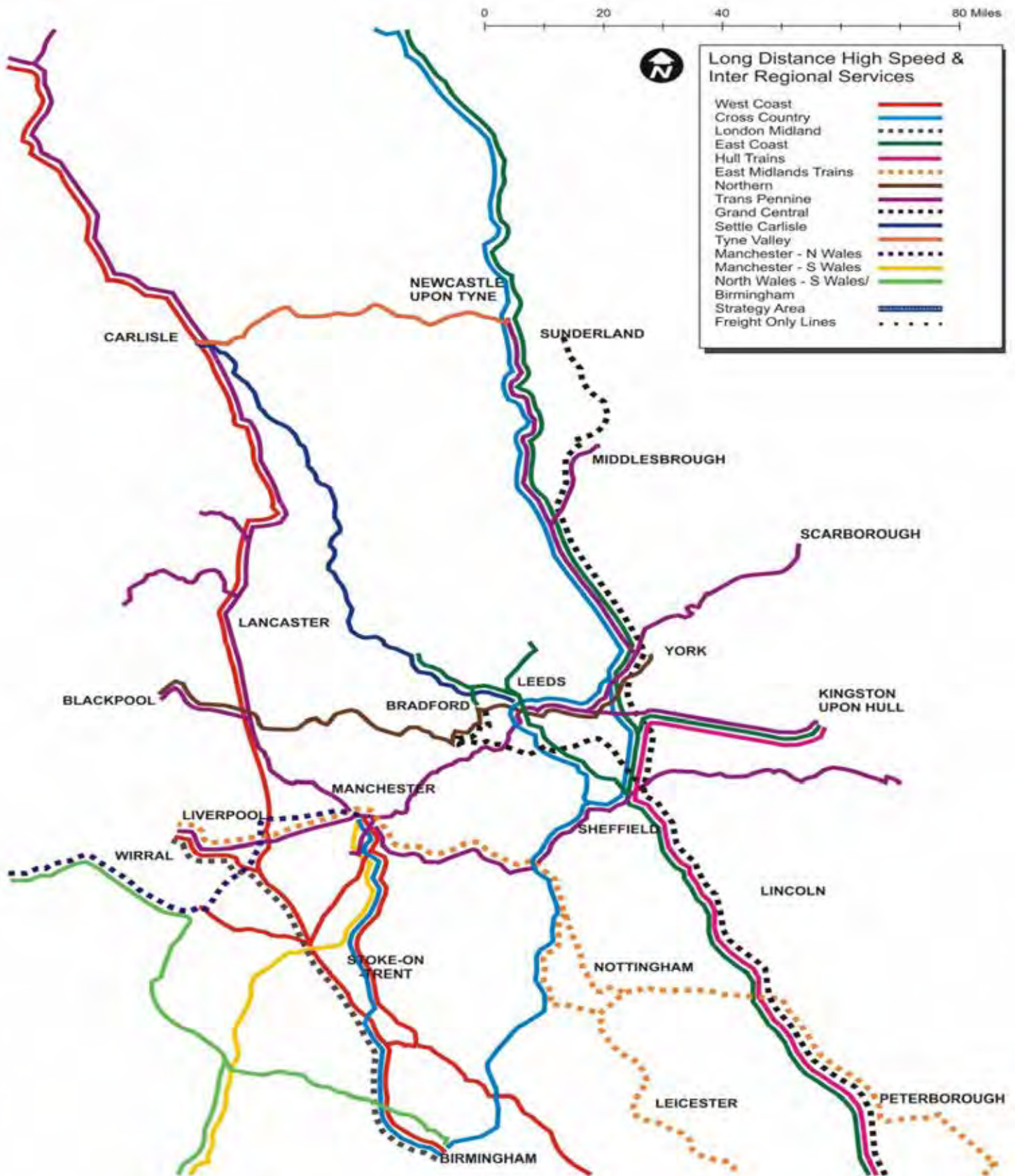
Also, fares have been lower in these areas resulting in higher fares to and between these areas when compared to journeys within these areas and issues with rail-heading and cross-boundary travel.

Freight

Figure 4.3 shows the principal routes for freight traffic in the North. The West Coast Main Line is the principal trunk freight route, being electrified and also cleared for the largest containers. The East Coast Main Line is electrified but is not currently able to accommodate the same large cross-section freight containers. Links to ports are particularly important, and the Port of Immingham generates about 25% of national rail freight[36]. The West Midlands is an important freight destination.

FIGURE 4.2   LOCAL AND RURAL ROUTES
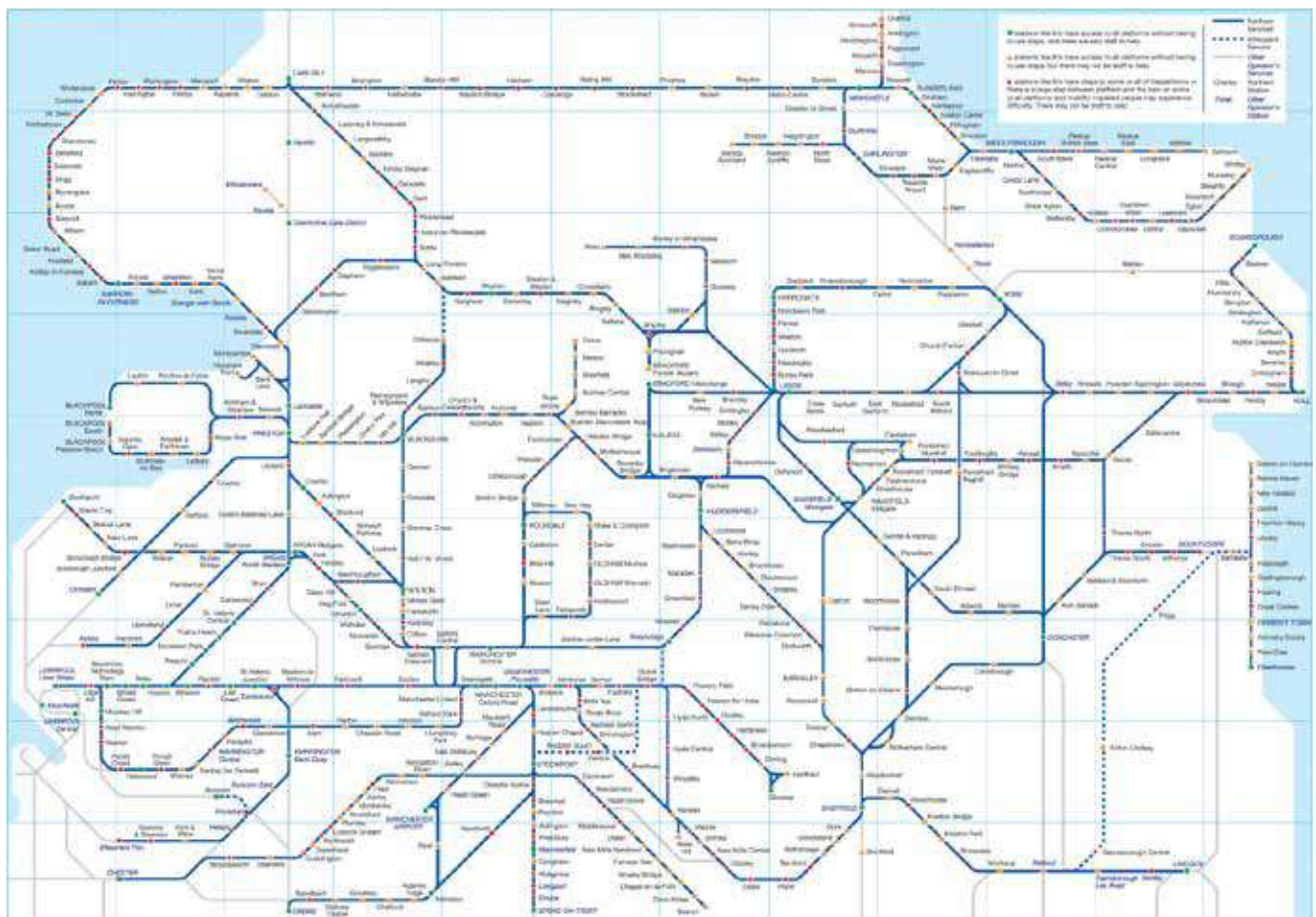
Source: www.projectmapping.co.uk

36 Associated British Ports, Response to Examining Authority's First Questions, C.Gen Killingholme Limited's Comments

4. RAIL IN THE NORTH

FIGURE 4.3   NORTHERN STRATEGIC FREIGHT ROUTES

DEMAND

Figure 4.4 provides a summary of the total passenger demand broken down by LEP areas that are covered in full or in part in this Strategy. This shows that of all the LEP areas the Liverpool City Region has the most rail trips annually, in excess of 43m single trips. This reflects the high quality and frequent rail services provided by the Merseyrail network combined with road tolls for cross Mersey journeys and passengers perceptions of better value fares.

FIGURE 4.4   TOTAL RAIL DEMAND AND PERCENTAGE OF UK DEMAND BY LEP AREAS
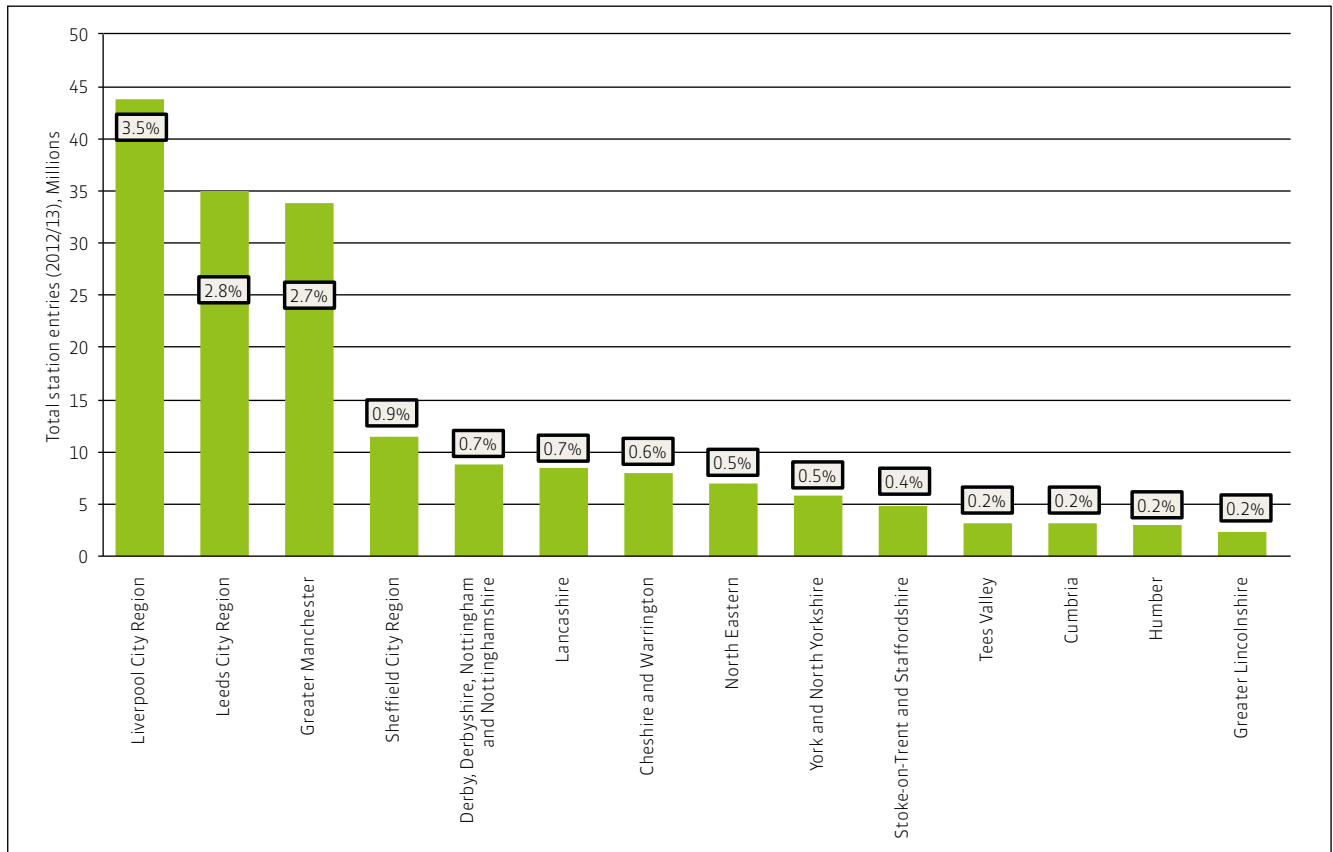
Source: Office of Rail Regulation[37]

Greater Manchester and Leeds City Region LEPs both have similar volumes of rail demand, reflecting the similar population and economic activity in each of these areas. Rail demand in other areas is reflecting lower populations and populations that are more dispersed, and that the rail network is less extensive in these LEP areas. While the volume of travel may be less, the ability to make these journeys brings economic opportunities which are beneficial to these areas and to the North of England as a whole.

37 2012-13 Estimates of Station Usage, ORR

Evidence confirms that commuting trips in particular are growing in length in the North.[38] This will continue as prosperity grows. For households with an income of £40,000 or greater, half of all commuting trips are over 10 miles and a quarter are over 25 miles. For households with an income of less than £20,000, only a third of commuting trips are greater than 10 miles.[39]

Figure 4.5 compares the growth forecasts from the Northern RUS and the Yorkshire Rail Network Study. This shows the demand growth forecast on radial routes to the five major centres.

FIGURE 4.5   GROWTH FORECAST COMPARISON

Demand to Liverpool, Leeds, Sheffield, Manchester and Newcastle only

- Historic Demand Growth
- Northern RUS – Low Forecast
- Northern RUS – High Forecast
- YRNS – Trend Forecast
- YRNS – Trend Plus Forecast
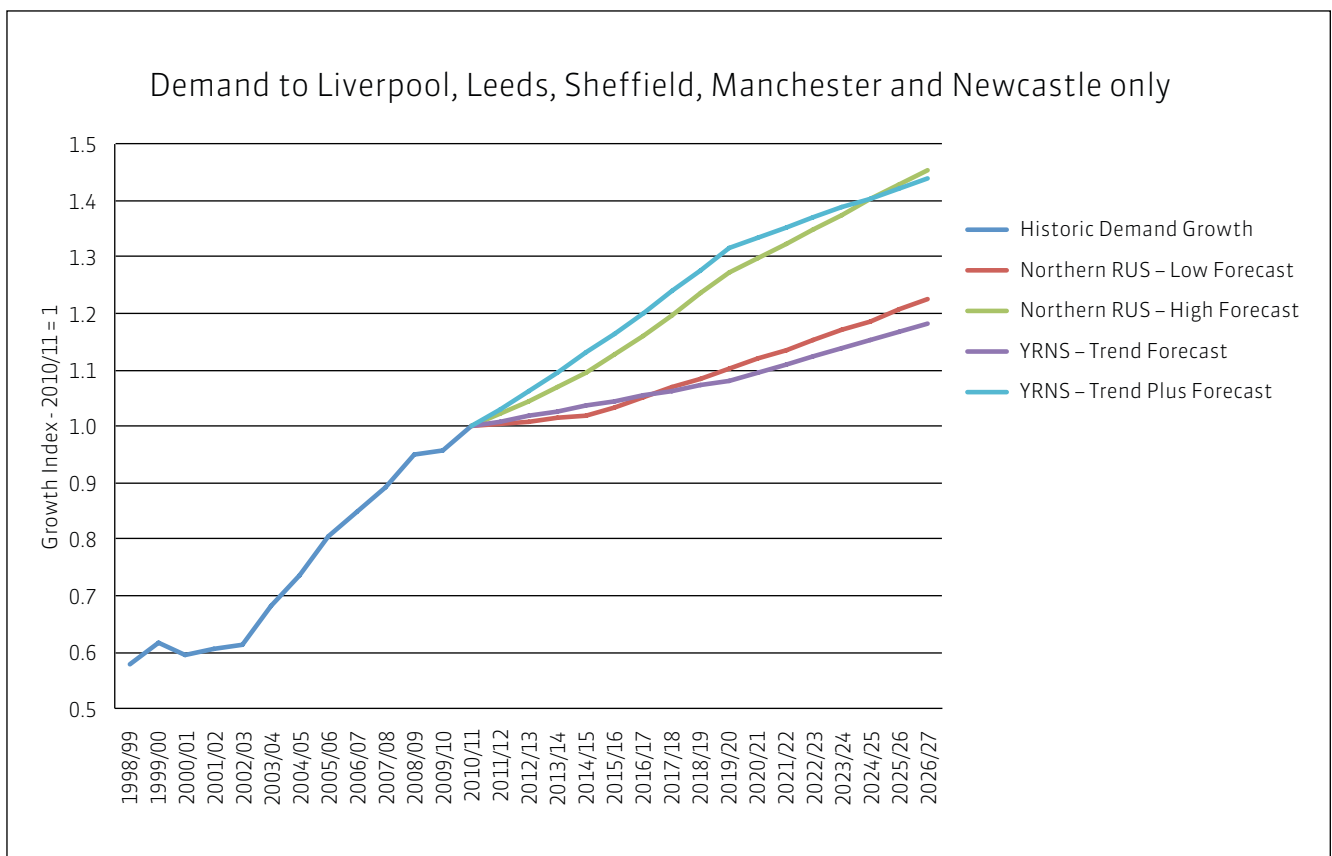
Source: Yorkshire Rail Network Study / Northern RUS

38 Moving towards the North West's Single Regional Strategy, SQW Consulting, 200

39 https://www.gov.uk/government/publications/national-travel-survey-2010

4. RAIL IN THE NORTH

While the Yorkshire Rail Network Study forecasts were developed after the RUS and reflect a different (and lower) prevailing view of economic growth, the graph shows that the high and low forecasts from each study are relatively consistent. Both sets of forecasts project growth in passenger numbers in the range of 20-40% over the next 10 years.

Rail demand is growing at around 2.5% per annum across the North. If this growth remains unconstrained this would equate to a 30% increase in the next ten years and a 50% increase in rail demand by the 2029.

Rail Freight Growth

Rail freight volumes are likely to grow at around 3-4% per year. This growth will be driven by the growth in intermodal containers from ports to inland distribution centres.[40]

Of all freight coming into the UK, 95% comes in through our ports. It is therefore important to knit ports into the rest of the UK and its transport and logistics network.[41]

It is considered that the current rail network, in terms of track capacity for freight services, and network capability to handle longer trains within a larger loading gauge, is likely to restrict rail's capability to accommodate this growth. The graph in Figure 4.6 provides a detail of the volume of rail freight lifted in 2010/11 and how this is forecast to grow by 2030.[42] The latest industry projections indicate 100% growth nationally over the next 20 years.

FIGURE 4.6   RAIL FREIGHT GROWTH BY REGION
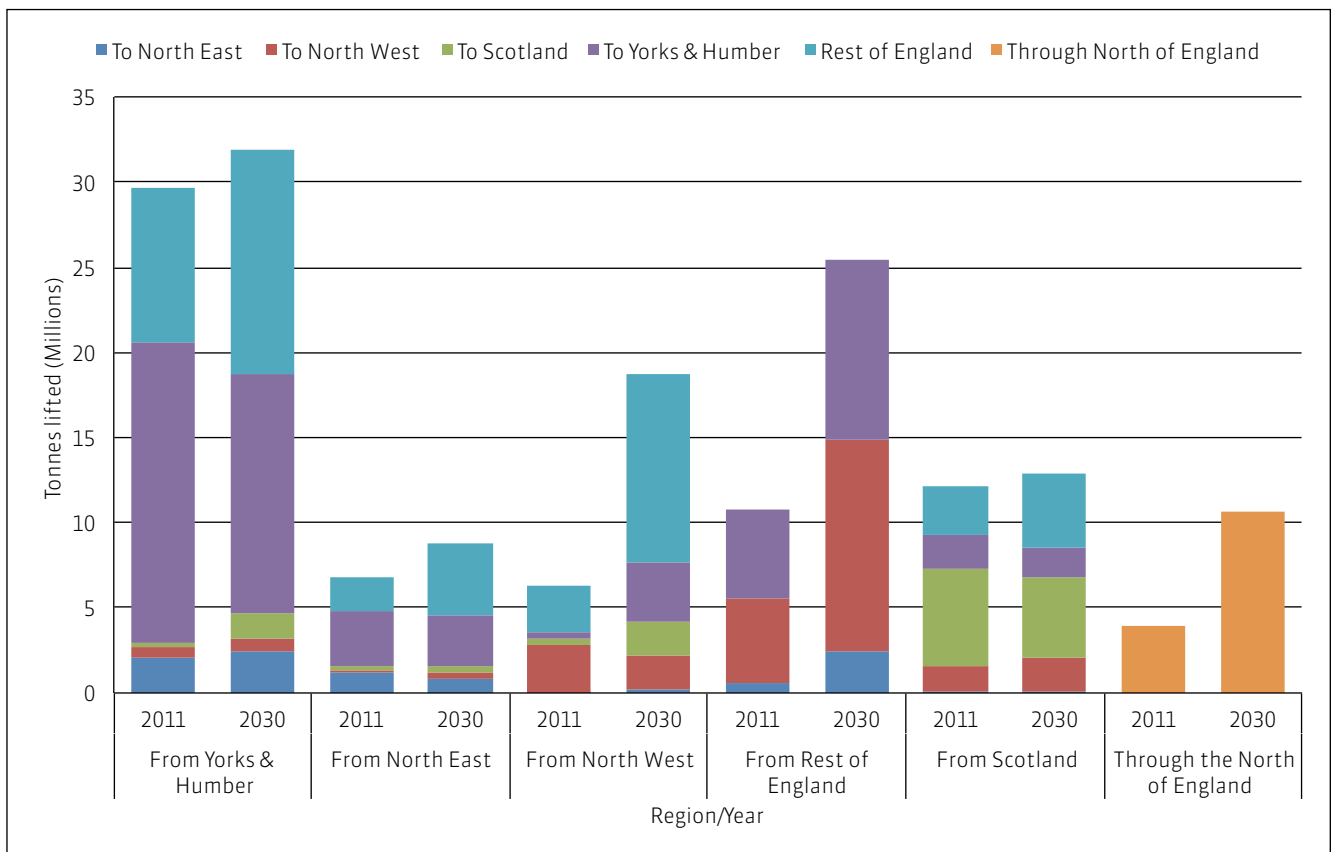
Source: MDS Transmodal Rail freight demand forecasts to 2030 [43]

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40 MDS Transmodal; Rail freight demand forecasts to 2030, October 2011

41 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/3931/national-policy-statement-ports.pdf

42 MDS Transmodal; Rail freight demand forecasts to 2030, October 2011

43 http://www.rfg.org.uk/updated-2011-forecasts-show-strong-prospects-growth

4. RAIL IN THE NORTH

Figure 4.6 also shows that freight flows to and from the North are more than the rest of the Country combined. The Port of Immingham is the single largest source of UK Rail Freight. A significant volume of rail freight is moved within the Yorkshire and Humber region and to the rest of England. Within the region this largely is coal imported through Immingham and moved to the Aire Valley power stations and iron ore moved to Scunthorpe steel works.

The most significant freight growth is forecast in both directions between the North West and the rest of England.[44] This is primarily driven by growth in domestic intermodal non-bulk traffic (containers) and maritime containers to and from ports. It is growth in the movement of domestic container traffic that underpins forecast rail freight growth to and through the North of England in general.

The container terminal developments on the Mersey and Tees will result in greater future demand for rail freight in the North. Expansion plans are also noted at the Port of Tyne and Blyth.

Biomass is increasingly being used for power generation in place of and as a complement to coal, in particular for combined heat and power generation. Yorkshire and Humber accounts for 40% of the nation's biomass consumption. While there are some uncertainties, the volume of biomass (which exceeds the volume of coal needed per equivalent energy production output) is expected to quadruple in the next ten years.

Most freight traffic is currently hauled by diesel locomotives because many key freight routes are not electrified and there is a large fleet of modern diesel locomotives. The 2012 High Level Output Specification has proposed an "Electric Spine" allowing electrically hauled freight trains to reach the West Midlands, North West, East Midlands and South Yorkshire from 2020 onwards. This involves reinstating and electrifying a closed line between Oxford and Bletchley with other infrastructure measures. With increased electrification there is potential for greater use of electric locomotives to haul freight. For this to be effective, direct electrified connections to key freight locations including major ports will be important. This will be important in supporting the decarbonising agenda as the costs of road freight increase; while diesel-hauled freight trains are more energy efficient than road haulage, the increased operational efficiency of high-powered electric freight traction increases rail's advantage further.

On much of the network, freight and passenger trains share the same infrastructure. Growth in both passenger numbers and in freight tonnage means that investment will be needed in adequate capacity to allow both to support growth of the economy of the North. Most of the North's rail network is double track meaning that freight and passenger trains share the same track. There are currently few passing loops allowing passenger trains to pass freight trains, or faster passenger trains to overtake slower services. Provision of loops and other specific infrastructure measures for freight trains is important at appropriate locations. Modern freight trains travel at speeds up to 75mph yet on much the network this is not achievable.

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44 The values used are based on all commodities rail freight tonnes 2010-2011 and demand forecasts for 2020 and 2030 - assuming 20% longer trains and 6 day working for Intermodal

JOURNEY TIMES

Connections to London are important to the success of a regions' economy. Below is a summary of the rail journey time, speed and frequency from the key city or town in each LEP area to London.

Both franchised and open access operators in Yorkshire and the North East provide a number of direct services to towns and cities located away from the East Coast Main Line. This is not so in the North West, with no direct connections to London from locations off the West Coast Main Line.

Figure 4.7 shows that the quickest journey times and speeds are from locations located at intermediate points on the main East and West Coast Main Lines, such as Warrington and York. Manchester, Liverpool and Leeds each have similar journey times to London with the average speed being less than locations on the main lines themselves.

FIGURE 4.7   LONDON JOURNEY TIME, SPEED AND FREQUENCY PER HOUR
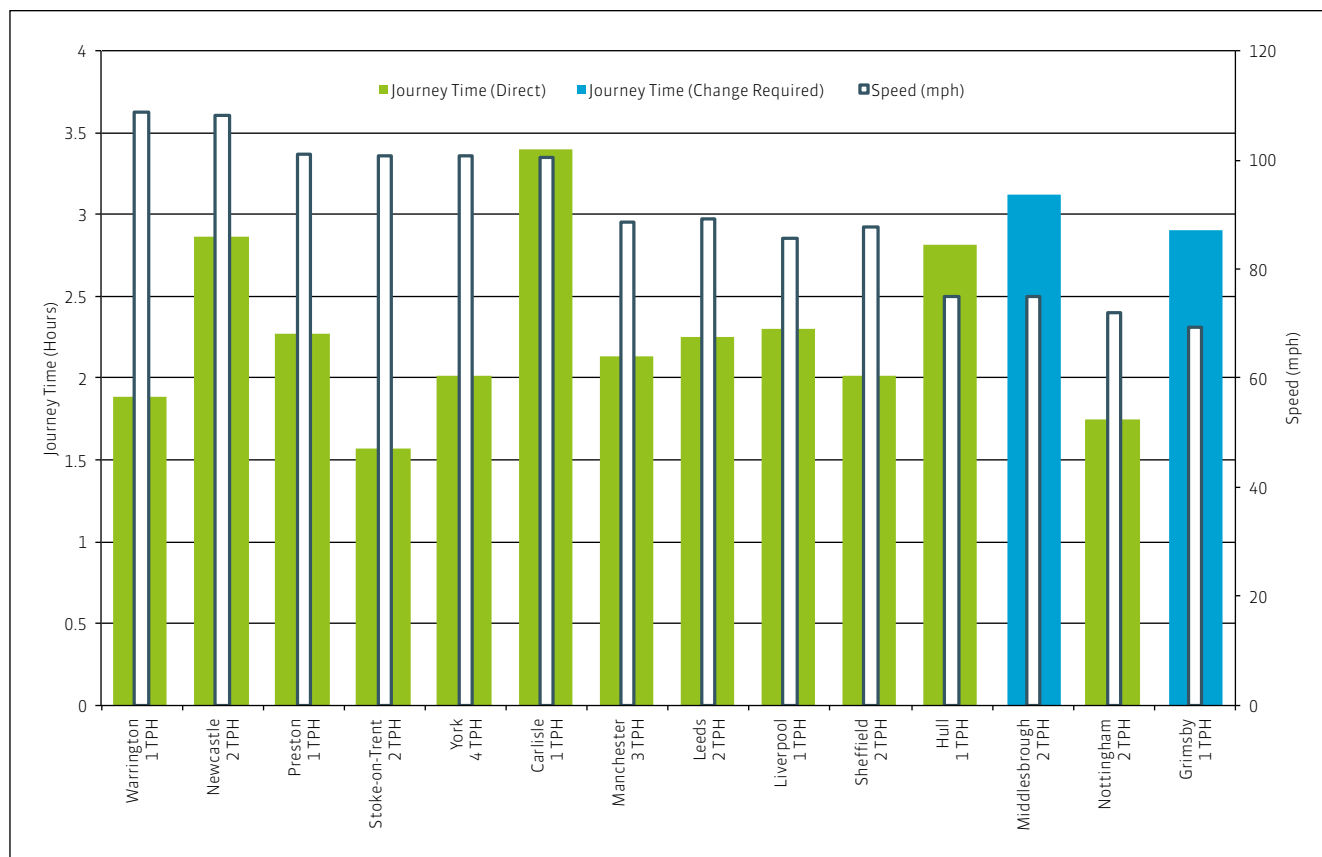
Source: National Rail Timetable

Rail journey times, frequency and speed between the key cities in the North are presented in Table 4.1.

TABLE 4.1 FASTEST DIRECT RAIL JOURNEYS BETWEEN KEY CITIES

City	Manchester			Leeds			Liverpool			Newcastle			Sheffield		
Measure	Trains Per Hour	Time (Hours)	Speed (mph)	Trains Per Hour	Time (Hours)	Speed (mph)	Trains Per Hour	Time (Hours)	Speed (mph)	Trains Per Hour	Time (Hours)	Speed (mph)	Trains Per Hour	Time (Hours)	Speed (mph)
Manchester	–	–	–	5	00:52	48	4	00:45	47	1	02:26	61	2	00:58	44
Leeds	–	–	–	–	–	–	1	01:39	47	2	01:29	71	2.5	00:40	57
Liverpool	–	–	–	–	–	–	–	–	–	1	03:03	60	1	01:55	40
Newcastle	–	–	–	–	–	–	–	–	–	–	–	–	2	02:04	63
Sheffield	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Source: Train frequency and timings from National Rail Enquiries

Journey times to other significant destinations outside of the North are presented In Table 4.2. As information is presented for various destinations a table has been prepared to present information on both direct and indirect service frequencies, journey times and speeds between LEP representative stations and other major mainline stations.

4.   RAIL IN THE NORTH

TABLE 4.2   DIRECT & INDIRECT JOURNEYS TO OTHER MAJOR MAINLINE STATIONS

City	Glasgow			Edinburgh			Bristol			Birmingham		
Measure	Trains Per Hour	Time (Hours)	Speed (mph)	Trains Per Hour	Time (Hours)	Speed (mph)	Trains Per Hour	Time (Hours)	Speed (mph)	Trains Per Hour	Time (Hours)	Speed (mph)
Manchester	0.5	03:12	70	0.5	03:09	81	1	02:59	59	2	01:27	57
Leeds	0.5	04:08	55	1	03:00	72	1	03:31	60	1	01:58	60
Newcastle	0.5	02:26	71	3[1]	01:26	87	1	04:59	65	2	03:13	65
Liverpool	[2[2]]	03:20	67	[2]	03:36	61	[1]	03:10	57	2	01:43	55
Preston	2	02:14	86	2[10]	02:24	80	[1]	03:21	59	1	01:36	68
Sheffield	0.5	04:28	60	1	03:41	69	1	02:47	61	2	01:11	65
Warrington	2[3]	02:39	83	0.5	02:48	75	[1]	02:56	58	1	01:11	71
Middlesbrough	[1[8]]	03:56	56	[2]	02:49	61	[1]	05:26	52	[1]	03:26	55
Hull	[1[5]]	05:25	52	[2[4]]	04:11	61	[1]	04:36	50	[1]	02:48	55
York	0.5[7]	03:40	69	2[6]	02:26	84	1	04:00	56	2	02:09	60
Carlisle	2	01:07	92	2[11]	01:15	81	[1]	04:21	70	1	02:43	74
Nottingham	[1[13]]	05:17	58	[2[12]]	04:52	61	[2]	02:54	50	1	01:09	43
Grimsby	[2[9]]	05:32	55	[1]	04:07	75	[1]	05:07	45	[1]	03:07	46
Stoke-on-Trent	[2[14]]	04:11	62	[2]	04:27	73	1	02:19	60	2	00:48	55

Source: Train frequency and timings from TIS Rail Planner and speed based on distance from www.travelfootprint.org and timings from TIS Rail Planner National Rail Timetable.

1   Trains run 2 direct per hour from 09:00 and in every other hour but 3 direct trains from 10:00 and in every other hour

2   2 indirect, can be 3 where changes are at Preston and Ormskirk

3   In some hours only 1 direct service is available

4   3 indirect trains per hour run in 10:00-11:00 and 17:00-18:00 hours

5   These are services to Glasgow Central only

6   Can be up to 3 direct trains per hour

7   Up to 3 indirect services per hour are available to Glasgow Queen Street

8   Based on trains to Glasgow Central only

9   Indirect trains vary between 2 and 3 per hour and use Glasgow Queen Street and Glasgow Central

10 No services every other hour from 07:00

11 In even hours 06:00-19:00

12 Can be 5 indirect services in some periods

13 Glasgow Central only, can be up to 3 indirect services an hour at times

14 Can be up to 3 indirect at times

4. RAIL IN THE NORTH

ROLLING STOCK

Figure 4.8 shows a breakdown of the current northern rolling stock fleet by number of vehicles and age. It shows clearly the ageing nature of the Northern Rail fleet as much of its rolling stock dates from the late 1980s /early 1990s and in some cases is now nearing the end of its design life.

FIGURE 4.8   AVERAGE AGE OF ROLLING STOCK
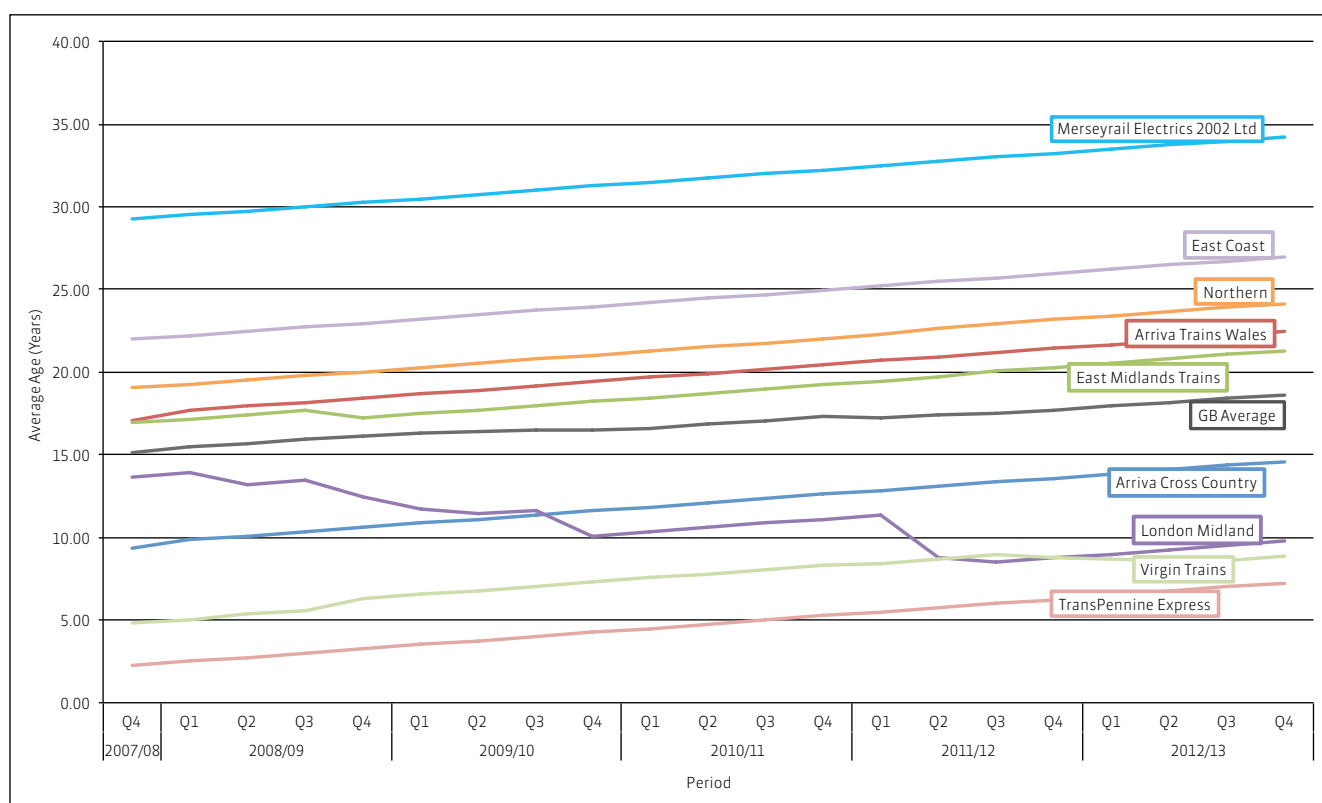
Source: Office of Rail Regulation, National Rail Trends[45]

Some rolling stock has been extensively refurbished and modernised over recent years. Extensive refurbishment may be viable for extending the life of some stock; the fundamental design of other stock may mean further refurbishment is not cost effective, desirable (or potentially achievable).

Quality of rolling stock is a very important issue for passengers. A 2012 Passenger Focus[46] study found that Northern Rail trains are felt to be at best uncomfortable but at worst dangerous, and passengers feel that the age and poor appearance of trains is symptomatic of a lack of respect for customers. Overcrowding was also felt to be an issue on some routes, and not just at peak times. Northern Rail operates over 100 'Pacer' trains which were seen to provide a low quality experience. All Pacer trains are at least 25 years old. Northern also operates 'Sprinter' type diesel trains which are of a similar age. Northern's Pacer and Sprinter fleets do not meet prevailing accessibility standards that are applied to new trains and do not have automated customer information systems which are becoming commonplace elsewhere. Northern Rail does operate some more modern electric trains around Leeds and Manchester. In contrast to Northern, Transpennine Express operates a modern fleet of diesel trains, most of which are only seven years old and are purpose-designed for their routes. These meet accessibility standards and have automated information systems.

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45 http://dataportal.orr.gov.uk/displayreport/report/html/53dcc4e1-3223-48f9-9e9c-10d51359cdd7

46 Passenger views of Northern and TransPennine rail franchises, Passenger Focus, 2012 – see http://www.passengerfocus.org.uk/ research/publications/passenger-views-of-northern-and-transpennine-rail-franchises

Electrification of routes between Liverpool, Manchester, Wigan, Preston and Blackpool is underway, and there is a Government commitment to complete electrification of the North Transpennine Route from Manchester to York and Selby by December 2018. Services in the North West are likely to be operated by cascaded electric trains currently used in London and the South East which will be extensively refurbished. New electric trains are now operating on services from Manchester to Glasgow and Edinburgh. At the moment, new trains have not been ordered for the North Transpennine routes.

These and other electrification schemes elsewhere will lead to significant changes in the make-up of the fleet operating in the North of England. It is however likely that some 'Pacer' diesel units will need to be retained in the short to medium term.

COMMUNITY RAIL PARTNERSHIPS

Community Rail is a Government strategy, supported by the rail industry, which seeks to increase the economic value of local rail by encouraging local communities to play a greater role in the delivery of rail services. Community Rail Partnerships (CRPs) have been set up to involve local people and organisations working in partnership to improve their local railways. There are a considerable number of CRPs in the North with some notable successes achieved. For example, the Manchester to Clitheroe service experienced 14% passenger growth in 2011/12 thanks in part to strong community engagement and targeted local marketing campaigns.

The CRP approach has been proved to succeed on rural and many urban routes in the North. For example, on the Cumbrian Coast Line (CCL) the CRP has worked with Northern to re-introduce a staffed booking office at Millom, using a social enterprise to run the facility. Also on the CCL, the 'Harrington Hump' (a low cost way of increasing platform height to make them level with train doors) has led to Network Rail rolling out across the national network other Easier Access Areas (as the Harrington Hump is now known).

Route designation is an important recognition of the work and role of the CRP. It is a formal process endorsed by Ministers and a Route Prospectus is issued that has been agreed by the CRP, Department for Transport (DfT), TOC and sometimes Network Rail. DfT carries out an annual visit to all CRPs to review Action Plans which are expected to be produced and updated annually.

CRPs aim is to increase revenue and patronage, reduce costs, increase local community involvement and facilitate local, social and economic development. The partnerships can pursue initiatives such as station enhancements and innovative promotional schemes which can help get better value for money from the rail network. These initiatives can range from people helping to maintain station gardens, the refurbishment of small stations with artwork from local schools, and can include major schemes and responsibility for undertaking local marketing activities.

In addition, many stations in the North are formally overseen by community groups under the Station Adoption scheme. Station Adoption is a way of bringing stations back into the heart of the community and encouraging greater use of environmentally friendly public transport. It adds value to what is already there and helps make the station more attractive.

STATITIONS

STATIONS

As the gateway to the network, stations form a fundamental element of the passenger experience. Across the network, stations form a wider variety of roles, from large city and town centre rail and wider transport hubs to smaller rural 'halts' which may consist of little more than platforms alone.

The largest of the city centre hub stations, Leeds, Liverpool Lime Street and Manchester Piccadilly are managed by Network Rail. Other city and town centre hub stations are generally managed by the longer distance high speed and inter-regional TOCs such as Virgin Trains East Coast (Newcastle), Virgin West Coast (Preston) and First Transpennine Express (Warrington Central), although some are operated by Northern (for example, Bradford Interchange). These stations typically include a range of passenger facilities including ticket offices and information centres, adjacent bus stops, cycle storage facilities, car parks, toilets, shops and refreshments.

The quality of and facilities at stations vary considerably. Many rural stations, and indeed some in more urban areas, do not have Real Time Information, passenger information points, ticket offices or ticket machines.

There has been significant investment in many northern stations by Local Transport Authorities and others. At the 'small station' end of the spectrum there are some outstanding examples of community involvement which have transformed their appearance and the services they offer. Stations could be developed as community hubs offering a wide range of services (including health centres, tourist information centres, cycle hire, catering etc.). Clearly this depends on location and not every station would be suitable, but with the right conditions and industry support, many would be.

Stations are an important gateway to places, and may be the first experience a visitor has as they arrive. Investment in stations can play an important wider economic role in addition to functioning as transport hubs. There are good examples of station investment being part of wider regeneration plans such as Sheffield.

INTERNATIONAL GATEWAYS

The future success of the North of England is in large part predicated on its ability to function on a European and global scale. International gateways are therefore vital to the on-going economic development. These gateways provide essential global connections for passengers and freight.
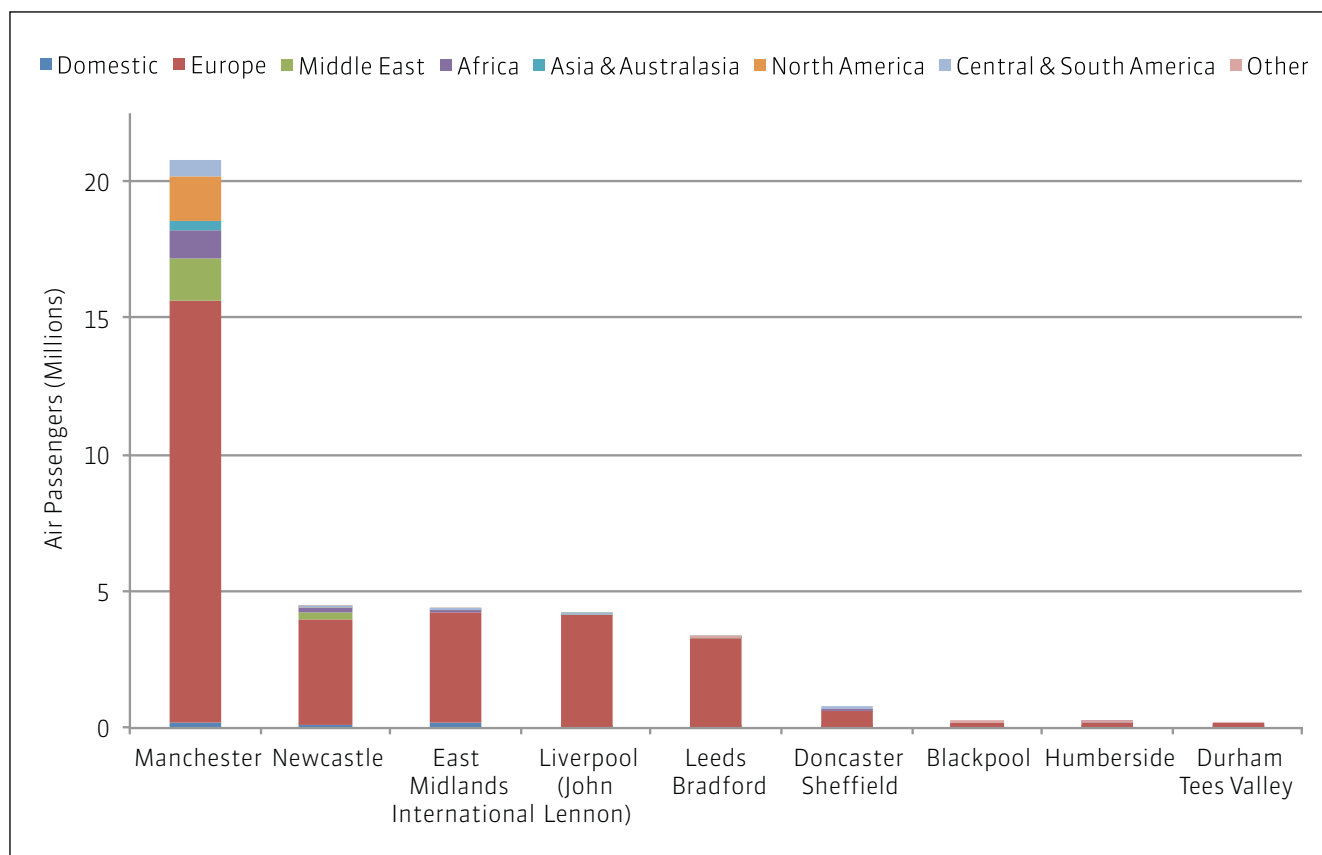
Airports

There are nine airports across the North of England offering scheduled passenger flights. They are mainly located towards the major urban conurbations. Figure 4.9 below provides a summary of the level and destination of passenger traffic from the North's Airports.

4. RAIL IN THE NORTH

FIGURE 4.9   AIR PASSENGER TRAFFIC (2013) [47]

Legend: Domestic ▪ Europe ▪ Middle East ▪ Africa ▪ Asia & Australasia ▪ North America ▪ Central & South America ▪ Other

Source: Civil Aviation Authority[48]

The graph clearly shows the importance of Manchester Airport to the North of England, with the airport handling more passengers than all other airports in the North of England combined. Manchester Airport provides scheduled medium and long haul flights across the globe and is the North's intercontinental gateway.

Previously, the Northern Way work supporting the Trans-Pennine Connectivity Study[49] indicated exogenous growth forecasts for rail traffic to Manchester Airport was proportionally much greater than other journey types. Growth in rail patronage on the trans-Pennine corridors is forecast to be over 100% between 2007 and 2019, so it should be expected that journeys to Manchester Airport will grow to a greater degree than this.

Ports

The major ports in the North are clustered on the Humber, Tees and Mersey estuaries although important volumes are also handled through Manchester, the Tyne and Heysham. Figure 4.10 provides a summary of the freight moved through ports across the North of England. Rail plays an important role in distributing goods moved through ports to and from the ultimate origin or destination within the UK.

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47 This graph is based on Total Terminal and Transit Passengers for each airport from Table 9 which have been proportioned using the percentage of passengers per route for each airport derived from Table 12.1.

48 http://www.caa.co.uk/default.aspx?catid=80&pagetype=88&sglid=3&fld=2011Annual

49 The Northern Way: Trans- Pennine Connectivity Study Working Paper 1, March 2010

4. RAIL IN THE NORTH

FIGURE 4.10   MAJOR PORT FREIGHT TRAFFIC 2012
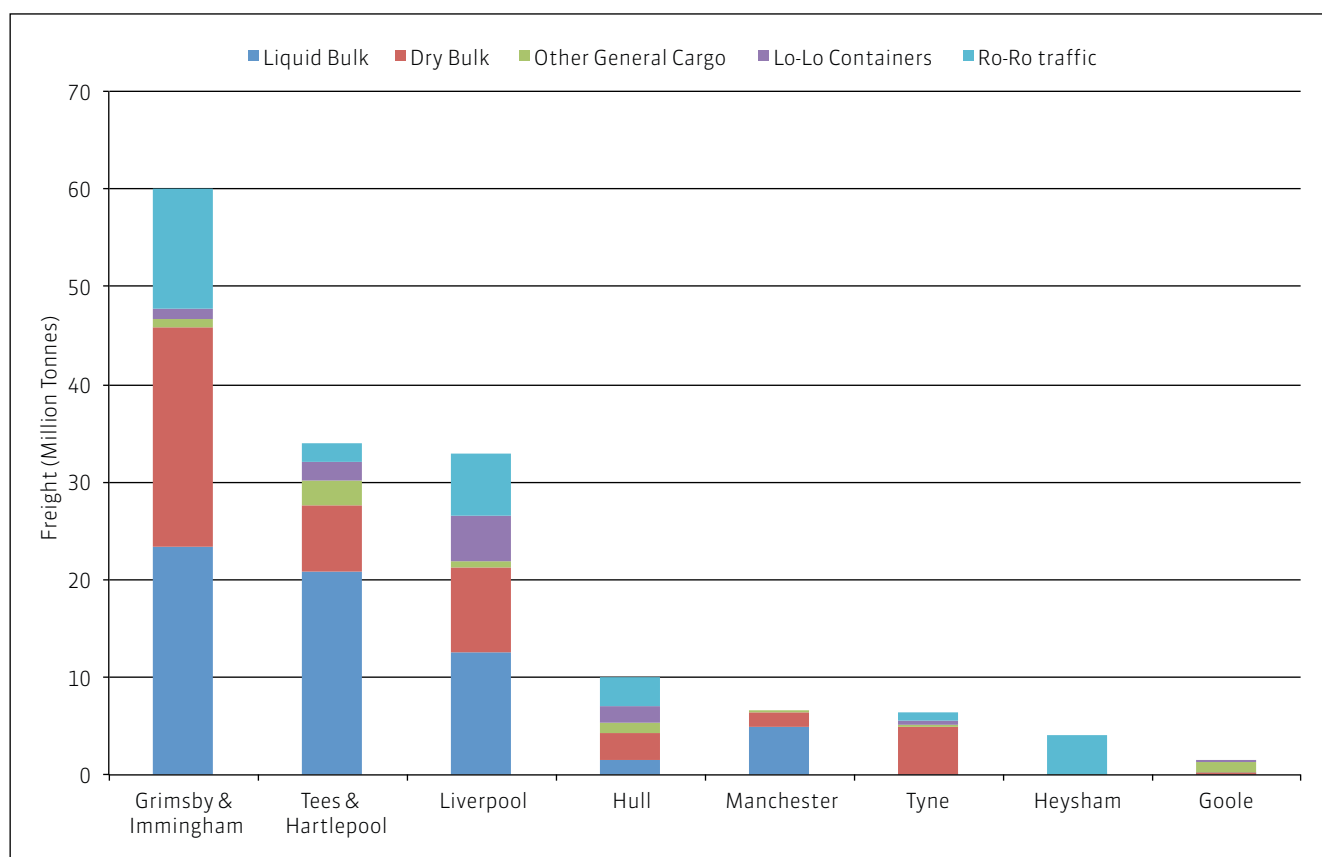
Source: Department for Transport[50]

Figure 4.10 clearly shows the importance of Grimsby and Immingham as a port complex. It is the busiest not just to the North of England but in the country as a whole. In particular, Grimsby and Immingham handles a large proportion of dry and liquid bulk freight which may lend itself to onward movement by rail. Of the northern ports, Liverpool handles the largest volume of Lift On Lift Off (Lo-Lo) containers which may be suitable for onward distribution by rail. The liquid bulk market at Teesport is also conducive to onward transport by rail.

The largest intermodal container port in the country is Felixstowe (handling around 24m tonnes in Lo-Lo containers per year), with Southampton (8m tonnes) and London (6m tonnes) also handling notable volumes of container traffic. Rail has an important role in distributing these containers to the North of England. Ports in the North are also seeking to grow container traffic, which would require onward distribution both to destinations within the North and elsewhere in the country.

Of the ports shown all have rail access available, although Hartlepool's rail connection is not in regular use. With the exception of Hartlepool all have regular freight movements planned to and from the dock, particularly the busiest ports at Grimsby and Immingham, Liverpool and Teesport. However, operational access to the port facilities is not always simple, with services needing to be planned around passenger services, and on many routes capacity and capability (in terms of loading gauge and the length of freight trains that can be handled) makes onward distribution of freight by rail challenging.

For smaller flows, the economics of gauge clearance, unless with electrification, will make an enhancement case hard to make, and low wagon solutions will be necessary.

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50 DfT Statistics, UK major ports, all freight traffic, by cargo type and direction, 2012

SUBSIDY

The franchised TOCs agree a level of subsidy or premium payment from/to the DfT in return for the right to operate that franchise for a set period of time. Nationally, the level of subsidy or premium varies significantly among different operators as shown in Figure 4.11.

FIGURE 4.11   TOC SUBSIDY (Pence Per Passenger KM – 2012/13)
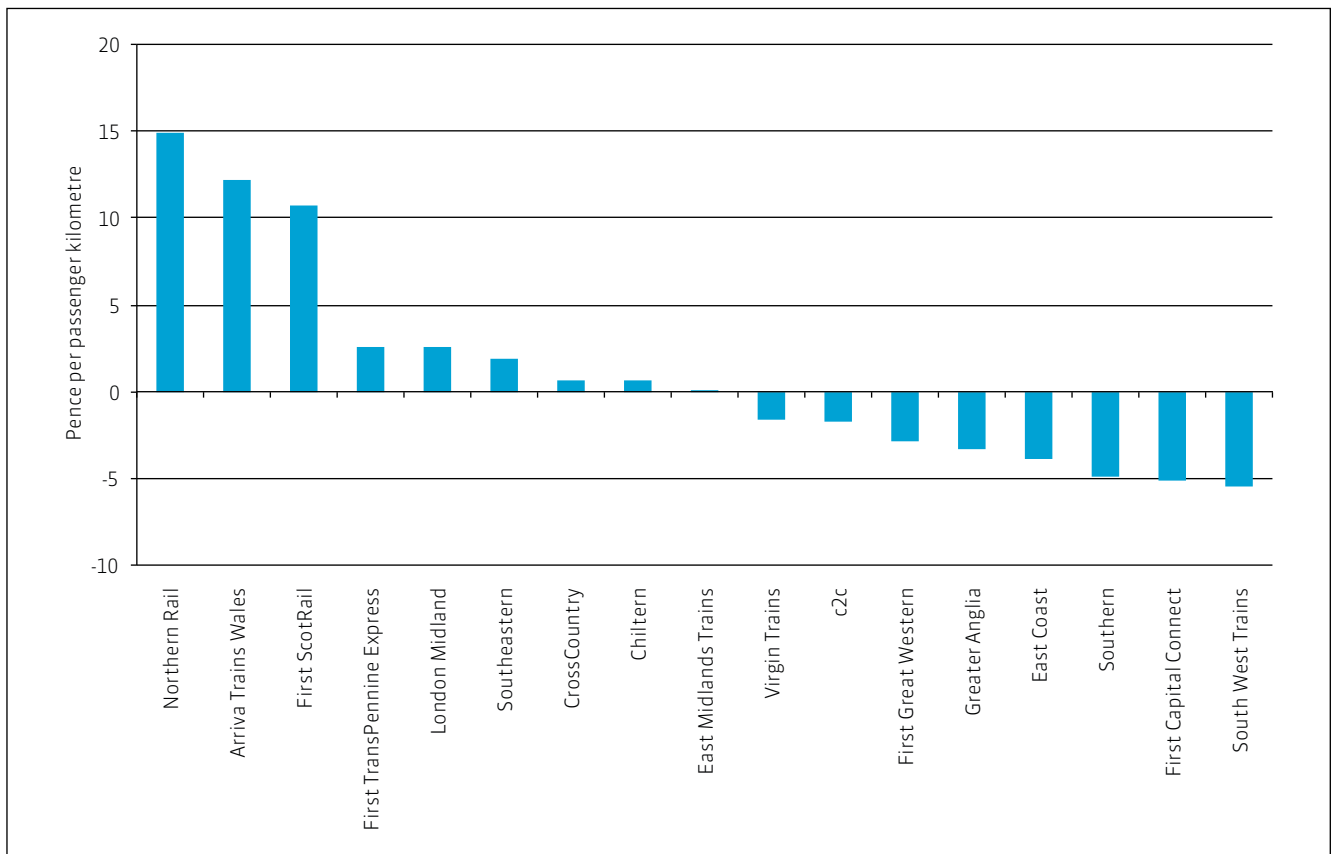
Source: Office of Rail Regulation – Train Operating Company (TOC) annual data 2008-09 to 2012-13

While the subsidy received is a function of both the revenue and the costs (the latter being in part a function of the way costs are allocated between different rail sectors), using a measure of total net subsidy per passenger-mile Figure 4.11 shows that Northern, which operates the greatest number of services across the North of England, is the most heavily subsidised in the North of England (at 14.9p per passenger kilometre in 2012/13). In 2012/13 TPE also received a subsidy at an average of 2.6p per passenger kilometre, a fall from 5.0p per passenger kilometre in 2011/12. However as set out below, there are alternative ways of measuring subsidy that produce a different ranking.

4. RAIL IN THE NORTH

TRAIN OPERATOR COSTS AND COST DRIVERS

In November 2012 the Office of Rail Regulation (ORR) published a report aimed at increasing the understanding the costs of passenger train operations.[51] In detailing the comparison of costs between TOCs using simple measures the report is careful not to establish a 'league table' of TOCs, in part this is because the ORR was unable to split out cost drivers resulting from differing service characteristics, franchise specifications or management policies. That said, the report does provide some useful insights into the costs and operations of the TOCs serving the North of England.

There are differences in the costs incurred by each TOC, which vary when measured in a range of ways (e.g. cost per passenger kilometre, per vehicle kilometre, per train kilometre and per train hour). Table 4.3 below summarises the key measures highlighted in the report for each of the TOCs serving the study area and, as comparators, the London and South East (LSE) and overall UK averages. Considering any of the individual measures in isolation can be misleading and where a figure stands out the ORR report suggests plausible reasons for the difference. None of the TOCs serving the North of England are consistently above the UK average on all four of the cost measures, for example whilst Northern has a relatively high cost per passenger km it has one of the lowest costs per train hour reflecting the regional network and the running of large numbers of local services.

TABLE 4.3 KEY MEASURES HIGHLIGHTED IN THE ORR COSTS & REVENUE 2012

Train Operating Company	Cost per passenger km	Cost per vehicle km	Cost per train km	Cost per train hour	Average TOC speed	Average occupancy	Average number of passengers per train	Average number of passengers per vehicle
	£	£	£	£	km/h	%		
Inter-city								
Cross County	0.10	2.40	9.90	895	91	44%	96	23
East Coast	0.08	2.00	19.40	2,320	132	41%	239	24
Virgin	0.09	1.80	14.90	1,991	134	40%	160	19
East Midlands Trains	0.10	2.30	9.60	764	92	37%	95	22
Regional								
Northern	0.19	3.60	8.70	449	52	26%	46	19
TPE	0.10	3.20	9.20	736	75	52%	91	32
Merseyrail	0.19	4.90	16.60	610	37	42%	89	26
Arriva Trains Wales	0.17	3.20	7.60	433	56	28%	46	19
London Midland	0.14	2.60	10.20	634	65	28%	76	19
Other								
London & SE Average	0.10	2.0	11.60	684	59	30%	121	21
UK Average	0.10	2.2	11.20	736	66	34%	107	21

Source: Office of Rail Regulation: Costs and Revenues of UK Passenger Train Operations. November 2012

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51 Office of Rail Regulation: Costs and Revenues of UK Passenger Train Operations. November 2012. http://www.rail-reg.gov.uk/server/show/ConWebDoc.11052

The Northern franchise operates the largest number of timetabled train kilometres (44.4m km) and train hours (862,000) of any franchised TOC whereas Merseyrail is one of the smallest (6.1m km and 166,000 hours).

In terms of average speed (measured as timetabled train km/timetabled train hours), the Northern franchise only achieves 52km/h (33mph) and Merseyrail only 37km/h (23mph). This reflects the track and rolling stock constraints and the frequency of and distance between stops. Northern's average speed is slower than the London and South East (LSE) average and maybe a factor in the competitiveness of the regional rail service against the car in the North of England.

Northern has one of the lowest average seat occupancies (passenger km/seat km) at 26% although it is only just below the LSE average of 30%. Notably, in contrast, Transpennine Express's occupancy of 52% is second only to the London Overground (which has very few seats per vehicle), and is significantly higher than all the inter-city operators and LSE TOCs. This reflects TPE's important role in connecting inter-urban markets where the peak demand is bidirectional without any strong 'tidal' flow to one centre as seen in the South East, combined with it experiencing high growth on services predominately operated by three car trains. When adjusted for number of vehicles, the average number of passengers per vehicle is around 20 for most operators and TPE stands out with an average of 32.

It should be noted that TPE plays an inter-city type of role in the North but is notably slower than the ORR defined inter-city franchises reflecting track constraints and rolling stock.

Four of the five inter-city TOCs serve the North of England market. Whilst East Coast stands out as having the highest cost per train km, it has the lowest cost per passenger km on the national network and has the highest train loading TOC with 239 passengers per train on average (passenger km/train km). In contrast to the regional services, both Virgin Trains and Virgin Trains East Coast with fast rolling stock and long distances between stops, have the highest average speeds providing the good level of connectivity between key northern cities and London. However, the average speeds of Cross Country and East Midlands are both below 60mph reflecting track constraints and more frequent stops.

THE McNULTY STUDY OF RAIL VALUE FOR MONEY

The Government and Office of Rail Regulation commissioned Sir Roy McNulty to carry out an independent review of rail costs. His findings were published in 2011[52]. The recommendations from the study which are of greatest relevance to the North of England are listed below:

i)   More effective incentives in relation to Network Rail and Train Operator's working together to reduce costs;

ii) Alliances with Network Rail focussing on harvesting efficiencies from issues ranging from co-ordinated controls, on-track inspection, possessions planning, and major works planning;

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52 Realising the Potential of GB Rail, May 2011, see https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/4203/realising-the-potential-of-gb-rail-summary.pdf

iii) Actions to reduce lease costs on new and pre-existing rolling stock including a more collaborative approach (in our case between DfT, Rolling Stock Owners, Network Rail and operators). The approach should include identifying a longer-term strategic context for the quantum of future rolling stock orders (including early indication of CP6 electrification programmes as set out also in the recent rail industry rolling stock report) and be reflective of many of the McNulty recommendations in relation to supply chain management and rolling stock.

iv) Working with DfT and the industry to pilot "lower-cost regional networks" on several different routes.

v) Development of greater transparency of costs so that a clearer picture can be established of what subsidy is buying.

vi) Reviews of fares on groups of services – particularly within Northern cities;

vii) Changes to the roles of staff given the advent of greater use of other channels to buy tickets, and the potential to introduce new methods of train operation. The opportunity exists to increase the proportion of staff in effective customer-facing roles;

viii) Changes in practices to better match the peaks and troughs of much railway activity.

2012 RAIL TECHNICAL STRATEGY

In December 2012 the cross industry Technical Leadership Strategy Group (TLSG) published a 30-year vision for railway technology in the UK. The Strategy is intended to inform the industry's five-year control period planning process. The Strategy to support the transformation of the railway over the next 30 years is designed to cover the whole of the UK. In particular it recognises that there is a legacy railway that was often designed as single sub-systems and not as a whole and that this presents constraints on service quality and cost efficiency. It is important that the railway in the North of England is fully included in the adoption of a whole-system approach for a cost-effective and efficient upgrade and benefits from the proposed cross-industry, whole-system approach to design, maintenance, delivery and safe operation.

The Strategy to introduce European Rail Traffic Management System (ERTMS) in cab signalling and centralised control centres should allow the removal of legacy line side equipment and signal boxes delivering lower costs for the regional lines and improved reliability and capacity for the important inter-urban routes. Addressing the legacy issue of the large number of level crossings in the North of England, including those on main lines, the Strategy to develop intelligent automated traffic management systems will facilitate enhanced protection for level crossings.

Whilst the Strategy proposes further electrification, it recognises that for lightly used sections of the network more energy efficient diesel engines need to be developed together with dual mode stock which can operate both on and off the electrified railway. The vision of a resilient seven-day railway with world-class asset management which improves reliability, increases capacity and service levels and reduces delays can only be welcomed for improving connectivity both within the region and beyond.

4.   RAIL IN THE NORTH

The rewards from investing in and taking advantage of the latest innovations and technical advances could clearly be significant for the North of England. The future strategy for the network should be set in the context of this technical strategy if we are to benefit from the efficiencies and new opportunities it offers.

SUMMARY OF KEY POINTS

- The Northern Rail network is considerable in size and comprises 75 routes and more than 530 stations. Patronage is still growing, but at reduced a rate of 2.5% per annum. Fewer than 1 in 8 trips involve a change of trains, suggesting that at the moment interchange may be a barrier to use.

- Connections to London are important and journey times from the North's key cities vary from 1hr 30 mins to 3hrs 30 mins. There are constraints on the capacity (and performance) of the main lines that mean that not all open access and franchised operator aspirations to introduce new services can be met.

- The current Northern Rail fleet is ageing and much of it is no longer fit for purpose. Electrification is a chance to address this, at least in part although old diesel rolling stock will remain.

- CRPs are achieving their aims to increase patronage and revenue, reduce costs, increase community involvement and facilitate local, social and economic development in the North, but have limited access to even small scale investment funding.

- The North functions also on a European and global scale, and its airports and sea ports provide essential global connections for both passengers and freight.

- Manchester Airport handles more passengers than all other airports in the North of England combined. It is an intercontinental gateway providing scheduled direct medium and long haul flights worldwide. Rail connections, journey time and service frequencies are not as they should be and do not necessarily coincide with peak flight times.

- All major ports have rail access but operational access is not necessarily straightforward. Freight services needing to be planned around passenger services, and on many routes this is challenging. Routes have varying capacity and capability that constrain gauge and train length that can be handled.

- Rail freight volumes are likely to grow at around 3-4% per year. This growth will be in intermodal containers from ports to inland distribution centres and other specialist flows. The latest industry projections indicate that in terms tonne-km carried by rail, traffic will double in the next 20 years.

- The McNulty Study into rail value for money identified a number of areas where efficiencies could be realised, including by looking at rolling stock procurement and the fares structure operating in the North of England.

- The introduction of modern technology to address legacy issues in the North, such as signalling technology, will deliver operational efficiencies and cost savings.

5. GAP ANALYSIS

Strategic gap analysis has been undertaken to identify where the rail network is not making the best contribution to achieving the Vision.

INTRODUCTION

Strategic gap analysis has been undertaken to identify where the rail network is not making the best contribution to achieving the Vision.

The gap analysis draws upon the engagement with stakeholders (chapter 2) and the demographic and economic position of the North of England along with evidence on the current and planned rail network capability as summarised in Chapters 3 and 4. It presents a high level statement of the gaps identified that will need to be bridged if the rail network in the North of England is to meet the objectives for rail set out in the Vision.

The identified gaps are presented in five groups. The first four reflect the strands of the Vision as identified in Chapter 2, namely:

- Supporting sustainable economic growth by improving **connectivity**

- Providing adequate **capacity**;

- Uplifting quality leading to an improvement in **coherence** and the journey experience; and

- The requirement to achieve greater efficiency and **cost-effectiveness**.

A fifth category is also presented covering the environment, which is an essential overarching Government objective for transport. Of course overcoming an identified gap may contribute to a greater or lesser extent to each of the four strands of the Vision: the categorisation has been made simply to aid in presentation. Table 5.1 provides a summary of the identified gaps, while the remainder of this Chapter provides a more detailed explanation of the rationale for each gap.

5. GAP ANALYSIS

TABLE 5.1   IDENTIFIED STRATEGIC GAPS IN THE NORTH OF ENGLAND

Category	Identified Gap
Supporting sustainable economic growth by improving **connectivity**	1A) Rail provides poor regional centre to regional centre connectivity for business to business trips reducing the prospects for business agglomeration benefits 1B) Rail provides poor Journey to Work travel opportunities to major employment centres 1C) Towns and cities in the North are poorly connected to London, other major centres in the UK and International Gateways (Manchester/Heathrow Airports) 1D) Access to retail centres and leisure opportunities is poor by rail limiting the attractiveness of the tourist/leisure economy 1E) The railway serving the more rural areas of the North does not fully meet the economic and social needs of these areas, both in terms of supporting resident communities and the visitor economy
Adequate provision of **capacity**	1F) Insufficient capacity to accommodate existing peak demand and future demand growth that is necessary to facilitate economic growth 1G) Insufficient capacity and network capability for growth in the freight market will limit the effectiveness of the economy, particularly the movement of inter modal traffic
Uplifting quality leading to an improvement in **coherence** and the journey experience	2A) Poor integration between rail services means the potential network benefits are not maximised 2B) The age/quality of the rolling stock on many local routes is not what passengers expect of a modern rail service 2C) The reliability and punctuality of services causes a perception that rail services cannot be relied on 2D) Integration between the rail network and other modes and the quality of stations facilities may not be attractive to potential users 2E) Information provision throughout the journey may not meet expectations, particularly at times of disruption 2F) The ticketing infrastructure can restrict passengers to buying/ collecting tickets at stations restricting flexible travelling, and at many stations it is not possible to buy a ticket at all 2G) Passengers perceive poor security and personal safety when travelling by rail
Delivering a more efficient and **cost-effective** railway	3A) Low demand at some stations does not justify provision of current rail service levels 3B) Rail fares on some routes are not priced competitively with other modes, e.g. bus, with rail fares being either notably cheaper or more expensive than other modes on some routes 3C) The nature of the infrastructure, resources and operating practices in the North of England results in high operating costs. 3D) The revenue potential on some routes is not being fully met, which is a barrier to service development
Reducing the environmental impact	4A) Current diesel trains produce more carbon emissions per seat kilometre than electric trains 4B) Perceived poor journey opportunities and value by rail will encourage passengers and freight shippers to use less sustainable modes

CONNECTIVITY AND ECONOMIC GROWTH

The Vision identifies that the economy of the North will be stimulated by improved connectivity. Specifically the Vision identifies the importance of rail services:

- Between the North's major centres;

- To and within the North's more rural areas;

- For commuters;

- To international gateways (ports, airports and the Channel Tunnel); and

- To London and major centres across the rest of the UK.

The following paragraphs provide a statement of the identified gaps in rail service provision that constrain sustainable economic growth. In many cases, it is not possible to address these gaps within the current network infrastructure capability and rolling stock availability. The inflexibility of the network is therefore restricting rail developing to support sustainable economic growth. The gaps identified, and the solutions to those gaps, cannot simply be addressed by small scale refinements to the existing network, but rather require more fundamental investment in the rail industry.

> **1A) Rail provides poor regional centre to regional centre connectivity for business to business trips reducing the prospects for business agglomeration benefits**

Connectivity between the North's largest cities: Liverpool, Manchester, Sheffield, Leeds and Newcastle, and to these centres from other key towns and cities in the North is key to securing inter-business agglomeration and the economic benefit this generates. However, links between many of these is poor, with no direct services, poor interchange opportunities, low frequency or poorly spaced services and journey times that are not competitive with car. The following points illustrate a number of scenarios where rail connectivity is poor:

- The average rail journey speed for services between Liverpool, Manchester and Leeds is less than 50 mph, which is not competitive with the uncongested car journey time; and

- Journeys such as Harrogate to Chester or Sunderland to Bolton often require two interchanges.

> **1B) Rail provides poor Journey to Work travel opportunities to major employment centres**

In order to support economic growth it is important that the major rail served employment centres (the city centres) are well connected for commuters. In the context of commuter journeys there is a particular problem if service frequency is very low. Frequency is important because it gives flexibility around meeting specific working hour requirements and because of the risk of failing to get to work if there is a significant delay or cancellation. Across the North there are a number of potential commuter flows where the current direct connectivity is less than hourly, services are poorly timed, or where there is no direct link at all. Examples include, but are not limited to Pontefract to Sheffield and Whitby to Middlesbrough.

1C) Towns and cities in the North are poorly connected to London, other major centres in the Britain and International Gateways (Manchester / Heathrow Airports)

Poor connectivity from the North of England to other parts of the country and the rest of the world restricts Business to Business interaction and the important economic benefits this brings to the North.

London is the most significant centre of economic activity in the UK: it is Europe's financial centre. It is therefore important that the North of England is well connected to the economic opportunities and specialist resources that London provides. Some major centres like Hull, Bradford and Sunderland have less than hourly direct services to London and towns such as Scunthorpe/Grimsby, Barrow-in-Furness, Blackpool and Middlesbrough currently have no direct services. Many of the towns and cities in the North are also poorly connected to other major national economic centres, such as Birmingham, Glasgow and Edinburgh.

With the UK and the North of England increasingly operating in a global economic market passenger access to international gateways is important. This means London Heathrow, Manchester Airport (which acts as the North's global gateway), as well as the other airport and ports in the North of England which provide important access to European centres and economies. Several key towns and cities in the North of England do not have direct connections to Manchester Airport for example Hull and Chester, while to reach Heathrow requires travel via Central London or Reading (via the RailAir coach link).

The North is also poorly connected to other cities in Great Britain (see Table 4.2). Glasgow is the fifth largest urban area in the country, yet many places, including Liverpool and Nottingham have no direct connection. Similarly over half the LEP areas have no direct connection to Bristol. Middlesbrough, Hull and Grimsby have no direct connection to Birmingham, which is the UK's second largest urban area.

1D) Access to retail centres and leisure opportunities is poor by rail limiting the attractiveness of the tourist/leisure economy

5. GAP ANALYSIS

Relaxation of trading and licensing laws has led to the UK having a seven day per week retail and leisure economy. There are now notable flows of traffic at weekends to city centres, out of town retail and leisure destinations and other tourist attractions such as the coastal resorts and national parks, particularly during the summer months. On many routes weekend rail services have not been enhanced to match the growing weekend economy and in some cases do not exist. In many places road traffic flows on Sundays in the middle of the day are now little different to other days of the week.[53]

For example in West Yorkshire on Sundays the route between Knottingley and Leeds, which serves the large Junction 32 Outlet retail park and Xscape Leisure Park immediately adjacent to Glasshoughton station, has only a two hourly service, compared to hourly between Monday and Saturday. Furthermore the earliest arrival into Leeds is not until after 11:00 making employee access by rail to retail job opportunities challenging. The same is true of the Lincoln to Sheffield via Worksop route and there are other examples from across the North.

To support and facilitate growth in the off-peak and weekend leisure markets there is a need to provide enhanced services with rolling stock that would otherwise not be in use.

The nature of city and town centres is changing. Growth of internet and other retailing will mean that the nature of 'high street' retailing is changing, and is likely to change further in the future. The leisure role of large centres is growing and this is a key driver of rail demand. Other practices such as more flexible working practices also mean that demand for rail is growing. To serve these markets, the hours of operation of rail services may need to be considered, as trains are busy and demand is growing at times other than traditional commuter peaks. Leisure demand may mean that services have to operate over longer periods.

> **1E) The railway serving the more rural areas of the North does not fully meet the economic and social needs of these areas, both in terms of supporting resident communities and the visitor economy**

As the nature of towns and cities is changing, so is the economy of the more rural areas of the North. Typically in rural areas people travel further than those who live in towns and cities. Commuting distances are increasing and education and other key services such as health are becoming more concentrated in fewer locations. While many of the North's more rural communities are not served by rail, in those where rail does offer connectivity it can make a vital contribution to a community's economic viability. Rail service provision has been slow to adapt to changing economic needs, for example in terms of the timing of first and last trains in relation to working hours, or the move towards a seven-day economy – around a fifth of Northern's station do not have a Sunday service.

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53 See DfT Road Traffic Statistics, https://www.gov.uk/government/statistical-data-sets/tra03-motor-vehicle-flow

5. GAP ANALYSIS

ADEQUATE PROVISION OF CAPACITY

> **1F) Insufficient capacity to accommodate existing peak demand and future demand growth that is necessary to facilitate economic growth**

To date in the North of England the growth in rail demand has largely been accommodated with only small piecemeal and incremental enhancements to network infrastructure capability and, in the case of services operated by Northern Rail, with only incremental additional rolling stock provision. There is currently crowding on many services, particularly on those into the major centres at traditional peak times, but also elsewhere on the network and at other times too. Infrastructure and rolling stock utilisation is now at such a level that there are limited opportunities to handle on-going demand growth with the available resources. On-going and committed investments will go part of the way to address this gap, but even with this there is a need to provide additional capacity to accommodate the doubling of rail mode share as identified in the Vision.

> **1G) Insufficient capacity and network capability for growth in the freight market will limit the effectiveness of the economy, particularly the movement of inter modal traffic**

Movement of rail freight is an important element in supporting a vibrant economy, with the ability to import and export consumer goods supporting retail and domestic manufacturing, the movement of fuel, such as biomass, to support power generation and the movement of construction material supporting the construction markets. Significant growth in the movement of rail freight is forecast, primarily from growth in the movement of inter modal containers between ports and inland distribution points. Without enhancement network capacity, the capability of the rail network to move longer trains with greater loading gauges will all prevent the rail network handling the forecast freight movements.

IMPROVING THE COHERENCE OF THE RAILWAYS

There is a strong quality dimension that affects public perception and use of the rail. Whilst this is beginning to change, the North's railways have suffered from a long period of under-investment. This is very visible in the continuing use of old and poorly equipped trains, and the unappealing nature of many stations which are perceived to be unsafe to use particularly after dark. Those facilities for cyclists that do exist are often rudimentary, parking is often inadequate, pedestrian access and bus interchange can be poor and good quality information across the full set of set of services is hard to obtain. The following paragraphs confirm these gaps.

2A) Poor integration between rail services means the potential network benefits are not maximised

The rail network provides comprehensive coverage of services across the most populous areas of the North of England. It is not possible, however, to provide direct connections between all points on the rail network. Instead the benefits of the network must be maximised by providing efficient interchange opportunities between services at key hubs. There are numerous examples across the North of England where poor connections between services add significantly to the overall rail journey time.

2B) The age/quality of the rolling stock on many local routes is not what passengers expect of a modern rail service

The Northern Rail fleet is amongst the oldest, not just in the North of England but of any operator on the national network. More importantly Northern Rail's rolling stock has seen limited investment to enhance fundamentally the quality of the trains in recent years. For many travellers, rail travel in the North is a choice rather than a necessity as it is in other areas, for example for commuting into Central London. This is because in the North road congestion and parking cost/availability is less of a constraint. If the rail network in the North of England is going to attract new users, and in particularly those that currently choose to drive, it is essential that the quality of the rolling stock is of sufficient standard to attract passengers from the personal car environment. At present the quality of the rolling stock operated by Northern Rail on many routes falls well short of this standard.

2C) The reliability and punctuality of services causes a perception that rail services cannot be relied on

While at a TOC level local and inter-regional services across the North of England are relatively reliable this masks a variation in reliability between different routes. Performance data also illustrates the relatively poor performance of the longer distance operators serving the North of England. In order to attract passengers to rail there is a need to provide reliable journeys.

2D) Integration between the rail network and other modes and the quality of stations facilities may not be attractive to potential users

Rail cannot provide the door-to-door connectivity that car can. It must operate as part of a multi-modal transport network. To maximise the attractiveness of rail stations they need to be integrated within the communities, towns and city centres that they serve and where possible and appropriate provide rail-based park and ride. There are a number of factors at locations across the North of England that currently prevent this integration:

- Many car parks are full before the end of the traditional morning peak period;

- Walking and cycling routes to some stations are poor;

- Cycle storage facilities are often rudimentary and perceived as insecure;

- Information about local rail services is not always promoted within the local community at supermarkets, cafes, pubs, hotels, community centres etc;

- Integration between rail and bus and light rail networks is often poor in terms of the relative location of stations and bus/tram stops and integration of timetables, particularly away from the town and city centre stations; and

- Facilities at some stations do not meet the needs of potential passengers. Parts of the network are either inaccessible or have limited accessibility for the mobility impaired.

2E) Information provision throughout the journey may not meet expectations, particularly at times of disruption

Consistent information provision to passengers is a crucial element of any journey by public transport. The way in which passengers source this information has changed significantly over the past 10-15 years with growth of the internet, home computing and access to 'smart' phones and mobile internet. Many information sources remain 'single mode' thereby limiting the perception of the journey opportunities available through the wider public transport network. The consistent provision of accurate information at times of disruption is an on-going concern for passengers. This will become increasingly important with all the future planned changes to the network.

5. GAP ANALYSIS

2F) The ticketing infrastructure can restrict passengers to buying/ collecting tickets at stations restricting flexible travelling

Despite advances in technology the prevailing approach to ticketing across the North of England is paper-based point-to-point ticketing that has not fundamentally changed since the introduction of the APTIS ticketing system in the mid-1980s. While passengers can plan rail journeys and buy tickets on the internet for many journeys they are still reliant on collecting tickets at a station or having them posted. While multi-modal tickets are available, limitations on the outlets selling these mean it is often necessary to buy the ticket in advance. Many stations in the North do not have a ticket office or any ticket retailing or collection facilities at all. There is notable spare capacity on many routes across the North of England in off-peak periods, but Northern Rail currently does not use yield management techniques to offer discounted advance purchase tickets to incentivise the use of off-peak services to the same extent as other operators.

In order to attract more passengers to rail it is necessary to provide ticket opportunities that allow passengers flexibility as to when and how to purchase their ticket while giving the opportunity to enjoy the benefit of multi-modal tickets.

Revenue protection is also important so that the viability of services is maintained and that all revenue is captured by the operator. It is also important in protecting the interests of the majority of passengers who do pay appropriate fares. Revenue protection operates in a number of ways, e.g. by on-train checks and by automatic barriers at some stations. Barriers are, however, a solution for the busiest stations only and their proposed introduction at some locations has been controversial in some cases due to restricting access.

2G) Passengers perceive poor security and personal safety when travelling by rail

Given the fundamental importance of ensuring passengers safety and security while travelling there is a need to review constantly and improve the facilities to ensure passengers feel safe when travelling by train. The perception of personal security is a notable concern for some users and acts as a barrier to rail use. While security technology such as CCTV has been deployed for many years, technological advances now make it much easier to monitor CCTV and digital recording makes it easier to store and manage data. However, across the network there are a variety of disparate CCTV technologies and monitoring arrangements. Adequate lighting and functional 'help points' are also important for passengers.

Passengers place a high value on staff presence and it is important that where staff are available they should maintain a high public profile and be deployed at the times and in the places where their presence is of greatest value.

5. GAP ANALYSIS

A MORE COST EFFECTIVE RAILWAY

While the rail network has a clear role to play in supporting economic growth there are affordability constraints. There is an inseparable requirement to achieve greater efficiency and cost-effectiveness through the period of growth projected for the North's rail system over the next two decades. The lessons from the McNulty Review of the railways will need to be applied. The following paragraphs set out the identified gaps primarily affecting value for money.

> ### 3A) Low demand at some stations does not justify provision of current rail service levels

There are a number of stations across the North that attract very few users. There are around 40 stations operated by Northern Rail (around 9% of the stations operated by the TOC) where demand is less than 5,000 single trips per year, which equates to around 10 return trips per day. This may be because the industry they initially served has closed, because working and travel patterns have changed or residential areas where the increase in car ownership means it is quicker for passengers to travel via a hub station. In contrast, others serve small and remote communities and provide the only viable alternative to travel by car, a position that is likely to be reinforced as Local Transport Authorities reduce their budgets for supported bus services as part of wider and larger packages of spending cuts.

Operating such stations incurs costs. Questions should be asked whether continuing to operate such stations is worthwhile and the best use of the resources available. Such considerations need to include potential future demand and associated benefits, as well as current demand. It will be important that there are alternative ways to travel which can be sustained over the medium to long term. A reasonable outcome from these deliberations is that supporting such stations does provide value for money. It is also noted that there are statutory procedures that have to be followed before any railway station can be closed permanently.

> ### 3B) Rail fares are not priced competitively and for some journeys give the perception of poor value for money for the passenger.

Longer-distance inter-regional walk on fares, particularly to London are perceived as very expensive and are not attractive for non-business travel.

Multi-modal tickets can be inflexible as many are not practically available to purchase on the day of travel. This can lead to passengers buying more expensive single leg tickets for each mode and therefore not realising the value that may be available from some multi modal tickets.

In contrast, short distance rail journeys, for example from suburban stations to city centres, are often notably quicker than bus or car, particularly at peak times. However, the price of the rail journey is often cheaper than travelling by bus or car (where there is a need to pay for car parking in the city centre).[54] Accommodating these shorter distance low yield trips places a constraint on capacity and can deter longer distance travel which is of greater value to the rail industry.

In the North, fares within the PTE and other county areas are generally relatively low compared to the fares for crossing administrative boundaries. This encourages rail heading to stations where fares are cheaper and may dissuade commuters from travelling by rail from their nearest station, which brings local environmental and congestion impacts.

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54 For example - Wavertree – Liverpool, rail Anytime: £2.70, Arriva Day Saver: £4.00; Ashburys - Manchester, rail Anytime: £2.50,
    FirstDay: £4.00, Stagecoach Dayrider £4.00; Bramley – Leeds, rail Anytime: £3.20, FirstDay: £3.90

3C) The nature of the infrastructure, resources and operating practices in the North of England results in high operating costs.

The age, condition and functionality of some infrastructure, including track, signalling, depots and stations makes the network in the North of England unreliable and costly to maintain. Some routes have extensive semaphore signalling which is reliant on high levels of staffing and is therefore expensive to operate and can restrict operating hours. Northern Rail operate a diverse mix of ageing rolling stock which results in inflexibility in providing the right units for the right train, and higher maintenance costs.

3D) The revenue potential on some routes is not being fully met, which is a barrier to service development

The subsidy paid to Northern per passenger kilometre is the highest of all franchised Train Operating Companies. One of the most effective ways of reducing the subsidy requirement is to increase the revenue per train through patronage growth without increasing operating costs. Both nationally and in the North in particular, Community Rail initiatives have proved particularly successful at growing rail demand and hence revenue. As well as making routes more cost-effective, building demand also helps make the case for enhancing rail services, for example by adding additional services to low frequency routes. A number of Local Transport Authorities have successfully pump-primed such service increments by financially supporting operations for a number of years as demand builds before the TOC takes on responsibility for operation on a commercial basis.

REDUCING ENVIRONMENTAL IMPACTS

There is an overarching need for the rail industry to support central Government and other organisations objectives for improved environmental performance, not just of the rail industry but also the wider transport industry.

4A) Current diesel trains produce greater carbon emissions per seat than electric trains

Northern Rail's vehicle fleet is 80% diesel and currently most of the Transpennine fleet is diesel. Planned electrification in the North West and from Manchester to York/ Selby will allow an increase in electric operation of inter-regional and local services in the North of England, but there will remain a sizeable diesel fleet.

Despite current and planned electrification there are and will remain a number of long distance diesel services. In some cases this is to provide direct connections to locations away from the electrified network. However, in other cases, such as the services between Birmingham and Scotland, it is because of the lack of electric rolling stock to provide the service as a result of historic rolling stock specification and changing service patterns. Many freight services remain diesel hauled due to the inefficiency of changing locomotive to reach freight terminals, which are typically located away from the electrified network.

4B) Perceived poor journey opportunities and value by rail will encourage passengers and freight shippers to use less sustainable modes

For rail to contribute fully to meeting the Government's environment objectives it is important the network can secure mode shift from air, car and lorry to rail. Passengers and freight shippers will not choose to use rail simply for its environmental advantages. To achieve this mode shift the rail network will need to offer journey opportunities that meet the broad range of customer expectations including journey time, reliability, frequency and fare or cost.

5. GAP ANALYSIS

LONG TERM STRATEGIC GAPS

In the longer term, the opportunities need to be taken as they arise to make good some of the weaknesses in the North's rail network. Some of these weaknesses have an impact on the very important city region – city region connections. Putting them right is long overdue. But funding is likely to be key constraint.

Legacy network weaknesses *(examples in parentheses)*
▪ Indirect and speed restricted routes *(Newcastle – Sunderland – Hartlepool -Middlesbrough; Sheffield – Leeds; Chester – Manchester)*
▪ Infrastructure constraints limiting network expansion and service changes *(Tees Valley, Darlington)*
▪ Poor city/town centre connectivity *(Bradford; Warrington)*
▪ Historical railway company boundaries and railway operational practices *(West Cumbria – Newcastle)*
▪ Across estuaries in some case leaving rail at a substantial journey time penalty against car, and losing the opportunity for higher value through services *(Mersey/Dee; Morecambe Bay, Duddon; Solway Firth; Tees (Middlesbrough – Hartlepool); Humber)*
▪ Across the Pennines *(Sheffield – Manchester Airport)*

There are circumstances which should act as a trigger to overcome these weaknesses. These include, for example, when consideration is being given to route electrification, high-speed rail and large-scale urban regeneration. In the case of Sheffield – Leeds, HS2 of course could offer in part a solution.

The idea of reinstating closed railway lines often attracts support. In practice, the circumstances where this would be worthwhile are limited. For such investment to be worthwhile it is likely that there will either need to be a real economic barrier to overcome – such as connecting areas of major disadvantage with an employment growth area – and sufficient scale of demand to make the investment economically worthwhile and financially acceptable, or there is a rail connectivity gap that cannot cost-effectively be resolved through investment and enhancement of the existing network. This equally applies to freight, but cost involved may be lower. There are a small number of examples in the North where Local Enterprise Partnerships and others have identified an economic benefit to operate passenger services on current freight-only routes or reinstated lines.

Whatever the circumstances, it will also be necessary to demonstrate that rail is the best solution to address the transport need, that the proposition is affordable and that there is a sound financial and economic case for the proposition. The business case requirements for a reinstated line are no different to those for a new line or an enhancement to the established network. It is right that either individually or in consort, Local Transport Authorities and Local Enterprise Partnerships should take a lead role in the identification of such business cases, although with their agreement there could be a role for Rail North to lead such work.

6. OUTPUTS & BENEFITS ASSESSMENT

The primary wider objective is supporting economic growth. The rail network has a key role to play in this, one that is much greater than its average market share might suggest, because of its role in accommodating the necessary growth in commuting, in improving business to business connectivity and in key freight flows.

INTRODUCTION

This Chapter presents a set of outputs that, if realised, would address the gaps identified in the previous Chapter and contribute towards achieving the Vision for rail in the North of England. The outputs have been developed to address the specific gaps identified for the North of England. They have been informed by wider transport objectives and existing evidence of the benefits of improved connectivity. Analysis has been undertaken to provide a strategic valuation of the economic benefits of moving towards the stated outputs.

The outputs are *conditional* and dependent upon affordable and economically worthwhile solutions being identified. Local Transport Authorities across the North will use this Strategy as a basis to work with the Government and the rail industry to develop specific solutions to address each output.

The outputs should set the future direction of the strategic development of the rail network in the North. There will be a range of ways to achieve the outputs, not all of which should require significant capital investment. Opportunities to achieve the outputs through making best use of the existing infrastructure, rolling stock and staff resources should also be considered.

HEADLINE OUTPUT

The primary wider objective is supporting economic growth. The rail network has a key role to play in this, one that is much greater than its average market share might suggest, because of its role in accommodating the necessary growth in commuting, in improving business to business connectivity and in key freight flows.

It is also apparent that rail could play a wider role and address a larger part of the diverse pattern of commuting, business and other travel demands in the North, and the Vision describes how this can be achieved. It supports doubling rail's market share – and since the travel market overall is expected to grow (but at a much slower rate than for rail) this would mean increasing rail patronage by nearly 180% over today's levels by the mid-2020s.

Analysis of the comparative rail and car generalised journey cost (the overall journey time including access to the rail network, time on the train, frequency penalties and for multi legged journeys, interchange penalties) suggest that for rail to double its mode share beyond the level already forecast, the typical overall perceived journey time will need to be reduced by around 25%. This is the overarching output that Local Transport Authorities and the rail industry need to achieve to realise the Vision.

6. OUTPUTS & BENEFITS ASSESSMENT

Achieving a 25% saving in rail generalised journey cost will require investment and development of the rail offer addressing all elements of the rail journey. To achieve the Vision as effectively as possible it will be important to focus on the larger elements of generalised journey time as this is where the largest reductions can be made. Figure 6.1 provides a breakdown of generalised journey cost for a typical journey in the north of England.

FIGURE 6.1   FACTORS CONTRIBUTING TO RAIL GENERALISED JOURNEY COST
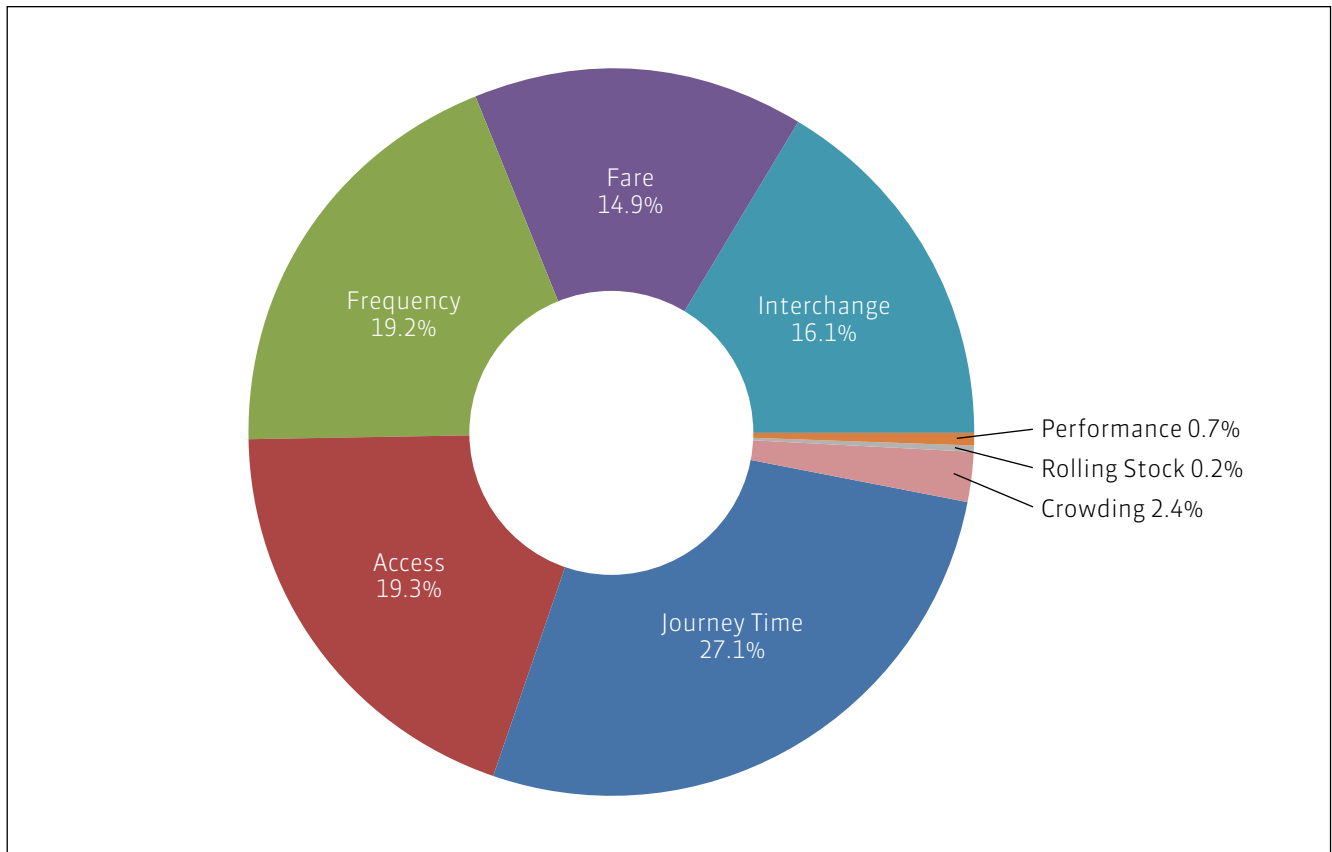
The following bullet points summarise the assumption made in calculating the components of generalised journey cost for a typical journeys as illustrated in Figure 6.1.

- Journey time is based on average passenger kilometres derived from National Rail Trends[55] and the average train speed is derived from evidence published by the Office of Rail Regulation[56] of the total train hours and kilometres operated by Northern Rail and First Transpennine Express;

- Access time assumes a 500m walk at both ends of the rail leg with the access time weighted according to Passenger Demand Forecasting Handbook (PDFH)[57];

- Frequency assumes a typical half hourly train frequency, with the frequency penalty taken from PDFH;

- The average fare (yield) is derived from evidence published by the Office of Rail Regulation of the revenue and passenger journeys for Northern Rail and First Transpennine Express;

- The interchange penalty is based on PDFH for the average journey distance derived from National Rail Trends;

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55 http://www.rail-reg.gov.uk/server/show/nav.2026

56 http://www.rail-reg.gov.uk/server/show/ConWebDoc.11052

57 Passenger Demand Forecasting Handbook, ATOC, 2013

- The performance element is based on National Rail Trends data of the percentage of on time arrivals. An average delay of one minute per passenger is proportioned by the number of trains arriving late and weighted following PDFH guidance;

- Rolling stock assumes a quality penalty equivalent to PDFH evidence of the benefits of improved rolling stock applicable to trips made using Northern Rail diesel rolling stock, with the total number of trips proportioned based on the fleet size.

- Crowding is derived from the average peak period crowding based on data published by the DfT[58] and PDFH guidance on the weighting of crowded journeys.

Figure 6.1 illustrates the relative importance for the example journey of journey time, frequency, interchange, fare and access to the network in passengers' overall consideration of the cost of travel. Reducing these elements of the overall journey cost should be a clear focus when developing solutions to deliver this Strategy. Further detail of the opportunities to reduce these elements of the overall perceived journey cost follow.

This example journey cost includes the penalty for this making a journey requiring interchange. Although the majority of rail journeys made are direct, removing the interchange impact will not change the relative importance of the remaining four elements of the overall generalised cost.

However, this should not preclude consideration of potential cost effective schemes to reduce all elements of the generalised journey. On some routes, and for travel at some times of day, the proportion of performance, rolling stock quality and crowding elements will be significantly greater than for the typical journey example shown.

Also and importantly, for travellers making some journeys on-train crowding, journey times or perceived or actual unreliability will effectively be a barrier to travel. For the rail network to support economic growth and a more sustainable economy by securing and increasing share of future demand growth and securing mode shift from car, it is important that passengers experience a reliable and punctual journey. Performance in the North of England should be improved to deliver the established High Level Output Specification (HLOS) target by 2019, with a more stretching target to be determined beyond 2019. Figure 6.1 suggests that, for a typical journey with an average delay, the impact of delay is not a significant component of generalised journey cost. However, in reality, delay is not averaged across a number of journeys but experienced on a smaller number of specific journeys. Passengers that experience significant delay or delay sustained over a number of journeys will, in some cases, be left with a negative perception of rail and may take this into account when next choosing to travel. For this reason it is important to strive for reliable and punctual rail services.

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58 https://www.gov.uk/government/statistical-data-sets/rai02-capacity-and-overcrowding

The position with regard to crowding is similar in that the crowding impact is not averaged across all journeys, but is experienced by those travellers who use over-crowded services. Given that crowding tends to occur repeatedly on the same services at the same time of day, it too should be regarded as a tangible barrier to rail use and the realisation of the rail in the North's full potential.

Journey Time

There is no absolute target for what level of journey time ought to be provided. In all cases a quicker journey time will be advantageous. However, to secure any sizeable mode shift from car, there is a need to provide journey times that are recognisably faster than by car. The Northern Hub Phase 1 Study and the Yorkshire Rail Network Study have previously suggested that rail journey times that are 25% quicker than car represent a suitable challenging target.

Frequency

Evidence[59] suggests the typical passenger in the North of England places around a 33 minute penalty on an hourly frequency with this reducing to around 23 minutes where the frequency is half hourly, a perceived time difference of 33%. The perceived journey time can be significantly reduced by increasing the frequency of current low frequency services.

Interchange

As well as the longer journey time where interchange is required, evidence[60] suggests passengers also place an additional time penalty on journeys that require interchange. PDFH provides a combined interchange penalty measure that includes the pure penalty and the weighting of the actual interchange time. The level of penalty varies but is typically around 19 minutes for a journey of 30 miles. Assuming such a journey takes an hour, the passenger's perceived interchange time is around 30% of their journey time. The perceived journey time can be significantly reduced by providing direct services.

Fares

While any fare reduction will always be welcome by passengers, fares must be set within the overall financial sustainability of the rail network. Rather than reducing fares *per se* what is important is that passengers perception of the value of travel is enhanced, for example by ensuring flexibility of travel arrangements and access to the best value rail-only or multi-modal fares.

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59 Passenger Demand Forecasting Handbook, ATOC, 2013 – Table B4.8, average values of Non-London Urban and Non-London inter-urban
60 Passenger Demand Forecasting Handbook, ATOC, 2013 – Table B4.10, value for full/reduced tickets

6. OUTPUTS & BENEFITS ASSESSMENT

Access to the Network

Evidence[61] suggests that passengers perceive the time taken to access the rail network to be weighted around twice that of the rail journey leg. Therefore, ensuring passengers can access the network as quickly as possible can result in notable perceived journey time savings. This can be achieved through improved access to car parking, better walking and cycling routes to and from stations and using more modern ticketing methods which may mean passengers do not need to buy or collect a ticket at the station. Where applicable, passengers will also consider the financial cost of accessing the rail network, for example bus fares or car parking charges, as part of the overall rail generalised cost.

POTENTIAL BENEFITS

The potential benefits of delivering the Vision have been quantified to give an indication of the possible scale of benefits that enhancing rail can bring to the North. This analysis has been used to inform the identification of outputs, along with other existing evidence. The potential benefits have been presented in two ways; the conventional transport appraisal benefits, in present value terms given a sixty year appraisal period, and the single year GVA impact for 2025 (as a mid-point for this Strategy).

The analysis suggests that total conventional transport benefits of £50bn (PV 2010) over a 60 year appraisal period while the GVA benefits (2025, nominal inflation) equate to £0.9bn per year. The GVA benefit is notably smaller because it is an annual figure. The GVA measure includes only the economic benefits generated as a direct result of improving the rail network: of business user journey time savings, agglomeration, imperfect competition and labour market impacts. Table 6.1 provides a breakdown of these benefits by source and a summary of the assumptions underpinning the benefit calculation.

TABLE 6.1   POTENTIAL BENEFITS SUMMARY

Benefit Source	Assumptions	PV Benefits 2010 £m			GVA Annual Equivalent (2025) £m
		Conventional Transport Benefits	Wider Economic Impacts	Total Benefits	
Journey Time	20% journey time saving for all journeys in the North of England	£21,641	£3,867	£25,508	£532
Frequency	The benefits of moving to a minimum 2 tph frequency across the North	£4,594	£836	£5,430	£116
Interchange	A reduction in average interchange time from 15 to 10 minutes	£1,940	£347	£2,287	£48
Crowding	The benefit of accommodating future peak demand into the five key centres with no increase in crowding compared to current levels	£6,065	£882	£6,947	£23
Rolling Stock	The benefit of a significant improvement to the Northern Rail diesel fleet	£722	£27	£749	£1
Performance	The value of a minute reduction in delay	£1,649	£300	£1,949	£42
Access to the Network	The value of a half minute reduction in access time for all users	£5,669	£1,060	£6,728	£149
Total		£42,281	£7,318	£49,599	£910

61 Passenger Demand Forecasting Handbook, ATOC, 2013 – Table B10.2

6. OUTPUTS & BENEFITS ASSESSMENT

The table provides an indication of the potential levels of economic benefit that could be achieved by enhancing passenger rail service across the North. In developing schemes to address each of the identified outputs, it is important to consider all outputs and not just those that may result in the greatest benefits. To focus solely on the areas that deliver the greatest economic benefits may miss cheaper solutions that still deliver value for money.

The proportion of benefits identified in the table does not necessarily match the importance in terms of the overall generalised journey cost, as identified in Figure 6.1. This is because the importance of each element of journey cost does not necessarily correspond to the opportunities to reduce that element of the generalised cost. For example, most routes already have a half-hourly journey opportunity or better and moving beyond this would likely incur significant additional operating and infrastructure costs. By comparison, it may be able to secure modest journey time savings with small-scale investment and no additional operating costs.

To understand the economic value of the rail freight industry, Input Output Table analysis has been used. Input Output Tables show the supply and demand of all industries in the economy in order to produce goods and the final consumption of these goods. By analysing the rail freight sector's supply chain within the table, and the supply chains of the industries using rail freight, it is possible to understand how important the sector is for the rest of the economy, both nationally and within the North of England.

The economic importance of the sector is measured at three levels:

- The direct effect is the turnover and employment of the industry itself;

- The indirect effect adds the sum of inter-trading between businesses to the direct turnover. This registers as a multiplier effect as goods and services are traded; and

- The induced effect is the indirect effect plus the expenditure driven by the household income derived from the rail freight sector.

In the North of England the direct value of the rail freight industry is £209m per year (2010)[62], around 0.03% of the economy of the North. The industry supports economic output of £862m through indirect links and £1,567m through induced links, which represents around 0.15% of the economy. The rail freight industry brings important benefit to the national and local economies in the North. It is therefore important that the forecast growth in rail freight is accommodated to ensure that rail freight continues to support the national and local economies.

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62 ONS datasets including: Gross Value Added by industry groups, Employment by Big Industry Groups and Input – Output Supply and Use Tables.

CONNECTIVITY AND SUPPORTING ECONOMIC GROWTH

There is clear evidence that for the economies of the North to function more effectively and grow there needs to be improved connectivity. Connectivity typically refers to journey time, journey frequency and the need to interchange. In the context of this Chapter, hours of operation are also considered. The Vision identifies that improvements to connectivity is needed:

- Between the North's major centres;
- For commuters;
- To international gateways; and
- To London and major centres across the rest of Great Britain.

1A) Centre to Centre Connectivity

The Vision suggests that improving services between the key towns and cities in the North will make a significant contribution to economic growth by improving connectivity between businesses. It also the case that improving these connections is likely to bring the largest conventional economic benefits[63]. Business journeys are more likely to be made at off-peak times and therefore rail must compete with uncongested car journey opportunities.

There are two levels to be addressed:

- Between the five largest cities in the North (Leeds, Manchester, Sheffield, Newcastle and Liverpool). These cities should be linked by fast high quality services providing high frequency connectivity, the highest standards applicable nationally in terms of customer amenity, and at journey times significantly better than those achievable by road (as measured centre to centre, in off-peak periods); and
- Between the major towns and cities of the North (and between them and the five largest cities). Here the aim is to provide a consistent high standard of express services. It is across this wider urban 'matrix' that the recovery and restructuring of the northern economy needs to be considered.[64]

For this Strategy, in addition to the North's five largest cities, a set of major towns and cities has been identified. This 'interconnected urban matrix' has been used to define the connectivity-related elements of the Strategy.

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63 Yorkshire Rail Network Study, Metro & SYPTE, April 2012
64 See IPPR/NEFC *op cit*, which identifies the next wave of growth as likely to be based significantly around the second tier of cities and towns as well as the larger cities

The rail network should provide in-vehicle rail journey times for services between these centres that are quicker than the off-peak car journey time. The minimum frequency journey should be two trains per hour. Where possible direct connections should be available to at least the five largest cities, and where interchange is necessary the connection time should be minimised.

With committed investments, rail journey times between northern cities will shrink. Suitable realistic target journey times are shown (rounded to 5 minutes) are shown in Table 6.2. This shows key flows between the five largest cities. But the speed-up and adoption of defined service categories should extend these very substantial improvements to many other journeys, such as Leeds – Chester; Blackpool – Manchester; Bradford – Manchester Airport; Hull – Liverpool; Warrington – York; Leeds – Carlisle and Nottingham – Middlesbrough.

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65 Defining the North's major towns and cities is not straight-forward, and cannot be done simply by reference to district population, for example, partly because of the variable 'tightness' with which local authority boundaries are drawn. For the purposes of this strategy (only) the criterion is distinct built up areas with a population of about 75,000 or more, or towns/cities which serve a very substantial catchment that does not overlap with other major towns and cities. The Office of National Statistics has defined 'built up areas' as areas of built-up land with a minimum area of 20 hectares. Built up areas less than 200 metres apart are considered part of a single built up area. There are 88 built up areas in England and Wales with a population greater than 75,000, 70 with more than 100,000, but only 11 in excess of a half a million, five of which are in the North (Leeds, Liverpool, Manchester, Sheffield and Tyneside (Newcastle)).

The five largest built up areas in the North are each the focus of extensive local heavy and light rail networks and are recognised as the principal cities in their usually eponymous city regions.

Some built up areas cross district boundaries and in such cases it can be appropriate to include multiple stations per built up area. Places such as Gateshead, Oldham, South Shields and Birkenhead which are largely served by metro-rail services/tram/LRT or which are contiguous with other places which may provide the best rail 'gateway' are excluded – even if their population exceeds 75,000. Station throughput compared with built up area population is a helpful indication that a station serves an area greater than its immediate built up area, even if the local population is less than 75,000. A number of such stations are included.

While not in the Strategy study area as defined by Figure 1.1, Stoke-on-Trent is in a built up area that has a population approach 400,000 and which has close economic links with the North West, as well as having a rail service made up of trains to and from the North West. For these reasons, Stoke-on-Trent is included.

Consideration was given to using a Centre for Cities typology that has been used by Network Rail, but this really is driven by population and so alone is not sufficient. The earlier (three) northern Regional Spatial Strategies each used differing criteria to identify regional and sub-regional centres, so these were also deemed to be unsuitable for use here.

6. OUTPUTS & BENEFITS ASSESSMENT

TABLE 6.2   TARGET OUTPUT RAIL JOURNEY TIMES (2020s)

City	Manchester	Leeds	Liverpool	Newcastle	Sheffield
Manchester	–	–	–	–	–
Leeds	00:40	–	–	–	–
Liverpool	00:30	01:00	–	–	–
Newcastle	02:00	01:20	02:30	–	–
Sheffield	00:40	00:35	01:15	01:45	–

An implication of developing an express network between the major centres in the North is that there will be an emerging pattern of limited stop services complemented by local stopping services on all of the major routes. This already happens on routes such as Manchester – Huddersfield – Leeds, for example, but will become more widespread across the North's strategic network linking the major centres. The frequency of express service provision will need to be matched to the level of demand on offer on a case by case basis. The specific specifications applicable to each category of service will need to be developed as this Strategy is taken forward.

The notion of an inter-connecting categorised service is common-place in several European countries and is discussed further in Chapter 7, Implementation. It sets new challenges for those responsible for regulating and setting targets for the rail industry, because it moves the aim from a route or service level upwards to that of the North's network, treated as a whole.

The continuing electrification programme must not result in 'breaks' in existing longer distance services at the end-points of the electrified area. There should be no significant loss of connectivity for those places which remain served by non-electrified routes – and there are options available on how this can be achieved (see Figure 7.1).

In the longer term, network weaknesses should be addressed through appropriate investment (subject to demonstrable economic returns being achievable). This may include new stations – and even new railway lines.

1B) Journeys to work

Ensuring access between residential areas and areas of employment opportunities (primarily the city and town centres) is essential to supporting economic growth. Journey time is less important for these journeys, as the majority will be made during peak periods when there is greater highway congestion.

There is an expectation that employment will grow in those sectors of the economy that favour town and city centre locations. Rail services in the North need to serve and anticipate this pattern of growth, and anticipate a lengthening of commuting journeys, as traditional narrow labour markets are expanded, further increasing choice and opportunity for employers and the workforce, strengthening the North's economic performance in consequence.

It is important that the frequency of these services is sufficient to give flexibility of travel to meet working patterns. A minimum peak period frequency in urban areas of two trains per hour is required with a minimum hourly frequency for commuter routes in more rural areas. The timetable must allow morning arrivals in the key urban centres earlier than 07:00 and evening departures later than 20:00.

6. OUTPUTS & BENEFITS ASSESSMENT

To serve major employment areas remote from the rail network, connectivity needs to be provided through close integration with other transport modes. In Tyne and Wear, the Metro system plays an important role in this respect, as does Merseyrail in the Liverpool City Region.

Those cities served by an established tram network (Manchester, Sheffield and Blackpool) may offer worthwhile opportunities for the development of tram-train services (Sheffield – Rotherham corridor is the national pilot) or for the replacement of existing conventional rail services with tram operation (for example, as has already happened in Greater Manchester and where several further such opportunities exist).

1C) To London, other National Centres and International Gateways

London and other economic centres such as Birmingham, Bristol, Glasgow and Edinburgh offer important economic opportunities. It is important that connections are provided that allow quick access to these centres outside the North.

Wherever possible there should be provision of direct services from each centre in the inter-connected matrix to London in some hours. And there should be a half hourly journey opportunity requiring a single interchange. The announced plans for HS2 will create significant opportunity to enhance journeys to London from locations not on the north-south main lines.

The current plans for high-speed rail will address the capacity challenge, especially in the case of the West Coast Main Line, and bring a very significant improvement in journey times for the key cities served directly. The need to continue to invest in existing main lines to London in the short and medium terms up to the opening of HS2 is however important, recognising that full implementation of HS2 is nearly twenty years in the future[66]. The function that these routes play after HS2 opens may change, but they will remain key national corridors.

As well as this substantial benefit to the North, HS2 brings some challenges. These are:

i)   Ensuring that the connectivity boost for the cities served directly is shared across the wider catchments of the North West and Yorkshire & the Humber, by the provision of excellent and convenient connections into HSR stations from the wider northern rail network. As HSR plans emerge and services develop, there is likely to be the need for a re-balancing of existing services and in some cases for investment in infrastructure to deliver the required regional accessibility benefits.

ii) Operation of HSR services over existing main lines will add to capacity pressures while adding valued connectivity gains to places such as Newcastle and Liverpool. Accommodating this cannot be done at the expense of the other aims of this Strategy. Investment may be required to increase the capacity of those sections of classic main line over which it is proposed high speed rail services would operate.

iii) Existing plans are unlikely to deliver significant journey time benefits for much of the North East and also for some other centres not directly provided with HS2 services. This means that there is a major need for further enhancement over the 2020s and 2030s to ensure the East Coast Main Line, Midland Main Line and West Coast Main Line are fit for purpose in conjunction with the HSR plans, both within the North and further south.

iv) The stated Government ambition of building on HS2 to achieve a three hour journey time between London and Glasgow/Edinburgh and the initiative being pursued by Transport Scotland with a commencement of HSR construction in Scotland to open by 2024 together offer new opportunities for Northern England. Authorities across the North want to see wide accessibility and regeneration gains from HSR across areas such as Lancashire and Cumbria, Tees Valley, Tyne and Wear and Northumbria.[67]

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66 The Government is currently considering a proposition from Sir David Higgins to include the Birmingham to Crewe section of HS2 as part of Phase 1 of HS2. If adopted, this would bring forward the opening of this section from 2032/33 to 2026 and mean that the North West would experience a greater benefit from the first phase of HS2. However, it would still be 2032/33 before the North West felt the full benefit of the proposed HS2 network with the construction of the link from Manchester to Crewe.

67 What will be the spatial effects of High Speed Rail in the UK? Evidence submitted to the Independent Transport Commission November 2012 Greengauge21

There is a further effect of high-speed rail network development. The main lines which will be relieved of carrying the existing pattern of inter-city services will offer opportunities to provide improved services for secondary centres. This is likely to lead to a pattern of better services to intermediate locations on the West Coast Main Line, for example. It can also create the scope to introduce new direct London services from secondary locations that cannot currently be accommodated. This will also allow additional capacity for freight.

Whether such services are provided by franchises or through open access, the North's strategy on connectivity would be helped by the ability to introduce direct London services from locations such as Blackpool and Grimsby. Together with those places best reached via the planned high-speed network, such service development could ultimately allow each of the places forming the North's interconnected urban matrix to be connected with London in three hours or less – but this is dependent on the roll out of the high-speed network nationally and will only be practicable in the longer term.

Of great importance to businesses trading internationally is access to airports. Rail provides an important role in offering efficient surface access. The relevance extends across existing businesses in the North, active in exporting, to the attraction of new businesses including those entailing foreign direct investment – and to the retention of smaller business which, as they expand into global markets have the choice of relocating to other locations. There is also an important opportunity to increase inward international tourism that will partly depend on airport connectivity.

Existing links to airports from those towns in the inter-connected matrix should be maintained as the network and services are developed through electrification. The five largest cities in the North should also be linked to Heathrow Airport when the second phase of the HS2 plans are brought to fruition, and also in the long term via the Channel Tunnel with Brussels/Paris (subject to resolving the border control issues which to date have undermined the economics of direct links such as these).

Manchester Airport is the key international gateway serving the North of England. Passengers travelling to the airport are generally less time sensitive, instead placing greater value on a direct service and the punctuality and reliability of that service. Wherever possible there should be an hourly direct service from each major town/city in the inter-connected matrix to Manchester Airport. An aim should be to provide direct connections from each place in the North's interconnected urban matrix to Manchester Airport. At a minimum, each should have access to Manchester Airport requiring a single interchange.

Access to other airports across the North and to East Midlands Airport is also important. Connectivity should be provided via bus/tram/metro connections for the nearest hub station. Before HS2 is complete, access to Heathrow will typically be via London, for which connectivity is summarised above.

Good business to business connectivity and accessibility for tourism and other travel requirements are also required between the North and the main cities of England, in addition to London and the main cities of Scotland and Wales too.

1D) Access to Retail, Leisure and Tourism

The North offers huge attraction in terms of leisure, retail and recreational areas and tourist destinations that can be well served by rail, and service plans need to be developed, together with suitable access transport, including by cycle, to accommodate this opportunity area which is of significance in economic terms.

There is increased demand for travel at weekends, including on Sundays, and late at night. Matching rail service provision to the contemporary pattern of travel demand on Sundays is long overdue. Many northern cities are important city break and day trip destinations and it is important that rail can fulfil the travel demand these changes generate. The main (traditional) seaside resorts, along with the National Parks, are adopting various strategies to re-define and update their appeal, and rail service providers in the North should have cognisance of their plans and seek to support them to mutual advantage.

Across the network there are a number of rail services that provide important access to education and health facilities. It is essential that service development does not remove these links and where cost-effective solutions exist, leads to their enhancement.

There are growing trends in commuting to higher education establishments. Students form a significant part of the rail market, and the Vision is to accommodate their wider travel needs and to provide good inter-connectivity between all of the North's major higher level education establishments. All future regional-level facilities in the education and health sectors should be planned with regard to their accessibility by rail.

1E) The economic and social needs of rural areas

The North's railway supports the economic and social life of some of the more rural parts of the North by providing connectivity to jobs and services, as well as contributing to the visitor economy. Although not necessarily captured by the conventional transport appraisal approach of focussing on generalised journey time, this too leads to economic benefits through supporting the vitality of the North's more rural communities. Through enhanced connectivity the railway can play a bigger role, but central to this has to be growing demand and revenue. Typically new services do grow demand and increase revenue but this tends to build up over time. Local Transport Authorities and Community Rail Partnerships have an important part to play in identifying possible service improvements. In most cases additional services will require revenue support for a period of time and LTAs and their delivery partners have a key role to play in providing this. In some cases funding for new or additional services can be achieved through the established increment/decrement approach.

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ADEQUATE PROVISION OF CAPACITY

1F) Capacity for Peak and Off-Peak Demand

Adequate provision of capacity in peak and off-peak periods is not simply a question of procuring additional trains. Also to be considered is the way that the train fleet is used both in terms of the way that it is utilised and the layout of the trains themselves. Undoubtedly if the growth target is to be met then additional trains will be required. This alone is unlikely to be a cost effective way of meeting demand, so effective use will have to be made of stock that is currently available. Refurbishment to deliver enhanced facilities in a layout suited to current and projected demand will need to be considered.

The committed and likely future electrification of the network not just in the North but elsewhere in the country creates the opportunity to bring additional capacity into the North's network.

In addition to looking at the size of the train fleet consideration needs to be given to how it is used. In particular:

- In peak periods, network capacity constraints mean that for many services the quickest and most cost effective way of providing additional capacity will be through longer trains rather than more frequent trains;

- Connecting services that terminate in city centres to create through running services can offer the opportunity for more efficient stock utilisation;

- Capital investment, for example in additional platforms and/or turn-back facilities at suburban stations can allow short running services to be run at peak times, again with the goal of increasing the effective utilisation of the stock available.

In off-peak periods in the week as well as at weekends, consideration needs to be given to whether the hours and frequency of operation match current demand patterns.

Overall, what is now needed to complement this Strategy is a North-focussed rolling stock strategy that recognises the opportunities that committed and planned investment will bring and can be used to shape the forthcoming franchising process. An integral part of this should be identification of future levels of train capacity needed to accommodate the growth that this Strategy will support and how rolling stock should be utilised on the range of train services that operate across the North.

1G) Capacity and Capability for Freight Growth

In addition to rail passenger travel, it is important to also ensure rail freight accessibility to/from wider markets is enhanced. New opportunities for freight by rail in North largely centre on:

- Expansion of flows and trade through the northern ports;

- The development of intermodal distribution traffic, especially related to the national logistics operations of the retail sector;

- Movement of biomass by rail through the Humber and from the Tyne, Tees and Mersey ports to the major generators;

- The continuing role of coal for power generation which will remain important for at least the next 20 years in some parts of the North of England;

- Specific flows such as aggregates and steel; and

- Released capacity as a result of the introduction of HS2.

Both efficiency and environmental objectives would be well met by ensuring that the pattern of freight flows, especially through the North's ports and intermodal logistics, carry back-loads, and an expansion of rail movements through northern ports with the adoption of regional (as opposed to national) distribution centres would be particularly advantageous. To achieve this, there is a need for

6. OUTPUTS & BENEFITS ASSESSMENT

all of the major ports to have a structure gauge capable of accommodating 9' 6" containers, the now industry standard, on non-specialist wagons as well as a gauge cleared network connecting the ports to inland distribution terminals in the North and elsewhere in Great Britain. This of course should be in accordance with DfT's principles for freight[68]. If freight is to grow to its full potential, there needs to be adequate provision of paths. The need to make best use of the network, along with the evolving pattern of rail freight demand suggests a greater need for network availability at night and at weekends.

Growth in the retail sector is being experienced, amongst others. A need exists for more rail connected facilities across the North for this to continue. In the medium to longer term potential exists to use electric traction also for freight in the North.

In terms of the key flows, the bulk sector will continue to have an important role alongside intermodal especially from ports. One important way of making better use of the network while at the same time improving the economics of rail freight is to enhance the network to support longer and heavier freight trains.

IMPROVING THE QUALITY COHERENCE OF THE RAILWAYS

The quality of the journey experience is an element in the passengers' decision to use rail. It is therefore important to provide a journey experience that can attract passengers from their car. The following paragraphs set out a number of outputs that will help to secure a notable improvement in the overall of quality of the journey experience for passengers in the North of England.

2A) Better Integration between Rail Services

The North is not lacking in rail network; for some key city pairs there is still a choice of routes and while some branch lines have closed, many remain and over the last thirty years, stations have re-opened, and, in general services have expanded. Yet, it hardly feels to users like a single network, and it is hard to navigate and difficult to understand. The fares system is uneven and complex and the multiplicity of service providers can be off-putting too. To illustrate this point, of the 173m trips from stations within the North of England, only around 12% included a rail interchange[69]. A central theme of this Strategy is to overcome barriers to interchange and thereby enhance the reach of the North's rail network.

The North's network of rail services should move progressively towards one built around the principles of a connectional service, integrated across operators and with other transport modes.

2B) Improved Rolling Stock Quality

To attract passengers to rail it is important that rolling stock in the North of England, and that operated by Northern Rail specifically, is renewed and updated to offer the journey experience and facilities that passengers demand of contemporary rolling stock. The adoption of a categorised service specification with rolling stock specified to meet passengers' needs and expectations on each category of service would support the improvement of rolling stock quality across the North.

2C) Increased Service Reliability and Performance

For the rail network to support economic growth and a more sustainable economy by securing an increasing share of future demand growth and securing mode shift from car, it is important that passengers experience a reliable and punctual journey. Performance in the North of England should be improved to deliver the HLOS target by 2019, with a more stretching target to be determined beyond 2019.

2D) Improved access to the network

To facilitate the desired growth in rail demand, and realise the economic growth and environmental benefits that this will bring, it is important that passengers are able to access the rail network.

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68 Strategic Freight Network, DfT, July 2007

69 http://www.rail-reg.gov.uk/server/show/nav.1529

It is important that improvements are made to access by sustainable modes, including walking, cycling, bus and tram, so that passengers are also encouraged to access the station by these modes, and that integrated journeys are possible. Better access to stations will also require additional car parking capacity at stations (Park and Ride), so that those that cannot reach the station by other means are able to travel by rail, particularly for those traveling outside the peak period where car journey times are quicker. Increasing the number of car trips to and from stations will bring some negative local environmental impacts. There should be consideration of parking charges and other parking restrictions to encourage sustainable access.

2E) More Effective Information Provision

Information provision is essential if passengers are to plan journeys both before and during travel. Local Transport Authorities and the rail industry should work together to ensure multi-modal journey information that is easily understandable is available from a single source including comprehensive real time multi-modal transport information.

2F) Modernised Ticketing Methods

Technology now provides an opportunity to review the way in which passengers can purchase rail and multi modal tickets. The use of new ticketing and retail technologies should maximise flexibility and value for passengers and the rail industry. New ticketing technology can help retain existing users and attract new passengers, as well as producing efficiency gains.

2G) Improved Safety and Security

Ensuring the safety and security of passengers is an on-going priority for the rail industry. TOCs and other station operators must ensure that safety and security facilities are maintained and where ever possible enhanced in accordance with industry standards, such as Secure Station Scheme.

A MORE EFFICIENT COST EFFECTIVE RAILWAY

While the rail network brings essential economic benefits to the areas it serves, it must do so in an affordable manner. The McNulty Rail Value for Money Study[70] provides a clear challenge to the rail industry to reduce the unit cost of operation, in terms of operating cost per passenger mile. Overall McNulty suggests that the unit cost of operation should reduce by around 30%. Northern Rail's unit cost is the highest of any operator in the country, in part reflecting the ageing rolling stock fleet and historic under investment in rail in the North of England. The following paragraphs propose outputs that will contribute towards achieving a reduction in unit costs through both increased patronage and reduced operating costs.

3A) Improve attractiveness of rail travel at off-peak times

On many routes there is significant unused train capacity during the inter-peak periods.

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70 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/4204/realising-the-potential-of-gb-rail.pdf

6. OUTPUTS & BENEFITS ASSESSMENT

There is an opportunity to use this capacity and attract more passengers through initiatives such as flexible and discounted off-peak tickets, improved marketing and improving access to the network during the inter peak. The rail industry and Local Transport Authorities should exploit ticketing and marketing initiatives to maximise inter-peak revenue.

3B) Fares

Passengers find rail fares in the North complex and difficult to understand. For some journeys where rail has a distinct advantage over other alternatives, yields are low. For longer distance routes and outside metropolitan areas, walk-up fares are perceived as expensive. Current multi-trip and multi-modal ticketing products are inflexible. The introduction of smart ticketing offers the opportunity to simplify rail fares and offer new ticketing products, both with the goal of increasing the value for money for rail travel. As a first step, smart ticketing should be introduced for the North's franchises and integrated with the North's multi-modal smart products. Looking ahead, the opportunity should be taken to radically simplify rail fares, with consideration given to introducing zonal fares.

3C) Reducing the Operating Cost

For the rail industry to deliver better value for money for both passengers and the public purse, it is essential that the train operators and Network Rail are delivering services as cost efficiently and effectively as possible. Already, Network Rail is investing in regional Railway Operating Centres which will deliver worthwhile signalling and control related savings.

Reducing the overall operating cost will allow services to be provided with reduced financial burden on the public purse and make it easier to justify future enhancements to the rail network. The rail industry should pursue opportunities to reduce the unit cost of operation (in terms of cost per passenger mile) through reducing costs while meeting the identified outputs for connectivity and journey quality. Specifically, electrification as part of a national rolling programme should be identified to reduce train leasing and operating costs.

3D) Meeting Revenue Potential

A number of routes across the North are not meeting their full revenue potential and this is a barrier to their further development. Capacity is being provided that is poorly utilised. Community Rail Partnerships have played an important role in growing demand and revenue through their work publicising and marketing rail services, enhancing station facilities, integrating rail into a wider transport and tourism offer and working with rail operators to develop timetables get better value from the resources that are available. For rail in the North to meet its full revenue potential it is essential that this community-led work is continued and developed on the lines where Partnerships currently exist and where feasible, extended to other routes.

REDUCING ENVIRONMENTAL IMPACTS

4A) More efficient use of energy

Although rail emits a relatively small proportion of overall carbon emissions, it remains important that the rail industry is as carbon efficient as possible. A rolling programme of electrification and the maximisation of electric operation should be pursued to minimise carbon emissions from train operations. The environmental impact of other activities including station and depot operations should also be minimised. Opportunities such as local renewable energy generation and rain water harvesting should be pursued where viable and station travel plans adopted and regularly monitored.
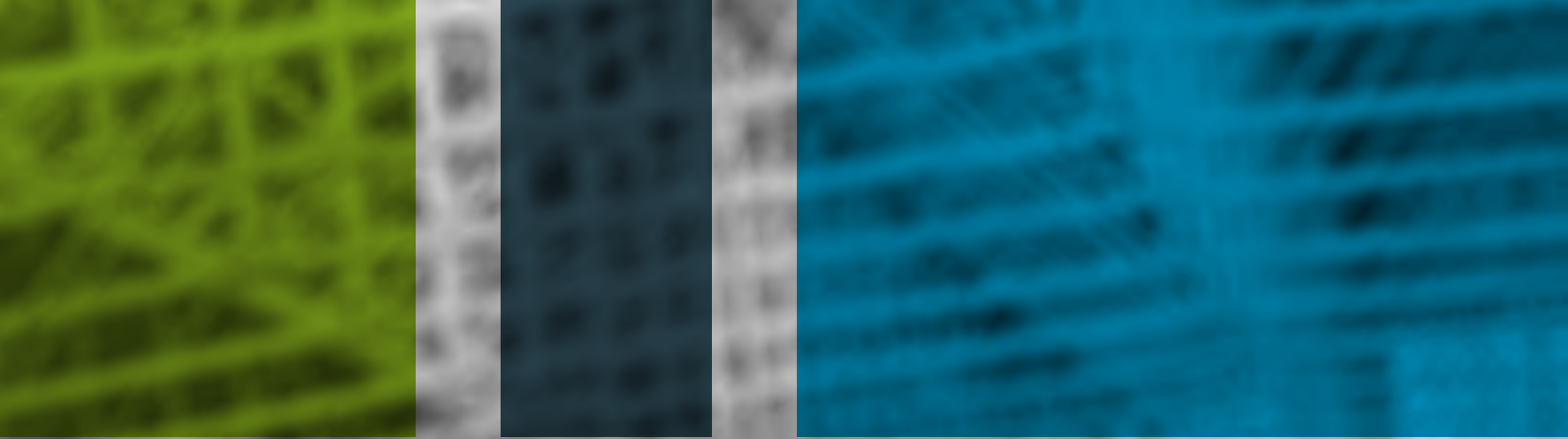
4B) Reduce Wider Transport Environmental Impacts

The major opportunity to reduce CO_2 emissions and other negative environmental impacts is by securing mode shift from car and road haulage to rail regardless of how rail is powered. To do this, it is essential that the package of outputs identified above is achieved to attract passengers and freight to rail.

THE NORTH'S INTEGRATED NETWORK – EIGHT KEY PRINCIPLES

1. A harmonised and simplified fares system

2. The adoption of a categorised service specification, comprising:

   1. high-speed and inter-city

   2. inter-regional express (Transpennine Express and others)

   3. urban commuter

   4. community railways

   5. (metros/LRT – related but outside the direct scope of this strategy except as interfaces)

3. Timetables designed to provide good connections between connecting rail services

4. Information provided in a user-friendly manner throughout the journey, across the network including on connecting modes using the latest, ever-evolving systems and databases

5. Stations designed and operated to facilitate transfers for all users between rail services and onward connections by bus, tram, cycle, car and walking routes

6. Operational practices designed to facilitate through journeys including those involving interchange and including between different operators

7. Investment in infrastructure and rolling stock designed to create a pleasant and safe travelling and waiting environment that is accessible for all, to avoid overcrowding and to facilitate the design of a connectional timetable

8. A progressive introduction of these principles achieved through franchise specifications and input to on-going railway planning processes and through supporting activities of local planning authorities

7. IMPLEMENTATION

A strategic programme is presented for the short, medium and long term, along with a discussion on implementation processes and policies. The core concept is the creation of a genuine network of services for passengers and ensuring that freight by rail can grow to meet its potential too.

INTRODUCTION

This Chapter is concerned with how this Long Term Rail Strategy should be implemented. A strategic programme is presented for the short, medium and long term, along with a discussion on implementation processes and policies. The core concept is the creation of a genuine network of services for passengers and ensuring that freight by rail can grow to meet its potential too.

KEEPING THE KEY OBJECTIVES IN SIGHT

The economic objective is of overarching importance. The success of the Strategy will therefore need to be judged primarily in terms of its impact on the North's and the national economy. The demand for rail across the North will be influenced by a number of factors, and, in turn, one of them is inevitably, the North's economic performance.

It is important to ensure that whatever happens when the rail industry makes future changes through the various industry processes, that account is taken of this Long Term Rail Strategy for the North of England and its primary aim for an easy to use network, integrated across the modes, with a connecting timetable of local and express city to city services. For regulators and others, the aim becomes less the optimisation of performance at a service group or route level, and more the best possible outcome at a northern network-as-a-whole level. The economic objective also raises challenges for how potential interventions are developed and appraised, as it would suggest explicit consideration be given to an intervention's impacts on the real economy (as measured by metrics such as GVA or employment) both at a national and more local level when decisions are made on prioritisation and ultimately, funding.

SCENARIOS

This Long Term Rail Strategy needs to be robust whatever the long term economic trajectory for the North happens to be. Three scenarios have been considered:

i)   The North experiences a strong economic recovery, with success leading to higher demographic growth (with greater levels of house building), an expansion in international trade and exports, strong private sector employment growth leads to higher levels of disposable income and annual rail demand growth continuing at levels seen over the last ten years strengthening the case for investment.

ii) The economy of the North recovers but lags the national average (i.e. as per current expectations), with a return to pre-recession performance achieved in the early 2020s.

7. IMPLEMENTATION

iii)   The North experiences greater problems with economic recovery; slow growth and greater austerity measures and this is accompanied by fuel prices levelling off (i.e. declining in real terms, reducing the appeal and worsening the relative economics of rail service provision); taken together the impact is a levelling off in rail demand growth and an unfavourable case for investment.

A central outlook and without the demand uplift that the implementation of this Strategy will bring is one in which rail demand grows, but at a lower rate than has been achieved over the last ten years. The high Northern RUS forecasts suggest that rail demand will increase by 40% by 2025, which equates to 2.6% per annum, and will result in rail mode share (compared to car) of 5.7%. For the rail mode share to be doubled by 2025, i.e. 11.5%, then rail demand will need to grow at 7.6% per annum, and increase of 180% by 2025.

But the two alternative scenarios are possible and would lead to very different outcomes for rail in the North. The question is whether the Strategy is sufficiently robust for these differing outcomes or whether there would be a need to fundamentally change the approach.

The core concept of creating a coherent easy-to-use connected network of services is applicable in all scenarios. It brings customer benefits and it ensures that better use is made of what is, after all, a very substantial network of local, regional and longer distance rail services. Other measures that have an efficiency component – joining up services to operate on a cross-city basis, journey time improvements, reliability improvements and electrification schemes are also less sensitive to the uncertainties in economic fortune although the timing of and justification for specific investments may change.

The key variable that needs to be managed carefully is capacity. The focus envisaged in the Strategy is on train lengthening rather than frequency in the first instance. This offers valuable flexibility: both approaches require additional rolling stock, and train lengthening may entail platform lengthening, but this is relatively inexpensive in comparison with an increased service frequency approach which often entails significant additional infrastructure costs.

The important conclusion from this assessment is that while the timing of investment decisions may change this Strategy remains robust should the economy of the North grow either slower or faster than the current central case projection.

RESPONSIBILITIES FOR IMPLEMENTATION

The Local Transport Authorities of the North, in coming together to prepare this Strategy, are aware of the successes that others have enjoyed from a coherent programme and a clear vision. The pan-regional consensus across the North that the Northern Hub was the highest rail priority to be addressed was significant. Devolved franchises in Merseyside, Scotland and London have each led to significant improvements. As yet the North has no established mechanism for devolved power, but it is widely recognised that transport – and especially rail – cannot be planned within the narrow confines of LTA or LEP boundaries. This Strategy adds the point that neither can it be usefully contained within any one franchise specification. And it provides a means by which the whole of the North can make clear and provide a strategic direction to the way that one of the key utilities – rail – is developed.

Implementation of the Strategy will be the responsibility of a number of parties regardless of the governance arrangements for the North's rail franchises. What is clear is that the implementation of this Strategy will be aided by an integrated specification for the passenger services currently operated as the Northern Rail and Transpennine Express franchises, whoever is responsible for the development of that specification.

Also, the Strategy would suggest a need to consider remapping some of the more inter-regional services to the Transpennine brand, which could include York – Blackpool, Liverpool – Nottingham and Leeds – Nottingham services.

DEFINING SERVICE CATEGORIES

The franchises in the North of England fulfil a range of journey purposes and efficient operation means that even within a single franchise a single service can fulfil a range of purposes. A single train service often provides for local commuting and longer distance inter-regional connectivity, for example the current services between Manchester and Scotland. Recognising that the opportunity for such arrangements needs to be retained in future, there is a benefit for customers in understanding what is offered by different services. The notion of service categories is adopted in many European nations; that used regionally in Germany (with services funded and specified by the Federal Sates) for instance is:

- **Regional-Express (RE)** connects cities and offers travel in comfortable modern trains. It leaves at regular intervals and links to local to long-distance trains. This is similar to the service currently provided by First Transpennine Express;

- **Regional-bahn (RB)** offers a basic service from all local stations. It provides the connection between the regions and city centres. It also connects to the Regional-Express. An example in the North of England would be Northern Rail's Carlisle to Barrow service; and

- **S-Bahn** services operate in high-density areas, leaving in quick, regular intervals. Key S-Bahn stations have access to longer distance regional trains.

For the North of England we can usefully identify the following categories of service, each of which needs to be regarded as an integral part of the overall vision of user-friendly interconnected network:

- High Speed/Inter-city (on future high-speed or current classic lines);

- Inter-Regional Express – operating between the major towns and cities of the North (and connecting them with key cities in the Midlands and North Wales); this would comprise the existing TPE network plus York – Blackpool, Liverpool – Nottingham and Leeds – Nottingham services plus other routes as demand builds up;

- Urban commuter – serving local stations and connecting them as a commuter network with the major towns and cities

- Northern community lines – comprising those designated as Community Rail services and others that fit the category of local/rural or semi-rural. Typically these lines play an important social function, as well as bringing economic benefits to the communities they serve.

In addition, there is a fifth category in existence, comprising light rail technology of various forms – Metro in the case of Tyne and Wear, for example, and potentially others in future together with the tram networks of Manchester, Sheffield and Blackpool. In Merseyside, there is the Merseyrail Electric rail network which is substantially separate from the national rail network. The specification of the standard of service provided by these networks is a matter for Local Transport Authority sponsors.

Long distance inter city services are currently provided by Virgin Trains East Coast, East Midland Trains and Virgin West Coast and Cross Country Trains franchises. The Regional Express category should comprise at the outset the existing TPE network plus York – Blackpool, Liverpool – Nottingham and Leeds – Nottingham services. The goal is to provide a coherent pan-Northern high level of service between the major towns and cities of the North's 'Urban Matrix' regardless of which company operates the services.

While the true equivalent of the German S-Bahn style of service is not within scope of this Strategy (i.e. Merseyrail and Tyne and Wear Metro), it should be recognised that, as the electrification of the network spreads and bottlenecks/network deficiencies on the five largest cities in the North are addressed, it may emerge as a useful and distinct concept. For example services in the Aire and Wharfe Valleys go some way towards meeting the S-Bahn type of service, but full expression of the concept would have an (electrified) cross-city (Leeds) network connecting Bradford, Harrogate and Halifax with York and Selby, for example.

To take forward this Strategy, it will be important that the service categories set out here are reflected in the specification of the successors to the Northern and Transpennine Express franchises. This point is independent of which body – DfT, Rail North as a grouping of northern LTAs, or DfT and Rail North working in partnership – is responsible for franchise specification.

ELECTRIFICATION

Parts of the North's railway network are being electrified in a major programme through to 2019. Principally this comprises:

- The North West electrification project (Manchester – Liverpool (via Newton Le Willows), Manchester – Blackpool and Liverpool – Preston);

- The North Transpennine route (Manchester – Huddersfield – Leeds – York/Selby); and

- The Midland Main Line.[71]

These are the first main line electrification schemes in the North for 20 years. The programme will bring many benefits in terms of improved journey times and better quality and more reliable trains. But it will also create a new set of boundaries between the electrified and non-electrified network.

Other potential schemes for electrification exist in North and subject to there being an economic case, seeing these completed earlier in the lifetime of this Strategy would be beneficial. These may include links from existing electrified main lines to destinations in the inter-connected urban matrix defined in Chapter 6.

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71 It should be noted that electrification on the northern section may not occur before CP6. Currently Network Rail suggests December 2020

CANDIDATE VISION FOR WIDER ELECTRIFICATION OF THE NORTH'S STRATEGIC ROUTES

FIGURE 7.1
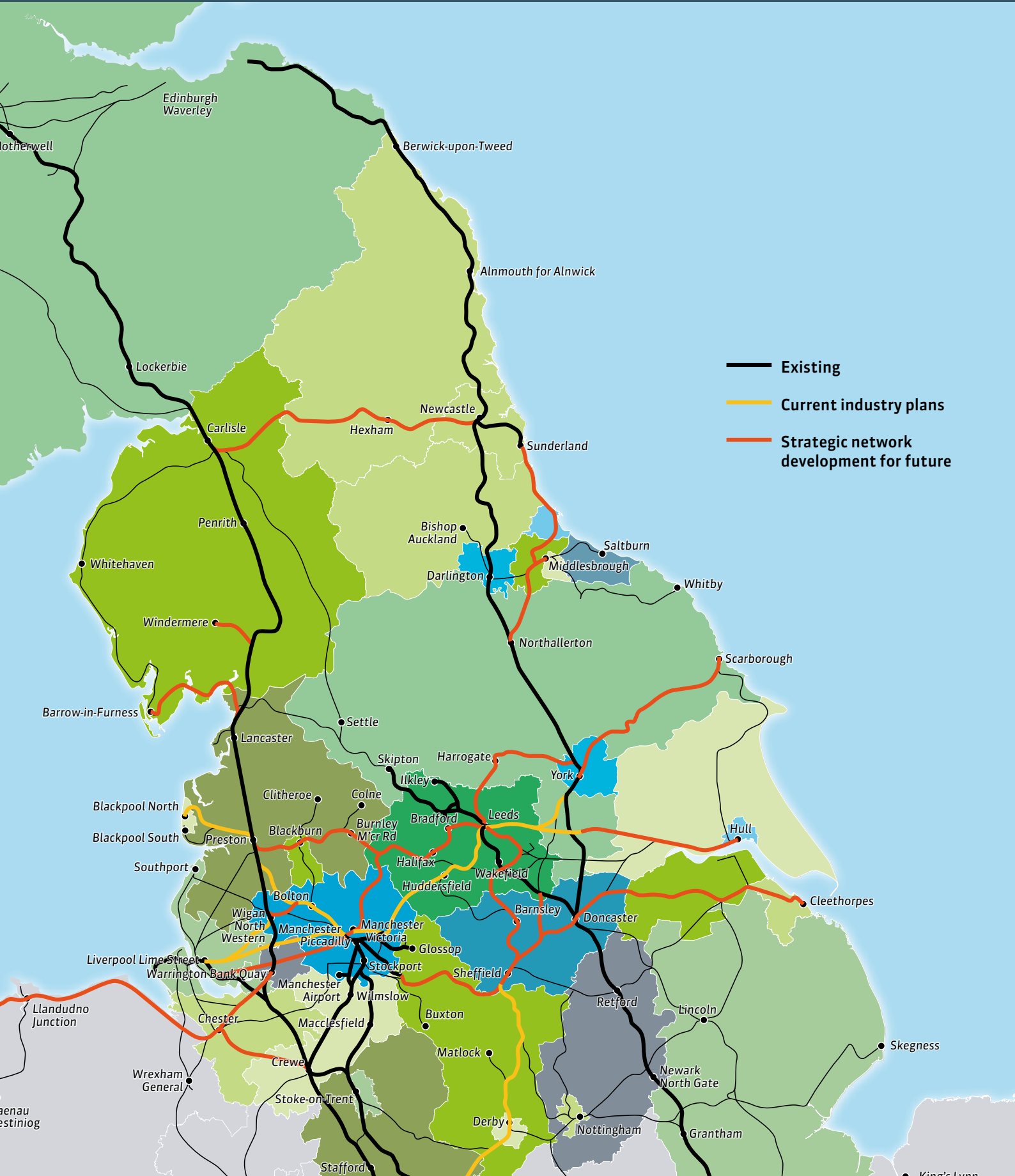
7. IMPLEMENTATION

We envisage that the commitments made for these investments through to 2020 will be progressed further in the ensuing years. The aim is that the North's busiest commuter railways and its regional express network are completely electrified by 2030. Evidence from recent electrification decisions suggests that there can be a good business case for this programme. The question will be about affordability. Figure 7.1 shows a candidate vision for wider electrification of the North's strategic routes. Other routes may become worth considering as the programme proceeds.

Electrification for use by freight does also need to be considered, not least as the North generates more rail freight than the rest of the country combined. This means that current and near term projects should include, or at least make passive provision for freight terminals and sidings, and extensions from the current electrified network and the network shown in Figure 7.1 to key freight generating locations such as ports. This is particularly likely to be useful for intermodal services. It is also helpful to maximise the benefits of investment in other parts of the country such as the 'Electric Spine'.

In the meantime, it is essential that services are not dislocated at the electrification boundary. This may mean that through services need to continue with diesel traction in use over some newly electrified sections of route – but this will be on an interim basis only. It may be worth considering bi-modal train sets for operation of such services if the wider electrification ambition described here becomes protracted because of resource constraints. Looking elsewhere, in France there are a considerable number of regional express bi-modal services, paid for and operated on behalf of various regional governments. It will be important that on those routes not identified as short-to-medium term candidates for electrification that the quality and connectedness of services are enhanced in line with the conditional outputs set out in Chapter 6 of this Strategy.

There is a strategy for electrification (Network Rail Electrification RUS, 2009) but it is being updated as events have moved forwards on this front very rapidly over the years since. The aim of the industry will be to create a rolling programme and questions of third party funding may arise. So it is important that northern stakeholders are clear why they may seek to accelerate and re-prioritise the programme. The short gaps in electrified coverage created by the recently determined Network Rail Strategic Business Plan proposals for the period 2014-2019, especially northwards from Sheffield, need to be addressed as a matter of urgency at the start of the next control period (CP6 2019-2024).

The benefits of electrification are felt in several areas:

i) better quality rolling stock/customer appeal;

ii) greater efficiency;

iii) better train performance – and this can be of particular value on northern routes with a mix of service types (and this is envisaged to be a more widespread in future) and where there are often significant gradients; and

iv) environmental benefits through reduced carbon and other emissions.

Each of these factors is germane to the achievement of the Vision, and it is to the busier routes where these advantages will be most strongly conferred that the strategy places its priority.

At present, it is DfT that is responsible through the quinquennial High Level Output Statement for defining the scope and scale of the future electrification programme and the responsibility of Network Rail to deliver this. A Partnership between Rail North and the DfT to take forward the specification and the management of the successors to the Northern and Transpennine Express franchise would not necessarily lead to any change in this arrangement, although it would be beneficial for the implementation of this Strategy for Rail North to be influencing and shaping future electrification decisions. In this regard, the DfT's December 2013 announcement that a joint industry taskforce involving Rail North will be established to identify the case for the next phase of electrification across the North is most welcome.

ENHANCING CONNECTIVITY

Besides responding to trends in the travel markets, connectivity can also be improved by:

- Reviewing the suitability of current station locations and considering their replacement, closure and new stations better suited to meet demand;

- Local multi-modal schemes that link rails services with destinations through connecting modes (which can be of any sort);

- Seeking to operate trains that are currently operated as short terminating services on a cross-city basis, improving stock utilisation, reducing platform occupation times and bringing welcome new direct journey opportunities across the conurbations;

- Developing train service stopping patterns to reflect changing patterns of demand and make best use of available network capacity to meet the overall goals of this Strategy; and

- When considering franchise specifications, there is merit in thinking about how freight would be integrated in this – for example, how is freight represented alongside passenger developments.

Each of these approaches should be pursued as appropriate as part of the better connectivity strategy.

The identification and then promotion of local rail enhancement schemes, such as new stations or improved connections between rail stations and the rest of the transport network should be Local Transport Authority led (either working individually, with other LTAs and/or with other partners including where relevant, Community Rail Partnerships). Involvement of Local Enterprise Partnerships will also be necessary to demonstrate fit with Strategic Economic Plans. Should the intention be that the capital cost of such enhancements be funded using the Local Growth Fund, Local Enterprise Partnership involvement will be essential.

Consideration should be given to how potential rail enhancements in the North are appraised and how this influences prioritisation. It will remain necessary for any enhancement to the national rail network to be subject to an economic and financial appraisal that conforms with national Government-specified requirements. Nonetheless, a number of LEPs across the North have developed capital programmes (which can cover more than just transport interventions) with enhancements prioritised in terms of their impact on metrics such as the level of GVA or employment growth delivered per pound spent. Early consideration should be given to the merits of applying such approaches North-wide for rail projects and if there is a case for this, what approach should be adopted.

Changes to franchises (short-working, cross-city services, stopping patterns, etc.) must be led by the franchise specifier with support from Network Rail (who would input to assessment of operational impacts as well as who would be responsible for any facilitating capital works). Consultation and engagement with Local Transport Authorities and Local Enterprise Partnerships would appear essential.

For other strategic enhancements, either individually or in consort, Local Transport Authorities and Local Enterprise Partnerships should take a lead role in the identification of business cases, which necessarily involve identification of a strategic case, as well as an economic and financial case. With the agreement of its constituent members and suitable funding arrangements, there may be circumstances where it is appropriate for Rail North to lead business case development. There should also be an expectation that Rail North would engage with DfT to establish the wider strategic investment needs (not just electrification – see above) of the North as part of the quinquennial HLOS process.

STRATEGIC PROGRAMME

The various key elements of the Strategy can be ascribed to three timescales:

- Short term: to 2019;
- Medium term: 2019 to 2024; and
- Long term: 2025 -2034.

The Strategy considers Local Transport Plans from across the North, as well as sub-regional rail plans and strategies. It also takes into consideration the work done to improve the quantitative evidence base, including for the Northern Hub, Yorkshire Rail Network Study and Trans-Pennine DaSTS Connectivity Study. It also reflects the July 2012 High Level Output Specification and Statement of Funds Available. It has been developed in consort with Network Rail's Strategic Business Plan (SBP) of January 2013 and its on-going Long Term Planning Process.

While all Local Transport Authorities have current LTPs, there is potential merit in developing plans and programmes that complement this pan-Northern Strategy and recognise that in some cases LTP geography is insufficiently large to capture rail issues appropriately. A number of these already exist. In general, such plans should be produced in the overall context of this Strategy and should have local emphasis that reflects the differing transport needs of each area and the role that passenger and freight rail can make in meeting those needs.

7. IMPLEMENTATION

Policies such as those described in the December 2012 Rail Industry Technical Strategy – which includes adoption of preventative maintenance strategies by Network Rail – will be expected to apply equally to the North as elsewhere in the country.

The following paragraphs set out a range of possible broad solutions that should be developed into specific schemes in order to meet the outputs and facilitate the objectives for rail.

Short Term: To 2019

The priority in the short term will be to maximise the benefits of planned investment in infrastructure, as set out in Network Rail's January 2013 Strategic Business Plan (SBP), and investment that is already committed in rolling stock and support the development of community rail activities. Beyond the committed electrification programme, it is likely that there will be a good business case for 'infill' main line electrification investments, with any concerns most likely to arise around resource constraints (budgetary and otherwise).

Passenger

A combination of the Northern Hub and North West, trans-Pennine and Midland Main Line electrification will provide a unique opportunity to address many of the outputs identified, particularly those affecting east– west journeys across the North of England. Electrification provides the opportunity to provide more electric services with better passenger experience, more capacity, reduced operating cost and fewer negative environmental impacts. Electric trains may lead to journey time reductions due to better performance and greater reliability. The Northern Hub scheme allows an increase in frequency, reduced journey times and more direct services, including providing the opportunity for direct links from more places to Manchester Airport. To maximise the wider economic and social benefits of this investment it is important that, where there are clear economic connections, wherever possible current connectivity must be maintained and enhanced.

Intercity Express Programme (IEP) trains are due to be delivered by 2018 on the East Coast Main Line. There is the prospect of additional capacity and service frequencies. Accommodating additional destinations will continue to be a matter for the Regulator to consider, along with the need to fit in increasing freight flows. Major investments in junction capacity at Peterborough and Doncaster may become necessary – but then in turn this may allow better services southwards for Yorkshire, Humber and the North East. The strategic complication is the longer term capacity release that might be delivered by high-speed rail and the implications this has for interim period investment cases.

The High Level Output Statement (HLOS) identifies the need to provide additional capacity to enable commuter growth. This is essential to enable labour force to access the city centre job opportunities. However while the HLOS requires additional capacity into the five major centres, there remains crowding at other places and at other times of day across the North of England. Additional capacity will be needed more generally.

There is a significant opportunity to review fundamentally the timetable structure across the North of England to realise benefits from improved network connectivity as well as between locations within individual corridors. The planned roll out of smart ticketing across the country is welcome, but at present franchises outside London are simply being requested to migrate the existing fares structure onto this new medium, which is not sufficient in the North of England. Smartcard ticketing should be capable of delivering a fundamental change in ticketing structure, incorporating multi-modal journeys as Oyster Cards do in London. Authorities across the North of England must draw together rail, bus, tram and cycle hire operators to ensure a smart ticket solution is delivered to maximise the value of the rail network is part of a wider integrated transport solution. This can build on existing initiatives such as Walrus, the smartcard from Merseyside PTE. Smart ticketing also helps to deliver the Government's Door to Door Strategy which promotes seamless, sustainable and barrier-free journeys.[72]

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72 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/142539/door-to-door-strategy.pdf

7. IMPLEMENTATION

There is also an opportunity through the franchising process, particularly of the Northern and Transpennine franchises, to address inefficiencies in operations across the North of England. There may be an opportunity to provide multi-skilled customer facing-service staff across the northern franchises to provide station and on train retail roles. This may facilitate the adoption of driver only operation across the North of England while providing higher profile customer service and security staff.

In seeking to create linkages to form a truly comprehensive network, some gaps will remain. Currently, a small number of these are addressed through longer distance bus services that appear in the national rail timetable (Whitby – York being an example). The opportunity should be taken to rationalise this commitment. A carefully thought through service specification, accommodated within the intended simplified fares structure could bring significant benefits.

There is scope for partnership approaches to station development, with the virtues of being flexible and creative, working with business and voluntary organisations, as well as local authorities and parish councils, to develop community hubs which could offer a range of facilities depending on local needs and potential. Already, many stations offer examples of health centres, bike hire, tourist information, shops, pubs and cafes, heritage centres. In some locations where stations are de-staffed, re-introducing retail facilities through a local social enterprise would bring substantial benefits.

There is opportunity to develop the Community Rail concept where established Partnerships already exist and there are opportunities to extend it to lines which currently do not benefit from Partnerships. The Partnership approach can be integral to the development and regeneration of stations, but is, of course, not limited to this. Across the North Partnerships' activities have played a central role in supporting growth in rail travel and the number of rail services.

Freight

Implementation of service development and of infrastructure measures must encompass and facilitate the existing plans for a nationwide Strategic Freight Network. Electrification provides an opportunity to increase gauge clearance so that freight operators can handle larger inter modal containers more efficiently. There is also a need to facilitate increased loading gauges elsewhere where electrification is not yet planned, for example to the Humber ports, which are the busiest in the UK, and to other North of England ports were growth in intermodal container traffic is forecast. Further small scale infrastructure enhancements, such as the North Doncaster Chord, are needed to ensure freight and passenger growth can be accommodated on the same network.

Strategy in the Medium Term – 2019 to 2024

Passenger

The significant investment in Northern Hub and trans-Pennine electrification will be delivered towards the end of 2018, with Network Rail's current plan being that Midland Main Line electrification reaches Sheffield by December 2020. It will take time for new infrastructure, rolling stock and timetables to 'settle' and a priority for the medium term will be to get the most from the investment and ensure reliability and performance of services is enhanced.

As the electrification of the network expands the incremental costs of further electrification become lower, while potential benefits and cost savings increase. As part of a wider national programme, the rail industry should work to identify a value for money rolling programme of electrification in the North of England for delivery by 2024, informed by the work of the Electrification Task Force. As already stated, consideration should be given to the infill gaps in the current programme and then those connecting major urban centres including routes between Leeds and Sheffield, between Newcastle, Middlesbrough and Northallerton between Leeds, Bradford, Halifax, Manchester and Preston and extensions from electrified north-south main lines to Chester, Barrow, Hull and possibly Scarborough and Cleethorpes (see Figure 7.1).

While rolling stock cascades as a result of electrification may allow some of the ageing Northern Rail diesel rolling stock (Class 142 and 144 units) to be replaced by the end 2019, others will remain. It is important that opportunities to replace other rolling stock in the northern fleet, including Class 150/153/155/156/158 units which will be more than 35 years old by 2024, are actively pursued. There is also a need for all vehicles to meet more stringent accessibility and emissions standards by the end of 2019.

There remains a variety of legacy infrastructure across the North's rail network which makes the network inefficient to operate, for example semaphore block section signalling, and in some cases compromises the safety of the network, e.g. level crossings. Network Rail is currently developing plans to modernise signalling and centralise train control to a number of major signalling centres. Opportunities to reduce signalling costs and create additional capacity and flexibility with more modern signalling should be realised by 2024.

Freight

The opportunity should be pursued for electrification to be extended to the major freight terminals in the North of England, including the Humber Ports, the Port of Liverpool, Tees Port and other inland freight terminals. Further gauge clearance of non-electrified routes will also be required. To accommodate long term freight growth efficiently operators may need to be able to operate longer trains, and the network capability in terms of signalling, passing loops and terminals will need to be developed to allow longer trains to operate.

Strategy in the Longer Term – 2025-2034

The key driver of investment during this period will be ensuring the local and inter-regional rail networks are developed before the opening of High Speed 2.

In January 2013, the Government announced the preferred route for the second phase of High Speed 2, linking London and Birmingham to the North. The broad plan for the network to Manchester and Leeds including the section between London and the West Midlands is roughly the shape of a letter Y and so this is referred to this as the 'Y network'. The preferred route includes stations in Manchester, Manchester Airport, Sheffield Meadowhall and Leeds; and a further station, East Midlands Hub at Toton, west of Nottingham. Two of these stations are not located adjacent to existing city centre stations and therefore the network must be planned to provide appropriate links to these HS2 stations.

It is necessary to plan now to ensure such links are in place before the full opening of HS2 in 2033. The arrival of High Speed 2 will fundamentally change travel patterns, and therefore the need for services between the North of England, Birmingham and London may change. This will give rise to the opportunity to change service patterns on the existing network to provide connections to other centres and potential more capacity for local services.

Travel times will be reduced as shown in Table 7.1.

TABLE 7.1   ANTICIPATED JOURNEY TIMES FROM LONDON WITH HS2

Destination	Current Journey Time (Mins)	HS2 Journey Time (Mins)
East Midlands Hub	n/a	51
Nottingham Midland	104	68
Derby Midland (via East Midlands Hub)	91	71
Sheffield Meadowhall	n/a	69
Sheffield Midland	125	79
Leeds	132	82
York	113	83
Newcastle	172	138
Manchester Piccadilly	128	68
Manchester Airport	144	59
Crewe	90	58
Preston	128	84
Liverpool	128	96

Source: HS2 Ltd

7. IMPLEMENTATION

Now is the time to start identifying the need for, and solutions to, addressing long term opportunities to improve and enhance the rail network and support continuing economic development and growth in passenger and freight demand. In the first instance, these enhancements should relate to the aim of creating an efficient and user-friendly connecting set of services for the North. This would include investment in information and ticketing systems. In terms of infrastructure, the requirement would be centred on looking at measures that might be needed to ensure reliable and timely connectivity across the network as a whole. This might involve journey time improvements or junction enhancements.

There remains a need to ensure that the North's wider interest in terms of connectivity is recognised in planning for the future use of the trunk north-south inter-city routes. This is a particular concern on the eastern side of the country which, on current plans, will not benefit from the first phase of HS2 in 2026 and in the North East which whilst benefitting from the second phase in 2033 will not do so to the degree that Leeds and Sheffield would. Major investments at the key route intersections at Doncaster and Peterborough are being considered in order to permit the expansion of inter-city as well as long distance freight services, both of which have a bearing on the economic performance of those parts of the East of the Pennines. As a minimum, further investment in the East Coast Main line beyond that currently committed will be required in advance of the completion of the second phase of HS2.

Further potential investments include:

- Expansion of the emerging High Speed network to extend northwards to connect with Scotland and to directly serve the North East, and to serve East-West movements in the North;

- New routes through city centres to address fundamental capacity constraints;

- New or significantly expanded city centre stations to provide additional capacity;

- Development of the network where existing or future demand justifies;

- Freight gauge enhancement to all rail freight connected ports and regional Strategic Rail Freight Terminals, possibly part public, part privately funded;

- Relocating stations or building new stations to serve better the local area; and

- Addressing some of the identified more fundamental legacy network features.

It may prove challenging to justify investment for some of these solutions based on railway driven costs and benefits alone. For these and indeed all schemes, it will be necessary to exploit opportunities that form a package with other transport or wider development schemes. Should some of these opportunities present themselves in the short or medium term, such opportunities should be prioritised accordingly.

7. IMPLEMENTATION

The appraisal approach used for rail service development in the North will need to take account of this Strategy and its objectives and look specifically to priorities schemes that have a positive wider economic development potential and contribute towards the wider network aim.

IMPLEMENTATION PROCESSES

There is a range of measures and processes that need to be deployed to drive implementation of the Strategy.

Franchise Specifications

The first, very obviously, is through franchise specification for successors to Northern and Transpennine Express. But it is also important that the specifications for ScotRail, East Midlands Trains, Cross Country, London Midland, East Coast, West Coast and Wales which will be the responsibility of other parties are guided – insofar as there are implications for the North, by this Strategy.

It will be important to include within franchise specifications:

- Smart ticketing including retailing and acceptance of Local Transport Authority multi-modal tickets;

- Recognition of the service classification that is integral to this Strategy, supported by re-mapping as required;

- An approach to design, management and engagement that reflects the differing role, functions, and strategic importance of the rail network across the North as set out in LTPs and sub-regional strategies;

- Engagement and support to existing Community Rail Partnerships and extension of the CRP approach to other lines

- Phased implementation of a rolling stock strategy for the North that delivers sufficient capacity to accommodate projected growth and deliver the expected quality of service;

- Value for money and affordable service changes that support the connectivity outputs set out in Chapter 6 of this Strategy;

- Efficiency savings that increase the value for money of the North's railway.

Sub-regional reviews

There is a recognised danger that established industry processes may have an unintended consequence of 'locking in' arrangements for services and operating processes that have been left unchanged for decades. This can make enhancement unnecessarily costly, because of a reluctance to consider change, including removing some service provision if it is no longer worthwhile and delivering real value.

The practical way to address this is, triggered by key decisions – for example, on a service enhancement, or a major investment such as electrification – is to initiate a review of outputs with the participation of the key local and regional stakeholders. This approach should create opportunities to re-balance services, going through a formalised optimising increment/decrement approach.

The development of more geographically focussed plans and programmes that are consistent with and complement this Strategy offers the opportunity for there to be an integrated approach to pan-Northern and sub-regional rail that reflects the particular local transport needs and the role that rail can play in meeting these needs.

Discretionary Funding

A modest level of central funding support can help smaller scale but highly valued investments and bring in co-funders. Such arrangements previously existed in the form of Rail Passenger Partnerships and Freight Facilities Grants (and remain in the form of the Community Rail Development Fund, a portion of which might be allocated for administration across the North). The scale of these earlier national programmes

cannot be replicated for the North, but the principle could be. It will invite submissions from diverse sources to put forward applications for local scheme measures that are believed to be of high value. An annual funding pot – a development purse - might be started at say £5m. Should successor franchises to Northern and Transpennine Express return a premium to the franchisor, then using this to support such a fund would be an attractive way of re-investing the proceeds in the North's passenger and freight railway.

Local Transport Funding

Local Transport Authorities should develop future Local Transport Plans (LTP) to reflect this Strategy. Similarly Local Enterprise Partnerships should have regard to this Strategy as they take forward their Strategic Economic Plans and make decisions on the allocation of their Local Growth Fund.

It is recognised that Authorities will have already set criteria for transport investment for the short to medium term. However, future LTP reviews and LTP implementation plans and future devolved major scheme transport funding (post 2015), as well as the creation of city-region focussed investment funds offer opportunities to support rail investment and should seek to support deliver of this Strategy, particularly through improvements in access to stations and frequency of services.

Northern Community Lines

The North of England is the home of 'Community Railways' and has more of them than any other part of the UK, both in terms of route-based community rail partnerships and station friends.

There are a number of issues which point towards a more co-ordinated approach becoming necessary, with scope for a (devolved) northern level of coordination. These include:

- The potential for a new approach to rail development in the North and the need to address the needs of the less urban parts of the network;

- The fact that several community rail routes have grown their travel markets to the extent that investment in capacity may be justified;

- The need identified in McNulty to bring overall costs of the rail network down; and

- The pressures on development driven by wider demands for new housing at sustainable locations.

Each community line has its own individuality and characteristics, but they share some common features as well. By developing them in a more co-ordinated way, recognising not one approach fits all; it may be possible to test new approaches on a particular route that could then be more widely applied.

The creation of North of England Community Rail Forum with input from Rail North, ACoRP, TOCs, local authorities and the DfT would support both sharing of lessons and experience, as well as co-ordination of initiatives. It could include the following routes that already have a CRP or similar body in one form or another:

- Barton to Cleethorpes CRP (Barton – Cleethorpes)

- Bishop Line CRP (Bishop Auckland – Darlington)

- Clitheroe CRP (Manchester – Clitheroe)

- Cumbrian Coast CRP (Barrow – Carlisle)

- East Lancashire CRP (Preston – Colne/Burnley)

- Esk Valley Railway Development Company (Middlesbrough – Whitby)

- Furness Line CRP (Barrow – Carnforth)

- High Peak & Hope Valley CRP (Manchester – Hope Valley – Sheffield, Manchester – Glossop/Hadfield, Manchester – Buxton)

- Lakes Line CRP (Windermere – Oxenholme)

- Leeds, Lancaster & Morecombe CRP (Lancaster/Morecambe – Leeds)

- Mid-Cheshire CRP (Manchester – Northwich – Chester)

- Penistone Line Partnership (Huddersfield – Sheffield)

- Settle – Carlisle Development Company (Leeds – Carlisle)

- South Fylde Line CRP (Blackpool South – Preston)

- West of Lancs CRP (Preston – Ormskirk, Wigan – Southport/Kirkby)

7. IMPLEMENTATION

Further routes where CRP initiatives could be appropriate include:

- Crewe – Manchester
- Manchester – Rose Hill/Marple
- Carlisle – Newcastle
- Hull – Scarborough
- Leeds – Harrogate – York
- Leeds – Bradford – Manchester
- Burnley – Manchester
- Leeds – Goole
- Cleethorpes – Scunthorpe – Doncaster
- Sheffield – Worksop – Lincoln

By going for a substantial network of lines it becomes possible to get some scale benefits. In the main, above lines are not electrified and developing a dedicated diesel fleet adapted for the needs of community rail routes would be a major benefit of this approach. As electrification develops, Community Rail routes in the North could usefully utilise otherwise surplus DMUs that still have a useful economic life.

A further benefit of having a group of lines is shared marketing, similar to the approach being adopted by community rail partnerships in Wales. Promoting 'The North's Great Community Railways' for example on rolling stock, at stations and in the wider community would spread a strong message about the routes – and the attractions they serve - as a whole. This should link in with a pan-Northern tourism strategy.

MONITORING

Implementation of the Strategy has to be monitored and it is proposed made the subject of short annual report on progress. It would be appropriate for Rail North to produce this report. This would cover:

i) Measuring the effect of strategic measures on **the economy** (to be carried out *ex post)*. The necessary studies will follow implementation and might be carried out typically three years after completion of the specific measure. Assessments should address the question of effect on GVA, as well as using DfT conventional benefit methodologies. Little is available to assess the effects of the adoption of the Network Strategy and research should be carried out *ex ante* to help fine tune the approach taken;

ii) **Cost effectiveness.** The key cost metrics should be established annually for rail in the North of England. This should be done in conjunction with ORR; and

iii) **Public attitudes.** The question(s) to be asked are how has the general public received the changes that have come about due to this Strategy and how has this been communicated and received by them. Has this resulted in greater use?

iv) **Market share and ridership trends**. Has the Strategy achieved some of its key objectives; that of increasing rail market share and reducing environmental impact of travel?

v) **Major development decisions**. These are influenced by many factors, but major developments in the North should be rail connected, and decisions in this area will have an effect on strategic outcomes.

vi) **Cross Modal Integration**. Again, considering usage that has resulted following implementation of the Strategy is there a greater number of trips being made and has it become easier/more convenient to the user? Implementation of national policies for rail, ensuring that the North does not 'lose out' as it has done in the past.

APPENDIX: POTENTIAL FARES REGIME

It is proposed that the introduction of a zonal fare system for rail in the North of England be considered as part of the implementation of this Long Term Rail Strategy.

A HARMONISED AND SIMPLIFIED FARES SYSTEM

It is proposed that the introduction of a zonal fare system for rail in the North of England be considered as part of the implementation of this Long Term Rail Strategy.

Currently rail fares are set on a station- station (mileage) basis. There are then various categories of fare type available, discounts, with routeing and timing applicability restrictions of various sorts, as well as franchise-specific and open access offers.

The fundamental problems with this arrangement are:

1. It is very hard to understand the fares on offer – especially for one-off rail journeys (which amount typically to over half of all rail travel)

2. As a consequence rail fare levels are poorly understood, and generally perceived to be much higher than they really are. The complexity of the system deters some (how do I find the right deal?) and has a second wider deterrent effect (rail travel seems expensive)

3. Application of automated and IT based retail systems becomes cumbersome and expensive

4. It is much harder to introduce devices that would (a) allow better targeting of fares offers e.g. for job seekers and (b) manage demand, for example, at the shoulders of the peaks (c) on a multi-modal basis

5. The mish-mash of fares contains some huge anomalies in terms of p/mile and comparability with fares by other transport modes, partly arising from historic policy departures by PTEs. This further undermines a sense of fairness in ticket pricing

6. The complexity of the fares system makes it very difficult for staff to be absolutely sure they are offering, when asked, the cheapest price (which sometimes, may result in an 'obscure' journey recommendation that the customer may well not prefer. The rail industry is as a consequence routinely criticised by (for example) the Consumers Association

7. It leads to high retailing costs.

Adopting a zonal basis for fares is not the only way to proceed, but there is good precedent. It used in London across the travel modes, for instance, in preference to the vastly more complex (and inconsistent) set of fares that were available on a station to station basis for the national rail network component. Although the North's geography is much wider, and it is polycentric – unlike London – the same principles and benefits would apply. One of these benefits is a huge simplification in the adoption of smartcard (Oyster in the London case) or other IT-based systems for fares.

A zonal (or cell) fares system is applied in a range of regional ticketing schemes including, for example, Tyne & Wear here in the UK, in Zürich Switzerland, and on a national scale in the Netherlands and Belgium.
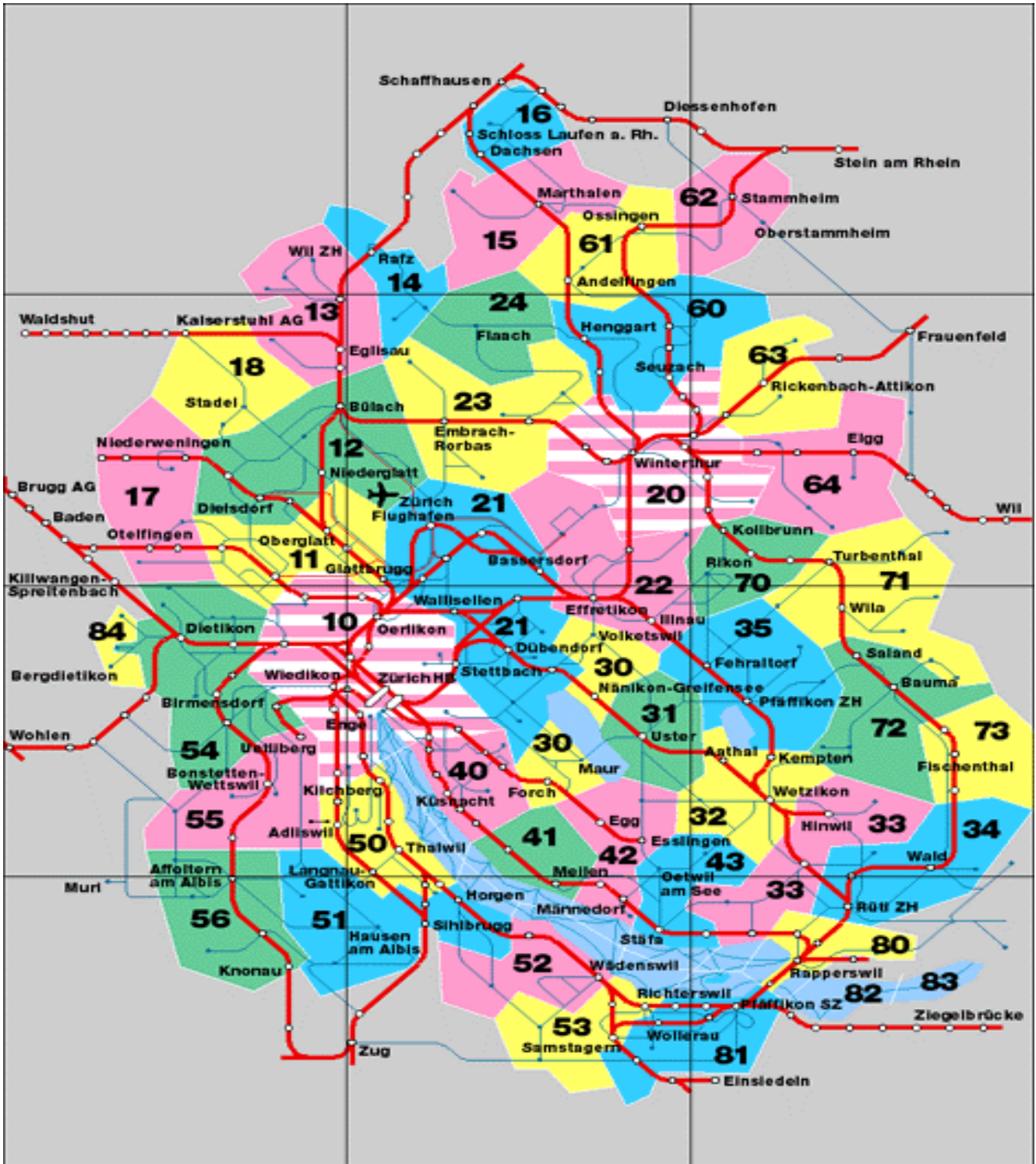
APPENDIX: POTENTIAL FARES REGIME

The following figure details the zonal structure in Tyne and Wear.
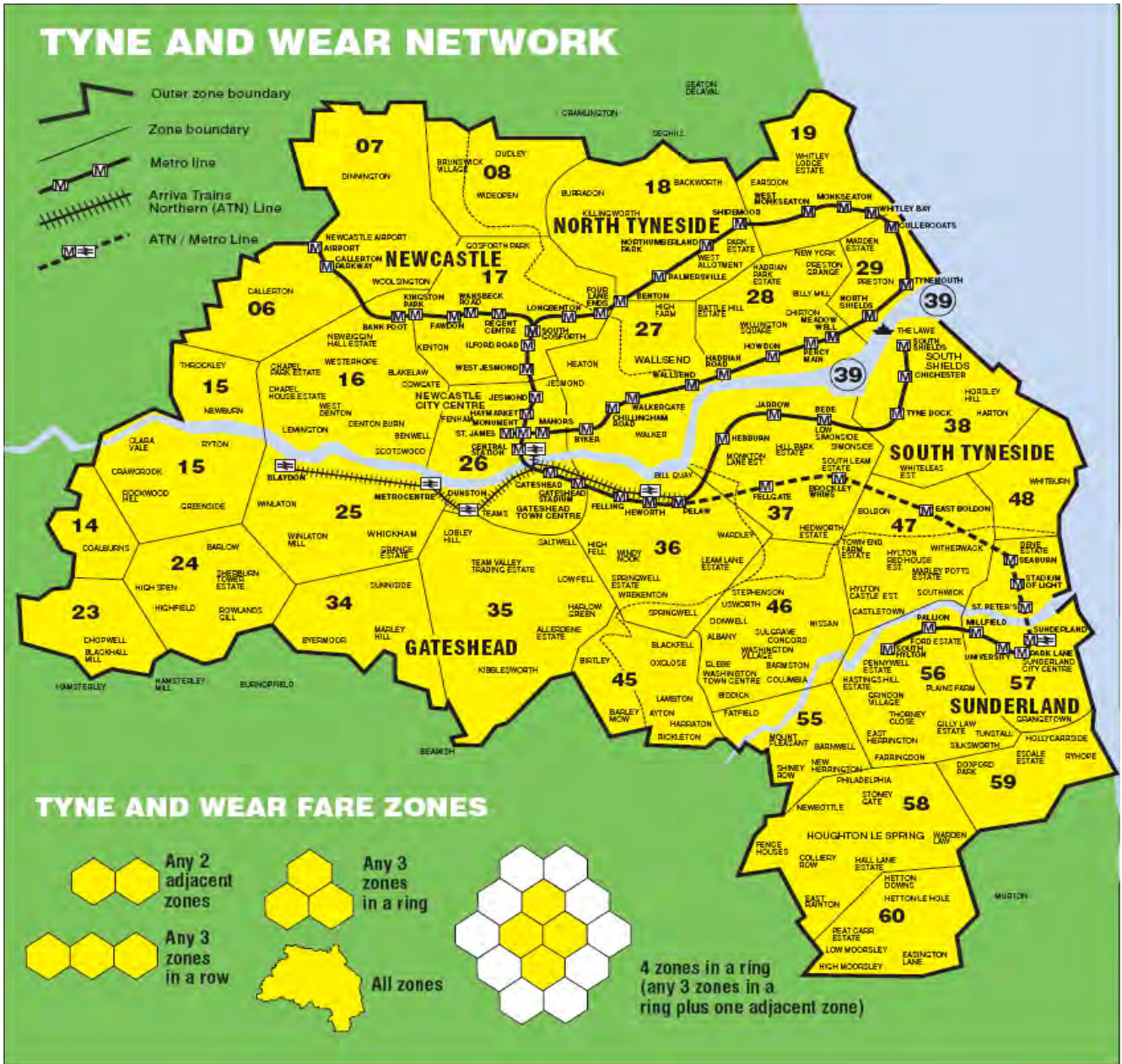
APPENDIX: POTENTIAL FARES REGIME

The following figure depicts the zonal structure adopted in Zürich, Switzerland.

APPENDIX: POTENTIAL FARES REGIME

It is proposed that a similar system to that used in the Netherlands be considered, although how zonal boundaries are set is entirely optional and it may well make much more sense to adopt a less rigid geometry (London's zone boundaries make topological sense but have no relationship to distance or even specific location).

APPENDIX: POTENTIAL FARES REGIME

Originally developed as a national system, the Dutch system (see illustration above) has recently been developed into a linked set of regional zonal arrangements using the same cellular structure. Its particular significance is (a) its scale and (b) its polycentric nature.

In the Netherlands regions are divided into a series of regular cells (approximately 5km across). The Strippenkaart system applies a standard fare structure across the whole country. Cost is calculated on basis of number of zone boundaries crossed in any given journey: cancel 2 strips within 1 zone; 3 strips for 2 zones etc. Period tickets are also available for combinations of zones.
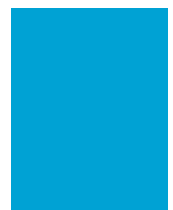
Rail North represents 29 Local Transport Authorities working together to devolve responsibility for rail franchising from Whitehall to the North of England.