

Long Term Rail Strategy

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1. Introduction

Long Term Rail Strategy

1.1 This consultation draft Long Term Rail Strategy (LTRS) sets out Transport for the North's (TfN) vision for the ongoing transformation of the North of England's railway, covering the period up till 2050. It describes how the network should be improved to realise its potential to support and facilitate a growing and more vibrant Northern economy, and to enhance the North's quality of life, all in an environmentally sustainable way. It does this by establishing a set of Conditional Outputs and, associated with these, a set of Desirable Minimum Standards, which consider and reflect the needs of both passenger and freight services across the entirety of the North's railway. After a consultation exercise has been concluded and the responses considered, this LTRS will supersede the Long Term Rail Strategy that was endorsed by Rail North Association in 2015.

1.2 TfN was created as a pan-Northern Partnership Board of civic and business leaders from across the North, working with Highways England, Network Rail, High Speed 2 (HS2) Ltd and the Department for Transport (DfT). With the support of the business and academic communities, TfN is becoming the first sub-National Transport Body in England. Through its Strategic Transport Plan, it is tasked with setting out the future requirements of the pan-Northern transport network, working towards its vision for:

“A thriving North of England, where modern transport connections drive economic growth and support an excellent quality of life.”

1.3 This Long Term Rail Strategy is TfN's primary policy document for rail in the North of England. It forms a key element of the Strategic Transport Plan and will be used to inform TfN's future programme of work and its input into wider rail industry processes. It will influence and inform the investment strategies, policies and programmes pursued by national Government, devolved bodies, Network Rail and Local Transport Authorities.

1.4 The Strategic Transport Plan builds on a body of evidence developed by TfN over the last few years. Part of this was the Northern Powerhouse Independent Economic Review (NPIER), which for the first time analysed the strengths and weaknesses of the Northern economy, concluding that accelerated growth will require additional investment and improved performance in a number of critical areas, especially education, skills, innovation and inward investment, alongside enhanced transport infrastructure and services for passengers and freight. It has also drawn on evidence from TfN's Initial Integrated Rail Report (IIRR) and has added further evidence as required.

1.5 This Strategy updates and replaces the Long Term Rail Strategy which in 2015 was endorsed by the Association of Rail North Partner Authorities – the partnership of 25 Local Transport Authorities that oversees Rail North. Developed by the five former Passenger Transport Executives¹ (PTEs) and following a public consultation, the 2015 LTRS articulated for the first time the North's shared vision for its railway. It established a set of Conditional Outputs through which this vision could be realised and helped to direct the investment and enhancements which are currently being realised.

1.6 Much has changed since the original baseline for the LTRS was prepared in 2012/13, and the volume of evidence has increased substantially in this time. This is due in part to the momentum which the original LTRS helped to create. There have been some notable successes, not least Rail North's role in securing substantial investment to improve the railway in the North of England through its two primary franchises, although many challenges remain to deliver the railway the North requires. One of the key changes which was not envisaged in the previous LTRS and has largely driven the requirement for this Strategy refresh is the emergence of TfN as the first sub-national statutory transport body. TfN will provide a much greater opportunity to determine its' own transport destiny and it is essential that the LTRS is able inform the requirements.

1.7 Rail North used the LTRS Conditional Outputs as its guiding principles as it worked with the DfT to develop the specification of the current Northern and TransPennine Express franchises. Together, these franchises will lead to over £1 billion of investment in services, rolling stock and quality improvements across the North. Rail North entered into a Partnership Agreement with Government which sees it jointly managing these two franchises. The LTRS has since been used to help shape TfN's input into industry processes including the planning for Control Period 6 (2019-2024) and further franchise procurements, and used by local authorities to prioritise and deliver locally-funded rail schemes. Alongside TfN gaining statutory status, the roles and functions of Rail North will be transferred to TfN.

1.8 Despite these notable achievements, the North faces a number of prevailing challenges which act as barriers to rail fulfilling its potential to support and facilitate a growing economy and improved quality of life. The network will need sustained enhancement if it is to attract and cater for the passenger and freight growth that will be associated with a rebalanced and better performing Northern economy. Integral to this is the need to capitalise on the potential opportunities presented by nationally important infrastructure schemes – HS2 and Northern Powerhouse Rail (NPR), while at the same time pursuing an investment programme focussed on the North's rail network as a whole.

1.9 With the enhancements secured through the re-franchising of Northern and TransPennine Express as a new baseline, the time is now right to review and update the LTRS, using the new evidence base developed by TfN, including the insights of the NPIER and the development of the Strategic Transport Plan.



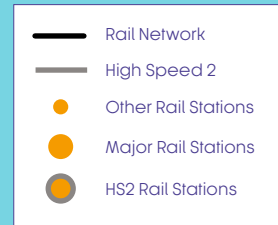
1.10 This Strategy has two purposes. First, it focuses on the crucial period through the 2020s and early 2030s. As HS2 Phases 1 and 2a are coming on stream, and proposals for Phase 2b and the NPR programme are being finalised, investment will be needed to ensure the benefits of these nationally-significant projects are felt across the North. This will require investment to enhance the connectivity of hub stations, in the stations themselves, and in the conventional lines that will be used by HS2 and NPR services.

1.11 Its second purpose is to set the Strategy for the development of the rest of the 'conventional' rail network in the North. While HS2 and NPR are central to TfN's Strategic Transport Plan, most passenger and freight rail travel in the North will continue to be made on the conventional network. To ensure and allow rail to play its full role in supporting economic and facilitating growth, a geographically-widespread programme to raise the standard of the railway across the whole of the North of England is needed. This comprehensive programme needs to encompass enhancements to the capacity and capability of the network, its rolling stock, its freight facilities and its stations.

Geographic scope

1.12 All national rail services providing connectivity to, from and within the North of England, which operate on Network Rail infrastructure are in this Strategy's ambit. It therefore covers the full geography of the TfN partners as well as those served by the Northern and TransPennine Express franchises. The Strategy area is illustrated in Figure 1.1 to the right. As can be seen, it includes parts of Lincolnshire, Derbyshire, Nottinghamshire and Staffordshire. It also recognises the importance of connectivity to important wider catchments, including neighbouring regions and the UK's major cities, all of which have been considered in the development of this Strategy.

Figure 1.1: The North of England's passenger railway network and stations



This wider geography includes the full extent of the Northern and TransPennine franchises within England and those authorities who are served by the services. Alongside TfN's constituent authorities, these authorities are co-opted members of TfN for rail franchising.

Document structure

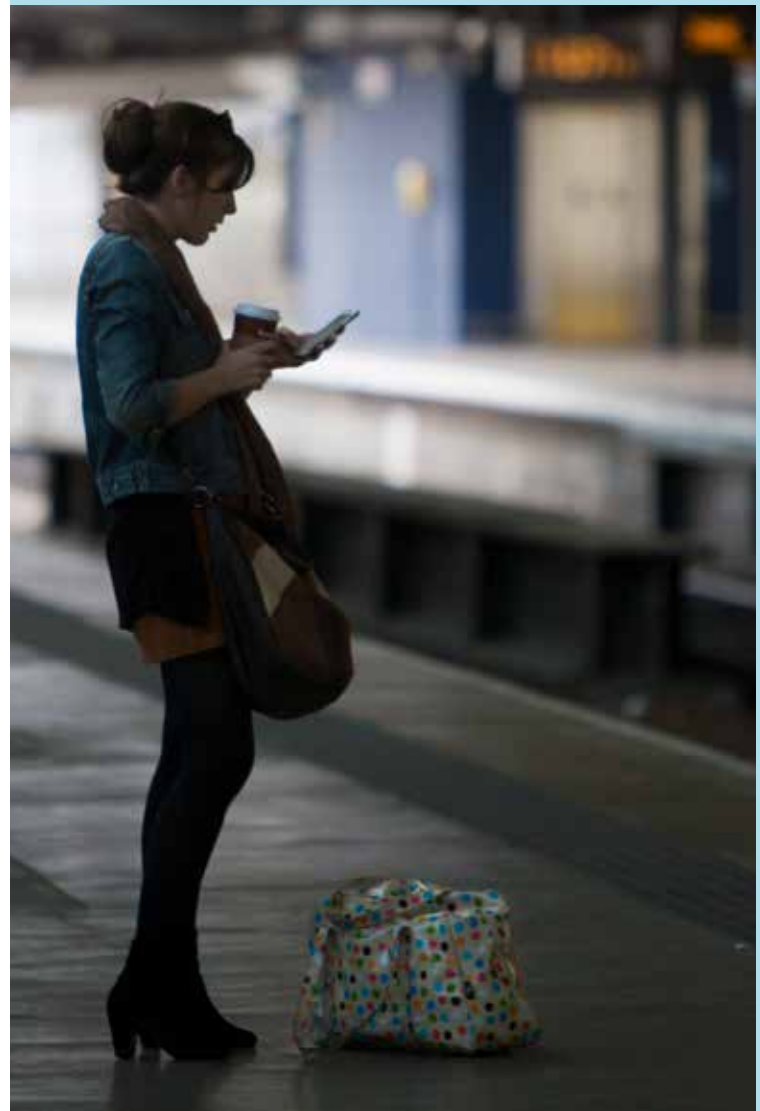
1.13 In the following chapter, the Vision and Objectives of the Long-Term Rail Strategy are set out. The rest of the document then sets out:

- **Why** change is needed
- **What** that change should be, expressed as a set of Conditional Outputs
- **How** change will be realised

1.14 Chapter 3 establishes **why** change is needed. Rail's role supporting the North of England's economic and social fabric is described, alongside an updated baseline summary of the current rail network which seeks to identify a series of Strategic Gaps – articulating the current barriers to the achievement of the Vision and Objectives.

1.15 Chapter 4 sets out **what** change is needed. It puts forward a set of Conditional Outputs and Desirable Minimum Standards that, if realised, will address the identified gaps.

1.16 Chapter 5 sets out **how** the Strategy will be implemented. It details what is to be done, and when and how to monitor progress of the delivery of the Strategy in future.



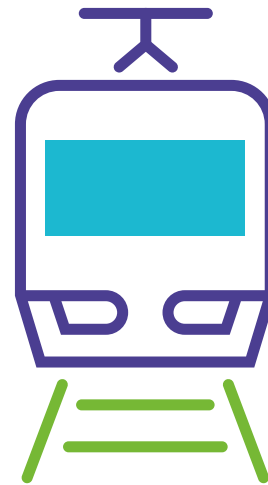


2 Vision & Objectives

2.1 This Long Term Rail Strategy supports the Vision of Transport for the North's Strategic Transport Plan which is for:

“A thriving North of England, where modern transport connections drive economic growth and support an excellent quality of life.”

2.2 The Strategic Transport Plan establishes TfN's pan-Northern Transport Objectives, set out below.



Pan-Northern Transport Objectives

Increase efficiency, reliability and resilience in the transport system

Improve the performance and integration of the North's strategic transport network by making the case for interventions that improve its efficiency, reliability and resilience.

Transforming economic performance

Secure investment in transport between the important urban and rural economic centres and assets to support sustainable transformation of the North's economic performance.

Improve opportunities across the North

Ensure that the Strategic Transport Plan works for everyone who lives and works in the North through improved access to opportunities for all across the North.

Promote and support the built and natural environment

Ensure that transport interventions across the strategic transport system protect and enhance the natural and built environment.

2.3 Rail will play an integral role in meeting these objectives. A high-quality railway network will be an enabler of higher productivity and economic growth throughout the North of England, providing a community resource which supports the natural and built environment and ultimately delivers an improved quality of life, allowing places and communities across the North to prosper.

2.4 This Strategy sets out a complementary, compelling and tangible set of Conditional Outputs required to realise the TfN Vision. It includes deliverables which support the achievement of the objectives, but which are subject to further assessment of deliverability, affordability and value for money.

2.5 Through the Conditional Outputs, it is intended to deliver:

- A step-change in connectivity
- Provision of capacity within the infrastructure and train services to cater for growth
- A rail network which customers will find easy to access and use
- A railway which supports the communities it serves
- Enhanced cost-effectiveness of running the railway.

2.6 These changes can be summarised around five key themes, each of which is explored in more detail below:

Connectivity

Capacity

Customers

Communities

Cost-effectiveness



2.7 By delivering improvements across these key themes, TfN will achieve its vision and transform the North’s railway into a single cohesive network, with integration at its heart. It will require a railway which takes full advantage of the opportunities presented by emerging technology and will encourage innovation to address challenges.

Connectivity

2.8 There is a need to improve the frequency and journey time of passenger services, to bring the whole of the North closer together and allow passengers access to a choice of destinations. The service provision needs a better alignment to the seven-day economy, recognising that the level of demand for travel outside of the traditional commuter peaks is altering to reflect changes to wider society.

2.9 For freight, there is a need to reduce journey times to make transport by rail more competitive and attractive compared to other modes and greater flexibility with train paths so that goods can be moved when suppliers or customers require them.

2.10 Improvements to connectivity will support a sustainable transformation of the North’s economic performance and quality of life. For the rail network, this will require an improvement in train services to provide better connections and increase service frequency while ensuring there is capacity to react to changing requirements.

2.11 To meet these requirements TfN will seek to:

- Deliver a minimum of two passenger trains per hour on each route to, from and within the North, seeking average journey speeds of at least 40 mph for local services, 60 mph for inter-urban services, and 80 mph for long-distance services, all subject to business cases and local requirements
- Provide quicker direct paths for freight trains, at times which suit the requirements of the freight market suppliers and customers
- Work alongside operators to deliver timetables, stations and operational practices designed to provide good connections between rail services and other transport modes.

Capacity

2.12 The challenge of providing sufficient capacity can be considered from two perspectives; providing more space for passengers on the trains they are using; and creating more capacity on the rail track to allow more trains to operate and to do so reliably.

2.13 More infrastructure will be required to accommodate the additional services needed to cater for growth, to allow reliable operation, and to provide flexibility to the freight market to meet existing and future demand to improve access for all to opportunities across the North.

2.14 To meet these requirements TfN will seek to:

- Provide capacity, both on-train and of the infrastructure, that keeps pace with actual and forecast growth to prevent overcrowding at any time of day
- Deliver the capacity and capability to serve the changing needs of the North’s rail freight sector
- Optimise the use of released capacity provided by HS2 and NPR in the future. Evolving our railway network to best serve local communities and feed major rail hubs
 - Develop a consistent set of higher standards, recognising the different characteristics of:
 - Community railways
 - Rural railways
 - Urban-commuter services
 - Inter-urban services
 - High-speed and long-distance services

Customer

2.15 The rail network needs to meet the needs and expectations of customers, both freight and passengers, to encourage greater use of rail.

2.16 For passengers, the journey experience needs to improve. Information provision is an essential part of enabling customers to have confidence in using the rail network. They need to be able to access information which will allow them to navigate the network and be able to plan journeys which meet their needs. Services also need to be predictable with customers having the confidence that their train will turn up and arrive on time. Information also needs to be available throughout the journey so that passengers are kept informed of any disruption or changes.

2.17 The provision of high quality stations and rolling stock, with accessible, secure and comfortable environments and facilities tailored to the needs of the passenger and the journeys being made, will ultimately improve the performance and integration of the North's strategic transport network.

2.18 All of this needs to be supported with a less complex and rationalised fares structure, which will assist passengers to find the best fare for their requirements and ensure they are getting value for money.

2.19 Ensuring that disruption to passengers and freight customers is minimised and managed will be a critical consideration when planning the interventions required to deliver this Strategy.

2.20 To meet these requirements TfN will seek to:

- Review the fares structure, products and pricing, with a view to:
 - Removing unnecessary complexity
 - Removing price anomalies
 - Promoting the efficient use of transport infrastructure
 - Supporting economic and social objectives to deliver a structure which is perceived as fair while being commercially sustainable;
- Work with train operators and Network Rail to improve the reliability and resilience of the railway, to provide punctual services.
- Work with other transport providers to deliver improved multi-modal integration and more sustainable first and last mile options.
- Develop and implement an information standard, to ensure that consistent, accurate and up-to-the-minute journey advice is available to all in a wide range of formats.
- Build upon recent success in leveraging maintenance and renewal activity to deliver enhancements, increasing the efficiency of engineering 'down time'.
- Improve resilience of the railway to adverse weather conditions.



2.21 There is a role for the railway to involve and integrate with local communities. This will create a railway which supports the social fabric of the communities it serves, providing journey opportunities which enable access to education, training and leisure opportunities as well as employment. It will also have a role in addressing transport poverty, isolation, deprivation, poor health and environmental challenges across the North.

2.22 The urgent need to address environmental issues is embedded across the Strategy. Rail must play its role in reducing harmful particulates and nitrogen dioxide concentrations in our urban areas, and cut carbon emissions and other pollutants that contribute to global climate change. A well-used, well-maintained and efficient rail network emits lower levels of pollutants per passenger kilometre and per freight tonne-kilometre when compared with road alternatives.

2.23 While meeting the objectives of this Strategy will ensure greater numbers of passenger and freight journeys are taken by rail, which is important in its own right, this will not be sufficient to meet TfN's overarching environmental objectives. Air quality remains a significant challenge in many areas across the UK and plans must look to reduce air pollution impacts from rail wherever possible. Action is being taken across all modes of transport to reduce harmful emissions and the Government's announcement of an end to the sale of new conventional petrol and diesel cars and vans by 2040, and the automotive industry's shift to more fuel-efficient, hybrid and electric vehicles in the interim will offer welcome reductions to airborne pollutants. Rail must keep pace with these changes, moving away from the use of older diesel-powered trains and towards cleaner, more fuel-efficient rolling stock with lower CO² emissions.

2.24 To meet these requirements TfN will seek to:

- Set standards for the North's stations – recognising their role as gateways to the North's towns, cities and communities, and their potential greater role in the economic and social fabric of the areas they serve. Seek to optimise their accessibility, operational performance and interchange to, from and across the rail network.
- Develop and implement initiatives to reduce the harmful effects of pollutants on the local and global environment.
- Support the rail industry's move towards reducing total emissions by all means, including migration to cleaner and more efficient methods of traction and modal shift.
- Deliver a pleasant and safe travelling and waiting environment that is inclusive and accessible for all.

Cost-effectiveness

2.25 Growing revenue and minimising the unit cost of operating and maintaining the North's railway to help maximise network efficiency will enhance the case for additional services and support the case for further investment.

2.26 TfN will seek to:

- Maximise revenue growth and minimise the cost of operating and maintaining the North's railway in a cost-effective manner without compromising quality.
- Encourage and support better ways of working to continue improving financial returns through train operators.

2.27 Delivering against all of the key themes will provide the North with a rail network that it can be proud of, that will support and facilitate economic growth and will improve the quality of life by meeting the transport needs of visitors and the people who live and work in the North of England.

3 Why? Rail in the North of England and the need for change

3.1 This chapter describes the North of England's rail network as it exists in 2017. In doing so, it illustrates the potential economic, social and environmental benefits which could be realised should the Vision be achieved and the current network weaknesses which must be overcome in order to do so.

3.2 These network weaknesses are set out in the form of a series of Strategic Gaps between the capability of the current network, and the network which must be delivered in order to realise the Vision. These gaps serve to frame the 'problem' which must be solved - that is, why change is needed. The Conditional Outputs presented in the following chapter define the changes required.

Network overview

3.3 The rail network in the North of England is comprised of a complex series of routes providing access to, from and between major population centres and their hinterlands, international gateways, rural communities and logistics centres. There are almost 600 stations in the North, a diverse range of major city centre hubs, suburban commuter interchanges and rural 'halts', each serving as a gateway to their communities.

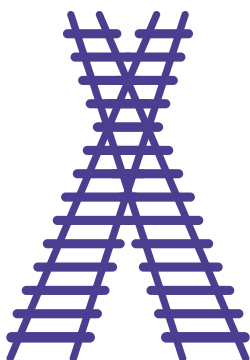
3.4 It is a mixed-use, predominantly two-track railway, with all types of passenger and freight services often utilising the same track. It is this characteristic which acts as one of the key limiting factors to the planning and delivery of rail services in the North.

3.5 There are 14 different passenger operators currently delivering services in the North of England and using the operators' public-facing names (in alphabetical order) these are:

- Arriva Trains Wales
- Caledonian Sleeper
- CrossCountry
- East Midlands Trains
- Grand Central (Open Access operator)
- Hull Trains (Open Access operator)
- Merseyrail
- Northern
- TransPennine Express
- ScotRail
- Tyne & Wear Metro (between Newcastle and Sunderland)
- Virgin Trains (the Inter City West Coast franchise)
- Virgin Trains East Coast
- West Midlands Trains

3.6 The majority of passenger services are provided under franchise or concession agreements with a letting authority. In most cases, the parties to the agreements are the operating company and the DfT. However, the management of the Northern and TransPennine Express franchises is currently (since April 2016) undertaken jointly by DfT and Rail North through the Rail North Partnership, the first such arrangement of its type.

3.7 The Merseyrail network is largely self-contained and managed by Merseytravel through a Concession Agreement on behalf of the Liverpool City Region (LCR), and via devolved powers from DfT. LCR has developed a separate Long Term Rail Strategy which focuses on Merseyrail and other services in the LCR, which will inform the development of initiatives to deliver this Strategy. The Tyne & Wear Metro is a light rail system that mainly operates on self-contained infrastructure, however services operate on Network Rail infrastructure between Newcastle and Sunderland. The Tyne & Wear Metro is currently operated by Nexus through the arm's length company North East Metro Operations Limited.



3.8 Further devolution is occurring in the Midlands, where a number of routes provided by the next West Midlands franchise will be jointly managed between DfT and West Midlands Rail – a consortium of 16 local transport authorities – and in Wales, where Transport for Wales, (on behalf of the Welsh Government) will procure and manage the next Wales and Borders franchise, subject to certain DfT rights and requirements in relation to the English part of the franchise. Both franchises provide some services in North West England.

3.9 ‘Open access’ services operate on a commercial basis under license from the Office for Road and Rail (ORR), with no franchise or concession agreement in place. There are two ‘open access’ operators serving the North of England, both via the East Coast Main Line (ECML). A further service along the ECML is due to commence in 2021, and an operator is seeking a track access agreement to operate services from 2019 on the West Coast Main Line (WCML) between London and Blackpool.

3.10 All freight services are provided by operators running with licences issued by the Office of Rail Regulation (ORR). Most rail freight services are operated commercially, with traffic won after a competitive process. Competition is often not only between rail freight operators, but also includes other mode options (e.g. road, or maritime). Grants are available to support the use of rail over road transport in some cases. The current major rail freight operators are:

- DB Cargo (DBC)
- Freightliner
- GB Railfreight
- Direct Rail Services (DRS)
- Colas
- Devon and Cornwall Railways (DCR).

3.11 The TfN’s Enhanced Freight and Logistics Analysis Technical Report², describes freight traffic as being generally categorised as one of the following:

- Inter-modal container traffic, normally between dedicated inter-modal terminals or port facilities
- Bulk commodities, generally between client owned terminals
- Materials necessary for the maintenance of the railway - generally determined by Network Rail using either privately-owned loading facilities or dedicated Network Rail facilities.



Rail's role in the North

Access to employment, education and skills

3.12 Rail can play a critical role in matching skilled workers with appropriate employment as a result of its specific characteristics – notably the capability of transporting large numbers of workers into town and city centre locations without being subject to highway congestion and its associated impacts on journey time.

3.13 A strengthened and more prosperous Northern economy will result in a higher number of employment opportunities, particularly in urban centres. It will increase demand for education and training, much of which takes place in or close to town and city centres. A rising population will require more housing. The location of these activities will have a major impact on future travel patterns and transport demand. Already, commuting to town and city centres is characterised by longer than average journeys. If housing development is dispersed further from urban centres, increased commuting demand and longer distance trips will become more prevalent.

3.14 The North currently has a modal share for rail for commuting of 3.4%, defined both in terms of residence and workplace. Whilst this is comparable with the rest of England outside of London and the South East, and masks the high rail modal share for journeys to the North's larger urban centres, it indicates that overall, a relatively small proportion of the North's population use rail to commute, and that there is significant scope for rail to increase its share of the market as the economy grows.

Service frequency and journey time

3.15 Commuting journeys, both for employment and educational purposes, are time-critical as they are structured around working patterns and timetables which are often inflexible. The door-to-door journey time (and the reliability of that journey time) is a crucial factor in influencing propensity to travel by rail and, consequently, in increasing labour market catchments, as well as the catchments of colleges and universities. Commuting journeys by rail should therefore be fast and predictable with concise and accurate travel information available throughout.

3.16 Door-to-door journey time is a function of multiple factors, including the proximity of the station and ease of access, the frequency, timetabling and reliability of rail services, their journey time, and whether there is a need to interchange. Other factors, such as the level of overcrowding, service quality and price are also key factors in influencing modal choice.

3.17 There is currently significant variance in service frequencies and journey times across the North. Some stations are served by relatively high-frequency services, providing passengers with a 'turn up and go' style service. However, others are served hourly or less which, as well as limiting the opportunities to travel, can serve to:

- Increase the end-to-end journey time (as the service needs to call at all intermediate stations)
- Increase waiting penalties associated with interchange (particularly with services of a similarly low frequency)
- Increase the impact of delays, cancellations, or missing the train.



3.18 Service enhancements committed in the Northern and TransPennine Express franchises will deliver a frequency uplift on a number of routes, but without further investment many will remain low-frequency until at least the mid-2020s.

3.19 As illustrated in Figure 3.1, average journey times on a large number of routes are lower than 40mph, and lower than 30mph in some cases. Low average speeds serve to increase generalised journey times, limiting rail's attractiveness relative to other modes of transport, particularly where a low journey speed is combined with a low service frequency.

3.20 An example is the Durham Coast route between Middlesbrough and Newcastle which serves a number of major population centres. The combined population of these two economic centres alone is in excess of 430,000³, whilst Sunderland (>270,000), Stockton-on-Tees (>195,000) and Hartlepool (>90,000) are also served by the route. However, the end-to-end journey time via the hourly direct rail service (~1hr 20mins) is significantly slower than the off-peak car equivalent (~52mins⁴), giving an average end-to-end journey speed of ~36 mph via rail, or ~23 mph based on the 'as the crow flies' distance⁵.

Strategic Gap:

Door-to-door journey times for public transport commuting into the North's economic centres limits the size of the labour pool (for businesses) and reduces the number of employment, education and training opportunities within reasonable travelling time (for individuals)



³ Population estimates – local authority based by single year of age (ONS accessed via NOMIS)

⁴ Via Google Maps, NE1 5DB – TS2 1AH measured in the off-peak

⁵ Via Google Maps, 30.89 miles point-to-point distance (NE1 5DB – TS2 1AH)

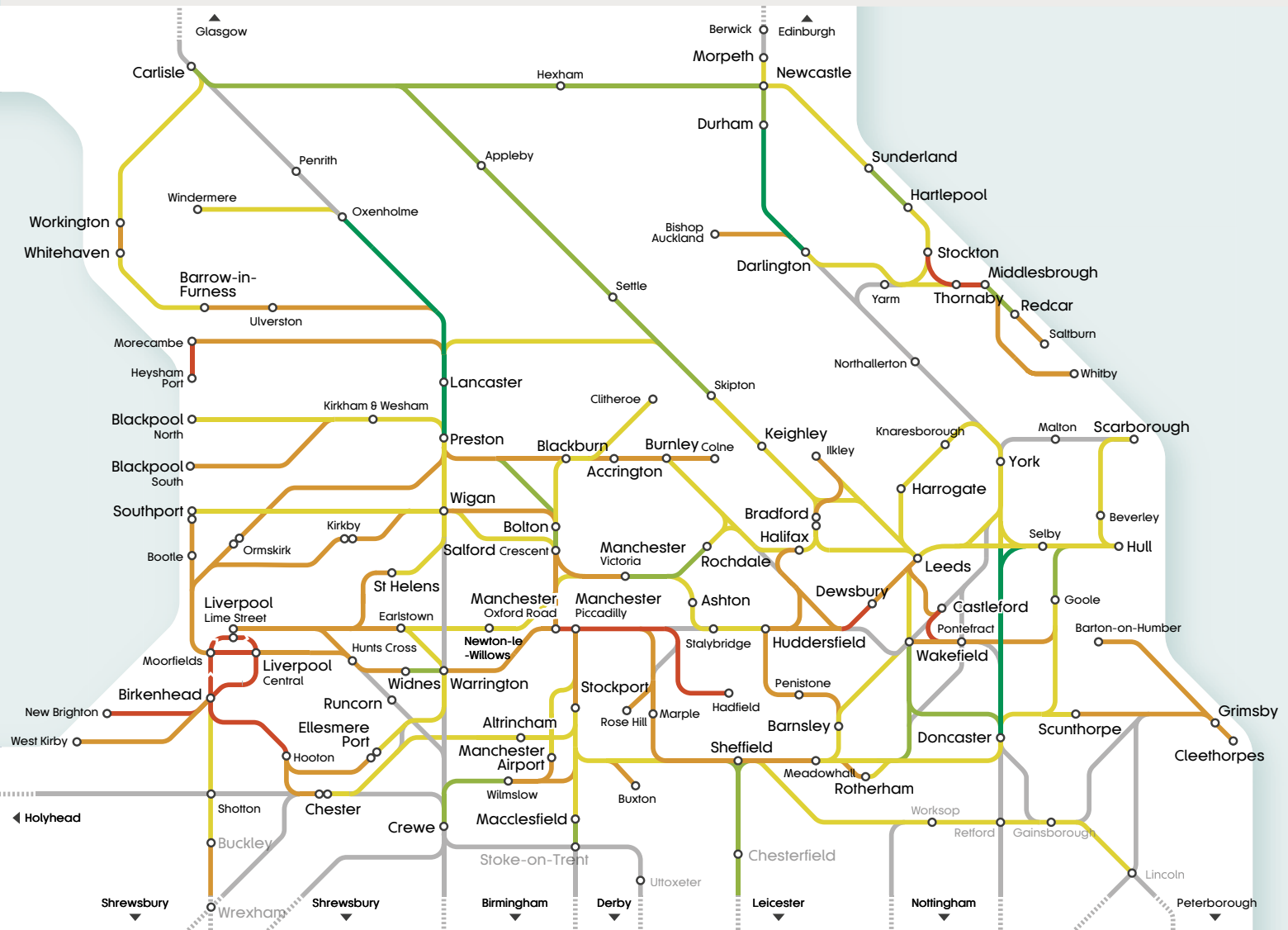


Figure 3.1: Average speeds of selected local/suburban services

This map shows average weekday station to station speeds

Min Max		Min Max	
1	20	40	60
20	30	60	80
30	40	>80	-

(mph)

Punctuality and reliability

3.21 Time-critical journeys such as those for commuting, as well as business and leisure, require predictable arrival, connection and departure times. This is particularly important on low-frequency routes, where a significant delay or cancellation can extend ultimate arrival time markedly, and in some cases, require passengers to find alternative means of transport. The punctuality and reliability of rail services is, therefore, an important driver of the attractiveness of rail vis-à-vis its alternatives, and of passenger satisfaction.

3.22 Historically, the punctuality of rail services has been measured using the Public Performance Measure (PPM), which classifies services as being on-time if they arrive at their destination within ten minutes (for long-distance services) or five minutes (for regional services) of their timetabled arrival time.

3.23 However, the industry is moving toward expressing performance in terms of 'right-time' punctuality. The Right-Time metric is the percentage of trains (of any category) arriving at their terminating station early or within 59 seconds of schedule⁶. Reliability is measured using the CaSL (Cancelled and Significantly Late) metric, which expresses the percentage of services which were either cancelled or delayed by over 30 minutes. Figure 3.2 illustrates the right-time performance of the North's three largely self-contained operators:

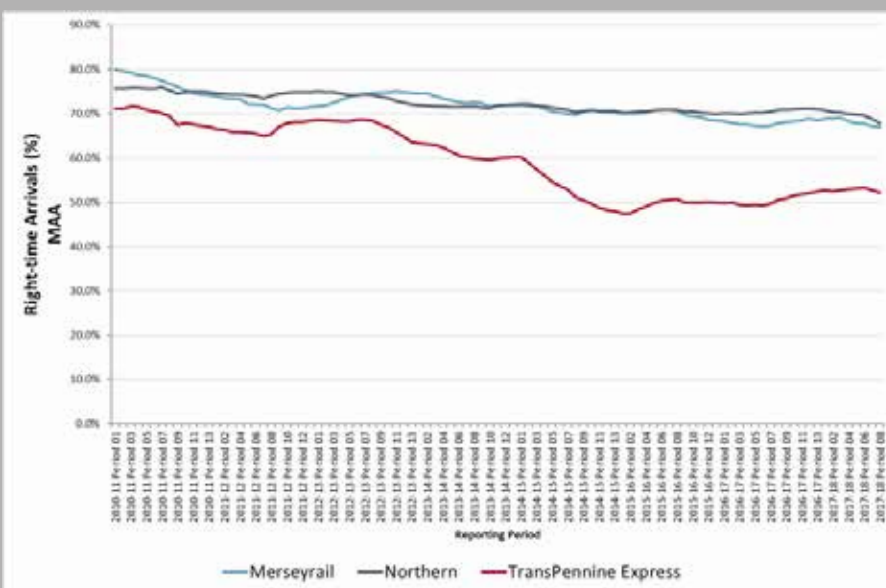


Figure 3.2: Right-time arrivals (MAA) for Northern, TransPennine Express and Merseyrail

⁶ According to the ORR, the process for gathering data of this accuracy is currently not 100% reliable and the industry is working on improving the quality of this information to make right-time data more reliable.

3.24 The absolute right-time performance of the North of England’s self-contained franchises, and TransPennine Express in particular, is low. On heavily-utilised routes and at busy junctions, both of which are common across the North of England, this can induce knock-on delays to other train operating companies and freight services, as well as eroding passenger confidence in the ability to make connections to other services. Indeed, even measuring right-time performance is unlikely to capture the full impact to the passenger experience caused by delays – including the time of arrival at intermediate stations and missed connections.

Strategic Gap:

The reliability and punctuality of services causes a perception that rail services cannot be relied on for commuting, business and other journeys

3.27 Table 3.1 illustrates this issue by demonstrating the volume of passengers standing on peak services into and away from five cities in the North of England (the only cities for which data is readily available).

City	Operator	% Standing AM Peak	% Standing PM Peak
Leeds	Northern	18%	14%
	TPE	17%	15%
Liverpool	Northern	1%	1%
	TPE	0%	0%
Manchester	Northern	15%	12%
	TPE	18%	14%
Newcastle	Northern	4%	0%
	TPE	18%	28%
Sheffield	Northern	6%	5%
	TPE	4%	15%

Table 3.1: Percentage of passenger stranding in the AM and PM peak periods by operator (2016)

Crowding

3.25 Overcrowding is caused where demand is not satisfied with an adequate supply of capacity, particularly during peak periods when demand is highest. Journeys by rail in the North increased by 194% between 1995/96 and 2015/16⁷, but capacity provision did not keep pace during the same time period.

3.26 The significant growth experienced across the North’s rail network in the previous 20 years has resulted in many services being subject to overcrowding. Whilst the issue is particularly acute into and out of the largest urban centres at peak times, it also occurs during other times of high demand, including in the inter-peak period and at weekends on public holidays (when supplied capacity is often lower), affecting leisure travel to and from coastal resorts during holiday seasons, other tourist destinations and around special events. This overcrowding is a symptom of train capacity provision not keeping pace with demand growth.

⁷ Data source: ORR

3.28 Table 3.1 demonstrates that a substantial proportion of peak passengers arriving and departing the principal stations in the five Northern cities are standing. It should also be noted that this measure is an average across the entire three-hour AM peak (07:00 – 10:00) and PM peak (16:00 – 18:59), it will understate the position in the high-peak hour when trains are busiest.

3.29 Service enhancements and rolling stock investment delivered via the Northern and TransPennine Express franchises will deliver around 2,000 extra services per week by December 2019, providing a 37% capacity uplift into five key commuter cities during the morning peak. However, growth projections, such as those in the Central Manchester Rail Network Capacity study, suggest that overcrowding will remain an issue on many routes by the end of the current franchise period.

Strategic Gap:

On-train capacity has not kept pace with growing demand, leading to overcrowding which reduces the attractiveness of rail

Multi-modal integration

3.30 Rail journeys, of any purpose, will require travel via a different mode at one or both ends. This could be undertaken via an active mode, such as walking or cycling, using public transport (bus or light rail), or in a private car or taxi. The speed, complexity and quality of these connections can have significant bearing on a passenger's perception of journey time and attractiveness.

3.31 Multi-modal integration is not always straightforward in the North of England. Many centres and rural communities do not have dense public transport networks, and many rely on private car transportation to access their rail stations. Station car parking is often at capacity from early in the day, which can inhibit off-peak journeys, and combined parking and ticket prices can make rail travel less financially competitive versus private car.

3.32 In many locations bus or light rail stops are remote from heavy rail stations with limited information to assist passengers transferring between the two. Waiting facilities and information can be of poor quality and in inadequate formats to meet the needs of some users. Ticketing arrangements can make multi-modal travel expensive and needlessly complex, particularly for infrequent rail users, and can discourage the use of rail.

3.33 Walking and cycling routes are often poorly signed, can be poorly lit, and can be perceived as insecure with the station not always fully integrated into the local community. Accessibility to stations can often be inhibited by issues such as poor or no pavements, low level street lighting and a lack of step-free access, thus acting as a barrier to travel for many.

3.34 Many of these issues are compounded by a lack of co-ordination between the modes of transport and because the responsibility for making improvements or promoting better integration rests with multiple organisations.

3.35 There is a role for local transport authorities to ensure that integration of the rail network is fully considered when designing highway schemes and considering planning applications. They can also help to coordinate services between modes and to encourage better integration of information products within their control.

3.36 Options are under investigation for greater devolved powers across the North to address this with the management and operation of stations at a local level. Potential exists for stations to support economic growth and local communities, aid housing regeneration and development while putting passengers at the heart of a world-class, integrated transport network.

3.37 Multi-modal connectivity must be improved to enable fast and seamless journeys. This will require fully accessible, user-friendly, integrated public transport networks, adequate car and cycle parking facilities, and safe access routes. A smart, multi-modal ticketing system with simplified fares should be delivered to serve the region, with information standards giving a sense of a coherent, joined-up network.

Strategic Gap:

Integration between the rail network and other modes can be unattractive and can present a barrier to multi-modal travel

Business links within and to/from the North

3.38 Improved connectivity and capacity into the North's economic centres⁸ would enable more people to work in city-centre locations where a greater number and variety of jobs are more readily available. It also provides businesses with wider access to potential candidates, allowing better matching between skills and jobs. Connectivity improvements such as faster journey times and more predictable interchange opportunities will enable the catchment of our centres to grow – bringing more people within reasonable commuting distance. These effects will be amplified should the rail network enable commuting into multiple centres – greatly increasing the employment, education and training choices available and for employers, the depth of the available talent pool and agglomeration benefits.

3.39 Some elements of the Prime and Enabling capabilities identified in the NPIER, such as advanced manufacturing and logistics, tend to favour locations away from urban centres and can be highly dependent on road travel (both for the transportation of goods and for employees reaching their place of work) as a result. Nevertheless, improvements such as new stations and services timed to match local demand patterns could enable greater rail use to out-of-town facilities and improvements to the capability and capacity of the network could encourage rail freight. In some cases, where sites are remotely located and road travel is less suitable, rail can play a vital role in delivering goods and materials in the construction phase, and subsequently providing the skilled workforce with mass transport to the site from nearby communities. A principal example of where rail will deliver this functionality is the emerging energy and mining developments in West Cumbria.

3.40 Growth in knowledge-intensive jobs in the North, such as those in the NPIER prime and enabling capabilities, will lead to increased demand for business-to-business travel. As shown in Figure 3.3, six of the seven capabilities identified by NPIER have a higher than average trip rate by rail for commuting, business and leisure purposes. Faster journeys would directly support increased productivity and efficiency, as well as increase the number of potential suppliers, customers and collaborators accessible by rail.



⁸ Economic Centres have been defined as any Built-Up Areas (BUAs) or Built Up Area Sub Divisions (BUASDs) with a population greater than 50,000. Certain centres in the North which satisfy this criterion but are not primarily served by the rail network have been removed from the list. A full list of Economic Centres can be found in Appendix A.

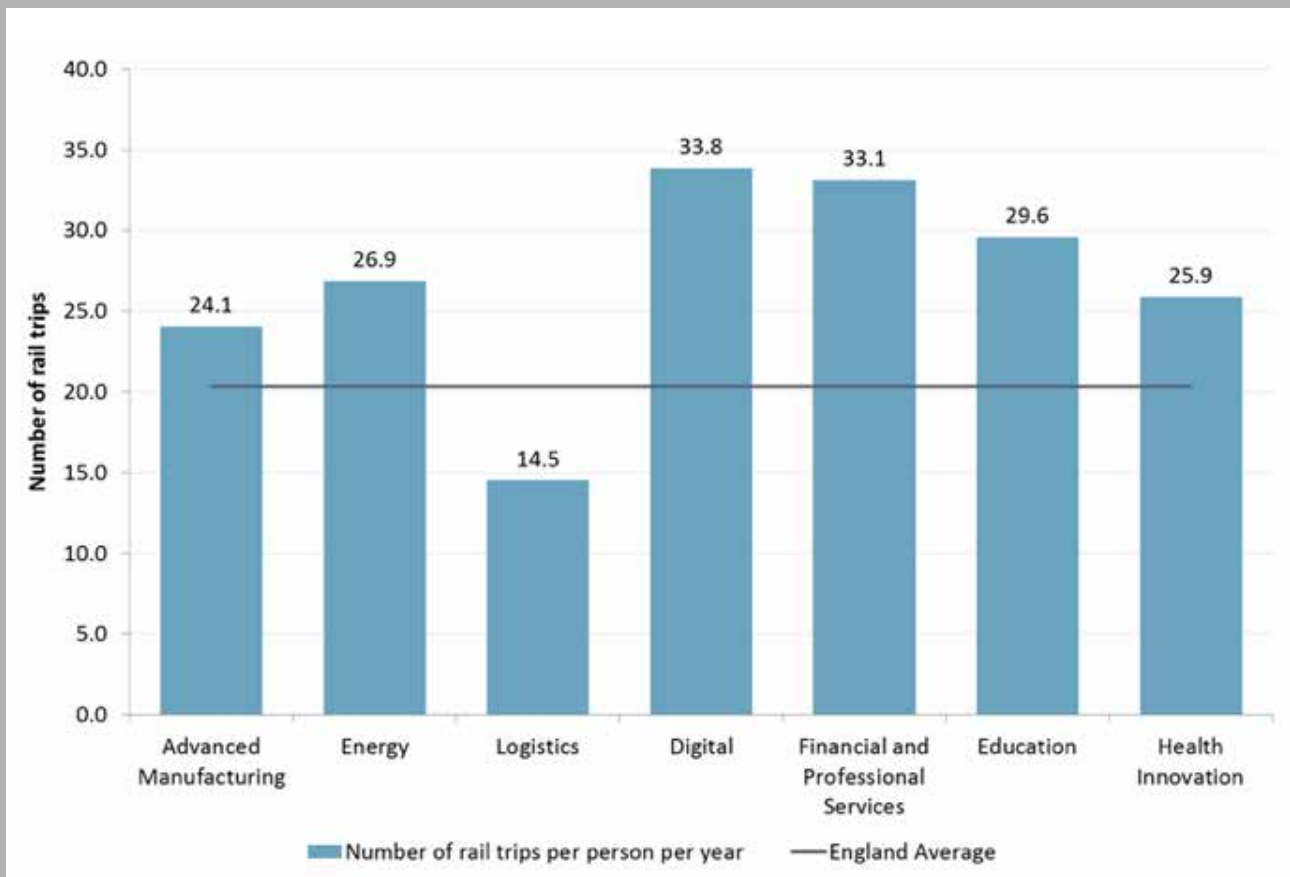


Figure 3.3: Number of rail trips annually (all journey purposes), average for NPIER prime and enabling capabilities

Source: NPR Strategic Case (SDG)

Long-distance connectivity

3.41 There is currently a disparity between north-south and east-west connectivity in the North of England. Those services which utilise the East Coast, West Coast and Midland Main Lines for some or all of their journey tend to be significantly quicker than those operating across east-west corridors such as the North Trans Pennine, Hope Valley, Tyne Valley or Calder Valley routes.

3.42 North-south connectivity, particularly to and from London, has been improved through sustained periods of investment to the Midland and West Coast Main Lines, the effects of which are illustrated in Table 3.2 below.

	1997		2017	
	Frequency	Avg Journey Time	Frequency	Avg Journey Time
Liverpool	1	02:45	1	02:12
Manchester	1	02:30	3	02:09
Preston	1	02:37	2	02:15
Carlisle	0.5	04:00	2	03:22
Leeds	1	02:26	2	02:13
Sheffield	1	02:22	2	02:05
York	2	02:00	2-3	02:06
Newcastle	2	03:00	2	03:04

Table 3.2: Comparison of frequencies and journey times between Northern centres and London in 1997 and 2017

Source: National Rail Enquiries

3.43 However, despite these improvements there are connectivity gaps between the North and some other areas of the UK. Journey times between London and destinations on the East Coast Main Line have not experienced the improvements that have happened elsewhere. Some major Northern cities such as Bradford and Hull lack direct connectivity to other major cities, such as Birmingham while others have no direct link to London. There is only very limited connectivity between the North and Cardiff (via Manchester) and Leicester (via Sheffield), and some economic centres such as Middlesbrough have no direct connectivity to either Glasgow or Edinburgh. Important centres of growth, such as Cambridge, and areas to the south and east of London also have no direct links to the North.

3.44 It is important to the North that its businesses can readily access important suppliers, markets and collaborators beyond the North of England, particularly in key centres such as London, Edinburgh and Birmingham, as well as economic centres such as Cambridge.

3.45 HS2 Phases 1 and 2a will provide a further step-change in north-south connectivity once completed in 2026/27. The scheme will deliver a dedicated high-speed railway line between London and Crewe, with high speed services running on the 'conventional' rail network to Liverpool, Manchester and further north on the West Coast Main Line. HS2 Phases 1 and 2a will significantly reduce journey times and increase capacity between cities in the North of England, Birmingham and London. Phases 1 and 2a will reduce the journey times between Manchester Piccadilly and London Euston by 37 minutes, Liverpool and London Euston by 40 minutes and between Crewe and London Euston by 35 minutes.

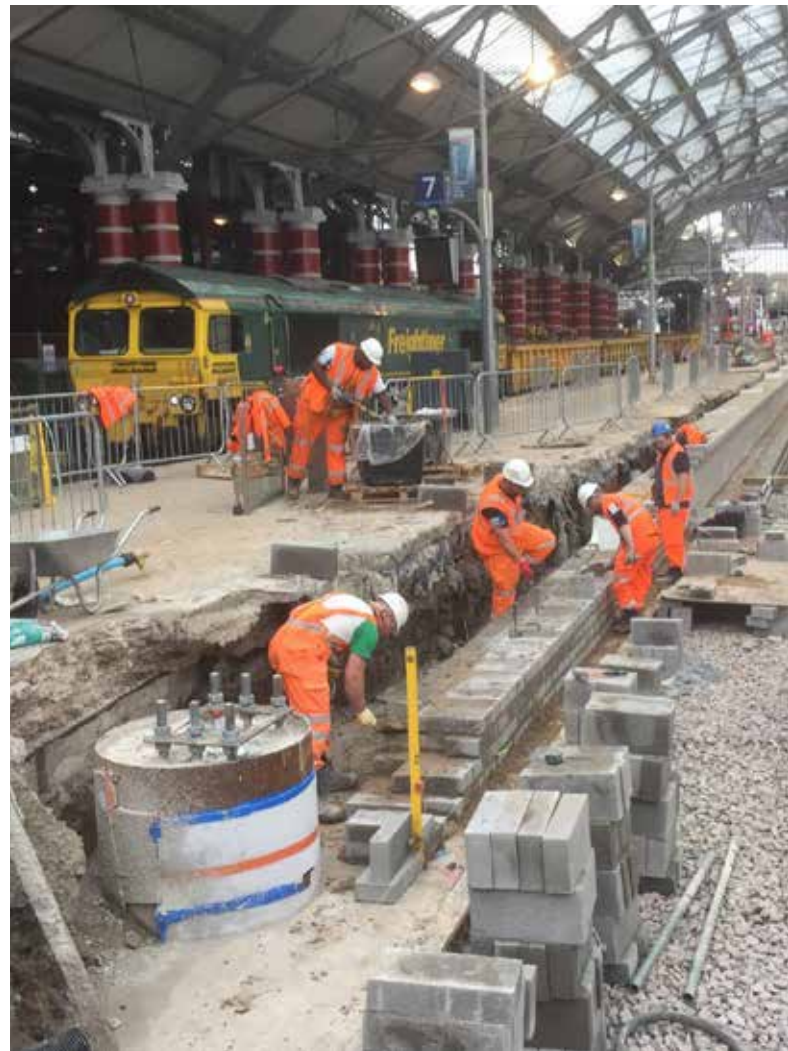
⁸ Economic Centres have been defined as any Built-Up Areas (BUAs) or Built Up Area Sub Divisions (BUASDs) with a population greater than 50,000. Certain centres in the North which satisfy this criterion but are not primarily served by the rail network have been removed from the list. A full list of Economic Centres can be found in Appendix A.

3.46 Current proposals for Phase 2b of HS2, intended for completion in 2033, will extend the dedicated high-speed line from Crewe to Manchester via Manchester Airport, as well as create a further line linking Leeds and Sheffield to London via the East and West Midlands. A link to the East Coast Main Line at York will allow high speed services to serve destinations north of York, including Darlington, Durham and Newcastle.

3.47 For these longer distance journeys, rail will have key journey time advantages relative to road travel, as well enabling direct access to central locations. In some cases, particularly to/from London, connectivity is currently strong, and will undergo a further step-change improvement with the introduction of HS2. However, many of those centres which are remote from the high-speed route proposals will remain poorly connected to the North. Unless weaknesses in the wider network are addressed, this will serve to erode journey time advantages and weaken the attractiveness of rail.

Strategic Gap:

The rail 'offer' between the North and centres elsewhere in the country can be often unattractive, presenting a barrier to both business and leisure travel by rail



East-West across the North

3.48 When average journey speeds are overlaid onto a network schematic, as in Figure 3.4 below, the lower average speeds across key east-west routes can be observed. It also highlights particular speed 'pinch-points' on the network, where the average speed of inter-urban services fall below 40mph. In the east-west direction, there is only one section of the network (Stalybridge – Huddersfield) where the average speeds of inter-urban services exceed 60mph.



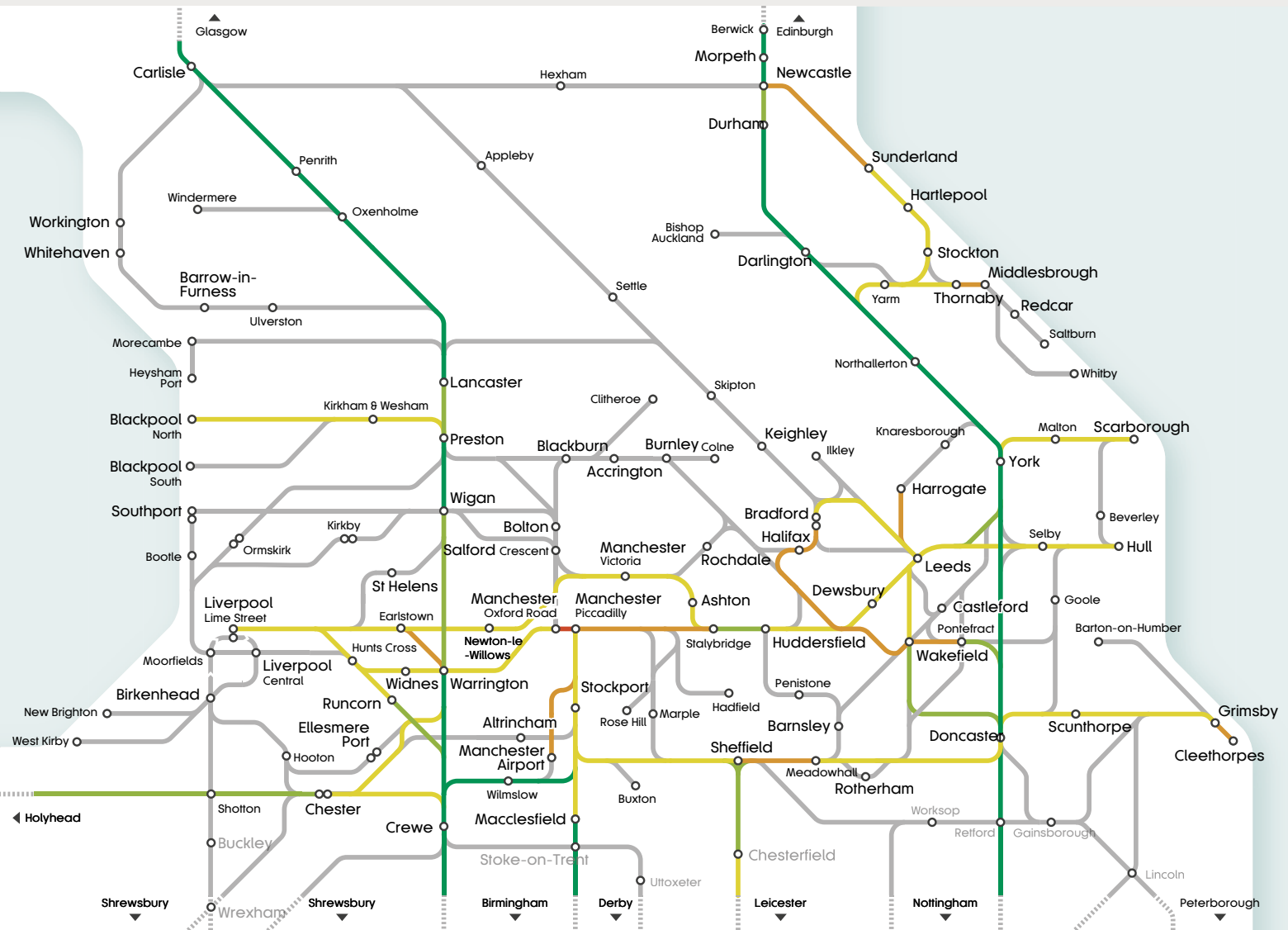


Figure 3.4: Average speeds of selected long distance/ inter-urban services

This map shows average weekday station to station speeds

Min Max		Min Max	
—	1 20	—	60 80
—	20 40	—	>80 -
—	40 60		

(mph)

3.49 Improved east-west rail connectivity would support greater agglomeration, productivity and efficiency across the North of England, and enable cities in the North to develop stronger economic links and function more like other major global economic regions, such as the Randstad area of the Netherlands and the Rhine-Ruhr conurbation in Germany. This will grow labour markets enabling better matching of employee skills and allow more inter-city linkages between businesses.

3.50 The growth of the Northern economy will drive, and will be dependent on, increased business-to-business travel between its economic centres. The rail network will need to enable this travel to be undertaken as quickly and efficiently as possible, and must offer a viable and attractive alternative to road-based transportation.

3.51 Connectivity between the North's centres, in terms of passenger service frequencies and journey times, is too often poor, extending the perceived distance between centres and acting as a barrier to travel. Issues such as overcrowding and poor on-board facilities can make rail travel unproductive, effectively removing one of rail's key advantages over other modes.

3.52 Investment being delivered through the TransPennine Express franchise will go some way toward addressing overcrowding and improving service frequencies, and the introduction of the 'Northern Connect' brand in the Northern franchise will complement the inter-urban network by delivering a distinct customer offer and improved service quality.

3.53 However, the full benefits of this investment cannot be realised without sustained improvements to enable journey time reductions and further frequency increases, particularly on key east-west corridors.

3.54 The TransPennine Route Upgrade (TRU) project is designed to do that, and to deliver much faster journeys, at a higher frequency and with more capacity, than today's railway. Its high level strategic outputs are summarised as follows:

- Leeds to Manchester target journey time of 40 minutes
- York to Manchester target journey time of 62 minutes
- Capacity for six inter-urban services per hour for trains of eight vehicles, and up to two local services per hour, in both directions
- 92.5% of passenger trains to arrive within five minutes of scheduled time – which is a higher standard than the '92.5% within ten minutes' that is stipulated (but rarely achieved) on all other long-distance services.
- If possible W10/W12 gauge clearance and provision of 1 freight path per hour (in each direction) for freight services between Manchester Victoria/Guide Bridge and Thornhill (which is south of Dewsbury).

3.55 Electrification is being considered where it may be required to deliver the high level strategic outputs.

3.56 TRU would help build towards the Northern Powerhouse Rail programme, being developed by TfN and the DfT, working collaboratively with northern Partners.



change in the level of rail connectivity between the North's largest cities is required to support opportunities and choices for the next generation of workers and businesses. It would support economic transformation in the North by delivering faster and more frequent rail journeys linking the North's six main cities with each other and Manchester Airport. It also has potential to provide much improved connectivity for other significant economic centres, and the potential to release capacity on the existing rail network for freight and other local services. NPR will help deliver the integrated Northern labour markets that are necessary to achieve economic transformation, unlock investment potential and create opportunity and new economic choices for millions of people across the North.

3.58 Northern Powerhouse Rail is being developed alongside the Long Term Rail Strategy, and is complementary to investment plans for the wider rail network. Integral to the proposal is ensuring that the wider network can also incorporate and realise the associated benefits of NPR. NPR aims to support economic transformation in the North by delivering faster and more frequent rail journeys linking the North's six main cities with each other and Manchester Airport. It also has potential to provide much improved connectivity for other significant economic centres, and the potential to release capacity on the existing rail network for freight and other local services. The current emerging vision for NPR is shown in Figure 3.5.

3.59 TfN analysis shows that NPR could:

- Increase the population within one hour's rail travel of four of the largest cities from 10,000 today to 1.3 million
- Change the way labour markets work, where people live and work and how businesses collaborate and will support the North to attract and retain the people and skills it needs. Once the network is delivered, 40% of businesses identified as in the NPIER prime capabilities would be within 90 minutes rail travel of four or more of the North's largest cities, compared to only 12% today
- Be integrated with HS2 to maximise connectivity and demand on the planned new fast North-South connections, and make greater use of HS2 infrastructure.





Figure 3.5: Emerging vision for the NPR network

Northern Powerhouse Rail junctions with HS2:

- 1 Junction on HS2 mainline for Leeds – North East services
- 2 Junction on HS2 Leeds spur to facilitate through services via existing Leeds station
- 3 Junction on HS2 mainline for Sheffield – Leeds services
- 4 Junction at Manchester Piccadilly to support Northern Powerhouse Rail platforms
- 5 Junction on HS2 Manchester spur for Manchester – Liverpool services
- 6 South facing junction on HS2 mainline for London – Liverpool services

- Northern Powerhouse Rail - upgrade line
- Northern Powerhouse Rail - new line
- Linking Liverpool to HS2
- HS2 line
- TransPennine Route Upgrade
- Existing line
- Northern Powerhouse Rail hub station
- Other significant economic centre

Alternative concepts will continue to be assessed between Liverpool – Manchester, Manchester – Sheffield and Manchester – Leeds as part of Developing a Strategic Outline Business Case for the programme. Map shows only railway lines which interact with Northern Powerhouse Rail. The Department for Transport and HS2 Ltd are also assessing concepts for a HS2 parkway serving South Yorkshire.

Strategic Gap:

The rail ‘offer’ for business to business trips between the North’s economic centres can be unattractive, reducing firms’ supplier and customer bases which may limit clustering and specialisation

Northern leisure and tourism economy

Tourist destinations

3.60 In-bound tourism brings the North around £1.9 billion Gross Value Added in revenue, with huge potential for more domestic and international tourists to be attracted to the many world-class attractions that the North has to offer.

3.61 Leisure and tourism are vital components of local economies across the North, but its value is dispersed across the North’s national parks, cultural attractions in the centre of its towns and cities, and rural and coastal attractions. The visitor economy has the potential not only to provide Gross Value Added (GVA) and jobs growth, but can also maintain and enhance the Northern population’s quality of life, whilst helping retain and attract a skilled and experienced workforce who can maintain and develop these attractions.

3.62 The North’s leisure and tourism economy will benefit from visitors, both from within the North and further afield, being able to access a full range of leisure activities without a reliance on private car. However, direct connectivity to some destinations is currently poor – there are often no direct rail services between coastal centres and potential sources of visitors in major population centres in the North and elsewhere. Direct connectivity is important as families and groups can have lower propensity to interchange – particularly if they are travelling with several items of luggage. If direct connectivity cannot be provided, there is a need to make interchange as easy and seamless as possible.

3.63 Where services do exist, timetables and capacity provision are not always aligned to seasonal demand patterns and special events, with evidence of overcrowding at key times. Facilities on-board trains serving tourist destinations are not always well-suited to the needs of groups and families, nor those with luggage, where storage space can be limited. Infrequent services and slow journey times, particularly on routes which could serve as a gateway to National Parks and rural destinations, present a further barrier to rail travel.

Strategic Gap:

Door-to-door journey times to/from major tourist destinations reduces the attractiveness of public transport for leisure travel relative to car, and can limit destination options for those without access to a car



Evening and weekend travel

3.64 The leisure economy is an increasingly important contributor to employment, culture and quality of life in the North of England. The daytime leisure economy in towns and cities operates on a seven-day basis and as well as offering opportunities to visitors, it is an important source of employment. Evenings are particularly vibrant in the North's major economic centres – its towns and cities. It is important that the economic and cultural benefits of evening leisure can be realised across the North, and not restricted to those residing in large population centres. People must be able to access leisure opportunities, and the employment options they generate, and travel home afterwards.

3.65 Table 3.3 below illustrates the timings of first arrivals and last departures into/away from a selection of centres on both weekdays and Sundays. In most cases, timings on Saturdays are broadly aligned to the weekday service and so have not been shown separately here.

3.66 Currently, rail service provision from economic centres to their catchments in the evening is inconsistent. There are some good examples of connectivity in the evening, but there are also examples of last departures earlier than 10pm, particularly on Sundays. First arrival times on Sundays can also be poor in some cases, and certain lines are closed entirely, preventing any services from operating.

3.67 The rail service in many areas has a reduced frequency of service on Saturdays and Sundays compared to weekday inter-peak, sometimes with a change in destination or route that is less attractive. Additionally, some stations are not served on Sundays despite the line being open, and in certain cases this is expected to continue into the next franchise. This is despite the level of demand for a seven-day economy. The National Travel Survey demonstrates that the overall demand for travel on Saturday and Sunday is higher than the weekday inter-peak demand. Service improvements committed in the Northern and TransPennine Express franchises will go some way towards addressing these issues, but gaps will remain.

Between		Outward First Arrival		Return Last Departure	
		Weekday	Sunday	Weekday	Sunday
Hexham	Newcastle	06:55	10:39	22:35	20:15
Harrogate	York	07:25	11:25	22:11	21:27
Kirkby	Liverpool	06:06	08:36	23:55	23:55
Bolton	Manchester	05:17	09:45	23:20	22:03
Buxton	Manchester	06:59	09:23	23:10	22:49
Saltburn	Middlesbrough	06:49	10:01	22:06	22:12
Skipton	Leeds	06:27	09:14	23:19	23:20
Ilkley	Bradford	06:50	09:34	23:26	22:37
Hartlepool	Middlesbrough	08:25	11:18	21:10	19:34
Blackburn	Preston	06:40	10:31	22:45	22:02
Barnsley	Sheffield	05:54	09:55	23:24	22:39
Worksop	Sheffield	07:02	15:35	21:42	21:06
Beverley	Hull	06:13	10:38	23:00	20:30
Whitehaven	Carlisle	07:33	13:41	22:00	21:10

Table 3.3: First and last journeys to/from economic centres, May 2017 timetable

Strategic Gap:

The rail offer serving the evening and weekend economies of the North's economic centres falls short of customer expectations

Addressing isolation, reducing deprivation and improving quality of life

3.68 The economies and social requirements of rural communities in the North are different to those of its major towns and cities. Residents must often travel further to reach employment, education and leisure opportunities, and rail connectivity can provide an economic 'lifeline' to those in remote communities – especially to those without access to a private car. Rail service provision does not always meet these economic requirements, with few services on some rural routes, providing only limited direct connectivity to the wider North, and others where stations are not served frequently.

3.69 The community rail movement has helped to put the local community at the heart of their railway by creating job and local enterprise opportunities; creating social cohesion through supporting diversity and inclusivity and by reducing the adverse societal effects caused by the abandonment of parts of the railway. Community rail has been a catalyst for bringing partners together to work towards physical, economic and social regeneration. This includes a notable, growing number of community station projects across the North helping to support wider regeneration, as well as signs of community rail playing a broader role in community development.

3.70 The North also has many areas suffering from the effects of economic deprivation, with concentrations in both urban centres and in areas of industrial heritage such as the former coal mining communities of County Durham. Rail does not always effectively meet the needs of these areas, with some stations difficult to access without private car and poorer service provision for employees with irregular shift patterns.

3.71 Increasing access to employment, education and training for the population of the North can help to reduce unemployment and help those in low skilled jobs move into higher paid, more productive jobs. Effective and affordable public transport is the most efficient means of travel for workers at all skill levels and can be the only option for some people.

3.72 Rail can play a significant role in addressing the barriers to travel faced by a diverse section of society. Accessibility both to/from and at rail stations and on trains should not be barriers to travel and TfN is committed to supporting improvements to stations and trains, and influencing new franchise commitments to reduce the barriers to travel for all. Disruption to facilities and services can have a big impact on both the accessibility of rail services to disabled people, and on disabled people's confidence in travelling by rail. TfN will work with train operators to ensure that the needs of those with reduced mobility and hidden disabilities are appropriately and courteously provided for.

3.73 The North's quality of life is an underpinning asset which supports its economy, particularly in providing an attractive place for people to live, work, invest and visit. Rail has an important part to play in supporting improvements to quality of life.

Strategic Gap:

The railway serving rural and economically-deprived areas of the North does not deliver its potential to help meet their economic and social needs

Freight

3.74 Freight accounts for 9% of the country's GDP and supports every industry by providing access to goods and services. In the UK, a total of 1.65 billion tonnes of freight are lifted by all modes per annum. A little over a third of freight activity takes place in the North of England. In Britain, rail freight transportation is heavily focussed within the North; in 2014/15 56% of Great Britain's rail freight was transported to, from or within the North.

3.75 A large proportion of the Northern rail freight has historically been related to movements of coal to power stations. It was also linked with heavy industry such as the making of steel. These volumes are now falling as the UK pursues a policy to reduce carbon emissions from power generation and due to world-wide changes in the structure of the steel industry. TfN's Enhanced Freight and Logistics Analysis technical report⁹ states that whilst coal traffic is currently down 64% year-on-year, commodities moved on the rail network have increased, and total rail volumes are only down 4% over the last year reflecting significant increases in the movement of consumer goods, which now account for around 40% of UK rail freight movements, and the movement of construction materials (bulk), which accounts for 26% of the UK rail freight movements.

3.76 The report also describes the North's wealth of freight assets, that grant the North a strong multi-modal freight capability. These include:

- The Port of Liverpool operates within the Irish Sea Roll on Roll off (RoRo) market, and as a deep-sea Atlantic container port. The recently completed Liverpool 2 development with Post-Panamax capability has raised the port's handling capability from 5% of the world's container fleet to 95%, with an increase in capacity from 700,000 Twenty-Foot Equivalent Units (TEUs) to 2.2m TEUs. Liverpool has access to the Major and Strategic Road Networks (MRN & SRN) via the A5036/M57/M58 to the M6/M62
- The Port of Heysham also operates within the Irish Sea RoRo market, with access to the Major and Strategic Road Networks (MRN & SRN) via the recently opened Heysham Link (A683) and the M6
- The Ports of Hull, Immingham, Teesport and Tyne operating within the North Sea RoRo and Container markets. Each port has access to the Major Road Network (MRN) and Strategic Road Network (SRN) via the A63 and M62 (Hull); A160/A180 and M180; Teesport via the A66 and A19; and Tyne via the A185 and A19. Teesport also has existing intermodal rail services
- Further rail connected ports exist in the North serving specific sectors, notably energy production (on and off-shore), including Workington, Barrow, and Hartlepool
- Three Strategic Rail Freight Interchanges (SRFIs – distribution centres with intermodal terminals) with direct access to the MRN and SRN at Ditton (via the A562/A557 and M62), Wakefield (M62); and, Selby (A19 and A63), with further sites under development
- Five further Intermodal Terminals with direct access to the MRN and SRN at Trafford Park (via the A5081 and M60), Leeds (A639 and M621), Garston (A562/A5300 and M62), Doncaster and Teesport (A19 to A1/M1 corridor)
- A significant amount of distribution centre capacity.

3.77 Despite these capabilities, gaps in freight connectivity remain. For the end-to-end freight journey to be as efficient as possible, the North needs better surface access to ports, airports, and intermodal terminals. There are some significant potential rail freight flows where existing network capacity and capability pose constraints. There are currently no suitable routes across the Pennines that can accommodate the largest inter-modal deep-sea shipping containers on standard wagons.

3.78 Currently, the commodities that arrive at Northern ports primarily stay within the North, with the biggest flows between the ports using east-west routes. This is driven by high volume flows of biomass and construction aggregates from ports and quarries. Significant flows to the south centre on Daventry and the East Midlands. The use of these rail freight interchanges for Northern flows indicates that the North needs to develop rail freight interchanges that would increase the options for handling freight flows across the North. Additionally, the North recognises that in the interim, enhancements in the southern infrastructure will help deliver journey speed increases from southern ports.

3.79 Investment in Liverpool2 and continuing growth of the Humber Ports has given strength to the concept of the Freight Superhighway connecting Liverpool and the Humber, as well as wider benefits for freight movement across the North to other ports. This concept is advanced by IPPR North and supported by the Northern Ports Association. TfN has the opportunity to bring ports businesses groups together, supported by and working with the Northern Ports Association to enhance engagement with freight businesses that are not as strongly aligned to the ports in other ways.

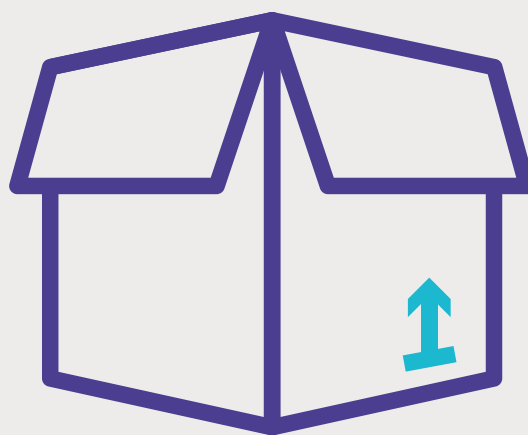
3.80 To deliver infrastructure schemes such as High Speed 2 and the NPR programme, large bulk movements of aggregates and steel, much of it produced in the North of England, will be required. Road freight will not be able to meet the needs of heavy bulk markets – even with the emerging technological change. Train movements will be the best way to move aggregates and bulk products for engineering and housebuilding necessary for population increase.

Strategic Gap:

The rail freight industry in the North is constrained by the availability of paths, the capability of the infrastructure, and limited access to key gateways, including the North's ports

Strategic Gap:

The rail offer for freight can be unattractive, reducing the ability of the North's logistics sector to respond to the changing needs of industry and reducing rail's share of the overall market



International connectivity

3.81 Global connectivity, for people and goods, is needed to drive economic growth and ensure the North is connected to the global stage, making it easier for businesses to access international markets. The Independent International Connectivity Commission report, published in February 2017¹⁰ examined the economic role of international connectivity for the North of England and identified actions that are necessary to improve connectivity to support a more global approach to the business and visitor economy. Rail is relevant here in several ways:

- In providing surface access (either directly or via interchange with other modes) to the North's airports (particularly Manchester, Newcastle, Liverpool John Lennon, Leeds Bradford, and Doncaster Sheffield), ensuring that airports can draw upon the widest possible catchment areas, making it attractive for airlines to expand global connections
- By providing wider rail connectivity to continental Europe via the HSI Link and the Channel Tunnel
- In providing surface access to the North's five key rail-connected port areas on major estuaries (Humber, Immingham, Tees, Mersey, and Tyne), and several rail-connected sub-regional ports. During 2014/15 178 million tonnes of freight was transported through ports in the North, almost 38% of the Great Britain total. In addition, the North boasts a network of inland waterways (such as the Manchester Ship Canal access to Trafford Park, access to Hull via the Humber, etc.), where rail may play a role in improving intermodal connectivity.

International freight

3.82 For rail freight to be competitive, it requires a network which can accommodate fast and punctual journeys between key gateways – including the North's port assets – and inland terminals for onward distribution and consumption. In the opposite direction, exporters rely on the logistics industry's ability to quickly transport goods to port. The North's ports are investing to cater for a greater share of the inter-modal freight market, but they are limited by the capacity of the rail network, and inadequate road access to and from ports.

3.83 There are many examples of rail freight journey times being slow, often due to circuitous route requirements. This can be due to a number of factors, including high infrastructure utilisation (which can reduce the availability of paths), gauge clearance and route capability constraints. Slow journey times erode rail's commercial competitiveness versus road transportation, and serve as a barrier to attracting traffic to rail. Freight journey times must become quicker if the rail network is to facilitate and accommodate the requirements of the growing economy.

Origin	Destination	Journey Time (hours)	Average Speed (mph)
Liverpool	Drax	7.5	16
Immingham	Drax	2.75	19
Crewe	Trafford Park	1.25	36
London Gateway	Trafford Park	7.5	31
Immingham	Eggborough	3.5	17
Tunstead	Eggborough	3.25	53
Cardiff	Doncaster	8.75	25
Wellingborough	Doncaster	3.5	40

Table 3.4: Example freight journey times and average speeds
Source: TfN Enhanced Freight and Logistics Analysis

¹⁰ See http://www.transportfornorth.com/wp-content/uploads/International-Connectivity-Report_websafe.pdf

Strategic Gap:

Journey times and network capability and capacity to/from the North's international gateways reduces the attractiveness of rail freight

International Passenger Demand

3.84 Making the North's airports more accessible by public transport will allow the benefit of these assets to be felt across the North. Because the provision of direct rail connectivity to airports is not always achievable nor desirable, interchange between rail and other forms of public transport must be made quick and simple.

3.85 The single most important international gateway for the North is Manchester Airport. Good access to the airport is important not just for the North West, but also from across the Pennines and to the airport's wider catchment in the Midlands and North Wales. Connectivity improvements were secured as part of the Northern and TransPennine Express refranchising process, with direct journeys to Bradford and Halifax part of the Northern franchise commitments. However, some key centres have slow rail journey times to the airport relative to their distance, with convoluted routes via central Manchester. The alternative of road access would only add further to the congestion pressures on the motorway network, in the case of Chester, and unsuitable routes across the Peak District National Park in the case of Sheffield.

3.86 Connectivity on the wider network must enable fast and seamless journeys across the North. While some gains to airport accessibility could arise from HS2 Phase 2b and NPR schemes, they are neither currently committed nor planned to be delivered until the 2030s, and even then, will not fully address connectivity to the North. Given the constraints on rail services to the existing Manchester Airport rail station, and their importance to the wider northern economy, it is a priority to improve rail accessibility to the airport during the 2020s.

3.87 Aside from Manchester Airport, the North's other regional airports provide for direct access between international destinations and markets and their catchment areas across the North. None of these airports are served directly by the national rail network, with interchange to other forms of public transport required to complete the door-to-door journey. This requirement can pose a barrier to use, particularly for those travelling in family groups and with luggage, and good quality information and through-ticketing is not always available.

3.88 Access to the HS1 Link and the Channel Tunnel requires passengers from the North to change at London St Pancras. For passengers from northern economic centres distant from the East Coast, West Coast and Midland Main Lines, at least one further interchange is required, which has the combined effect of increasing generalised journey times and reducing rail's attractiveness relative to other options for accessing the near-continent.

Strategic Gap:

Journey times and the need to interchange for trips to/from the North's international gateways reduces the attractiveness of public transport



Limiting factors

Infrastructure capacity

3.89 The rail demand growth which will be induced by the growing northern economy, including the step-change impacts of HS2 Phases 1 and 2a, and, potentially, Phase 2b and NPR, will require significant additional capacity for both passengers and freight. It is highly likely that this will need to be delivered through more services as well as longer trains.

3.90 Much of the network in the North of England, aside from sections of the East and West Coast Mainlines, is two-track, although sections of single and four-track are present in places. Almost all the North's railway uses conventional signalling technology, with fixed block sections which can be lengthy due to the distances between signals, and on single-track lines are almost always governed by the distances between passing loops – often many miles. In addition, there are very few grade-separated junctions in the North of England, resulting in conflicting movements at flat junctions across the network.

3.91 These characteristics require trade-offs to be made between service frequency, calling patterns, journey times and performance. Large sections of the network, including key junctions and platforms, are heavily utilised and present a performance risk. There is limited space for additional services without further performance compromises which could serve to undermine confidence in the network. Although HS2 represents a significant opportunity, it will also exacerbate capacity challenges in some areas, which may lead to difficult decisions between long distance and local connectivity.

3.92 The evolving nature of the markets served by rail freight requires flexibility, so operators can respond to opportunities as they emerge. The current lengthy and complex nature of timetable and infrastructure planning makes this difficult to achieve.





3.93 Where freight services operate, their paths are timed to take account of slower speeds due to their weight and length, and as such they utilise more infrastructure capacity. Unlike passenger services, freight trains only operate when there is a need to do so, meaning that paths may not always be utilised. In some cases, services cease entirely but the path is retained in the timetable to provide capacity should services recommence, or should the operator wish to trade the path with a competitor. These issues are furthered by conflicts which require freights to give way to overtaking passenger trains, leading to delays from deceleration, waiting, and acceleration, which in turn impacts costs.

3.94 There is no absolute figure for theoretical railway capacity, and it is therefore not possible to define the amount of capacity that is used in a manner which is universally accepted. This is because the capacity available is dependent on services being run or planned for a section of railway, as well as the physical characteristics of the railway itself (that is the number of running lines, the existence or otherwise of passing loops, signalling, and the capacity of junctions).

3.95 Background research for the Initial Integrated Rail Report found that significant sections of network have high levels of utilisation (defined in this case as more than 45 minutes in the hour¹¹). This was based on an indicative December 2019 timetable including new services secured through the franchises. This analysis only considered the nature of the services including stopping, semi-fast, fast, and the consequent amount of time in an hour that services occupy each specific segment of the route, taking account of the broad infrastructure for instance (number of tracks) available. Further limiting factors are presented by platform occupancy at key stations, the capacity utilisation of conflicting moves at flat junctions, and timetabling constraints.

¹¹ the UIC Code recommends that peak hour track occupation on a mixed-traffic line should be no more than 75%, equivalent to 45 minutes in the hour

3.96 The operational layout of stations can pose a further constraint on capacity, which can serve to limit potential service expansion and pose a performance risk. The North has a number of stations, including some situated on main lines such as Darlington, Doncaster, and Preston, which limit capacity in this way.

3.97 Research¹² undertaken for Transport for Greater Manchester studied track and junction capacity utilisation in the Greater Manchester area in detail. Based on the 2019 service specification, the study found the following routes to be heavily utilised relative to their respective capacity:

- Blackburn to Bromley Cross
- Salford Crescent to Manchester Victoria, including Ordsall Lane junction
- Ordsall Lane junction to Castlefield junction
- Castlefield junction to Manchester Piccadilly
- Manchester Piccadilly to Cheadle Hulme junction
- Cheadle Hulme junction to Stoke-on-Trent
- Ardwick junction to Ashburys
- Warrington Central to Glazebrook
- Stockport to Guide Bridge
- Northenden junction to Edgeley junction
- Plumley to Mobberley
- Mickle Trafford junction to Greenbank
- Hazel Grove to Buxton
- Wilmslow to Alderley Edge

3.98 Those routes which have lower levels of capacity utilisation can be adversely affected by knock-on delays from congested routes. In addition, the Greater Manchester study identified platform capacity constraints. Platform lengths were found to be too short in some instances to cater for the length of longer trains being delivered as part of the committed franchise improvements (although these issues could be handled via Selective Door Opening). Short platform lengths at some terminal stations, such as Manchester Piccadilly and Manchester Airport, will prevent 'stacking' of longer trains (five plus car units).

3.99 The Greater Manchester work is illustrative of the capacity challenges that can be found across the North's rail network. Work is on-going to assess the situation in West Yorkshire, with the expectation that the overall picture will be similar. The North of England Route Study will assess the position across the whole of the North.

3.100 The Liverpool City Region Long Term Rail Strategy, as well as the Network Rail Strategic Rail Study, has identified platform capacity at Liverpool Central as a key capacity issue. The Northern Line platform is an island platform with a limited capacity. Without intervention to expand the current platform or deliver more platforms the predicted growth in use at the station will require the temporary closure of the station at peak times on a regular basis to restrict the number of people accessing the platform.

3.101 The Northern Hub programme, being delivered as part of Network Rail's Great North Rail Project, was identified by the Northern Way as key to addressing one of the largest single capacity 'gaps' in the North, defined in terms of the limitations of the central Manchester rail network.

3.102 At a time of strong demand growth, and with plans to exploit the enhanced network's capabilities by introducing new services across central Manchester, such as those committed in the Northern and TransPennine Express franchises, completion of this project is expected to be able to accommodate the demand for train paths from 2019 along the critical Castlefield corridor.

3.103 However, as demand increases through the 2020s, longer trains will be required and with a substantial proportion of Castlefield corridor services terminating at Manchester Airport station, a problem arises. At present, the airport station accommodates the volume of terminating services by multiple use of individual platforms, an option that becomes impractical as trains are lengthened. This will form a strategic limitation on the development of the North's rail services through the 2020s.

¹² Supplied to inform the production of this Strategy, but currently unpublished

3.104 The Northern Hub scheme significantly reduces the train path conflicts at Manchester Piccadilly – crossing movements that reduce network capacity and are the source of train reliability deterioration and of delays – but it does not eliminate the problem entirely. Two key inter-urban services, Liverpool-Manchester-Sheffield-Nottingham and Manchester Airport-Sheffield-Cleethorpes, will still require, in both directions, crossing movements across Manchester Piccadilly’s throat. During these movements, services to/from Stockport, which currently include all Intercity West Coast services to/from Manchester and, in future, HS2 Phase 1/2a services, cannot run, posing a major capacity limitation on a critical section of the North’s network.

3.105 TfN’s Enhanced Freight and Logistics Analysis identifies further capacity pinch-points on the network, which could constrain the growth of freight services if not addressed. These include:

- WCML between Weaver Junction and Liverpool (particularly towards the Port of Liverpool and the intermodal freight terminals at Garston and Widnes/Ditton)
- WCML between Crewe and Manchester (particularly towards Trafford Park and through the congested Platforms 13 and 14 at Manchester Piccadilly)

- East Coast Main Line (ECML) between Doncaster and Newark
- The ECML Leeds – Wakefield – Doncaster
- The ECML around Northallerton
- The Midlands Main Line south of Sheffield and through Chesterfield
- The Cumbrian Coast Line between Carlisle and Sellafield
- The trans-Pennine routes, particularly between Manchester and Huddersfield (however alternative east-west routes may be more appropriate).

3.106 Two case study examples are presented below to illustrate the impact this network utilisation challenge has on passenger outputs. At a general level, this analysis also shows that there is a trade-off between the fastest journey times that can be achieved and the frequency of service that can be offered when operating a mix of services on a two-track railway.

3.107 Firstly, we demonstrate the capacity limitations imposed by the network’s characteristics. The Cheshire Lines Committee (CLC) route connects Liverpool with Manchester via Warrington Central. The service pattern on the route is currently two stopping trains per hour and two semi-fast trains per hour. Figure 3.6 illustrates the challenge of accommodating this mix of traffic on the route in graphical format.

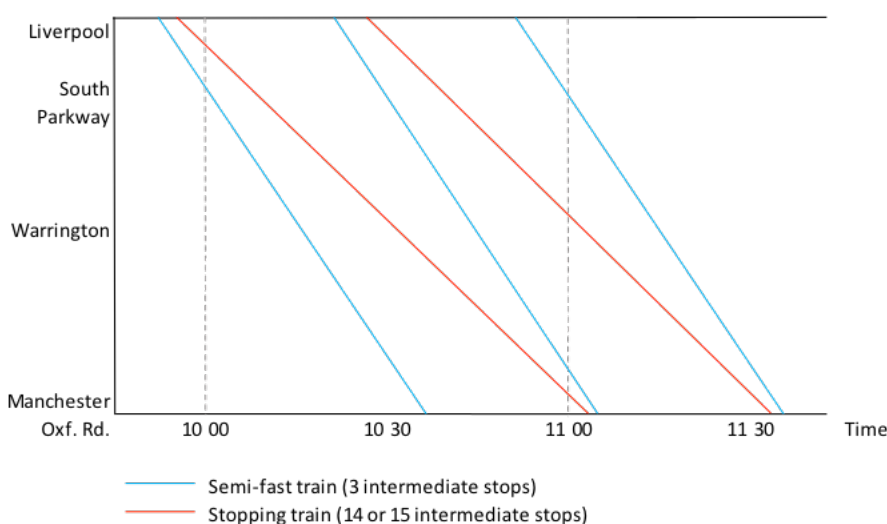


Figure 3.6: Time/Distance graph showing trains from Liverpool to Manchester on the CLC Route

3.108 In this example (figure 3.6), the stopping trains leave Liverpool Lime Street only three to five minutes behind the semi-fast train and arrive at Manchester Oxford Road two to five minutes in front of the next semi-fast train. This has two implications for passenger outputs – firstly that the fastest journey time for the semi-fast train is determined by the journey time of the stopping service, and secondly that the stopping services become a performance risk to the semi-fasts following behind.

3.109 In the second example, the Chat Moss route between Liverpool and Manchester is observed in relation to the impact of a mixed-traffic railway on calling patterns and the spread of services in the timetable. The service pattern at all intermediate stations along the route is shown in Table 3.5.

Station	Liverpool – Wigan	Liverpool – Newcastle	Llandudno – Manchester Airport	Liverpool – Manchester Airport	Liverpool – Manchester Victoria	Liverpool – Preston	Liverpool – Wigan	Liverpool – Warrington
Lime Street	xx:00	xx:12		xx:16	xx:21	xx:28	xx:32	xx:47
Edge Hill	●				●		●	●
Wavertree	●			●	●		●	●
Broad Green	●				●		●	●
Roby	●				●		●	●
Huyton	●				●	●	●	●
Whiston					●			●
Rainhill					●			●
Lea Green					●			●
St Helens Junction				●	●			●
Earlestown			●		●			●
Newton-le-Willows			●	●	●			
Patricroft					●			
Eccles					●			
Victoria		●			●			

Table 3.5: Off Peak Service Pattern on Liverpool Lime Street to Manchester Victoria (Chat Moss) route¹⁵

¹⁵ May 2017 timetable

3.110 Table 3.5 demonstrates a common consequence of these complex mixtures of patterns and the overall capacity of the rail network - that service intervals at intermediate stations are not at even intervals. In the above example, trains from Liverpool Lime Street to Newton le Willows depart¹⁴ at 16 and 21, only five minutes apart – essentially reducing the effective frequency for this particular journey to hourly.

Strategic Gap:

Infrastructure capacity and capability limits the number of train paths and can extend freight mileage and journey times

Infrastructure Investment

3.111 The Great North Rail Project is the collective term for a collection of infrastructure and rail service enhancements being delivered by the rail industry in the current Control Period. It includes the Northern Hub and North West Electrification programmes, as well as the emerging Trans-Pennine Route upgrade, which will increase capacity and reduce journey times on the North Trans-Pennine route between Manchester, Leeds, York and Selby.



¹⁴ May 2017 timetable

Great North Rail Project

The **Great North Rail Project** is the collective name given to a collection of infrastructure and rail service enhancements being delivered by the rail industry.

When complete, it will enable some of the benefits of the committed franchise investment to be realised.

The programme includes:

Northern Hub – including introduction of the Ordsall Chord, journey time and signalling improvements to the Calder Valley route, and capacity enhancements at Liverpool Lime St, as well as earlier schemes including the installation of an additional platform at Manchester Airport.

North West Electrification – electrifying the route between Manchester and Preston, and Preston and Blackpool North, Liverpool – Manchester and Liverpool – Wigan were electrified earlier in the programme.

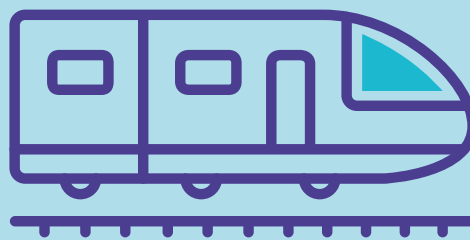
Trans-Pennine Route Upgrade – delivering faster and more frequent services between Manchester, Leeds, York and Selby. Rail North is currently working with Network Rail to design a solution and work programme for the scheme.

3.112 The futures of some elements of the programme are uncertain, with schemes including the provision of additional through capacity between Manchester Piccadilly and Manchester Oxford Rd, and Hope Valley capacity improvements being subject to being granted a Transport and Works Act Order (TWAO) by the Secretary of State for Communities and Local Government and, should orders be granted, a funding decision by DfT.

3.113 TfN is currently working with DfT and Network Rail to inform options for the TransPennine Route Upgrade. The options will enable DfT to make investment decisions and confirm the scope of works thereafter.

3.114 In September 2017, the Secretary of State announced that the upgrade could include elements of digitally controlled signalling and control, as part of the Digital Railway project, and that a fund had been established to develop proposals. Digital conversion will help increase capacity on the route through the use of moving block signalling, safely allowing a reduction to the headways between trains. The Secretary of State also indicated that the extent of proposed electrification on the route remained under review, and that as yet no funding decisions had been taken.

3.115 The Great North Rail Project is being supplemented by locally-sponsored investments such as new stations (including in Maghull, West Yorkshire, Horden and Warrington West), and infrastructure, such as the Halton Curve, to improve local and regional connectivity.



Rolling Stock

3.116 The rolling stock serving the North of England is about to undergo a substantive change, with a delivery programme of new and refurbished vehicles which will comprehensively improve quality and increase capacity for passengers in the North. The rolling stock investment will help to reduce overcrowding, and realise the benefits of infrastructure investment such as that being delivered under the Great North Rail Project.

3.117 By early 2020, the Northern franchise will deliver 98 new electric and diesel trains (280 vehicles), featuring 100mph top speeds, Wi-Fi fitment, CCTV, power sockets, and air conditioning. In parallel, TransPennine Express will introduce 44 new loco-hauled, electric and bi-mode trains (221 vehicles), capable of 125mph operation and with high standards of passenger facilities and comfort, and be fully compliant with modern accessibility requirements.

3.118 Northern will also introduce a further 50 trains released from other franchises. These will include 22 Class 150s, 16 Class 170s and 12 Class 319s. Eight Class 319 trains will be converted to bi-mode traction prior to May 2018. The converted units – Class 769 Flex – will enable the refurbished trains to serve more routes and provide greater flexibility. All of the remaining vehicles in both the Northern and TransPennine Express fleets will be subject to an extensive internal refurbishment intended to deliver an ‘as-new’ standard across the fleet. The refurbishment will include Wi-Fi fitment, improvements to passenger information systems retro-fitment of accessibility improvements and investment in passenger comfort.

3.119 Crucially, the rolling stock investment will enable the removal of the ageing Class 142 and 144 ‘Pacer’ trains from the North’s railway, as well as a number of other diesel and electric vehicles.

3.120 The rolling stock transformation is not restricted to the Northern and Trans-Pennine Express network. Merseyrail will replace its Class 507/508 vehicles with a new fleet by 2020, and Virgin Trains East Coast will take delivery of the Intercity Express Programme (IEP) Azuma trains to replace

the majority of its existing fleet. Elsewhere, new bi-mode trains will be introduced on the East Midlands franchise and serve the Midland Main Line route between London St Pancras and Sheffield, and funding has been announced which will provide for the replacement of the Tyne & Wear Metro fleet.

3.121 However, even after this period of investment, ageing vehicles will remain a feature of rail in the North of England. Many units within Northern’s fleet, including all remaining Class 15x vehicles and its Class 319 Electric Multiple Units (EMU’s), will be over 30 years old (with many exceeding 40 years old) by the end of the current franchise. It should also be recognised that much of the fleet will be diesel powered, which will look increasingly polluting relative to other modes, especially given ongoing changes in the automotive industry.

Strategic Gap:

Rolling stock has not kept pace with passengers’ expectations of quality and contributes to poor air quality in many centres, and global climate change

Stations

3.122 The stations estate in the North of England is varied and plays a wide range of roles, from large city and town centre hubs to smaller rural 'halts' which may consist of little more than platforms alone. The role played by stations in providing a gateway to the community is now widely recognised. It can be particularly important for the tourism market where the station may be the first experience a visitor has as they arrive at a destination.

3.123 Despite investment from Local Transport Authorities, station facility owners and other funders, there are no consistent standards of quality or facilities across the network, with some stations lacking basic facilities such as waiting shelters and real-time passenger information displays. Many lack step-free access. There is often poor information about onward travel options and little reflection of the community in the 'look and feel' of the station. Some larger stations, and those on busy commuting routes, can be subject to overcrowding on platforms and at bottlenecks such as automatic ticket gate lines, which can slow down pedestrian flow and lengthen train dwell times.

3.124 The Northern and TransPennine Express franchises will deliver welcome and much-needed investment in the stations estate in the North. Improvements will enhance passenger comfort and the provision of information, and enable purchasing of tickets prior to boarding.

3.125 Stations can provide a catalyst for wider regeneration and transformation, framing the station as a central component of the area it serves, and a destination in its own right. This has been achieved most notably in London, with the recent redevelopment and repurposing of St Pancras and Kings Cross, but good examples have also been achieved in the North of England – such as the Stephenson Quarter development adjacent to Newcastle station – and several others are proposed, including at Doncaster, Leeds and Darlington.

3.126 Stations can also play a role in achieving environmental objectives. Accrington eco-station (pictured) was specifically designed to reduce its impact to the natural environment, whilst positively contributing to the built environment in east Lancashire. The station is equipped with features including solar panels and a rainwater recycling system, and was constructed using local and sustainable materials, and provides a model for how environmental impact can be reduced during a station's construction and throughout its operational life.

3.127 The quality of the built environment makes an important contribution to the quality of life in the North of England. Attractive towns can be found across the North, and the railways make an important contribution to these high-quality urban environments. The formal architectural listed status of Grade One has been awarded to two of the North's railway stations, at Huddersfield and Newcastle, recognising their outstanding architectural merit, and many more of the North's railway stations and structures are in the Grade Two* category e.g. Hebden Bridge station, the Ribbleshead viaduct and Hexham signal box.

3.128 In delivering this Strategy, TfN will strive to protect and enhance the built environment of the North, and work with the rail industry to seek that any new structures have high visual quality, such as that achieved at new stations including Burnley Manchester Road; the highway overbridge on the re-opened chord line at Swinton; the new footbridge at Woodlesford; and the footbridge on the re-opened branch line to Arcow quarry.



Figure 3.7: Accrington Station

3.129 There have also been notable successes and improvements delivered through local investment and by nurturing links with local communities. Initiatives have served to revitalise stations through greater use and involvement of the local community. Supported by groups such as the Association of Community Rail Partnerships, local groups can work with the rail industry to make better use of disused station buildings, for community projects, education and training and commercial enterprise. Examples in the North of England include the relocation of Millom Discovery Centre to the town's station, and the conversion of the Glossop station booking office to facilitate commercial use.

Strategic Gap:

Station facilities are inconsistent, in some cases overcrowded, can fall short of passenger expectations and often do not reflect their potential to positively contribute to the communities and economies they serve



Fares and ticketing

3.130 Rail fares in the North of England, as elsewhere in Great Britain, are generally set by the train operating companies within the parameters established as part of their franchise agreements. Certain fares are regulated by Government (mostly commuter season tickets, long distance off-peak return, and some Anytime fares) and are controlled by Government policy, which in recent years has been for fares to rise in line with inflation, as measured by the Retail Price Index.

3.131 Rail fares in the North of England can be perceived as complex and unfair, whilst there is a perception of poor value for money amongst passengers. There are a lack of products suitable for many passenger and their economic needs, for example, for part-time workers or people working in multiple locations.

3.132 Passengers can find it difficult to make informed choice between fare options – particularly route options and off-peak restrictions which vary extensively. This is exacerbated by return restrictions, discounts and offers. This can result in customers buying the 'wrong' tickets, or being deterred from using rail altogether. Various anomalies erode customer trust in the system – the can include 'split ticketing' where it is cheaper to buy a combination of tickets for a journey, or buying a ticket for a station beyond your destination being cheaper.

3.133 There are often notable jumps in price between stations (particularly around former Passenger Transport Executive boundaries) which 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. Journeys of similar length appear inconsistently priced, and often single tickets are only 10p cheaper than returns.

3.134 The product range available across the North is inconsistent – particularly for concessionary and multi-modal journeys. Rules vary, such as the requirement to purchase a ticket before boarding.

3.135 After decades of limited change, ticketing technology is beginning to change significantly. Both Northern and TransPennine Express are committed to a roll-out of mobile ticketing, augmented by Smartcard technology for season tickets. Multi-modal schemes have largely focused on ITSO ticketing. TfN and operators are exploring the use of direct payment from bankcards. There is a need to ensure these changes deliver a coherent customer experience, and that the opportunity is used for new ticketing technology to deliver simpler more appropriate fares and products.

Strategic Gap:

Rail fares and ticketing arrangements are complex and inconsistent

Information

3.136 In an era of 24/7 communications, passengers expect to receive information about their journey in a simple, accessible manner, and in real time. There are good sources of rail journey information, but most are limited to those with mobile devices, which could exclude sections of the population and those in communities without fast and reliable mobile connectivity. Many more traditional sources, such as printed timetables and posters, are single-mode, with limited information on interchange opportunities.

3.137 The swift and consistent provision of accurate information at times of perturbation is an ongoing concern for passengers. The Spring 2017 wave of the National Rail Passenger Survey, conducted by Transport Focus, indicated that the way delays are handled is the single largest driver of dissatisfaction nationally. A shortage of information can exacerbate disruption and make it difficult for passengers to plan alternative travel options. Disruption to facilities and services can have a big impact on both the accessibility of rail services to disabled people, and on disabled people's confidence in travelling by rail.

Strategic Gap:

Information provision throughout the journey does not meet expectations, particularly at times of disruption

Safety and Security

3.138 The perception of personal security could present a barrier to rail use, particularly during the evenings. CCTV, improved lighting, and emergency help points both on-train and at the station can all help to improve perceptions of security. 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.

Strategic Gap:

Passengers can perceive poor security and personal safety when travelling by rail

Operating costs and revenue

3.139 The age, condition and functionality of some infrastructure, including track, signalling, depots and stations makes the network in the North of England costly to maintain. Low line speeds can increase the amount of resource – rolling stock and staff – required to deliver the timetable. Some routes have extensive manual absolute block 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.

3.140 Investment secured in the Northern and TransPennine Express franchises will reduce the historically high levels of subsidy paid to operators in the North. TransPennine Express will become a premium-paying franchise within the current contract period, demonstrating the financial benefit of investment in capacity and rolling stock in recent decades.

3.141 In Figure 3.8 we chart the evolution of the Leeds – Manchester section of the route over the last 30 years (noting that these improvements have provided benefits further afield).

3.142 This sustained period of enhancement, starting with the 'Sprinterisation' programme of the late 1980s, has transformed the service from a low-frequency, relatively low-capacity railway into a service more akin to an inter-city offer, with high frequencies across the core Manchester – Leeds section and faster, higher-capacity services operating to destinations beyond the core. The number of direct connections beyond the core Manchester – Leeds sections has increased, including to Manchester Airport, which is currently served by two trains per hour from this corridor, as well as other TransPennine services to Cleethorpes via Sheffield and the South TransPennine route (one train per hour) and destinations on the West Coast corridor (one train per hour).

Strategic Gap:

The nature of the infrastructure, resources, industry cost allocation, and operating practices results in operating costs higher than they could be.

Strategic Gap:

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

3.143 A full list of the Strategic Gaps identified in this chapter is presented in Table 3.6.





Era	Frequency (tph)	Journey Time (Leeds – Manchester)	Change
1961-1987	1	1 hr 10 m to 1 hr 20 m	Service dieselised with new bespoke Diesel Multiple Units
1987-1989	2	1 hr 5 m	New Sprinter trains plus revamped loco hauled
1989-2002	2	1 hr	Service transferred to Piccadilly and served Manchester Airport from 1993
2002-2004	3	1 hr	Frequency increase
2004-2014	4	50m to 58m	Frequency increase and journey time improvements, new Class 185 fleet
2014-2019/20	5	49m to 58m	Frequency increase
2019/-	6	50m	New rolling stock being acquired



Figure 3.8: Chronology of improvements on North trans-Pennine corridor

Strategic Gap:

Door-to-door journey times for public transport commuting into the North's economic centres limits the size of the labour pool (for businesses) and reduces the number of employment, education and training opportunities within reasonable travelling time (for individuals)



Strategic Gap	
i)	Door-to-door journey times for public transport commuting into the North's economic centres limits the size of the labour pool (for businesses) and reduces the number of employment, education and training opportunities within reasonable travelling time (for individuals)
ii)	The reliability and punctuality of services causes a perception that rail services cannot be relied on for commuting, business and other journeys
iii)	On-train capacity has not kept pace with growing demand, leading to overcrowding which reduces the attractiveness of rail
iv)	Integration between the rail network and other modes can be unattractive and can present a barrier to multi-modal travel
v)	The rail 'offer' between the North and centres elsewhere in the country can be often unattractive, presenting a barrier to both business and leisure travel by rail
vi)	The rail 'offer' for business to business trips between the North's economic centres can be unattractive, reducing firms' supplier and customer bases which may limit clustering and specialisation
vii)	The rail 'offer' for freight can be unattractive, reducing the ability of the North's logistics sector to respond to the changing needs of industry and reducing rail's share of the overall market
viii)	Door-to-door journey times to/from major tourist destinations reduces the attractiveness of public transport for leisure travel relative to car, and can limit destination options for those without access to a car
ix)	The rail offer serving the evening and weekend economies of the North's economic centres falls short of customer expectations
x)	The railway serving rural and economically-deprived areas of the North does not deliver its potential to help meet their economic and social needs
xi)	Journey times and the need to interchange for trips to/from the North's international gateways reduces the attractiveness of public transport
xii)	Journey times and network capability and capacity to/from the North's international gateways reduces the attractiveness and competitiveness of rail freight
xiii)	The rail freight industry in the North is constrained by the availability of paths, the capability of the infrastructure, and limited access to key gateways, including the North's ports
xiv)	Infrastructure capacity and capability limits the number of freight train paths and can extend freight mileage and journey times
xv)	Rolling stock has not kept pace with passenger's expectations of quality and contributes to poor air quality in many centres, and global climate change
xvi)	Station facilities are inconsistent, in some cases overcrowded, can fall short of passenger expectations and often do not reflect their potential to positively contribute to the communities and economies they serve
xvii)	Rail fares and ticketing arrangements are complex and inconsistent
xviii)	Information provision throughout the journey does not meet expectations, particularly at times of disruption
xix)	Passengers can perceive poor security and personal safety when travelling by rail
xx)	The nature of the infrastructure, resources, industry cost allocation, and operating practices results in operating costs higher than they could be
xxi)	The revenue potential on some routes is not being fully met, which is a barrier to service development

Table 3.6: List of Strategic Gaps

4 What? Conditional Outputs

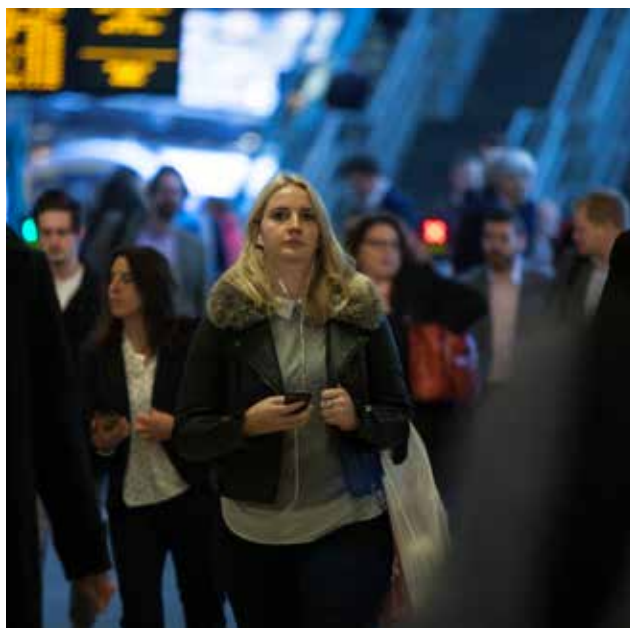
4.1 This chapter presents a set of outputs that, if realised, would address the gaps identified in the previous chapter and contribute towards achieving the vision for rail in the North of England. The Conditional Outputs have been developed to address the specific gaps identified for the North of England. They have been informed by wider transport objectives and existing evidence of the benefits of improved connectivity.

4.2 The outputs are conditional and dependent upon affordable and economically worthwhile solutions being identified. In some cases, they are presented alongside a suite of 'Desirable Minimum Standards'. Developed by TfN and the Northern Partners, the Minimum Standards provide tangible targets to be applied to services across the whole of the North. It is recognised that these Standards may not necessarily be appropriate in all circumstances, and will need to be tailored to local requirements – which may require the Standards to be adjusted upwards or downwards.

4.3 The Outputs and Standards provide a basis for TfN, working with the rail industry and Northern Partners, to develop a pipeline of interventions which would help progress toward the realisation of the Vision.

4.4 The Conditional Outputs are structured around the 5Cs – the rail-focused improvements tailored to align with the TfN pan-Northern transport objectives and ultimately realise the TfN Vision.

4.5 The Conditional Outputs set out in Table 4.1, and described in detail thereafter, are intended to apply to the whole of the North's railway. As such, it is not practicable at this stage to define highly specific or time-bound outputs, as these will vary in accordance with the requirements of each service group or line of route. However, the Desirable Minimum Standards provide a starting point, in more specific terms, which could be applied when developing the interventions required to deliver the Conditional Outputs, and the Delivery chapter sets out a series of short, medium and long term themes around which these interventions should be structured. Each Conditional Output is measurable, and has been expressed in quantifiable terms enabling TfN to determine a baseline position and track progress against the Output over time. The Outputs are both achievable and relevant, and this document describes the logic progression from the TfN Vision and pan-Northern Transport Objectives set out in the Strategic Transport Plan.



Objective	Conditional Output
Connectivity	Reduce journey times between the North's economic and freight centres, and between these centres and international gateways
	Reduce journey times between the North's economic and freight centres and key centres across the UK
	Increase the population within 60 minutes rail journey time of two or more major Northern cities ¹⁵
	Increase the population within 30 minutes rail journey time of at least one economic centre
	Increase the population within 60 minutes rail journey of one or more of the North's airports
	Increase the population within 90 minutes rail journey time of one or more of the North's major rail-connected tourist destinations
	Increase the number of services operating on Sundays and Public Holidays to achieve parity with the weekday inter-peak
	First services to arrive in economic centres prior to 07.00hrs (09.00 on Sundays), with last services departing no earlier than 23.00
Capacity	Increase the percentage of passengers satisfied with the level of crowding on North of England TOCs
	Enable all passengers to expect a seat on off-peak services, and within 20 minutes of boarding peak services
	Provide the infrastructure capacity and capability to increase the permissible speed, weight, gauge and length of freight trains to cater for proven existing demand and for evidenced future demand.
Customer	Increase the percentage of passengers satisfied with the facilities and condition of the train on North of England TOCs
	Increase the Right-Time punctuality of passenger and freight services in the North
	Decrease the percentage of cancelled passenger and freight services in the North
	Increase the percentage of passengers satisfied with personal safety at station and on board
	Increase the percentage of passengers satisfied with the provision of information during the journey
Communities	All stations to meet TfN's Minimum Standards
	Increase the percentage of passengers satisfied with the station
	Improve air quality and reduce CO ₂ and other harmful emissions both on and about the railway estate and in wider society through modal shift to rail
Cost-Effectiveness	Reduce the cost per passenger mile and per freight tonne km of services in the North
	Grow the net revenue generated by the North's passenger and freight railway whilst delivering high-quality services and inclusivity

Table 4.1: Summarised list of Conditional Outputs

¹⁵ This Strategy defines a major Northern city as one with a Built-Up Area Sub Division population greater than 250,000, according to the 2011 Census

Connectivity

'A step-change in connectivity including frequency and journey time improvements for both passenger services and freight, combined with better integration of services.'

This will bring the North's economic centres and neighbouring regions closer together and better align service provision to the seven day economy, supporting sustainable transformation of the North's economic performance above and beyond that facilitated by HS2 and Northern Powerhouse Rail.

Reduce journey times between the North's economic and freight centres, and between these centres and international gateways

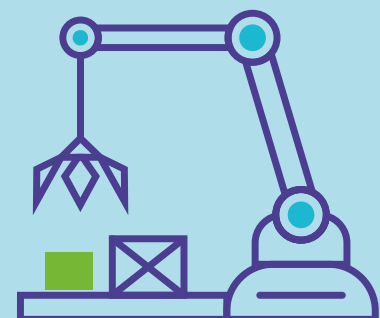
4.6 To realise the Vision, the generalised journey time between the North's economic centres must be reduced. Doing so will improve connectivity between businesses, widen labour markets and extend customer and supplier bases. Together, this will support agglomeration and improved productivity and efficiency.

4.7 HS2 and NPR will transform centre-to-centre connectivity between some of the largest cities in the North, providing a high standard of fast, frequent rail service across a core north-south and east-west network. These services will provide the future core frame for the North's railway.

4.8 The 'conventional' railway must undergo a step-change in connectivity. The inter-urban network, which will be greatly enhanced with the delivery of Northern Connect and new TransPennine Express rolling stock, must continue to improve. A high-standard of fast services – enabled by high capability rolling stock and line speed improvements – should aim to deliver journey times equivalent or better than those achievable by private car in the off-peak. The inter-urban network should be structured around, and complementary to, the high-speed and NPR network – delivered in advance to enable earlier release of benefits across the entire region.

4.9 Wherever feasible, the inter-urban network should provide access to the North's international gateways – enabling businesses to reach international marketplaces and providing prospective inward investors with access to the wider region.

4.10 The rail network should enable fast links between the region's ports, rail-connected industrial sites, strategic freight interchanges and multi-modal terminals. Routes should be appropriately gauge cleared and capable of supporting trains of the weight and length required to be competitive with road transport.



Reduce journey times between the North's economic and freight centres and key centres across the UK

4.11 Investment in the West Coast and Midland Main Lines has delivered tangible journey time and service frequency enhancements between London and the rest of Great Britain and including to the North of England. The arrival of HS2 Phase 2a will deliver a further step change improvement for centres along the West Coast corridor. Phase 2b will spread these improvements to the East Coast corridor – to Sheffield and South Yorkshire, to Leeds, York, the Tees Valley and North East.

4.12 The creation of a better connected network in the North will ensure that centres distant from the HS2 corridors can benefit from the journey time improvements it delivers. Investment in the existing main lines must continue, recognising that the opening of HS2 is still ten years away – and longer for Phase 2b. The existing main lines will remain key corridors, and there is a major need for further enhancement over the 2020s and 2030s to ensure the East Coast, West Coast and Midland Main Lines are fit for purpose in conjunction with high-speed plans. Capacity released by the high-speed network should be used to deliver new long-distance and local connectivity and freight capacity for the region – closing strategic gaps and strengthening existing links.

4.13 Operation of HS2 services over existing main lines, whilst adding valued connectivity gains to regions such as Lancashire and Cumbria, the Tees Valley and the North East, will add to capacity pressures. Accommodating these services must not result in the loss of connectivity or capacity on 'conventional' services, or have an overly detrimental impact on performance. Investment will be required to increase the capacity of those sections of conventional main line over which it is proposed high speed rail services would operate.

Increase the population within 60 minutes rail journey time of two or more major Northern cities

4.14 The North's major cities¹⁶ will increasingly support large volumes of high-value employment opportunities, which will need to be facilitated by access to a skilled talent pool. For residents, the ability to access more than one major centre within a reasonable commuting time will significantly increase employment opportunities, as well as access to education and leisure.

4.15 One of the key impacts of the proposed NPR network will be enabling fast journeys between some of these major population centres. However, the NPR network will not be fully operational until the 2030s and it will provide direct links between only a subset of the North's major centres. Significant investment in the routes into and between the major centres is required in the interim period in order for these benefits to be realised to an earlier timescale, and create a legacy which can be used to support and enhance the inter-urban network post-delivery of NPR, and to ensure benefits of enhanced connectivity are felt across the North.

4.16 Feeder services should be of sufficient frequency to enable flexibility of travel to meet working patterns and to facilitate interchange with inter-urban services without excessive waiting time penalties. Those connecting directly into major centres should integrate with their public transport networks wherever possible, to provide access to opportunities which may be remote from the main city centre station(s).



¹⁶ This Strategy defines a major Northern city as one with a Built-Up Area Sub Division population greater than 250,000, according to the 2011 Census

Increase the population within 30 minutes rail journey time of at least one economic centre

4.17 Alongside the employment growth in the major cities, the North's other economic centres will continue to be important sources of jobs and education for their surrounding areas. Passengers accessing these centres from feeder routes should expect journeys of sufficient speed and frequency so as to provide an attractive and viable alternative to private car, and minimise end-to-end journey times when connecting onwards to other economic centres.



Increase the population within 60 minutes rail journey of one or more of the North's airports (via their nearest hub station)

4.18 Access to airports is vital for businesses trading overseas, for attracting direct inward investment and enabling international tourism.

4.19 Manchester Airport is the key international gateway serving the North of England, and wherever possible direct services should be provided to the airport from economic centres across the region. Where this is not practicable, the number and duration of interchanges should be minimised. This will require continued investment in capacity on the route between Manchester Piccadilly and Manchester Airport, and at the airport station itself. To ease capacity challenges, more through services should be provided, particularly to centres to the West and South, such as Chester and Stoke-on-Trent, which are currently poorly connected to the airport by rail, despite their geographic proximity.

4.20 Access to other airports across the North, and to East Midlands Airport, is also important. Economic centres within the catchment of the regional airports should have direct services, wherever practicable, to the nearest hub station – with onward connectivity provided via bus/tram/metro connections. Services should be timed to, as far as possible, reflect airport flight patterns, and to best serve the airports as important employment centres in their own right.



Increase the population within 90 minutes rail journey time of one or more of the North's major rail-connected tourist destinations

4.21 The North offers huge attraction in terms of recreational areas, special events and tourist destinations that can be well served by rail if the service is sufficiently attractive. As with airport passengers, direct connectivity is important, as is a pattern of service that meets the demands of the tourism market – which includes greater seasonal variation and weekend service provision.

4.22 Stations known to be gateways to tourist destinations should have direct services to major population centres, both within the North and further afield, wherever practicable. The journey time and frequency enhancements prescribed elsewhere in this Strategy will serve to increase the catchment size and population. Operators should work alongside tourism bodies to determine mutually-beneficial strategies for attracting tourism by rail, including the improvement of information for infrequent travellers and the promotion of rail as a viable travel choice for those who may be less aware, as infrequent users, of its potential benefits.

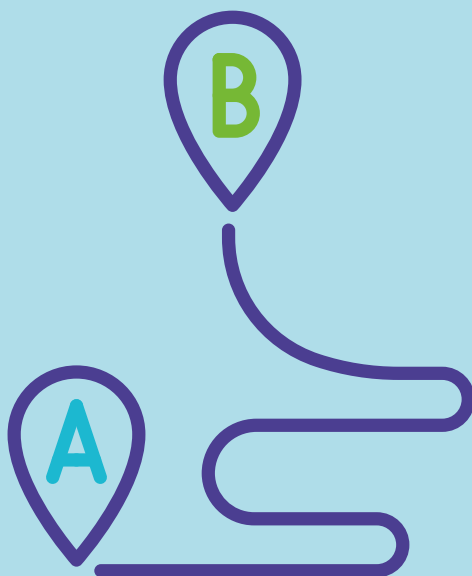
Increase the number of services operating on Sundays and public holidays to achieve parity with the weekday inter-peak

4.23 There is strong demand for travel on Sundays, with the number of trips exceeding those taken in the weekday off-peak. Sunday service provision should therefore be at least equal to that delivered during the weekday inter-peak, with an operational day which enables access to employment, particularly in retail, and to leisure attractions taking place later in the evenings.

4.24 Public holiday timetables should, as a minimum, match those delivered on Sundays. This should include Boxing Day and New Year's Day, which have both become important retail dates as well as hosting sporting events and other leisure attractions. Service provision should be well-promoted to ensure that infrequent travellers are aware of the opportunities available.

First services to arrive in economic centres prior to 07.00 (09.00 on Sundays), with last services departing no earlier than 23.00

4.25 Rail services must keep pace with the changing economy, with flexible working hours and increased economic and cultural activity taking place in the evenings. Passengers should be able to access economic centres prior to 07.00, and to depart later than 23.00, to enable full economic participation and to maintain rail's viability as a means of accessing employment and leisure outside of traditional working hours.



Desirable Minimum Standards

The Desirable Minimum Standards have been developed by TfN alongside its Northern Partners and wider industry stakeholders. They set out a series of connectivity targets which should form the starting point when developing interventions and initiatives aimed at delivering these Conditional Outputs.

- i) All passenger routes to be served by a minimum two trains per hour
- ii) Long-distance services to achieve average journey speeds of at least 80mph
- iii) Inter-urban services to achieve average journey speeds of at least 60mph
- iv) Local and suburban services to achieve average journey speeds of at least 40mph
- v) The North's rail network to accommodate the evolving needs of the freight market – supporting longer and heavier trains, increased path availability and additional gauge clearance
- vi) Direct connectivity between economic centres and Manchester Airport
- vii) Rail to directly serve each of the North's airports, with direct services to economic centres within the airport's catchment
- viii) Direct connectivity between tourist destinations and economic centres in their catchments
- ix) Infrastructure to be available to enable a weekday inter-peak level service on Saturdays, Sundays and public holidays
- x) Capacity provision aligned to holiday patterns and events
- xi) The five major ports in the North (Hull, the Humber Ports, Liverpool, Teesport, and Tyne) to be served by rail with gauge clearance allowing the latest generation of inter-model containers to be carried on standard wagons and weight capability enabling trains to operate unrestricted at the highest speed appropriate for the load
- xii) Improve the average speed of freight services in the North by 50% over the next 10 years (by 2028)

These Standards will not be appropriate nor deliverable in all circumstances. TfN will work with its stakeholders to understand local requirements before developing interventions, and may see these standards applied in a different way, more suited

to meeting local needs. Furthermore, it is recognised that the need for interventions to be deliverable, affordable and value for money may necessitate a phased approach to securing these standards.

Capacity

Providing longer trains and additional services to meet existing and future passenger demand, with improvements to the infrastructure and signalling capability to accommodate these additional services. It will also enable the railway to be maintained and renewed in such a way that passengers and the freight users are not unnecessarily disrupted by engineering possessions. This will help improve access for all to opportunities across the North, and make rail a more attractive alternative to road travel.

- Increase the percentage of passengers satisfied with the level of crowding on North of England TOCs
- Enable all passengers to expect a seat on off-peak services, and within 20 minutes of boarding peak services
- Provide the infrastructure capacity and capability to increase the permissible speed, weight, gauge and length of freight trains to cater for proven existing demand and for evidenced future demand.



4.26 Overcrowding on rail services is symptomatic of supply failing to keep up with demand, and is a feature of the North's railway currently, both in peak and off-peak periods. The discomfort caused by overcrowding can act as a barrier to rail travel and at its most extreme deny the opportunity to travel when trains arrive at a station already at capacity. Overcrowding can therefore pose a performance and safety risk, and make rail travel time unproductive and inefficient for business users and commuters.

4.27 Capacity provision should be aligned to current and projected future demand patterns in both peak and off-peak periods. Adequate passenger-carrying capacity should be provided to accommodate increased levels of commuting to and from the North's economic centres and an evolving seven-day economy. This is likely to require sustained investment in additional services and longer trains, as well as exploring more efficient uses of existing stock, such as more through-running across major city centre stations.

4.28 Consideration should be given to the optimum layout of train interiors, balancing the need to maximise capacity with providing adequate facilities to attract passengers for longer distance leisure and business purposes. In this context, there is a balance to be struck with luggage and bicycle storage – essential elements in the rail offer.



Customer

A passenger network that is easy to navigate, accessible and predictable, with consistent information available before and throughout journeys. For passengers, there will be a less complex and more rationalised fares structure and better coordination of services with one another and with other modes of public and active transport. Stations and rolling stock will be of high quality with secure and comfortable passenger environments and facilities tailored to the needs of the journeys being made.

For freight, there will be improved reliability and punctuality and the flexibility to meet the changing needs of the industries of the present and the future. Collectively, this will improve the performance and integration of the North's strategic transport network by delivering high quality services across the North.

Increase the percentage of passengers satisfied with the facilities and condition of trains run by North of England train operating companies

4.29 The programme of rolling stock investment in the North of England will deliver a step-change in on-train quality standards for passengers across the region. These standards must be maintained through effective cleaning and maintenance standards, and refurbishments and facility upgrades where required. Passengers' experience of quality should not degrade over time, and consideration should be given to how the requirements of different journey markets could be better reflected in the facilities and layouts provided on-board services.

Increase the Right-Time punctuality of passenger and freight services in the North

Decrease the percentage of cancelled passenger and freight services in the North

4.30 Passenger and freight journeys should be reliable and punctual. In doing so, passenger and freight customers will have greater confidence in the network, particularly where time-critical interchange is required. Targets should be defined in terms of Right-Time performance, moving away from traditional Public Performance Measures which can mask the extent of delays experienced. Other means of measuring performance, which may be more reflective of passenger experiences, can be explored alongside the rail industry as they emerge. Stretching targets should be established to incentivise both operators and Network Rail to minimise delays to the network.



Adopt a long-term fares Strategy for the North of England

4.31 Through the long-term fares Strategy, TfN will review the fares structure, its products and pricing, with a view to removing unnecessary complexity and anomalies and promoting the efficient use of transport infrastructure – delivering a policy which is perceived as fair, and is commercially sustainable.

4.32 Measures taken to achieve the Fares Strategy will be subject to review and approval, but may include:

- Zonal fares for urban markets – with daily and season products available for both the rail network and multi-modal, with a range of payment mechanisms including a ‘pay as you go’ option.
- Point-to-point pricing outside urban markets, consistently priced to offer simplicity and ease of use.
- Flexible ‘bundles’ of travel, allowing cost effective commuting to several different places of work, or part-time working patterns – breaking the constraint of traditional ‘A to B’ season tickets.
- Simplified off-peak restrictions with clear peak/off-peak periods. Advance fares (train specific pricing) will be offered in relevant markets, up until the time of boarding.
- Consistency of restrictions and terminology across the north, making travel to and within new areas feel familiar and less confusing.
- The protection of existing price-sensitive markets whilst making longer distance travel more accessible to support workforce mobility and agglomeration benefits, and to better connect rural communities. The pricing Strategy will evolve to reflect changes to service quality, speed and frequency.
- Pricing to encourage the use of rail and appropriate mixing of modes, seeking to spread demand outside peak times where appropriate, and generating demand to fill empty capacity.
- Specific products for education and learning, along with leisure and tourism markets.

Increase the percentage of passengers satisfied with personal safety at station and on board

4.33 Passenger perceptions of safety and security can be a barrier to rail use, and is an ongoing priority for the rail industry. Stations should be equipped with suitable security facilities to mitigate risk – which may include provision of CCTV, help points, and lighting which covers all areas including car parks and cycle storage. Trains should be equipped with call-for-aid type facilities, as well as CCTV. Where staffing is provided, they should deliver a visible presence and remain vigilant to security risks.

Increase the percentage of passengers satisfied with the provision of information during the journey

4.34 Information provision is essential if passengers are to plan journeys both before and during travel, responding to disruption where required and enabling flexibility where journey purposes change. TfN will support the rail industry to work alongside other transport providers and local transport authorities to move toward a single source of travel information, available across multiple mobile and traditional platforms.



Communities

A railway which supports the social fabric of the communities it serves, providing journey opportunities which enable access to education, training and leisure opportunities as well as employment, and plays a full part in addressing transport poverty, isolation, and deprivation across the North. Equally important is enhancing rail's wider role in society and reflecting our global responsibilities, including the reduction of greenhouse-gas emissions, the transition to sustainable energy sources and reducing the pollution caused by transport activities. Rail will contribute to these both by supporting modal shift for both passenger and freight and by increasing environmental standards of rail's own operations.

Increase the percentage of passengers satisfied with the station, and; all stations to meet TfN's minimum standards

4.35 The facilities at the North's rail stations should reflect their role within both the network and the communities which they serve. Passengers should be provided with facilities and information appropriate to the station's function, and to the frequency of services calling there. Stations should be accessible to all, enabling all members of the community to benefit from the rail network. The investment being delivered through the franchises should improve passenger experiences, and this should be maintained over time through excellent cleaning and maintenance, and timely renewals.

4.36 TfN will define a set of Minimum Stations Standards to apply to stations in the North of England. This will seek to raise the condition and improve facilities at stations across the region, providing greater consistency and levels of passenger comfort. Stations' friends groups and adopters, Community Rail Partnerships and other community representatives should be encouraged and supported to take greater ownership of stations. Where feasible, the commercial viability of stations should be explored, which could introduce valuable new revenue streams as well as supporting local enterprise and providing employment.

Improve air quality and reduce CO2 and other harmful emissions both on and about the railway estate, and in wider society through modal shift to rail

4.37 Improving and maintaining the quality of air in urban centres and elsewhere is important to realising good public health and quality of life. Diesel powered trains emit harmful pollutants that can reduce air quality in the immediate vicinity of the railway. The effects can be greater where services converge and dwell for longer periods – such as at key hub stations. Although total rail vehicle emissions are low in comparison to road vehicles, this will rapidly change as the automotive industry shifts toward electric and hybrid vehicles.



4.38 Rolling stock in the North of England should be fuel-efficient and clean, with continued conversion to less harmful means of traction.

Cost-effectiveness

Growing revenue and minimising the unit cost of operating and maintaining the North's railway without compromising the quality of the services offered, will help maximise network efficiency and enhance the case for additional faster and direct services.

Reduce the cost per passenger mile and per freight tonne km of services in the North

4.39 Reducing the overall operating cost of the railway in the North 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. TfN will support the industry as it pursues opportunities to reduce the unit cost of operation (in terms of cost per passenger mile and freight tonne km).

4.40 While developing initiatives, it is vital that the Conditional Outputs for connectivity and journey quality continue to be met.

Grow the net revenue generated by the North's passenger and freight railway whilst delivering high-quality services and inclusivity

4.41 Growing the revenue generated by the North's railway will provide further justification for on-going improvements and help to place the region's rail network on a sustainable financial footing. Key to this will be better utilisation of capacity at off-peak times, and securing further modal shift to rail. The connectivity and quality outputs set out in this chapter will be key to attracting passengers to the rail network, and should be complemented with marketing, careful pricing and community engagement to inform passengers of the transformation being made to the network.





5 How? Delivery

Introduction

5.1 This chapter describes how TfN will deliver the improvements necessary to realise the Conditional Outputs. It describes the industry mechanisms through which improvements will be secured, the key timescales for doing so (and what must be achieved to these timescales), and TfN's approach to developing, promoting and sponsoring schemes.

5.2 TfN will develop and take forward interventions to deliver this Strategy. In doing so, TfN will work with its Northern Partners and the rail industry to deliver a range of improvements, across the whole of the North and over a sustained period. It will inform the development of TfN's long term investment programme, which will consist of a range of interventions of different scales to make the North's railway work better for all the communities that it serves.

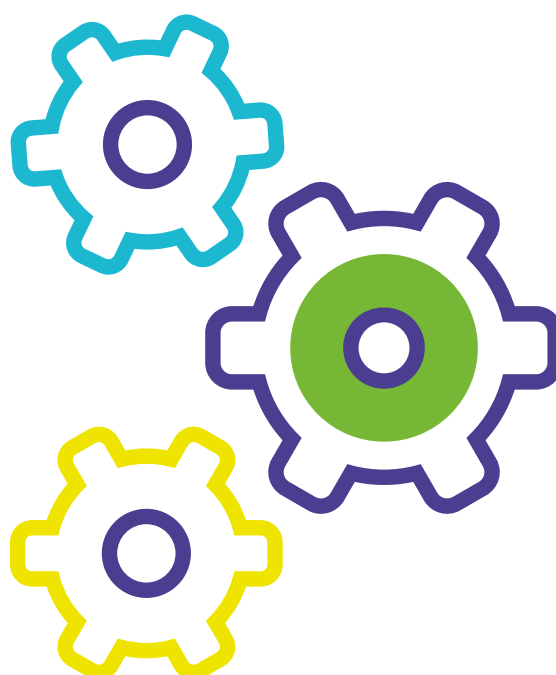
Key Timescales

5.3 To achieve the Vision for the North's railway, there must be a sustained and significant pipeline of investment – delivered through a continuous approach to infrastructure investment planning and successive franchise rounds. Using this Strategy as a base, TfN will work alongside Government, Network Rail, HS2 Ltd, operators and our Northern Partners to develop schemes which will help progress the railway toward the transformed network described above.

5.4 Alongside its partners, TfN will raise the standard of the railway in every part of the North of England, to enable rail to meet its full potential in supporting and facilitating the North's future economy. It will seek to maximise the benefits of ongoing investment through the franchises and infrastructure enhancement programme. It will examine line speed improvements, address capacity bottlenecks and close connectivity gaps. It will take steps to improve quality standards, and make fares simpler and offer better value for money.

5.5 To inform these improvements, TfN will examine industry best practice in the UK and overseas, and learn from the experiences of other devolved bodies where improvements have been delivered through close working alongside the wider industry. TfN will seek to use its statutory status to inform the direction of Network Rail's devolved route structure, particularly in areas such as performance, to move toward realisation of the Conditional Outputs, including setting a minimum standard for Right-Time performance.

5.6 As illustrated in Figure 5.1 below, plans will be structured to key national milestones. HS2 Phases 1 and 2a will be delivered by 2027, with Phase 2b and NPR potentially following in the 2030s. TfN will focus on the crucial interim period – through the 2020s and early 2030s – to lay the foundations to ensure the benefits of these projects are felt across the North. Schemes including station upgrades, line speed improvements and capacity increases will be examined to prepare the network in the North to take fullest advantage of the investment and ensure that communities across the North West are able to access and benefit from the first phases of HS2's delivery. As part of this, TfN will work with its partners to enhance access to HS2 gateways.



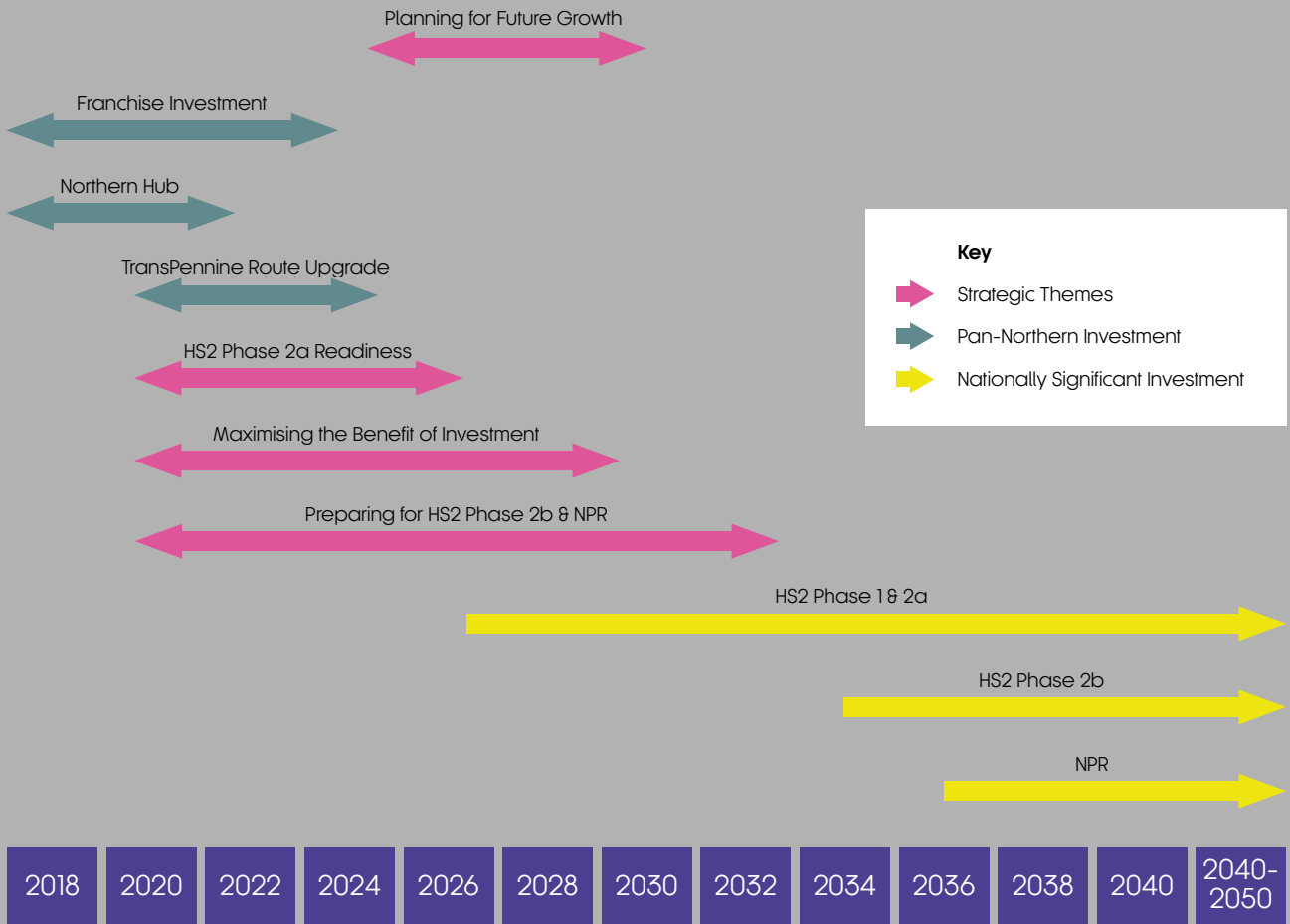


Figure 5.1: High-level delivery timeline

Short Term (2018-2025) – Securing and maximising the benefits of ongoing investment

5.7 In the short term, TfN will work to secure the benefits of ongoing investment. There needs to be timely and full delivery of franchise commitments, completion of the Northern Hub and TransPennine Route Upgrade schemes, and development of interventions to address known capacity and connectivity challenges – which will include preparing the conventional network to realise the full benefits of HS2 Phases 1 and 2a.

5.8 The benefits of on-going rolling stock investment must be fully realised. While passengers will experience a step-change in the quality of their journey, without sustained infrastructure investment, network capacity and capability gaps will remain. Journey times between key centres will not be as competitive with car as they could be unless the infrastructure is able to support the full capabilities of the new rolling stock. This means investing to allow the North's new trains to operate closer to their maximum speeds. Unless addressed, as rail demand continues to grow network capacity and capability bottlenecks will force unpalatable trade-offs between connectivity and punctuality.

5.9 The capacity of the East Coast Main Line north of York will be one of the critical capacity bottlenecks to be examined in the short term. The infrastructure limits the ability of passenger and freight operators to introduce more frequent or new services, and could pose a limitation on the potential benefits of investment via the TransPennine Express franchise. Working with its local authority and industry partners, TfN will undertake work to find solutions, and since the bulk of the demand for paths is from longer distance passenger services, the resolution of the problem will form part of the NPR Strategy for early adoption.

5.10 With respect to completing the Northern Hub programme and the TransPennine Route Upgrade, the appraisal of remaining parts of these projects have yet to be finalised. They should consider the scope they each give to change outputs and in particular, the benefit of providing additional capacity which can be used by passenger and freight operators to respond to changing markets without having to rely on further enhancement. Particular attention needs to be given to the South TransPennine route. The expectation in the Strategy is that there should be a phased approach to delivery to optimise value for money.

5.11 There remains a need to develop a long-term solution to the critical Castlefield corridor through the centre of Manchester. This is the corridor that links Manchester Piccadilly, Oxford Road and Deansgate stations and provides connectivity between the south of Manchester and Manchester Airport, and centres to the West, North West, and to Yorkshire via the Calder Valley.

5.12 Also needed in the short term is a solution to deliver additional capacity at Liverpool Central, where without intervention operational constraints may be required to allow the continued safe operation of this station at the heart of the Merseyrail network.

5.13 Planning for this period of investment is taking place within the context of a challenging national landscape. As well working for the timely completion of committed enhancements, TfN have developed an initial, long term Investment Programme, which will be further developed into a firm pipeline of schemes through to 2050 which TfN will seek to secure the necessary funding to deliver it.

Short Term (2018-2025) – Getting ready for HS2 Phases 1 and 2A

5.14 HS2 Phases 1 and 2a will deliver transformational rail investment for the North, with services in the North using both new high-speed infrastructure and the existing West Coast Main Line. Where services utilise the existing infrastructure, TfN will ensure that the railway infrastructure has sufficient capacity to accommodate additional high speed services, maximising the capabilities of HS2 rolling stock to reduce journey times whilst also meeting the Conditional Outputs for conventional rail passenger and freight services. Particular attention will be given to the Crewe – Stockport – Manchester and Colwich Junction – Stoke – Stockport – Manchester routes.

5.15 TfN's Investment Programme will examine schemes including station upgrades, line speed improvements and capacity increases to prepare the network in the North to take fullest advantage of the investment and ensure that communities across the North are able to access and benefit from these HS2 hubs and gateways, building on the connectivity work already being undertaken for stations such as Manchester Piccadilly, Leeds, Sheffield, and Crewe.

5.16 All this requires a rolling programme of enhancement and the timescales for rail investment projects are such that now is the time to start the development of interventions that will be implemented in the late 2020s.

5.17 HS2 Phase 2a related investments could include:

- Carlisle and Preston station upgrades and track remodelling
- Other station capacity and access enhancements (for example at Wigan North Western, Lancaster and others)
- Completion of the full Crewe Hub proposal, which would not just connect the areas around the station, it would also improve connections to other parts of Cheshire northbound and strengthen cross-border movements to and from North Wales.
- North West Coast Main Line enhancements including suitable provision of freight paths.

Medium Term (2020-2035) Planning for Future Growth

5.18 The capacity improvements being delivered over the next seven to eight years will help address some of the most immediate on-train overcrowding, particularly at peak times. However, investment in additional capacity must keep pace as the economy of the North continues to grow, and rail demand further increases. The North's rail network faces some other as yet unsolved network capacity problems from as early as 2021.

5.19 Simply lengthening trains and increasing service frequencies is unlikely to be sufficient to cater for growth, although even this can require significant network investment. As a minimum, the enhancement programme needs to assume continuing demand growth levels consistent with the annual rates built into the current Northern and TransPennine Express franchises and allow for the very substantial stimulus effects of HS2 Phases 1 and 2a in the North West. Active consideration also needs to be given to the potential impacts on the demand for rail passenger services of realising the NPIER's transformational growth scenario.

5.20 The needs of the North's logistics sector will continue to change, with increased demand for freight flows. There are still gains to be had from making the railway work more efficiently, and from using the ongoing maintenance and renewal programme to deliver benefits. More radical solutions will be required to resolve long-standing network weaknesses which limit the use of rolling stock, constrain capacity, and prevent freight train operators introducing new services for which there is a demand. TfN will identify where these challenges are likely to arise and ensure plans are in place to accommodate additional demand. We will also identify where the infrastructure needs enhancing to give high levels of reliability and resilience.

5.21 In parallel, TfN must ensure that the benefits of economic growth are experienced across the North. The nature of HS2 phasing, with the North West benefiting from HS2 from 2026/7, but Phase 2b, and its benefits for the eastern side of the North, not planned to be delivered until 2033 under current proposals, raises a prospect of unbalanced economic stimulus and development across the North for a six to seven-year period. Delivery of this Strategy offers an opportunity to address by considering the benefits of a Yorkshire and the Humber and North-East England investment focus in the medium term, as well as paving the way for securing the benefits of the eastern leg of HS2.

5.22 The completion of HS2 also presents opportunities for substantial changes to the conventional rail network to realise our connectivity and capacity aspirations by making use of the released capacity as well as enhancing the catchment of HS2 by improving access from the wider network. There will continue to be conflicting aspirations and it is essential that TfN has an active role in developing a solution which will support economic growth and meet passenger requirements.

5.23 Whilst priority will be given to providing sufficient train and network capacity to cater for on-going growth, the opportunity will be taken to address capacity problems to improve connectivity (which is where the economic stimulus effect will be perhaps most apparent). Initial high-level analysis has identified a number of locations where on first impression, there are expected capacity constraints that if addressed, also offer the opportunity to enhance connectivity. These include:

- Gauge clearance and capability improvements across the network, to unlock new or improved freight routes;
- East-west capacity across Leeds and north-south capacity across Sheffield; and
- Unlocking the potential for through-service connectivity across Manchester Airport.

5.24 There are also prevailing connectivity gaps that if addressed (subject to business case) would support the realisation of TfN's wider objectives and the objectives of this Strategy. These include, but are not necessarily limited to:

- South Wales/South West England – North West England (besides Manchester)
- St Pancras (for HS1)/Leicester/Derby – Manchester
- Leeds – Carlisle – Glasgow intercity service
- North Wales – North West and Yorkshire
- South Humberside – Leeds
- Bradford and Hull – East/West Midlands

5.25 Some of these service developments may need network capacity enhancement at stations and/or junctions.

5.26 There is also the challenge of improving rail access to peripheral areas experiencing economic stress. The value of the more central potential investments in capacity and connectivity grounds may benefit these areas and this needs to be separately identified in the planning work ahead.

5.27 For some of these remoter locations, the value of very low frequency for example, once per day through services to key northern cities will be examined.

Long Term (2026-2050) Maximising HS2 Phase 2b and NPR investment

5.28 TfN will examine how connectivity improvements across the North East, Tees Valley, Yorkshire, and Hull and the Humber could serve to support and stimulate economic development in the years prior to the proposed introduction of HS2 Phase 2b and NPR.

5.29 The following projects listed below anticipate HS2 Phase 2b (or NPR), but are not dependent on it. They will have benefit in their own right and they would be examined for adoption on their own merits:

- Sheffield Midland station rebuild/upgrade
- Darlington station upgrade
- Newcastle station capacity
- ECML freight capacity (so that ECML passenger services can be expanded)
- Greater use of cross-Leeds services to make better use of station capacity there, as well as provide connectivity benefits to the wider Leeds City Region
- Further electrification to create operational flexibility for HS2 services (e.g. Sheffield to Doncaster)

5.30 In addition, there is the need to develop the best arrangements for the implementation of Phase 2b in the North West, delivering further journey time savings across the region whilst enhancing existing connectivity. Maximised access to the HS2 station at Manchester Piccadilly will be key to unlocking benefits across the North West.



Change Mechanisms

5.31 To deliver interventions, TfN will work within wider industry processes, both current and future. These processes provide key opportunities to secure the changes necessary to deliver the Vision. Here, the key industry processes are described, alongside a description of the types of improvements TfN will be seeking to secure.

5.32 Whilst the passages below reflect the way in which the rail industry is currently planned and managed, TfN's focus is on delivering the improvements required to realise its vision, regardless of the mechanism through which they are delivered. In this respect, it will seek to influence the evolution of these processes over time, be responsive to change, and seek to play a leading role in all aspects of planning which affect the North's railway and the economy it serves.

Northern and TransPennine Express Franchises

5.33 In the first such arrangement of its type, Rail North are jointly managing the North's two largest self-contained franchises, with this function transferring into TfN in due course. The joint management executive – the Rail North Partnership – will oversee the delivery of the commitments secured through the procurement process, including the introduction of new rolling stock, service enhancements and quality investment. The Partnership is overseen by a joint Rail North/DfT Board, ensuring greater oversight in the delivery of franchise commitments than has been the case in the past.

5.34 It is vital that the committed improvements are delivered in full and on time. Only then will some of the Strategic Gaps, such as the overcrowding and low service frequencies identified in this Strategy, begin to be addressed. It is similarly crucial that the franchises achieve all committed performance improvements, to retain and grow confidence in the North's railway and secure its financial sustainability.

5.35 Looking to the future, the Partnership arrangement with DfT provides a base upon which to secure greater control over the future specification and management of the North's franchises. TfN will explore opportunities for further devolution of powers, which would enable the North of England to shape future franchises around its specific requirements, and progress toward the realisation of the Conditional Outputs.

Merseyrail Franchise

5.36 Merseyrail was the first franchise let as a concession by Merseytravel with powers devolved from the Department for Transport. Merseytravel is the strategic transport arm of the Liverpool City Region and oversees the development of the network and is currently directly managing the introduction of new rolling stock onto the network.

5.37 The Liverpool City Region Long Term Rail Strategy identifies the potential interventions for the network which will feed into the TfN Long Term Rail Strategy and it is expected that these would be managed directly by Merseytravel.

Other Franchises

5.38 Alongside exercising greater control over the North's primary franchises, TfN will provide a strong and united Northern voice during the procurement and management of the other franchises which serve the region. These franchises provide connectivity between the North and its neighbouring regions, in Wales, Scotland and the Midlands, as well as long-distance links to key markets across the rest of the UK.

5.39 In most cases, these franchises will be let by DfT, although devolution to bodies such as Transport Scotland, the Welsh Government and Midlands Connect will require TfN to strengthen and build relationships elsewhere in order to secure its requirements. TfN will play an active role advocating for improvements which would benefit both the North and regions across the rest of the country.

Infrastructure Planning

5.40 As described in Chapter 3, the North's rail infrastructure is one of the key limiting factors to be addressed if the Conditional Outputs are to be achieved. The capacity to provide more and longer trains, accommodate a growing freight market and address the current connectivity gaps will only be delivered through continued investment in infrastructure.

5.41 The planning of infrastructure enhancements is expected to move away from the current programme-based approach, delivered through five-year Control Period cycles, to a continuous 'pipeline' approach, to provide greater flexibility and enable Network Rail to allocate resource in a more planned and controlled manner. This pipeline approach would require a viable business case, robust cost estimate, and demonstration of affordability before funding is committed.

5.42 In parallel, TfN has worked with Network Rail to improve its long-term planning process. As a result, Network Rail's North of England Route Study (NoERS) is being progressed using a new continuous modular strategic planning process, with strategic questions agreed and prioritised with industry partners including TfN. This LTRS update will influence the review of the NoERS strategic question long list and the order in which they are tackled.

5.43 Reflecting this local level of engagement, TfN is a member of the Steering Group which oversees the North of England Route Study, and is working closely with Network Rail as it explores options to address each of the strategic questions. This process provides a template for closer working between all parties.

Overarching Themes for Further Development

5.44 There are five further parts of the Strategy concerning:

- Service quality and the customer facing matters
- Wider industrial development Strategy issues
- Route and station re-openings
- Renewal as an opportunity for enhancement
- Funding

Service Quality

5.45 TfN will review the fares structure, products and pricing, with a view to removing unnecessary complexity and price anomalies and promoting the efficient use of transport infrastructure. It will deliver a structure which is perceived as fair, and is commercially sustainable and supports economic and social objectives.

5.46 TfN will develop a consistent set of higher standards, recognising the different characteristics of:

- Community railways
- Rural railways
- Urban-commuter services
- Inter-urban services
- High-speed and long-distance services

5.47 It will also work alongside operators to deliver timetables, operational practices and stations designed to provide good connections between rail services and with other transport modes. It will develop an information standard, ensuring consistent, accurate and up-to-the-minute journey advice is available to all. TfN will also address the issues of fares, ticketing and disruption management.

5.48 TfN will set standards for the North's stations – recognising their role as gateways to the North's towns, cities and communities, and their potential greater role in the economic and social fabric of the areas they serve and optimising their operational performance and interchange to, from and across the rail network.

Industrial Strategy and Skills Development

5.49 The programme for the 2020s envisages a rolling programme of efficient investment across the North, building on the anticipated success of the Northern and TransPennine franchises, which will together will result in these two franchises moving from a net subsidy to net premium paying position.

5.50 As the Government has set out in the Industrial Strategy, it is important to consider future investments and decisions strategically, ensuring that infrastructure not only provides the basics for the economy, but also actively supports the long term national interests. The Strategic Transport Plan will do just that, by ensuring that the North's long-term interests and growth opportunities are better connected. This will then allow TfN and Partners to develop and deliver the interventions that are critical to transforming the North's economy.

5.51 While there has been investment in training facilities to help create the workforce for the HS2 projects with Government and private sector support for two High Speed Rail colleges, the need to strengthen the investment in skills in railway technical areas related to enhancement and upgrade and modernised operation of existing facilities has not got the same attention. The Strategy will aim to put this right by proposing new Rail Technical Colleges, to be located in the North and to focus on those technical skills including in IT/digital technology that will be needed in numbers beyond the levels currently available through Science, technology, engineering and mathematics (STEM).

5.52 The Strategy will separately seek to examine the benefits of integrating the North's energy Strategy with rail investment, investigating and harnessing opportunities for greener electricity production and through the development of alternatives to conventional electrical power generation and the adoption of hydrogen power, a capability that is centred for the UK in the Tees Valley. TfN will seek to ensure that the North's rail network can exploit future technological advancements in the energy market that can deliver a less polluting and more fuel-efficient network of services that can help decarbonise the North's transport sector.

Route and Station Re-openings

5.53 The idea of reinstating closed railway lines for passenger services often attracts support. For such investment to be worthwhile 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 or will be 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.

5.54 There are a small number of examples in the North where Local Transport Authorities and Local Enterprise Partnerships 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 TfN to lead such work.

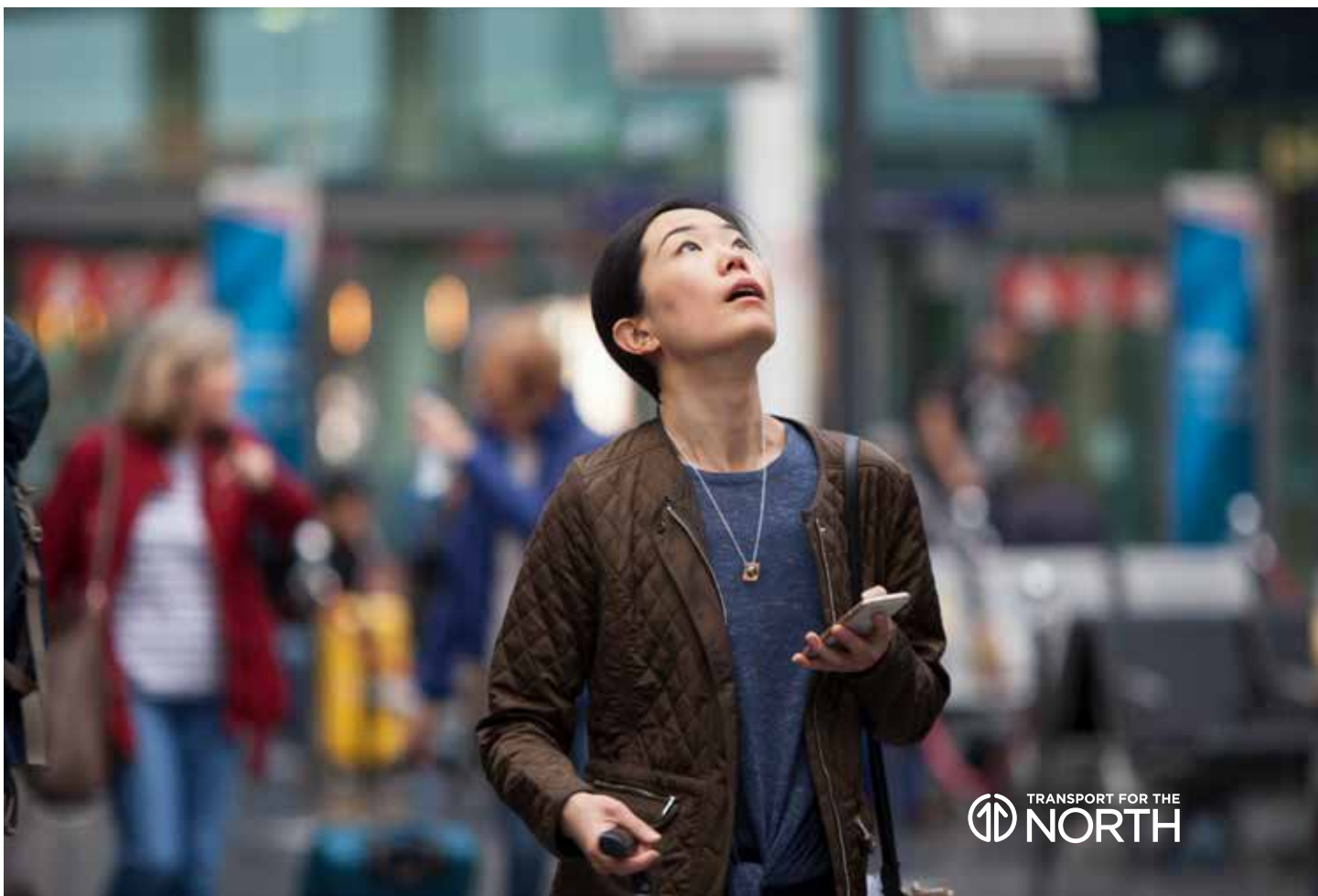
Renewal as an Opportunity for Enhancement

5.55 Network Rail's ongoing renewal programmes create an opportunity for further enhancement of the North's rail network. TfN will work with Network Rail to identify such opportunities and get best value from this necessary expenditure. As part of this process, TfN will identify what it considers to be appropriate standards for the North's railway, drawing upon both European experience and that of devolved administrations elsewhere in the UK.

Funding

5.56 Government is understandably interested in alternative sources of funding and financing for rail investment. Sources of funding related to property value uplift are much less significant in the North compared with areas across the south of England where property values are much higher and also where land remediation costs are much less of an issue (there is very substantial brown field land available for re-development still in the North, alongside green field land which is heavily protected through green belt and National Park status).

5.57 Nevertheless, where possible, the various types of developer contribution to support the funding of rail investment will be examined. Areas that TfN would like to see third party funding would be for investment where infrastructure assets can be created that do not need to be owned by Network Rail, but whose use can be paid for on a lease-rental basis by train companies.



Next Steps

5.58 To identify and develop the interventions needed to move toward realisation of the Conditional Outputs and achievement of the Vision, a series of Delivery Plans will be produced. The Delivery Plans may be focussed thematically (on fares for example), or geographically. These Plans will vary in form, with some produced directly by TfN, and others jointly informed by wider industry programmes such as the ongoing North of England Route Study. As a result, close engagement with the wider industry will be critical when scoping Delivery Plans, to identify how outputs from existing programmes of work will help feed into the programme, and how the Delivery Plans may be used to address any prevailing gaps.

5.59 Building on the evidence from the Initial Integrated Rail and Initial Major Roads Reports, TfN has identified nine Strategic Development Corridors (SDCs) where further work is required to meet the aspirations of the Northern Powerhouse Independent Economic Review. These include NPR, Integrated and Smart Travel, and seven geographic connectivity priorities that reflect the economic links across the North.

5.60 As part of its wider freight and logistics activities, TfN continues to undertake work to develop its freight and logistics Strategy. This work will feed into the SDCs and will inform this Strategy as it is developed to reflect responses to the consultation process.

5.61 The seven geographic SDCs represent an economic area where the evidence to date suggests most progress towards the transformational growth scenario would be made by bringing forward major, strategic rail and road investment over the lifetime of the Strategic Transport Plan especially on some of the crucial east-west corridors.

5.62 Enhanced transport connectivity delivered through the LTRS Delivery Plans and within the SDCs and similar work being undertaken by the National Infrastructure Commission and Network Rails North of England Route Study, will improve the development opportunities, investment, and quality of life for those living and working in the North, and will bring economic benefits for the UK as a whole.

5.63 The Delivery Plans will, in turn, inform a rolling programme of Route/Service Plans, examining an individual route, service or smaller geographic area, and fine-tuning the requirements in line with the Delivery Plans and this Long Term Rail Strategy.

5.64 Ultimately, it is intended to develop a continuous pipeline of business cases to submit to the DfT's enhancements process and other funding opportunities as they arise.



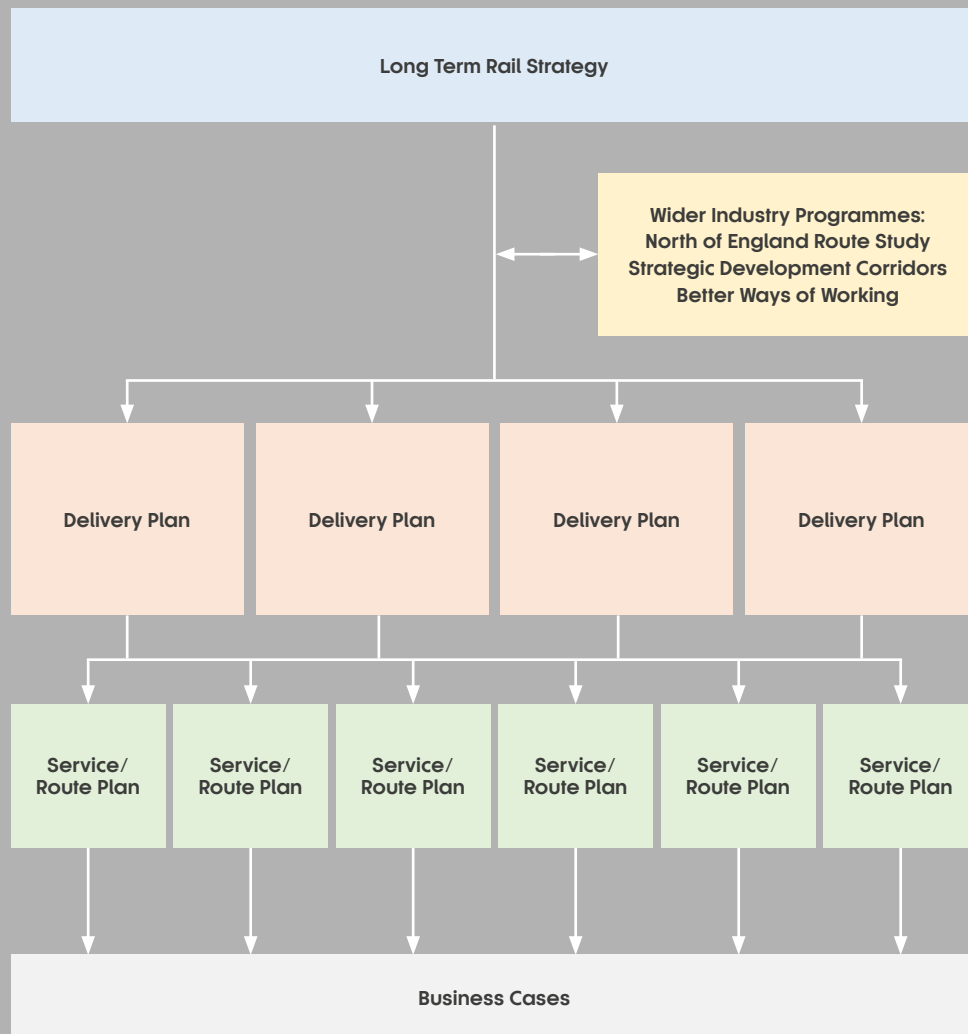


Figure 5.2: Development of the Long Term Rail Strategy

Appendices

A List of Economic Centres

1.1 The Economic Centres have been defined as any Built-Up Areas (BUAs) or Built Up Area Sub Divisions (BUASDs) with a population greater than 50,000. Certain centres in the North which satisfy this criteria but are not primarily served by the heavy rail network have been removed from the list, these include Bury, Gateshead and Oldham.

Economic Centre - Name		
Accrington	Durham	Rochdale
Altrincham	Ellesmere Port	Rotherham
Ashington, Blyth and Morpeth	Grimsby/Cleethorpes	Runcorn
Barnsley	Halifax	Scarborough
Barrow-in-Furness	Harrogate	Scunthorpe
Birkenhead	Hartlepool	Sheffield
Blackburn	Huddersfield	Southport
Blackpool	Hull	St Helens
Bolton	Keighley	Stockport
Bradford	Lancaster	Stockton/Thornaby
Burnley	Leeds	Stoke-on-Trent
Carlisle	Lincoln	Sunderland
Castleford	Liverpool	Tameside/Ashton-under-Lyne
Chester	Macclesfield	Wakefield
Chesterfield	Manchester/Salford	Warrington
Crewe	Middlesbrough	Widnes
Darlington	Newcastle	Wigan
Derby	Nottingham	Workington/Whitehaven
Dewsbury	Preston	York
Doncaster	Redcar	



Transport for the North
2nd Floor
4 Piccadilly Place
Manchester
M1 3BN



Transport for the North
Ground Floor
West Gate
Grace Street
Leeds
LS1 2RP



0161 244 0888



engagement@transportforthenorth.com



transportforthenorth.com

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