

Strategic Rail Report

February 2024



1. Executive summary

- 1.1 An efficient and attractive rail network is vitally important to support the North of England's economy. Rail allows passengers and freight to move around the North, linking people to jobs, education and leisure opportunities, and moving freight across the North (including to and from international port gateways). The North's passenger railways accommodate an unusually high proportion of leisure travellers, which has meant that demand has recovered more rapidly following the pandemic than elsewhere in the country.¹
- 1.2 The North of England has an extensive rail network which links major cities and towns, providing important inter-city links to London, the Midlands and Scotland, along with vital connections between the North's key destinations, all supported by local links. In the North, these local lines include not only busy suburban commuter railways, but also important rural and tourist lines (e.g. Settle & Carlisle, Esk Valley) and coastal connections (e.g. Cumbrian Coast, Hull to Scarborough). For rail to function effectively, it is important that these are planned as a single network and aligned with wider economic and transport planning.
- 1.3 The *Strategic Transport Plan* (STP) sets out a 30-year vision for development of the North's transport network, including how rail should develop. This *Strategic Rail Report* complements the STP by explaining in more detail the interventions that are needed to develop the North's network, and assembling additional evidence.

Our vision for rail

- 1.4 The *Strategic Transport Plan* vision is: "By 2050 the North of England will have become a thriving, socially inclusive region. Our communities, businesses and places will all benefit from sustainable economic growth, improved health and wellbeing and access to opportunities for all. This will be achieved through a transformed near zero emission, integrated, safe, affordable, and sustainable transport system, which will enhance connectivity and resilience, support mode shift and improve journey times for all users."
- 1.5 That vision is supported by three objectives:
 - Transforming economic performance;
 - Rapid decarbonisation of surface transport; and
 - Reducing transport-related social exclusion.
- 1.6 Rail is important in delivering this vision and objectives, and investment in rail is crucial to enable this. Rail will contribute to **transforming economic performance** by providing faster journeys both between major cities and across the North. Full delivery of the

¹ Office of Rail and Road, *Passenger Rail Usage: January to March 2022*, 16th June 2022, p. 4
<https://dataportal.orr.gov.uk/media/2064/passenger-rail-usage-jan-mar-2022.pdf>

Transpennine Route Upgrade (TRU), high-speed rail connections to the south of England and Northern Powerhouse Rail (NPR) networks is fundamental to achieving this. They have potential to reduce journey times in the medium and long term, helping the North's economy to operate in a more cohesive, inclusive and productive manner. Cutting rail journey times between York and Manchester to as little as 63 minutes (through completing TRU) will be an important first step in this transformation.

- 1.7 Meanwhile, investment in the network to provide more capacity for freight trains and allow industry standard containers to be carried on direct routes matching freight demand will support economic growth and allow the North to capitalise on its freight and port assets. This would contribute to the achievement of our target of tripling rail's share of freight volumes in the North from 8.5% (as of 2018) to 25.5% by 2050, with corresponding environmental and decongestion benefits.
- 1.8 A rolling programme of rail electrification is key to achieving **rapid decarbonisation**, building on the electrification that is already in place. Electrification offers a cleaner, faster and more reliable railway, but only 25% of our railways are electrified, compared to 38% nationally.² The Transpennine Route Upgrade (TRU) will electrify the north trans-Pennine route, but there are many other routes where electrification would be very beneficial, including links to freight terminals. To achieve this, a rolling programme of electrification across the North is needed, to allow the industry to develop and retain essential skills, and generate knowledge spillovers into the wider economy.
- 1.9 Further investment in new electric trains is also needed, building on those fleets introduced in recent years. For areas where conventional electrification cannot be justified, battery and hydrogen-powered trains will need to be developed. Electrification and the introduction of new trains is essential to meet the government's decarbonisation targets and the more stringent targets of the Transport for the North *Decarbonisation Strategy*.³
- 1.10 Provision of a consistent and reliable railway is important to reduce **transport-related social exclusion**. Urgent action is needed to address poor performance, which has been exacerbated by staffing issues. The perception of rail as unreliable needs to be addressed, and Transport for the North has developed a programme of small-scale schemes which can achieve real benefits in the short term, complemented by investment in known infrastructure constraints that cause delays. In addition, the resilience of the network needs to be

² Office of Rail and Road, *Rail Infrastructure and Assets, 2019-20*, 5th Nov. 2020, p. 1

<https://dataportal.orr.gov.uk/media/1842/rail-infrastructure-assets-2019-20.pdf>

³ Transport for the North, *Transport Decarbonisation Strategy*, Dec. 2021, p. 52

<https://transportforthenorth.com/wp-content/uploads/TfN-Transport-Decarbonisation-Strategy-TfNDEC2021.pdf>

improved so disruption due to adverse weather and other causes can be better managed and knock-on delays to passengers reduced.

- 1.11 Meanwhile, better stations are needed which provide a consistent minimum standard (particularly regarding accessibility for all passengers) and a reliable provision of information and other facilities. It is simply unacceptable that only 48% of the 600 stations in the North have step-free access to all areas.⁴ Stations also need to be linked to other forms of transport, with integrated ticketing available.

The case for change

- 1.12 Prior to the coronavirus pandemic, demand on the Rail North Partnership's two train operating companies had been growing strongly, from 3.53 billion passenger kilometres travelled in 2010-11 to 4.67 billion in 2018-19.⁵ The recovery in rail demand after the initial pandemic in the North has been strong, with passenger use being significantly higher than pre-pandemic at weekends (although weekday use remains at 87% of 2019 levels). Our *Future Travel Scenarios* work predicts that rail demand could grow by between 78% and 193% by 2050.⁶
- 1.13 New and additional rolling stock has been introduced on some routes across the North after a long period of no additional capacity being provided. Despite this, some less densely populated areas of our region (e.g. the Cumbrian Coast) are still served by aging rolling stock (which can be uncomfortable and inaccessible for travellers with disabilities), whilst other significant rail challenges remain across the North. These are discussed below.
- 1.14 **Reliability: Performance of train operators in the North is lower than elsewhere.** Around half of trains in northern England and a third of trains nationally had been late in 2019-2020, with little improvement in the previous five years. Nine of the top 20 train delay "hotspots" are in the North of England, and of the remaining 11 only two others are outside London and the South East.⁷ The Castlefield Corridor in Manchester, through which trains from across the North and beyond must pass, has been identified as "congested

⁴ Mott MacDonald (for TfN), *Northern England Station Enhancements Programme: Strategic Outline Business Case*, May 2022, pp. 42-50

⁵ Office of Rail and Road, *Table 1233: Passenger Kilometres by Operator, Great Britain, April 2011 to September 2022*, 15th Dec. 2022

<https://dataportal.orr.gov.uk/statistics/usage/passenger-rail-usage/table-1233-passenger-kilometres-by-operator/>

⁶ Transport for the North (2020), *Future Travel Scenarios: Adaptive Planning to Deliver Our Strategic Vision in an Uncertain Future*, Dec. 2020, pp. 59-77

https://transportforthenorth.com/wp-content/uploads/TfN_Future_Scenarios_Report.pdf

⁷ Network Rail Industry Performance, *Congestion Hotspots*, 23rd July 2019

<https://public.tableau.com/app/profile/nr.industry.performance/viz/CongestionHotspots/CongestionDelayHotspots>

infrastructure” by Network Rail, meaning that urgent action must be taken to address performance.

- 1.15 **Resilience: The network suffers delays and disruption due to poor weather and the impact of incidents elsewhere.** As well as delays caused by vehicles or congestion, some aspects (such as level crossings and bridge failures) can lead to further disruption.
- 1.16 **Electrification: Whilst some routes have been electrified, the majority of the North’s network is reliant on diesel trains.** The lack of electrification leads to reliance on diesel trains, which are more expensive to operate and less reliable than electric trains. Whilst new diesel and bi-modal trains have been introduced in the North, large parts of the network are not electrified and are not currently planned to be, whilst most freight trains are diesel-hauled, even in electrified areas. Our *Transport Decarbonisation Strategy* recognises that electrification is a key intervention to reduce rail’s environmental impact.⁸
- 1.17 **Slow journey times: Links between Northern cities are slow compared to others in the UK and in continental Europe.** Journeys between major cities are slow; Leeds to Manchester takes 48-61 minutes for a 42 mile journey, Sheffield to Hull takes 76-84 minutes for 59 miles. Away from routes between the main centres, journey times are slower still; for example, Bradford to Preston takes 81-90 minutes for a 52 mile journey. In many cases, rail does not offer journey times competitive with private road transport. Work by Transport for the North has shown that worthwhile journey time savings on some routes can be achieved for relatively small outlays, potentially leading to higher revenue through faster journeys and operational cost savings.
- 1.18 **Connectivity: Some major cities have poor direct connectivity.** Whilst some major population centres in the North are well-connected to the rest of the country and to other places in the North, this is not always the case. Bradford, arguably the seventh most populous city in England, has only limited London services, with all other journeys involving use of local trains to Leeds or Manchester for onward connections. The North’s network is generally not integrated in terms of offering convenient, co-ordinated and reliable connections between rail services and other forms of public transport, and active travel modes could be improved.
- 1.19 **Stations: Facilities vary, leading to a lack of coherence.** The North’s stations vary considerably, with some having very good information and passenger facilities, and good examples of community-based enterprises leading to improvements. Facilities are

⁸ Transport for the North, *Transport Decarbonisation Strategy*, Dec. 2021, p. 52
<https://transportforthenorth.com/wp-content/uploads/TfN-Transport-Decarbonisation-Strategy-TfNDEC2021.pdf>

inconsistent though, and in some cases stations are not accessible or have poor lighting and waiting facilities. Information provision and the ability to purchase tickets also varies. Consistency in provision would help to promote a coherent rail offer, and minimum standards should therefore be implemented. In addition, there is considerable scope for stations to act as focal points for local communities (e.g. by bringing redundant buildings back into use).

Our plan for rail

1.20 Our targets for rail are set out in the *Strategic Transport Plan*. The table below shows those that are directly relevant to rail, and how they will be addressed. Rail also contributes indirectly to other targets; for example, modal shift to rail can play a part in reducing congestion on our Major Road Network, and in meeting wider decarbonisation goals.

Table 1.1: Targets relating to our headline objectives

Ambition	Impact	Objective or target	Current metric (baseline year)	Rail outcome required
Transforming economic performance	Creating an integrated labour market	37% of the North's population can access 500,000 jobs by rail within 60 minutes by 2050.	27% (2018)	Faster journey times (and increased frequencies) to and between major population centres in the North, through major investment programmes (i.e. TRU, HS2, NPR) and complementary links
		75% of the North's population can access an employment centre (with at least 5,000 jobs) by public transport within 30 minutes by 2050, with a medium-term target of 68% by 2030.	63.4% (2019) <u>Note:</u> 95.3% can do this by car	
Rapid decarbonisation of surface transport	Eliminate surface transport CO ₂ emissions	Reduce surface transport CO ₂ emissions to 11 million tonnes annually by 2030 and near zero by 2045.	25 million tonnes (2018)	Rolling programme of electrification of the North's railway (focussed on both passenger and freight flows) with use of battery and hydrogen trains elsewhere

Ambition	Impact	Objective or target	Current metric (baseline year)	Rail outcome required
Rapid decarbonisation of surface transport	Modal shift to public transport and active travel	Share of trips made by public transport will increase to 10% by 2030 and 15% by 2050.	7% (2018)	Attractive and reliable rail services, with better value fares that offer integration with other modes
		There will be no overall increase in private car and taxi vehicle mileage on the North's road network by 2045.	126 billion kilometres (2018)	
	Freight modal shift to rail	Rail's share of freight carried will triple to 25.5% by 2050.	8.5% (2018)	Investment in both capacity and capability for freight trains, with electrification of key routes (including to freight terminals)
Reducing transport-related social exclusion (TRSE)	Improve the performance of the rail network	Achieve a Public Performance Measure (PPM) of at least 91.2% for both TransPennine Express and Northern by 2028.	TPE = 87.2% Northern = 84.0% (2022)	<ul style="list-style-type: none"> Action by train operators to address staffing issues, and recruit and train more drivers through a Rail Academy for the North A programme of investment in small schemes to address reliability, with larger investments to alleviate known constraints
	Reducing the number of people affected by transport-related social exclusion	Reduce the number of people living in areas with a high risk of transport-related social exclusion (TRSE) by 200,000 by 2030 and 1,000,000 by 2050.	3.3 million (2019)	
	Improved physical accessibility of the transport network	All stations in the North will meet TfN's desired accessibility standards by 2050.	54% (2021)	

1.21 Transport for the North cannot achieve these outcomes alone. We and our local authority partners will need to work together with a number of industry bodies to achieve change. These organisations are:

- The Department for Transport, as the funder and specifier of rail;
- Network Rail, as the owner and maintainer of the rail network;
- High Speed 2 Limited, as promoter of new lines;
- Great British Railways, the body proposed to integrate track and train;
- Train operators, which provide services in the North and elsewhere;
- Freight operators, which move goods across the North and elsewhere; and
- Industry bodies, which represent and advocate the case for rail.

- 1.22 The reforms proposed for rail, including the establishment of a single guiding mind through Great British Railways, are welcome. They will allow Transport for the North to build on the Rail North Partnership which has overseen Northern and TransPennine Express services since 2016, managed jointly with the Department for Transport. The proposed reforms also provide for greater involvement of our partners in providing greater local input to rail operators and their plans, in order to achieve effective integration with other modes of travel and with wider spatial and economic planning.
- 1.23 This *Strategic Rail Report* refers to a 2050 end state for rail in terms of train service provision. That assumes that major programmes have been delivered, complemented by short and medium-term improvements to address capacity and reliability and to enable growth.
- 1.24 To achieve the vision of the *Strategic Transport Plan* as developed in this *Strategic Rail Report*, a long-term plan for change will be needed. This includes other supporting initiatives, such as legislation to effect rail reform, and investment in staff and training by operators. The plan is however reliant on various interventions which require significant capital investment, as shown in the table below.

Table 1.2: Investment described in the *Strategic Rail Report*

Planning horizon	General programme of work	Specific schemes (where applicable)
Short term (mid 2020s)	Deliver a programme of small performance schemes that have benefits for reliability.	Schemes with potentially high value have been identified at Lancaster, Leeds, Manchester Piccadilly and on the line to Blackpool South.
	Implement the first phase of the Line Speed Improvement Programme.	Five lines have been identified as priority routes, with Sponsors already having been appointed for Darlington to Bishop Auckland and York to Scarborough.
	Implement the first phase of station facilities upgrades.	Three programme options have been developed by TfN.
	Put in place effective governance arrangements for rail in the North.	
	Introduce "pay as you go" ticketing.	
Medium term (late 2020s & early 2030s)	Deliver the Transpennine Route Upgrade (for freight and passenger trains).	
	Address key constraints in the Manchester area.	The Manchester Task Force is developing various options.
	Deliver Northern Powerhouse Rail schemes.	Leeds to Hull has been identified as a potential "quick win".
	Deliver high-speed rail services to Manchester.	Build a new station at Manchester Airport.
	Implement upgrades to the East Coast Main Line.	Implement enhancements at York north throat, Northallerton, Darlington, etc.
Long term (mid 2030s to 2040s)	Deliver high-speed rail services to Leeds.	This should include options to improve connectivity from Sheffield to Leeds.
	Deliver the wider Northern Powerhouse Rail network.	TfN's preferred option includes a new route from Manchester to Leeds via Bradford, and reinstatement of the Leamside line.
	Electrification of all main routes, with alternative technology elsewhere.	Hydrogen and battery power should continue to be developed.

2. Introduction and context

- 2.1 This document outlines Transport for the North's vision as to how the rail network in the North of England can serve its required functions, support TfN's overall vision and objectives, and accommodate the varied scenarios for passenger growth that TfN's *Future Travel Scenarios* work has anticipated for the coming decades. It takes a thematic approach to the issues involved, and summarises TfN's rail policy development and the evidence and analysis that has been assembled to support our conclusions. It therefore forms the principal rail strategy document assembled in support of our *Strategic Transport Plan*, and supersedes the *Long Term Rail Strategy* published in January 2018.⁹
- 2.2 This policy does not cover every rail topic, as important subjects (such as decarbonisation, freight, rail reform and multimodal integration) have been or will be covered by other TfN publications. However, it does present the case for a number of complementary interventions which we believe are necessary to make the North's rail network fit for the future.
- 2.3 This policy is concerned principally with the medium-to-long term, as it describes programmes of work which could only yield a significant impact about 5 years from now at the earliest, whilst many aspects look forward to 2050. However, we are aware that the rail industry is in a period of immediate crisis whilst this document is the subject of consultation. As of September 2023, overall demand has only returned to about 89% of its pre-covid levels.¹⁰ In order to reduce the amount of subsidy required, rail services have been cut in some areas; however, this raises the possibility that the sector could enter a spiral of decline, with reduced opportunities to travel driving potential passengers to other modes and exacerbating the situation. Meanwhile, train performance in the North remains significantly poorer than elsewhere in Britain (see Chapter 3), which risks permanent damage to the reputation of the industry and people's willingness to travel by rail.
- 2.4 It should therefore be stressed that some of the interventions described in this document could be implemented over the course of the next few years, and could therefore contribute to the continuing recovery from the pandemic and the medium-term improvement of punctuality and reliability; items described in Chapters 5, 6 and 8 fall into this category. It is even possible that some major enhancements expected in the longer term could be brought forward.
- 2.5 The *Strategic Rail Report* therefore brings together many issues relating to rail travel in the North of England, in order to provide an overview of Transport for the North's policy positions on a number of questions. It adopts a broad definition of "rail connectivity" to mean almost anything which makes rail attractive as a travel choice for

⁹ TfN, *Long Term Rail Strategy: Draft Update*, Jan. 2018

https://transportforthenorth.com/wp-content/uploads/Long-Term-Rail-Strategy_TfN.pdf

¹⁰ Office of Rail & Road, *Passenger Rail Usage: July to September 2023*, 19th Dec. 2023, p. 4

<https://dataportal.orr.gov.uk/media/bbrpxkon/passenger-rail-usage-jul-sep-2023.pdf>

customers, including journey times, frequency of services, the necessity of interchange, reliability, stations facilities, intermodal ticketing, the provision of weekend and early morning or late evening services, and physical accessibility to the network.

- 2.6 Following a brief overview of TfN's purpose, objectives, and our most significant aligned strategies later in this chapter, the next chapter describes the process by which the LTRS was formed and the main conclusions that it reached. Elsewhere in this document it is explained where we have chosen to keep the policies developed then, as still being valid today. Later in Chapter 3, we describe how events from May 2018 onwards have necessitated a rethink of many policies as we react to a changing context, with the second part of that chapter summarising the main challenges that we now face as a result.
- 2.7 The substantive policy aspects of this document are then contained in Chapters 4 to 8, as specific issues and TfN's workstreams relating to them are described. Chapter 4 provides TfN's position on the major programmes of railway enhancements which are due to take place across the North in coming decades, namely Transpennine Route Upgrade (TRU) and Northern Powerhouse Rail (NPR). It remains TfN's position that delivery of TRU and NPR according to our full preferred network is the only way of accommodating forecast growth in rail demand in the North, which will increase by at least 78% by 2050 in even our most pessimistic scenario, and could triple if all the measures needed to take us to a near zero carbon future are enacted thoroughly. Meanwhile, delivery of high-speed rail connections remains vital not only for the connectivity of the North to the Midlands and London, but also for travel on a north-south alignment in the eastern part of TfN's territory (especially between Sheffield and Leeds).
- 2.8 Chapter 5 combines some issues which affect the way that passengers experience rail travel, most notably stations facilities, which TfN have studied in depth in our area. If rail travel becomes an increasingly discretionary expenditure in future, as we move away from dependency on the commuter market, issues such as stations facilities will become more important. TfN have assembled evidence that facilities in our region lag behind those elsewhere in England, but we show that there is a strong economic and strategic case for rectifying this. This section also notes the importance of issues such as multimodal interchange and integrated ticketing.
- 2.9 Chapter 6 is in many ways the most complex part of the document, as it considers the issues of journey times, passenger capacity, direct connectivity and frequency of services alongside one another. Although deficiencies in any of these areas will be experienced differently by passengers (e.g. slow journeys or overcrowding), they all have their origins in the trade-offs necessitated in the development of train service specifications and timetable planning. Accordingly, we describe the work that TfN has undertaken in the area of the Combined Train Service Specification for 2050, in supporting Network Rail's capacity planning activities, and in developing our own Line Speed Improvement Programme (LSIP).

- 2.10 Chapters 7 and 8 examine some related but distinct aspects of rail travel about which TfN has undertaken some analysis. Chapter 7 considers what we term “seven day railway” issues, which includes the need for better weekend services in order to support increasingly important leisure travel, and the importance of earlier first trains and later last trains to and from economic centres, in order to enable those with unusual shift patterns or weekend working to use the railway, and to further support the leisure economy; this relates to TfN’s work on transport-related social exclusion (TRSE). Meanwhile, Chapter 8 examines the reliability and resilience of train services in the North, which we argue is particularly important both in the light of the problems that we have experienced since May 2018, and also due to the comparatively poor performance of rail services in the North compared to elsewhere in the country. There is a strong link between train performance and customer satisfaction, so attracting more passengers to rail will require this issue to be addressed.
- 2.11 Chapter 9 then relates the specific policy issues back to TfN’s overall objectives, by mapping each policy area back to one or more of the key metrics concerning the North’s transport network which TfN are intending to monitor and improve over time. This includes quantified targets relating to TfN’s main “headline” objectives, alongside more detailed metrics in fields such as decarbonisation, connectivity to airports and tourist attractions, and social inclusion.
- 2.12 Finally, Chapter 10 provides an overall summary of TfN’s case for rail investment in the North, describing the relative deficiencies of the region’s current railway network, how rail investment would contribute towards TfN’s social, environmental and economic goals – in line with the advice of the Northern Powerhouse Independent Economic Review – and the specific items that we want to be funded. This includes the full scope of the major programmes (Transpennine Route Upgrade, the pre-IRP High Speed 2 scope and Northern Powerhouse Rail) and a number of initiatives in areas such as stations facilities and train performance which are intended to stimulate rail demand and modal shift in the period prior to the major programme implementation being undertaken. It concludes with a discussion of how the strategic trade-off between direct connectivity and performance can only be resolved through adequate investment.

Transport for the North’s other strategies

- 2.13 Transport for the North (TfN) is a Statutory Transport Body (STB) of elected leaders and a partnership of business leaders who collectively represent the region’s 15 million people. As a partnership, TfN brings 20 Local Transport Authorities and 11 Local Enterprise Partnerships together with Network Rail, National Highways, HS2 Limited, and the UK Government (principally via the Department for Transport).
- 2.14 Through its statutory powers, TfN provides a single voice for the North to support the development and implementation of transport strategies across the region, determining investment decisions and working with Government to enable northern priorities to be included within national priorities. Operating within this strategic position, TfN and partners

work collaboratively to identify the transport infrastructure and policy measures that are required to achieve the North's ambition.

- 2.15 Our *Strategic Transport Plan* (STP) of 2019 was a formally adopted plan which recognises the importance of the North's railways within its wider transport network, and specifically rail's ability to provide low carbon emission travel across long distances for both passenger and freight traffic. The STP expressed the goal of encouraging a modal shift from road to rail as part of both its freight and rail elements, citing the benefits in terms of quicker journey times, road decongestion and lower greenhouse gas emissions.¹¹ Furthermore, it was recognised that when judged by certain criteria – such as the ability to accommodate large volumes of passengers (20 to 30 thousand per hour) along narrow transport corridors, or to provide rapid connections between city centres – rail is in a uniquely strong position compared to other modes.¹²
- 2.16 As mentioned previously, this document does not cover all of TfN's policy positions on rail, as some have been or will be described in other strategy publications. Rail freight is examined in our recent *Freight & Logistics Strategy*, which considers issues such as the wider context of rail freight, multimodal container traffic, electrification of freight haulage, and gauge clearance (especially to major ports).¹³
- 2.17 Electrification is also dealt with in TfN's *Transport Decarbonisation Strategy* (published in December 2021). As part of our target to reduce greenhouse gas emissions to a negligible level by 2045, this strategy notes that modal shift to rail and decarbonisation of rail traction will be an essential element of achieving that objective.¹⁴ The wider benefits of electrification are examined in the relevant section of Chapter 6 of this document.
- 2.18 TfN's *International Connectivity and Aviation Policy Position Statement* recognises the importance of providing high-quality and efficient surface access to the North's airports and ports, allowing businesses access to international markets and linking economic clusters across our regions. For TfN, it remains vital to prioritise the infrastructure that allows these gateways to be economically competitive, whilst maintaining sustainable surface access through low carbon modes.¹⁵
- 2.19 TfN also recognise that a key element of our strategic situation is that the North of England is the centre of the United Kingdom, with routes connecting southern and central England and Wales to Scotland and Northern Ireland running through our territory. We therefore welcome the recommendations of the 2021 *Union Connectivity Review* to upgrade the West Coast Main Line north of Crewe (in order to

¹¹ TfN, *Strategic Transport Plan*, Feb. 2019, p. 58 & p. 100

<https://transportforthenorth.com/wp-content/uploads/TfN-final-strategic-transport-plan-2019.pdf>

¹² TfN, *Strategic Transport Plan*, Feb. 2019, p. 94

¹³ Transport for the North, *Draft Freight and Logistics Strategy: Consultation Version*, Jan. 2022, *passim*

<https://transportforthenorth.com/wp-content/uploads/Freight-Strategy-Master-Consultation-version-v0.1.pdf>

¹⁴ Transport for the North, *Transport Decarbonisation Strategy*, Dec. 2021, pp. 58-67, p. 104 & p. 115

¹⁵ Transport for the North, *TfN International Connectivity and Aviation Policy Position Statement*, Sept. 2022

<https://transportforthenorth.com/wp-content/uploads/TFN Internal Connectivity Policy-Statement.pdf>

maximise the benefits of HS2), improve rail connections between North Wales and Cheshire, and develop faster rail connections from Cardiff to central and northern England.¹⁶

- 2.20 Other TfN policies mention rail in the context of the need for railway stations to become “integrated mobility hubs” (whilst considering issues such as inclusive accessibility and the ambience of the urban realm),¹⁷ and the significance of attributes of the rail network in relation to social exclusion issues (e.g. physical accessibility of stations and carriages, poor timing of services for those on shift work, and instances of harassment).¹⁸

Context of the *Strategic Rail Report*

- 2.21 TfN’s primary remit has focused on the identification and recommendation of pan-Northern strategic transport interventions, which generally relate to longer distance trips between major economic centres. However, there needs to be complementary and supporting investment at a local level (as well as a pan-Northern level) to provide a ‘whole journey’ and ‘total network’ approach to improving transport.
- 2.22 Various parts of this document examine how rail connectivity in the North can support other strategic goals which depend on good connectivity (such as “levelling up”, strengthened international links and enhanced Union Connectivity) whilst incorporating every aspect of the passenger experience. The centrality of good performance – punctuality and reliability – to encouraging rail use and achieving modal shift is recognised, whilst other elements of the rail experience (such as availability of information, ease of ticket purchase, stations facilities and the comfort of rolling stock) are also examined.
- 2.23 TfN recognise the importance of H.M. Government’s work to reform the railway industry and enhance the network. The incoming coalition government of 2010 decided to continue the HS2 programme initiated under the previous administration, and in some ways the genesis of TfN can be traced to the early commitment to examine the electrification of the main trans-Pennine route between Leeds and Manchester. The desirability of even greater connectivity across the North was recognised in the emergence of the concept of the Northern Powerhouse, which the new body of TfN promoted in concert with central government.¹⁹

¹⁶ DfT, *Union Connectivity Review: Final Report*, Nov. 2021, p. 5

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1036027/union-connectivity-review-final-report.pdf

¹⁷ TfN, *Policy Position Statement: Multimodal Hubs*, March 2022, p. 5

https://transportforthenorth.com/wp-content/uploads/TFN_PolicyPositionStatement_MultiModalHub.pdf

¹⁸ TfN, *Transport-Related Social Exclusion in the North of England*, Sept. 2022, *passim*

<https://transportforthenorth.com/wp-content/uploads/Transport-related-social-exclusion-in-the-North-of-England.pdf>

¹⁹ HM Government & TfN, *The Northern Powerhouse: One Agenda, One Economy, One North – A Report on the Northern Transport Strategy*, March 2015

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/427339/the-northern-powerhouse-tagged.pdf

2.24 During 2021, this ongoing commitment was exemplified by the publication of *Great British Railways: The Williams-Shapps Plan for Rail* in May, and the *Integrated Rail Plan for the North and Midlands* (IRP) in November. However, it should be noted that our response to the IRP expressed many concerns that the scope of investment promised was unacceptably low for the needs of the North.²⁰

Electrification and decarbonisation

2.25 Furthermore, another area in which TfN's partners and other stakeholders have wished to see more rapid progress is a wider plan for electrification, beyond the main trans-Pennine route. Several reports have been issued making the case for such a programme, using different methods and therefore generating different priorities. These reports include:

- a) Network Rail's *Network RUS: Electrification* (October 2009), which identified the priority routes as Northallerton-Middlesbrough/Sunderland, Sheffield-Doncaster, Preston-Blackpool North, Crewe-Chester, and Oxenholme-Windermere;²¹
- b) The North of England Electrification Task Force's *Northern Sparks* report (March 2015), which identified the priority routes as the Calder Valley, Liverpool-Warrington-Manchester, Southport/Kirkby-Salford Crescent, and Chester-Stockport;²²
- c) Network Rail's *Traction Decarbonisation Network Strategy* (July 2020), which also prioritised the Liverpool-Warrington-Manchester route, whilst discussing opportunities for battery-powered trains;²³ and
- d) The Rail Industry Association's recent publication *Greener, Faster, Better*, which identified a different set of routes as priority, namely Manchester-Sheffield/Buxton, Leeds/Doncaster-Selby-Hull and Sheffield-Doncaster.²⁴

2.26 As this topic has been investigated frequently before, TfN has not undertaken its own development project regarding electrification. However, we note that all these previous studies have made the case for a rolling programme of electrification, as being the most efficient

²⁰ Transport for the North, *Transport for the North's Statutory Advice in Response to the Integrated Rail Plan*, 26th November 2021

https://transportforthenorth.com/wp-content/uploads/Statutory-Advice-in-Response-to-IRP-Nov-2021_Redacted.pdf

²¹ Network Rail, *Network RUS: Electrification*, Oct. 2009, pp. 103-107

https://www.cannockchasedc.gov.uk/sites/default/files/103_network_rus_electrification_2009.pdf

²² North of England Electrification Task Force, *Northern Sparks: Report of the North of England Electrification Task Force*, March 2015, p. 53

https://transportforthenorth.com/wp-content/uploads/EFT_Report_FINAL_web.pdf

²³ Network Rail, *Traction Decarbonisation Network Strategy: Interim Programme Business Case*, 31st July 2020, pp. 213-219

<https://www.networkrail.co.uk/wp-content/uploads/2020/09/Traction-Decarbonisation-Network-Strategy-Interim-Programme-Business-Case.pdf>

²⁴ Railway Industry Association, *Greener, Faster, Better: Decarbonisation Route Prioritisation for the North's Railways*, Oct. 2022, p. 25

<https://www.peseonline.com/media/em1jjaga/greener-faster-better.pdf>

and effective way of realising the benefits of electrification across the North.

- 2.27 Our *Transport Decarbonisation Strategy* envisages the full decarbonisation of rail before 2050. This would imply that there would be no remaining diesel vehicles, and almost all lines would be electrified (i.e. except those which would be used exclusively by battery or hydrogen-powered trains).²⁵ Ultimately the rail decarbonisation agenda would have to be wider than direct emissions, as the entire industry supply chain would need to be encompassed in the policy; purchased electricity, capital goods, purchased goods and services, business travel, and end-of-life asset management issues would need to be considered.²⁶
- 2.28 Our goal is for transport-related emissions across the North to fall from approximately 25 million tonnes of carbon dioxide equivalent (Mt CO₂e) per year (as of 2020) to near zero by 2050, with most of this reduction occurring in the 2020s and 2030s, so that emissions reach 1.0 Mt CO₂e by 2040. As the decarbonisation of road transport will depend on the replacement of petrol and diesel vehicles by electric (which will not become compulsory until 2030), maintaining a constant trajectory towards the 2040 target will require early achievement of mode shift to an increasingly decarbonised rail network; otherwise, the emissions reduction would be “back end loaded” and require enormous change in the 2030s.²⁷
- 2.29 There is a limit as to what the decarbonisation of rail in itself (e.g. through electrification) can achieve, as currently rail only accounts for about 3% of surface transport emissions. The largest contribution that rail can make is to encourage modal shift, as at present around half of emissions are generated by private car, whilst 28% are produced by heavy goods vehicles and 11% by light goods vehicles. The transfer of road freight to rail will therefore be particularly important.²⁸
- 2.30 The rail contribution to decarbonisation would necessarily be different in the varied circumstances set out in our *Future Travel Scenarios* work. In the “Just about managing” scenario – essentially a continuation of existing trends – annual emissions from rail would fall from about 0.8 million tonnes of carbon dioxide equivalent (Mt CO₂e) in 2018 to 0.6 Mt CO₂e in 2030, and then 0.4 Mt CO₂e by 2050. “Net zero” would therefore not be achieved.²⁹ Meanwhile, in the “Urban zero carbon” scenario (where a significantly greater proportion of the population live in urban areas and do not own a car), although 2030 emissions from rail are still anticipated to be 0.6 Mt CO₂e, this is anticipated to fall to zero by 2050. However, the number of journeys by rail in 2050 in the “Urban zero carbon” scenario is estimated as

²⁵ Transport for the North, *Transport Decarbonisation Strategy*, Dec. 2021, p. 3
<https://transportforthenorth.com/wp-content/uploads/TfN-Transport-Decarbonisation-Strategy-TfNDEC2021.pdf>

²⁶ Transport for the North, *Transport Decarbonisation Strategy*, Dec. 2021, pp. 6-7

²⁷ Transport for the North, *Transport Decarbonisation Strategy*, Dec. 2021, pp. 10-11

²⁸ Transport for the North, *Transport Decarbonisation Strategy*, Dec. 2021, pp. 22-23

²⁹ Transport for the North, *Transport Decarbonisation Strategy*, Dec. 2021, p. 32

193% greater than 2018, as opposed to 83% in “Just about managing”.

- 2.31 Furthermore, emissions from private cars in 2030 are forecast as 10.9 Mt CO₂e in “Just about managing” but only 7.1 Mt CO₂e in “Urban zero carbon”.³⁰ Progress towards a near zero carbon future therefore implies a significant modal shift to rail (as quantified in Table 3.4 later) and a reduction in carbon emissions per rail journey. This is recognised in our *Transport Decarbonisation Strategy*, where it is calculated that we will need to achieve a reduction in road travel as compared against the predicted trend, with the magnitude of this reduction (by 2030) being between 3% and 14% for private cars, 10% for vans, and between 11% and 15% for HGVs. A significant modal shift to rail would therefore contribute to this outcome, and it is noted that this would be the case even if the rail freight itself was not electrified, due to the greater fuel efficiency of rail.³¹
- 2.32 It should be noted that whilst electrification provides both environmental and performance benefits (which are discussed further in Chapter 6), it is not without its drawbacks. Existing power supplies are at or near capacity at several points on the network, and significant investment in both power generation and distribution would be necessary to underpin further electrification. Meanwhile, there have been technical problems with the development of alternative green energy sources (such as batteries, hydrogen and hybrid trains); adoption of these technologies also makes it difficult to realise the benefits of fleet standardisation.

Freight

- 2.33 As well as the freight capability of the East and West Coast Main Lines, important freight railways in the North include the Diggle Route (Manchester to Leeds via Huddersfield), the Calder Valley Route (Manchester to Leeds via Hebden Bridge), the Hope Valley Route (Manchester to Sheffield via Chinley), and the routes from Leeds (via Skipton) to either Carnforth or Carlisle. Rail connections to the ports on the Mersey, Humber, Tees and Tyne are also economically crucial (and will become more so with the growth of Freeports).³²
- 2.34 Our recent *Freight & Logistics Strategy* recognises that many railway routes in the North have the capability to accommodate a variety of freight traffic, in terms of gauge clearance (i.e. height and width restrictions) and route availability (i.e. weight and speed restrictions). However, this does not mean that they have the capacity to accommodate the potential volume of freight suggested by our analysis, as the frequency of passenger traffic means that space and time is not freely available for freight on many routes. In order to release capacity for freight, the completion of new lines to support Northern Powerhouse Rail services are required, as is a satisfactory

³⁰ Transport for the North, *Transport Decarbonisation Strategy*, Dec. 2021, p. 38

³¹ Transport for the North, *Transport Decarbonisation Strategy*, Dec. 2021, p. 52

³² Transport for the North, *Freight & Logistics Strategy*, Nov. 2022, pp. 31-34

solution to the congestion which is being addressed by the Manchester Task Force.³³

2.35 The *Freight & Logistics Strategy* notes that the previous *Long Term Rail Strategy* had set three Desirable Minimum Standards for freight, and it remains the case that these are appropriate targets for 2050.³⁴ The three standards are:

- The North's rail network should accommodate the evolving needs of the freight market, by supporting longer and heavier trains, increased path availability, and additional gauge clearance;
- The five major ports in the North (Hull, the Humber Ports, Liverpool, Teesport, and Tyne) should be served by rail with gauge clearance allowing the latest generation of intermodal containers to be carried on standard wagons, and weight capability enabling trains to operate unrestricted at the highest speed appropriate for the load; and
- Improve the average speed of freight services in the North by 50% over the next 10 years.

2.36 Meanwhile, the key current trends in freight traffic which need to be accommodated include:³⁵

- Growth in intermodal container and construction-related traffic has compensated for the decline of coal in recent decades, and this is expected to continue;
- The transport of a higher proportion of goods by rail contributes to economic efficiency, especially if the rail freight is electrified;
- The key constraints on freight growth are the capacity limitations at specific "pinch points" on the rail network. These include the lack of a fully gauge-cleared route across the Pennines, difficulty accessing Trafford Park, and congestion around Doncaster; and
- The planning system should enable the construction of more warehousing at distribution links between the road and rail freight systems.

2.37 In order to encourage a modal shift of freight to rail, the *Freight & Logistics Strategy* recommends further development work on a number of specific interventions, which include:³⁶

- A fully W12 gauge-cleared trans-Pennine route linking all the major ports;
- Capacity improvements in the Sheffield area, along the East Coast Main Line, and through the Castlefield corridor to Trafford Park;
- More passing loops and better port connections in the North East;
- Gauge and journey time improvements between Selby and the Port of Hull; and

³³ Transport for the North, *Freight & Logistics Strategy*, Nov. 2022, pp. 31-32 & 60-62

³⁴ Transport for the North, *Freight & Logistics Strategy*, Nov. 2022, pp. 50-52

³⁵ Transport for the North, *Freight & Logistics Strategy*, Nov. 2022, pp. 54-56

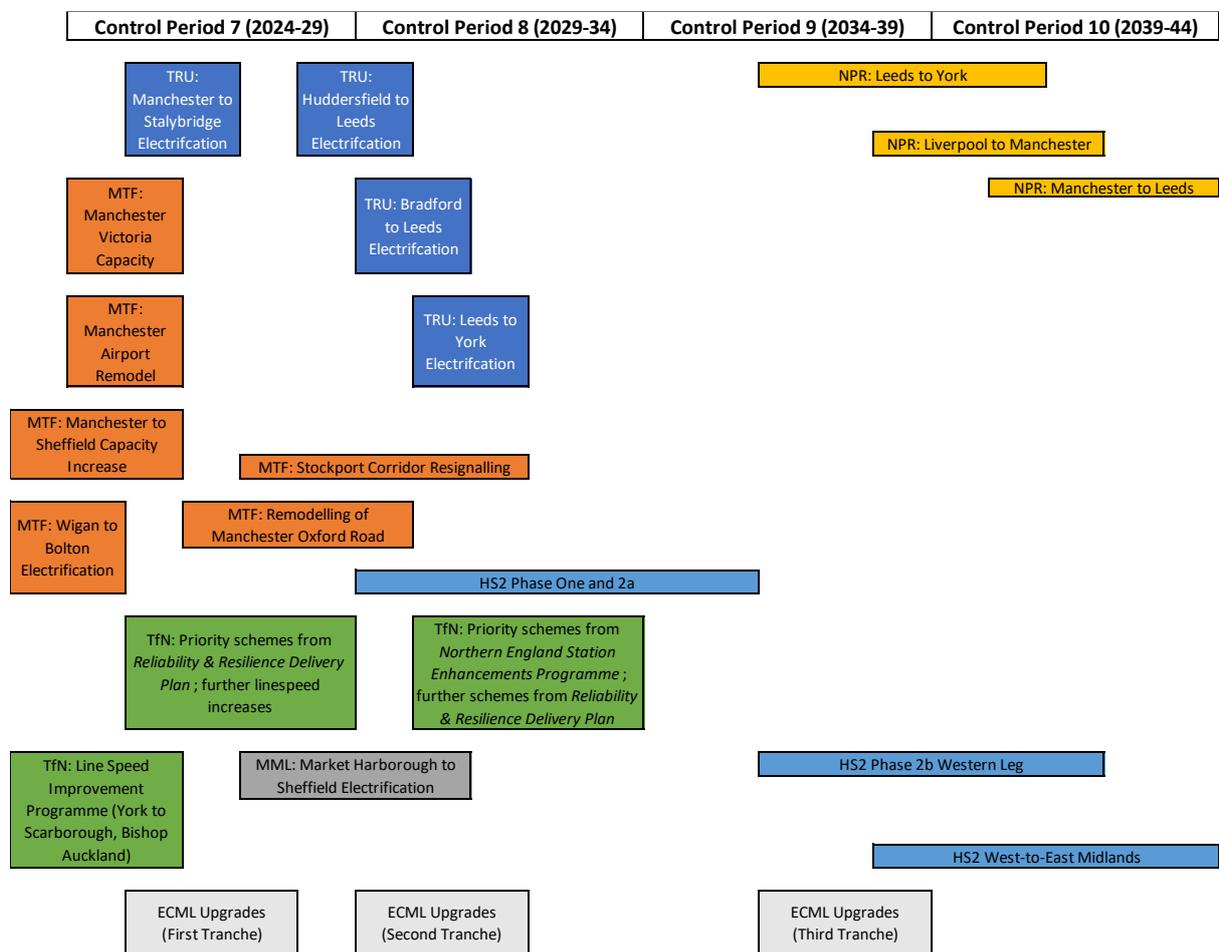
³⁶ Transport for the North, *Freight & Logistics Strategy*, Nov. 2022, pp. 76-77

- Enhancement of the facilities at Parkside (St. Helens) and Port Salford terminals.

Timeline for future growth

2.38 In order to help provide a chronological context for the remainder of the document, the chart below indicates when we approximately expect significant elements of rail enhancement work to be delivered in the coming decades. This includes the major programmes supported by the Department for Transport, as well as our own initiatives which are described in this policy. The original scheduling for HS2 Phases 2a and 2b (including the East Midlands leg) is indicated, though these were cancelled by the Government in October 2023.

Figure 2.1: Implementation of future investment programmes



Key to infrastructure interventions:

East Coast Main Line Upgrades
High Speed Two
Manchester Task Force (related programmes)
Midland Main Line
Northern Powerhouse Rail
Transpennine Route Upgrade
Transport for the North (other initiatives)

3. Current issues and challenges

Table 3.1: Summary of principal current challenges

Changing context	Growing knowledge
<ul style="list-style-type: none"> • It remains to be seen what the full long-term impact of the pandemic will be on travel behaviour. • In the short term, there has been a change in the timing, purpose and geographical spread of journeys. • Political priorities have changed, with decarbonisation (net zero) and social inclusion attaining a new prominence. • The current inflation problem has led to a reduction in disposable income for potential rail passengers. 	<ul style="list-style-type: none"> • Numerous industry and academic bodies have undertaken research projects into the impact of the pandemic. • TfN's <i>Future Travel Scenarios</i> analysis indicates a need to be able to accommodate various potential futures with regard to travel behaviour, working from home and population distribution.
Recurring issues	
<ul style="list-style-type: none"> • Rail continues to accommodate a small proportion of total passenger and freight traffic, and would therefore need to expand significantly in order to make a major impact on congestion or decarbonisation. • The rail frequency and journey times between the North's major cities continue to be poor in relation to comparator regions (such as the Rhine-Ruhr area and the Netherlands). • Rail service performance of TOCs which operate in the North was almost uniformly worse than those which do not, both before the pandemic and after. • Physical accessibility at stations remains unsatisfactory, with only a minority of stations in the North having full step-free access to all areas. • Capital investment work on the railway can be highly disruptive, causing inconvenience to existing passengers, and it is necessary to investigate diversionary routes and improved ways of working. 	

3.1 The importance of developing a pan-Northern vision for the future of our region's transport system was promoted by the North's largest city councils in their *One North* proposal of 2014. A key element of this argument was an international comparison of the North of England with two areas which have a similar population, but significantly greater economic productivity, namely the Randstad area of the central Netherlands and the Rhine-Ruhr area in Germany.³⁷ The authors of *One North* argued that fast and frequent rail connections between groups of cities were a key element of these regions' prosperity.

3.2 A new vision for inter-city travel in the North underpinned the Government's previous commitment to High Speed 2 (which would have provided improved links from Sheffield to Leeds and Newcastle, as well as North-South connections), but also signified support for a new idea: Northern Powerhouse Rail, a network of new or upgraded

³⁷ Leeds City Council, Liverpool City Council, Manchester City Council, Newcastle City Council & Sheffield City Council, *One North: A Proposition for an Interconnected North*, July 2014, pp. 16-17
<https://www.centreforcities.org/wp-content/uploads/2014/09/14-08-07-One-North.pdf>

lines connecting Liverpool, Manchester Airport, Manchester, Sheffield, Leeds, Hull and Newcastle. The *Northern Powerhouse* document envisaged that this network would reduce almost all journey times between these seven major centres by at least a quarter, and considerably more in some cases.³⁸ Frequencies between the North's major cities would also increase to between 4 and 6 trains per hour.

- 3.3 The *Long Term Rail Strategy* of 2018 discussed the functions that the North's railway performs within the regional economy, and whether it was "fit for purpose" or provides a comparable offer to elsewhere in the country. It was noted that the availability of fast and frequent journeys by public transport facilitates access to employment, education and training, and is thus central to sustainable economic development.
- 3.4 However, many examples can be cited of where the connectivity provided by the railway network is not competitive with the private car, even in densely-populated areas; the slow journey times and limited frequency along the Durham Coast route – connecting the major urban areas of Middlesbrough, Stockton, Hartlepool, Sunderland, Gateshead and Newcastle – is perhaps the clearest case, with typical end-to-end speeds of about 36 miles per hour on the one train per hour.³⁹
- 3.5 Accordingly, the element of the 2018 *Long Term Rail Strategy* which was perhaps the subject of the most subsequent discussion were the Desirable Minimum Standards (DMSs). Several of the Conditional Outputs imply that one of TfN's objectives should be to encourage modal shift of both passenger and freight traffic from road to rail. In order to achieve this, it was necessary to consider what standard of service (in terms of frequency, speed, connectivity, comfort and reliability) would need to be provided by the North's railway network in order to be an effective competitor to private road transport, and improve rail's mode share in the most important transport markets in the region. The resulting DMSs are shown in Appendix A at the end of this document.⁴⁰

The course of events

- 3.6 Soon after the publication of the LTRS, and whilst consultation for the *Strategic Transport Plan* was ongoing, the North's railway network faced a major challenge as a result of the introduction of the May 2018 timetable. Although problems were experienced elsewhere in the country, there were specific issues regarding collaboration between industry stakeholders in the North, leading to significant performance problems for Northern and TransPennine Express. These generated

³⁸ HM Government & Transport for the North, *The Northern Powerhouse: One Agenda, One Economy, One North*, March 2015, p. 19

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/427339/the-northern-powerhouse-tagged.pdf

³⁹ TfN, *Long Term Rail Strategy: Draft Update*, Jan. 2018, p. 20

https://transportforthenorth.com/wp-content/uploads/Long-Term-Rail-Strategy_TfN.pdf

⁴⁰ TfN, *Long Term Rail Strategy: Draft Update*, Jan. 2018, p. 63

financial and reputational damage for the train operators and the wider industry.⁴¹

- 3.7 The problems experienced across the North were part of a wider set of issues affecting the whole of the British railway industry, with the May 2018 crisis also severely impacting Govia Thameslink Railway in the South East. As a result, H.M. Government initiated a Rail Review under the leadership of Keith Williams, which reported in May 2021.⁴²
- 3.8 Prior to the pandemic, train performance was identified as a key “levelling up” issue. In the last quarter before coronavirus struck (2019-20 Q4), all but one of the 8 Train Operating Companies (TOCs) which operate significantly in the North (i.e. excluding Merseyrail) had a lower “on time” percentage than all but one of the 15 TOCs which largely operate outside TfN’s geography. There was therefore very little overlap, with Northern TOCs being almost uniformly the worst-performing.⁴³ During the pandemic, train performance improved significantly (due to fewer train and passengers), but in early 2022 there were signs of a reversion to the pre-covid situation, with the 7 TOCs whose performance deteriorated the most in the year to March 2022 (including Northern and TransPennine Express) all running services in the North.⁴⁴
- 3.9 It should be stressed that this period was not one of unremitting problems for the rail industry in the North. There were some significant achievements during the life of the Northern and TransPennine Express franchises, notably the introduction of new rolling stock in 2019, and the long-awaited replacement of antiquated “Pacer” trains. Northern deployed trains from the CAF “Civity” range (namely the diesel Class 195 and the electric Class 331) from July 2019. With a top speed of 100mph, these were faster and quicker to accelerate than much of the rolling stock that they replaced.
- 3.10 TransPennine Express similarly introduced the CAF “Civity” Class 397 (with a top speed of 125mph) on its Manchester Airport to Scotland (via Preston) services in November 2019, under the name “Nova 2”, taking advantage of the full electrification of that route. TPE had also deployed the Hitachi Class 802 “Nova 1” on routes from Liverpool and Manchester to Newcastle (via York) from September 2019; this is an InterCity quality train which should be able to travel at 140mph on some electrified sections of the East Coast Main Line following the full introduction of in-cab signalling. Meanwhile, TPE’s new fleet roll-out

⁴¹ Office of Rail and Road, *Independent Inquiry into the Timetable Disruption in May 2018: Final Report*, 7th Dec. 2018, p. 30

<https://www.orr.gov.uk/sites/default/files/om/inquiry-into-may-2018-timetable-disruption-december-2018-report-grayscale.pdf>

⁴² Department for Transport & Williams Rail Review, *Great British Railways: The Williams-Shapps Plan for Rail*, 20th May 2021

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/994603/gbr-williams-shapps-plan-for-rail.pdf

⁴³ Office of Rail and Road, *Passenger Rail Performance: 2019-20 Quarter 4*, 21st May 2020, p. 9, Fig. 3.1
<https://dataportal.orr.gov.uk/media/1737/passenger-performance-2019-20-q4.pdf>

⁴⁴ Office of Rail and Road, *Passenger Rail Performance: 1 January to 31 March 2022*, 26th May 2022, p. 11
<https://dataportal.orr.gov.uk/media/2061/passenger-performance-jan-mar-2022.pdf>

had been initiated in August 2019 by the deployment of the “Nova 3” train sets, comprising a Class 68 locomotive pulling four Mark 5A coaches and a driving trailer; these were intended to serve routes from the North West to Middlesbrough and Scarborough.

- 3.11 Overall the year 2019 thereby saw the introduction of many significantly improved rail vehicles across the North, and the performance characteristics of this rolling stock have now created a situation where it is the network’s rail infrastructure itself which is constraining improvements in the service offered, and preventing the realisation of the full benefits of deploying new trains.

The coronavirus pandemic

- 3.12 Action to rectify some financial problems in the North’s rail industry were already underway at the start of 2020, with the early termination of Arriva Rail North’s franchise on 1st March of that year. However, within a matter of weeks all of Britain’s TOCs were returned to public management, due to the revenue impact of the coronavirus pandemic, completely changing the context within which the industry was operating.
- 3.13 The impact of the pandemic varied geographically and by rail market sector, with the North initially suffering the most. The first quarter rail demand for Train Operating Companies in the North fell more than the national average in 2020-21, with journeys on Merseyrail, TransPennine Express and Northern falling to respectively 6.9%, 6.3% and 5.7% of their 2019-20 level, as compared to 9.1% in the busy London & South East sector.⁴⁵
- 3.14 However, rail demand in the North subsequently recovered more strongly than elsewhere; by January to March 2022, demand in the London & South East sector was back to 55.9% of the levels two years previously, whilst the number of journeys on Merseyrail, TransPennine Express and Northern had returned to 68.7%, 56.5% and 62.5% respectively.⁴⁶
- 3.15 The relatively good rail recovery in the North can be explained by the fact that the impact of the pandemic on rail demand went beyond a simple fall in numbers; the propensity of passengers to return to rail travel has been strongly related to journey purpose, and this varies by TOC and region. As can be seen in the table below, the TOCs which operate in the North carried a far smaller proportion of commuters than the national average,⁴⁷ and correspondingly rely much more on passengers travelling for “other” (including leisure) reasons.⁴⁸

⁴⁵ Office of Rail and Road, *Passenger Rail Usage: 2020-21 Quarter 1*, 8th Oct. 2020, p. 3

⁴⁶ Office of Rail and Road, *Passenger Rail Usage: January to March 2022*, 16th June 2022, p. 4
<https://dataportal.orr.gov.uk/media/2064/passenger-rail-usage-jan-mar-2022.pdf>

⁴⁷ Department for Transport, *Rail Factsheet*, December 2020, p. 3

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/942425/rail-factsheet-2020.pdf

⁴⁸ Transport Focus, *National Rail Passenger Survey: Technical Report, Spring 2020 (Wave 42)*, Version 8, July 2020, p. 73

Table 3.2: Journey purpose (by TOC) in 2019-20

Train Operating Company	Journey purpose (2019-20) by percentage		
	Commuting	Business	Other (inc. leisure)
Avanti West Coast	9	22	69
CrossCountry	15	28	57
East Midlands	23	28	49
Grand Central	5	28	67
Hull Trains	10	45	45
London North Eastern	9	31	60
Merseyrail	43	1	56
Northern	38	9	53
ScotRail	39	13	47
TransPennine	26	13	61
Transport for Wales	31	10	59
West Midlands	40	13	46
Average (England)	54	10	36

3.16 The sudden increase in working from home which was normalised during the pandemic has had a major effect upon commuting demand. Approximately 2 years after the initial impact of coronavirus, research uncovered that whereas 57% of pre-pandemic rail commuters had previously travelled to their place of work 5 days per week typically, that figure had now fallen to 15%, with 33% usually not commuting to the office at all during any given week.⁴⁹ It should be noted however that the growth in home-working was lower in the North's three regions than in any other part of Great Britain, with the proportion of people working from home now lower in the North (at under 27% in all three regions) than the English average of 31%.⁵⁰

3.17 Conversely, leisure travellers were more likely than business users or commuters to report that they were actually travelling more often by train post-pandemic than previously.⁵¹ The railway in the North's relative strength in travel for "other" purposes (including leisure) and its lack of reliance on commuting has therefore underpinned its comparatively strong recovery.

The development of new markets

3.18 Although rail demand recovery in the North has been strong, demand patterns have changed. In addition, rail remains a mode used by a minority of people. For rail to grow, understanding the barriers to use for infrequent and non-users is important. Research by Transport

<https://d3cez36w5wymxj.cloudfront.net/wp-content/uploads/2020/07/31154731/NRPS-Technical-Report-Spring-2020-v8-30.07.20.pdf>

⁴⁹ Jacobs (for Rail Delivery Group & PDFC), *Impact of COVID-19 on Rail Working from Home Trends: Wave 2 Survey Findings*, 30th March 2022, p. 6

⁵⁰ Labour Force Survey, *Homeworking in the UK - Regional Patterns: 2019 to 2022*, 11th July 2022, Tables 1a, 1b & 1c

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/article/s/homeworkingintheukregionalpatterns/2019to2022>

⁵¹ BVA BDRC (for Rail Delivery Group), *COVID-19 Rail Tracker – Wave 12 Report*, July 2022, p. 24

Focus for the Williams Rail Review⁵² identified five common priorities for existing passengers, and a strong correlation between these and the perceived barriers which explain why other people do not use rail. These factors were:

- Better value for money;
- Being able to get a seat on the train;
- More trains arriving on time;
- Less-frequent unplanned disruption; and
- Fewer trains cancelled.

- 3.19 In addition, there are specific barriers which deter disabled people from using rail. Transport Focus suggested that, for any change to encourage use by persons with reduced mobility (PRMs) to be successful, there would be a requirement for “continued investment to remove physical barriers (for example, in providing step-free access at stations) but to be most effective it should also address all stages of a journey: being able to plan journeys, getting to and from the station, buying a ticket, station and train facilities and the availability of staff.”⁵³
- 3.20 Despite the dramatically changed demand, revenue and governance scenario that arose in early 2020, the Government continued one policy initiative that it had started in January of that year, namely the Restoring Your Railway Fund. A total of £500 million had been pledged to develop and deliver projects intended to reinstate former railway stations and lines which had been closed since the Beeching “axe” of the 1960s. A list of these proposals can be found in Table 11.2 in Appendix A.

Developments since 2021

- 3.21 Despite the disruption caused by successive lockdowns and coronavirus restrictions during the period from March 2020 to July 2021, the Williams Rail Review finally produced its White Paper on 20th May 2021.⁵⁴ The principal recommendation of the White Paper was the creation of a new public body, Great British Railways (GBR), which is intended to provide readily identifiable and accountable leadership for the railway industry. GBR will both operate the railway network and undertake long-term planning. It will collect revenue from fares (including bearing the revenue risk), set most fares and timetables, and manage a website which will sell tickets and provide a single point of contact for information.
- 3.22 Throughout 2022 and 2023, Transport for the North has continued to develop its response to the Williams-Shapps Plan. This was based on

⁵² Transport Focus (for Williams Rail Review), *Barriers to Travel: How to Make Rail More Attractive to Infrequent and Non-Users*, April 2019, p. 13
<https://d3cez36w5wymxj.cloudfront.net/wp-content/uploads/2019/04/29145935/Williams-Rail-Review-Barriers-to-travel-How-to-make-rail-more-attractive-to-infrequent-and-non-users.pdf>

⁵³ Transport Focus (for Williams Rail Review), *Barriers to Travel: How to Make Rail More Attractive to Infrequent and Non-Users*, April 2019, p. 14

⁵⁴ Department for Transport & Williams Rail Review, *Great British Railways: The Williams-Shapps Plan for Rail*, 20th May 2021

four pillars which were identified as encapsulating the strengths that TfN can bring to the railway industry in the North, and the role that we can play with our partners. These pillars are summarised in the diagram below.

Figure 3.1: The four pillars of TfN’s future role in the rail industry in the North



3.23 Later in 2021, H.M. Government published the long-awaited *Integrated Rail Plan for the North and Midlands*, detailing the specific investments in rail infrastructure that DfT are willing to fund in order to support future long-distance and interurban train service levels in the North and Midlands. This plan enumerated the budgets for £96 billion of rail capital expenditure.⁵⁵ These future commitments form the baseline of investment against which TfN will use its influence to represent the interests of the North and its partners, and they are discussed further in Chapter 4.⁵⁶

3.24 The IRP was partially superseded in October 2023, when the Government announced that Phase 2 of High Speed 2 would not be funded, with those parts north of Handsacre in Staffordshire being cancelled. The resources released would however be partly used to expand the scope of Northern Powerhouse Rail, with the upgrade and electrification of the Manchester-Sheffield, Sheffield-Leeds, Sheffield-Hull and Leeds-Hull routes being included. The *Network North* policy

⁵⁵ Department for Transport, *Integrated Rail Plan for the North and Midlands*, CP 490, Nov. 2021, p. 31 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1062157/integrated-rail-plan-for-the-north-and-midlands-web-version.pdf

⁵⁶ Transport for the North, *Transport for the North's Statutory Advice in Response to the Integrated Rail Plan*, 26th November 2021 https://transportforthenorth.com/wp-content/uploads/Statutory-Advice-in-Response-to-IRP-Nov-2021_Redacted.pdf

initiative also included provision of an NPR station for Bradford, with a target journey time to Manchester (via Huddersfield) of just 30 minutes.⁵⁷

- 3.25 TfN's policy agenda will also be pursued against the background of medium-term investments being undertaken by Network Rail; these will shortly be detailed in their CP7 *Delivery Plan* (which was due to be published on 31st January 2024). However, some indication of what was likely to be funded during Control Period 7 (2024 to 2029) was given in the documents relating to the Rail Network Enhancements Pipeline (RNEP) which were published in Autumn 2019.⁵⁸ An unofficial report on the status of these proposals was published by the Railway Industry Association in October 2022.⁵⁹ As the data has not been officially updated for over 4 years, there may be some changes when the RNEP and *Delivery Plan* are finally published, but Table 11.3 in Appendix A gives an indication of the most advanced schemes in the North. TfN supports the RNEP, so this list gives an indication of those interventions which we believe are most important for the railway in the North of England.

Future rail demand

- 3.26 The future growth of rail demand is uncertain, as the pandemic may have permanently altered travel and work behaviour. Rail demand was growing strongly in the North before 2020, and demand has recovered more quickly here than elsewhere in Britain, but the long-term future remains unpredictable. More work is needed to investigate the underlying factors driving demand changes, as these can be very localised, relating to employment and leisure patterns in small areas. The "trip rate" (i.e. the amount of rail demand compared to the nearby population) varies enormously across our region. This has led to different routes being impacted in unique ways by the pandemic. Nevertheless, there are common factors affecting all parts of the North, and these are also uncertain.
- 3.27 Indeed, TfN's own *Future Travel Scenarios* work indicates a very wide range of potential demand for rail travel in future, based on differences in population distribution, travel behaviour, vehicle ownership and levels of working from home. These are detailed in some depth in the *Future Travel Scenarios* report.⁶⁰

⁵⁷ Department for Transport, *Network North: Transforming British Transport*, CP 946, Oct. 2023, pp. 28-29 <https://assets.publishing.service.gov.uk/media/65294b416b6fbf0014b75641/network-north-transforming-british-transport.pdf>

⁵⁸ Department for Transport, *Rail Network Enhancements Pipeline: Autumn 2019 Schemes Update*, Oct. 2019, pp. 7-14 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/953967/rail-network-enhancements-pipeline-document.pdf

⁵⁹ Railway Industry Association, *RIA Briefing: The Status of the 2019 RNEP Projects and Other Enhancement Schemes*, 21st Oct. 2022, pp. 3-12 https://www.riagb.org.uk/RIA/Newsroom/Publications%20Folder/RIAs_October.aspx

⁶⁰ Transport for the North, *Future Travel Scenarios: Adaptive Planning to Deliver Our Strategic Vision in an Uncertain Future*, Dec. 2020, esp. pp. 104-105 https://transportforthenorth.com/wp-content/uploads/TfN_Future_Scenarios_Report_FULL_FINAL_V2.pdf

Table 3.3: Transport for the North’s four *Future Travel Scenarios*

No.	Name of scenario	Basic parameters		
		Economic growth	Population distribution	Typical working from home (2050) ⁶¹
1	Just About Managing	“Business as usual”	Most growth in urban and suburban areas	2 days per week
2	Prioritised Places	“Business as usual”	Growth more evenly shared, with shift towards rural areas from 2025 onwards	1 day per week
3	Digitally Distributed	Transformational (as described in the <i>Northern Powerhouse Independent Economic Review</i>)	Growth highest in suburban areas, but also some growth in urban and rural areas	3 days per week
4	Urban Zero Carbon	Transformational (as described in the NPIER)	Growth mainly weighted towards urban areas, with very little growth in rural areas	2 days per week

3.28 These scenarios have been assessed using TfN’s cutting edge modelling techniques, and the range of demand for different modes of transport could be expected to change over the coming three decades as shown in the table below.⁶²

Table 3.4: Demand in TfN’s four *Future Travel Scenarios*

Scenario (2050)	Population	Jobs	GVA per annum	Rail demand (from 2019)	Car demand	Bus demand	Active travel	Vehicle kilometres	Carbon reduction
Just About Managing	16m	7.3m	£523bn	+83%	+6%	-3%	+4%	+28%	71%
Prioritised Places	16m	7.3m	£524bn	+122%	+1%	+19%	+13%	+27%	73%
Digitally Distributed	17m	8.0m	£677bn	+78%	+8%	+11%	+6%	+44%	96%
Urban Zero Carbon	17m	8.0m	£680bn	+193%	-6%	+21%	+30%	+13%	96%

3.29 Passenger rail demand could therefore plausibly increase from anywhere between 78% and 193% between now and 2050. Given that the pre-pandemic baseline number of rail journeys starting or ending

⁶¹ This parameter applies to those occupations where working from home is deemed to be practical.

⁶² Transport for the North (2020), *Future Travel Scenarios: Adaptive Planning to Deliver Our Strategic Vision in an Uncertain Future*, Dec. 2020, pp. 59-77

https://transportforthenorth.com/wp-content/uploads/TfN_Future_Scenarios_Report.pdf

in the North was 373 million,⁶³ this could mean rail demand in 2050 varying from 664 million trips per year to circa 1.1 billion. Considerable development work would be required simply to calculate the scale of investment necessary to accommodate the latter figure.

- 3.30 Linked to the points above, the times of each day and each week that people choose to travel is also changing. Peak hours have shifted in many locations, whilst a change in the balance between the relative importance of the business, commuter and leisure markets has meant that the balance between weekday and weekend travel has also altered.

Train performance

- 3.31 The North has consistently suffered from poor train performance compared to other regions of Great Britain, with almost all of the poorest performing Train Operating Companies being those which pass through or operate within the North. As we recovered from the reduced train service levels and passenger numbers during the pandemic, the previous pattern of poor performance had reasserted itself. In the three months from April to June 2022, those Train Operating Companies which operate in the North were again almost uniformly performing worse than those which do not, as shown below.⁶⁴ This situation had further deteriorated by the latest three month period for which figures are available (July to September 2023), owing to significantly poorer performance from TPE, CrossCountry, Grand Central, Hull Trains, LNER and Northern.⁶⁵ The pattern of much poorer train punctuality in the North is still clear.

Table 3.5: Percentage of trains on time (by TOC) April to June 2022 and July to September 2023

Train Operating Company	On time percentage (April to June 2022)	Operations in the North	On time percentage (July to Sept. 2023)	Change since April to June 2022
TfL Rail (Elizabeth Line)	88.1	None	82.8	- 5.3
Greater Anglia	87.4	None	87.2	- 0.2
c2c	81.6	None	80.7	- 0.9
Heathrow Express	81.3	None	75.6	- 5.7
London Overground	79.1	None	74.7	- 4.4
Chiltern Railways	76.4	None	81.8	+ 5.4
Govia Thameslink Railway	75.1	None	70.6	- 4.5
ScotRail	74.0	Small part	72.1	- 1.9
Caledonian Sleeper	73.8	Significant	76.4	+ 2.6
South Western Railway	73.5	None	70.1	- 3.4

⁶³ Office of Rail & Road, *Estimates of Station Usage 2018-19*, 14th Jan. 2020

<https://dataportal.orr.gov.uk/media/1667/table-1410-estimates-of-station-usage-2018-19.ods>

⁶⁴ Office of Rail & Road, *Passenger Rail Performance: 1 April to 30 June 2022*, 15th Sept. 2022, p. 12

⁶⁵ Office of Rail & Road, *Passenger Rail Performance: 1 July to 30 September 2023*, 7th Dec. 2023, p. 14

https://dataportal.orr.gov.uk/media/1kdfjw4u/performance_stats_release_jul-sep-2023.pdf

Train Operating Company	On time percentage (April to June 2022)	Operations in the North	On time percentage (July to Sept. 2023)	Change since April to June 2022
Southeastern	72.8	None	69.7	- 3.1
Merseyrail	71.8	All	71.4	- 0.4
Great Western Railway	68.8	None	59.9	- 8.9
London North Eastern Railway	67.8	Significant	59.9	- 7.9
Northern Trains	65.5	Almost all	60.5	- 5.0
Hull Trains	64.2	Significant	55.9	- 8.3
West Midlands Trains	63.5	Small part	62.6	- 0.9
Transport for Wales Rail	61.3	Small part	60.3	- 1.0
Lumo	60.8	Significant	59.6	- 1.2
CrossCountry	58.6	Significant	48.8	- 9.8
TransPennine Express	58.4	Almost all	48.4	- 10.0
East Midlands Railway	58.0	Small part	54.1	- 3.9
Grand Central	51.6	Significant	43.0	- 8.6
Avanti West Coast	46.5	Significant	46.3	- 0.2

3.32 As well as generally poor train performance, the North also contains a number of specific pinch-points where a large number of services are using a limited amount of infrastructure, especially around major stations. This causes a significant amount of reactionary delay, where the punctuality problems experienced by one service impact upon another due to trains being in an unexpected place or out of sequence. This issue is covered in greater depth in Chapter 8, with data showing that Leeds, Sheffield, Manchester, York and Doncaster are amongst the worst hotspots in the country for this kind of problem.⁶⁶ However, it should also be noted that if performance issues lead to trains being curtailed, it is terminal stations at the end of long routes (such as Liverpool Lime Street or Newcastle Central) which often suffer loss of services.

3.33 The punctuality and reliability of train services is also impacted by the disruption caused during major infrastructure works. This has recently been illustrated by Transpennine Route Upgrade, and in the near future disruption is expected on both the West Coast Main Line and other parts of the TRU route. There is a consensus that there has been excessive reliance on rail replacement bus services, with not enough effort to develop diversionary routes.

3.34 Performance has been further hampered by staffing problems at some Train Operating Companies, which relate to the recruitment, training and rostering of employees, as well as recent industrial relations

⁶⁶ Network Rail Industry Performance, *Congestion Hotspots*, 23rd July 2019
<https://public.tableau.com/app/profile/nr.industry.performance/viz/CongestionHotspots/CongestionDelayHotspots>

issues. The rail industry as a whole is experiencing a rapidly ageing workforce, and needs to broaden its recruitment base.

- 3.35 A factor which complicates efforts to improve performance is the approach which Network Rail adopt regarding strategic planning. Network Rail are essentially tasked with predicting future demand growth (based on standard models and current trends), and providing sufficient capacity (both network capacity and train capacity) to meet any expected growth. This may result in recommendations to significantly expand junction and station capacity, or even build new lines, but this is generally planned so as to avoid any worsening of performance; the goal of improving performance as an output in itself is not normally part of this planning process, even though there is ample evidence that more punctual and reliable trains can attract new passengers and encourage modal shift.

The role of stations

- 3.36 The existing standard of stations facilities in the North is poor, especially with regard to accessibility for persons of reduced mobility; only 48% of the 600 stations in TfN's area of interest have step-free access to all areas. At the present rate of progress, the "Access for All" programme will not rectify this until the early years of the next century.
- 3.37 The wider role of stations within their communities is recognised as an important area, but it is difficult to evaluate and quantify. Northern Trains' "Station as a Place" initiative is however a step forward in examining this issue, whilst there is increasing recognition that the impact of the railway on its neighbours (in environmental and social terms) is a growing area of concern.
- 3.38 There have been numerous proposals for new stations and new railway lines from TfN's partners. As of early 2021,⁶⁷ TfN was aware of 171 proposals for new stations, comprising:
- 17 proposals to reinstate railway lines (or reopen freight or heritage lines for mainline passenger traffic), incorporating a total of 86 proposed new or reopened stations;
 - 3 line reopenings which support a single station (Skelmersdale, Skipton to Colne [Earby], and Wapping Tunnel);
 - 37 reopened stations on existing lines; and
 - 45 entirely new stations on existing lines.

However, given the likely limited funding for such proposals whilst major infrastructure programmes (such as Northern Powerhouse Rail) are being developed in the North, TfN has decided to support the Restoring Your Railway Fund (RYRF) as the principal route to similar reopenings.

⁶⁷ Transport for the North, *Network Gaps Policy and Delivery Plan*, Draft Report, Jan. 2021, p. 32

The format of the remaining thematic chapters

- 3.39 The overall approach taken in this document is to revise the conclusions of the 2018 *Long Term Rail Strategy* where developments over the last 4 years have made this appropriate. However, there are some elements of the current situation which we have no reason to believe have changed significantly, such as the attributes which rail services (passenger or freight) must possess in order to be competitive with private road transport; accordingly, where the Desirable Minimum Standards from the LTRS still apply, they have been retained as TfN's Rail Output Standards (ROsSs).
- 3.40 With this in mind, this chapter and each of the remaining sections of this document begins with a short table summarising four aspects of that policy area. The table contains sections for the following:
- a) Changing context:** This section describes the main changes outside of our control which have happened since January 2018, including wider social events (such as the coronavirus pandemic) and changes to national government policy;
 - b) Growing knowledge:** This quadrant of the table indicates where our expertise has improved in recent years, due to research, analysis and project development undertaken by TfN or our partners;
 - c) Recurring issues:** This section indicates areas in which the fundamental situation has not changed significantly since the publication of the *Long Term Rail Strategy* in January 2018; and
 - d) Applicable Rail Output Standards:** This portion of the table lists (where relevant) those Desirable Minimum Standards from the LTRS which are still applicable due to the background situation being broadly similar.
- 3.41 At the end of Chapters 4 to 8, a blue text box contains a paragraph summarising the main points made during that chapter. This is followed by a green text box illustrating which of Transport for the North's positions on the policy issue at hand (as described in the main *Strategic Transport Plan* document) is supported by the analysis. These policies are drawn from either TfN's strategic priorities (in the executive summary of the STP) or required actions in the conclusion.

4. Major programmes

Table 4.1: Key aspects of major programmes

Changing context	Growing knowledge
<ul style="list-style-type: none"> The DfT's <i>Integrated Rail Plan for the North and Midlands</i> (Nov. 2021) indicated that the Government would fund networks for NPR and HS2 which were regarded as totally inadequate by TfN's members, and the scope of HS2 was further reduced by the <i>Network North</i> announcement of October 2023. 	<ul style="list-style-type: none"> TfN's <i>Future Travel Scenarios</i> workstream has indicated that if commitments to decarbonisation are to be met, the North's railway network may have to accommodate almost three times as many journeys by 2050.
Recurring issues	Applicable Rail Output Standards
<ul style="list-style-type: none"> The rail frequency and journey times between the North's major cities continue to be poor in relation to comparator regions (such as the Rhine-Ruhr area and the Netherlands). 	<ul style="list-style-type: none"> Long-distance services to achieve average journey speeds of at least 80mph [2] Inter-urban services to achieve average journey speeds of at least 60mph [3]

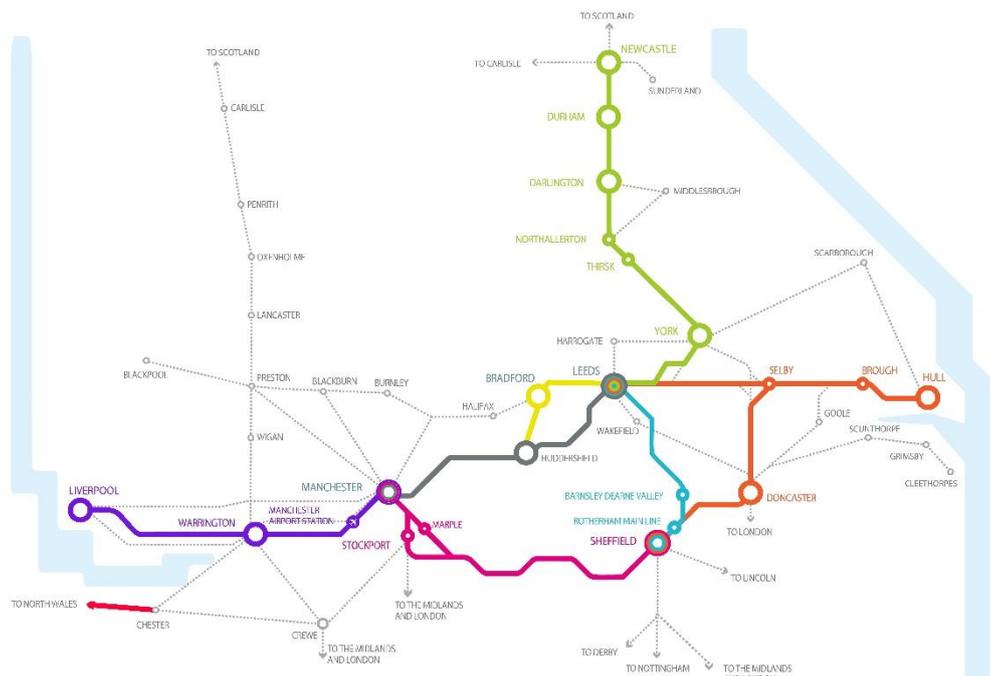
- 4.1 The North of England has a relatively comprehensive rail network connecting major centres with destinations in the North and the rest of the country. The network has seen investment over the years, including electrification of some routes and new trains. However, it is essentially the same network as that built over one hundred years ago. Capacity is limited, speeds are limited by alignments and capability for freight traffic, particularly intermodal trains, is restricted.
- 4.2 To provide the level of rail connectivity, capacity and reliability required to support the North's sustainable economic growth, delivery of a number of major rail programmes to complement smaller scale enhancements is important. These include:
- The Transpennine Route Upgrade (TRU), which will provide an electrified and upgraded route between Manchester and York via Huddersfield and Leeds. It will offer faster more reliable journeys, more seats and also capability for container freight trains;
 - High-speed rail connections (as previously planned by HS2) which would link the North to the Midlands and London and also to Scotland. This would provide significantly faster journeys with a major uplift in seating capacity; and
 - Northern Powerhouse Rail (NPR), linking the major cities of the North to each other and Manchester Airport through new lines and significant upgrades, providing more frequent and significantly faster journeys, whilst supporting greater economic interaction within the North.
- 4.3 These major programmes are crucial for the achievement of the STP targets and the outputs of the *Strategic Rail Report*. They are integral

parts of the North's future rail network and need to be planned as such so that the benefits can be spread to areas not directly served (e.g. through better links to hub stations using the existing network and through released capacity allowing better services elsewhere).

- 4.4 The Transpennine Route Upgrade is an essential medium-term programme providing passenger journey times of 41-42 minutes between Manchester and Leeds and 63-66 minutes between Manchester and York. It will provide the capability to double the number of available seats and allow the market to grow. TRU is an essential first step to the longer term NPR programme, not an alternative to it. TRU also provides some early parts of the NPR network, whilst simultaneously improving freight capacity.⁶⁸
- 4.5 TfN consistently supported HS2 because we believed it would play a key role in achieving our ambitions and improving the quality of life across the North. It would have expanded the existing rail network, regenerated railway stations and their surrounding areas, supported the delivery of NPR, and contributed to decarbonisation.
- 4.6 TfN's position remains that high-speed rail connections should be implemented between the North, the Midlands and the south of England, and that such infrastructure could also play a vital role in improving connectivity from Sheffield to Leeds and the North East.
- 4.7 The map below illustrates how TfN's preferred Northern Powerhouse Rail network is more extensive than what was proposed in the *Integrated Rail Plan*. The IRP's vision for NPR only included a new line between Warrington and just west of Huddersfield, but following the Government's *Network North* proposals of October 2023, other aspects of the original wider NPR scope have been restored.

⁶⁸ It should be noted that some interventions which could be delivered earlier than TRU (such as Skipton-Colne Reinstatement) could also provide benefits for freight capacity and resilience.

Figure 4.1: The Northern Powerhouse Rail network



Transpennine Route Upgrade (TRU)

- 4.8 The north trans-Pennine rail route between Manchester and Leeds, via Diggle, is a key economic artery for Northern England, with services operating from Liverpool and Manchester Airport in the west to Newcastle, Middlesbrough, Scarborough, and Hull in the east.
- 4.9 The TRU programme includes full electrification of the route (Manchester to York), additional track in some sections, new digital signalling, station upgrades and gauge clearance and additional capacity to enhance freight flows, including container traffic which is a growth market.

High Speed 2

- 4.10 The scope of High Speed 2 has now been reduced to a single line from London to the West Midlands, connecting Euston to a reopened station at Birmingham Curzon Street and a connection to the existing West Coast Main Line at Handsacre in Staffordshire.
- 4.11 The benefit to the North of this reduced-scope HS2 is likely to be a circa 30-minute reduction in journey time from Euston to Manchester, Liverpool and Preston, for those trains which are able to run on both the high-speed and standard infrastructure and can be accommodated within the new route's capacity.

Northern Powerhouse Rail (NPR)

- 4.12 TfN has supported several years of development work on NPR as a co-client with the Department for Transport. The TfN Board agreed its

preferred NPR network in 2021 and provided Statutory Advice to the Government to support this. That preferred network is:

- A new line to be constructed from Liverpool to Manchester via the centre of Warrington and Manchester Airport;
- A new line to be constructed from Manchester to Leeds via the centre of Bradford;
- Significant upgrades and journey time improvements to the Hope Valley route between Manchester and Sheffield;
- A combination of new lines (including the new station at Leeds), significant upgrades, and new stations at Rotherham and Barnsley Dearne Valley, in order to improve the network between Sheffield and Leeds;
- Significant upgrades and electrification of the rail lines from Leeds and Sheffield to Hull; and
- Significant upgrades of the East Coast Main Line from Leeds to Newcastle (via York and Darlington) and restoration of the Leamside Line (providing an alternative route from the ECML south of Durham into Newcastle).⁶⁹

4.13 The frequency and journey time impact of the full NPR programme is indicated by the table below. Please note that the stopping patterns given are indicative of potential stops, as these have not been formally agreed.

Table 4.2: Corridors in the scope of Northern Powerhouse Rail

Corridor	Preferred network option (and indicative stopping patterns)	Best current stopping service		Best stopping service with Northern Powerhouse Rail	
		Frequency	Minutes	Frequency	Minutes
Leeds to Newcastle	Infrastructure upgrades and use of HS2 (Stops: York, Darlington, Durham)	3 tph	81 to 91	4 tph	73
Leeds to Hull	Infrastructure upgrades (Stops: Selby, Brough)	1 tph	56 to 63	2 tph	46
Sheffield to Leeds	Infrastructure upgrades and use of HS2 (Stops: Rotherham Main Line, Barnsley Dearne Valley)	1 tph	39 to 42	4 tph	24
Sheffield to Hull	Infrastructure upgrades (Stops: Meadowhall, Rotherham Main Line, Doncaster, Selby/Goole, Brough)	1 tph	76 to 84	2 tph	67
Manchester to Sheffield	Infrastructure upgrades (Stops: Stockport, Hope, Dore)	2 tph	49 to 57	4 tph	35

⁶⁹ The reinstatement of the Leamside Line is a particularly important opportunity for the region, as it could benefit long-distance, local, freight and Metro services. Furthermore, the necessity of upgrading the ECML north of York as part of the full scope of NPR provides an opportunity to develop the Northallerton-Eaglescliffe-Stockton-Stillington alignment as a diversionary and freight route.

Corridor	Preferred network option (and indicative stopping patterns)	Best current stopping service		Best stopping service with Northern Powerhouse Rail	
		Frequency	Minutes	Frequency	Minutes
Manchester to Leeds	New line serving central Bradford (Stops: Bradford)	4 tph	48 to 61	6 tph	30
Liverpool to Manchester	New line via central Warrington (Stops: Warrington, Manchester Airport)	4 tph	35 to 51	6 tph	30

4.14 In addition to rail benefits, delivery of NPR in full supports the creation of an integrated and interconnected Northern economy. NPR has significant wider economic benefits, including a Gross Value Added uplift valued at £3.4 billion per year in 2040 (rising to £14.4 billion by 2060) and expanding labour market opportunities, bringing an additional 3.8 million people within 90 minutes of four or more Northern cities.

Major programmes in the *Integrated Rail Plan*

- 4.15 The Government’s *Integrated Rail Plan for the North and Midlands* (published in November 2021) set out its views on the North’s future rail network. In summary, it proposed partial new line solutions between Liverpool and Manchester and between Manchester and Leeds, with upgrades elsewhere. It committed to completion of the Transpennine Route Upgrade, and suggested this should be seen as Northern Powerhouse Rail Phase 1.
- 4.16 As a result, the IRP Manchester to Leeds corridor would be a new line from Manchester as far as Marsden, then using an upgraded TRU route via Huddersfield. Bradford would not have been served by NPR at all, and the IRP did not propose NPR solutions in the Sheffield to Manchester, Sheffield to Leeds, Leeds to Hull or Sheffield to Hull corridors. As a result, Sheffield, Hull and Newcastle were effectively excluded from direct benefits from NPR as well. However, it should be noted that the scope of the IRP did include the upgrade of the entire length of the ECML from King’s Cross to Newcastle, including the busy section north of York which also carries trans-Pennine traffic, and is thus crucial for east-west as well as north-south links.⁷⁰
- 4.17 The IRP proposed that the HS2 network would be London to Manchester, with the (subsequently cancelled) Golborne Link connection to the West Coast Main Line south of Wigan, but with the eastern leg of HS2 curtailed in the East Midlands; trains would reach Sheffield via upgrades to the existing rail network. How HS2 trains reach Leeds, and any improvements between Sheffield and Leeds, were to be the subject of a further study.

⁷⁰ Department for Transport, *Integrated Rail Plan for the North and Midlands*, CP 490, Nov. 2021, pp. 58-59 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1062157/integrated-rail-plan-for-the-north-and-midlands-web-version.pdf

4.18 Whilst fairly extensive, the *Integrated Rail Plan's* NPR and HS2 networks did not fully meet TfN's preferred network in several ways (as can be seen in the map above), with provision of rail infrastructure for Bradford, Hull and Sheffield being notably lower than what the North needs. The TfN-preferred NPR and HS2 networks therefore remained the long-term aim for rail connectivity in the North, supported by full delivery of TRU in the medium term. Together, these form a coherent plan for major rail investment in the North to support sustainable economic growth, underpinning the aims of the *Strategic Transport Plan*. The improvements proposed in the IRP were a first step to this aim, but did not fully achieve it.

Major programmes in *Network North*

4.19 Elements of the IRP were superseded in October 2023 by *Network North*,⁷¹ a new policy initiative intended to address the redistribution of transport funding following the Government's decision to cancel Phase 2 of High Speed 2 (i.e. the eastern leg in its entirety and the western leg north of Handsacre Junction in Staffordshire).

4.20 TfN has urged that land purchased for the completion of HS2 should be safeguarded pending any future government decision to recommence the programme. However, TfN also welcome the indication in *Network North* that resources released by the descoping of HS2 could be used to fund a wider scope for NPR, including restoring the Leeds and Sheffield to Hull links (including electrification of these routes) as part of the conditional scope. *Network North* also commits to a new station for Bradford as part of NPR (with faster links from Bradford to Manchester via Huddersfield), and electrification of the Sheffield to Leeds and Sheffield to Manchester routes.⁷²

Summary of the chapter on major programmes

In line with the arguments presented in this chapter, full delivery of the TfN preferred network for Northern Powerhouse Rail and high-speed rail connections to the south of England, supported by full delivery of TRU (including its freight elements) in the medium term, is essential to deliver the economic forecasts of the Northern Powerhouse Independent Economic Review. Only the full network will deliver the complete benefits of the complementarity of these major programmes in enhancing both east-west and north-south connectivity across the North; this is necessary in order to support:

- 1) The sustainable economic growth that will result from labour market agglomeration and improved business-to-business connectivity;
- 2) The ability to accommodate the large increases in rail usage which are expected in all of TfN's *Future Travel Scenarios*; and

⁷¹ Department for Transport, *Network North: Transforming British Transport*, CP 946, Oct. 2023 <https://assets.publishing.service.gov.uk/media/65294b416b6fbf0014b75641/network-north-transforming-british-transport.pdf>

⁷² DfT, *Network North: Transforming British Transport*, CP 946, Oct. 2023, pp. 28-29

- 3) The modal shift from road to rail which is needed to enable both our *Decarbonisation Strategy* and *Freight Strategy*.

Chapter 4: Alignment with TfN's policy positions

The information and analysis presented in this chapter supported the following strategic priorities from TfN's *Strategic Transport Plan*:

- Our rail network and wider connections must transform the access to opportunities for millions of people, recognising the need to move beyond the current crisis and take clear steps to create capacity for passenger and freight growth over a sustained period of investment;
- Delivery of the full NPR network and high-speed connections to southern England is an essential part of growing our economy and decarbonising the network. This STP reaffirms TfN's strategic priorities for rail including the need for commitment to our preferred NPR network which includes a new line from Liverpool to Manchester via Warrington, a new line from Manchester to Leeds via central Bradford and significant upgrades to the Hope Valley and East Coast Main Line routes to ensure effective services through to Sheffield, Hull and the North East; and
- Improving the multimodal North-South and East-West connectivity across the North, particularly focused on rail. This means increased electrification (including infill) and gauge clearance of the network, including the full delivery of the Transpennine Route Upgrade and the development of rail alternative freight priority routes as well as investment from freight operating companies.

The material in this chapter also supports the following required actions that are listed in the STP:

- Work with Government and industry partners to secure full delivery of the preferred Northern Powerhouse Rail network and high-speed connections to southern England, and completion of the Transpennine Route Upgrade, building on the committed investment in the Government's *Integrated Rail Plan* and *Network North*; and
- TfN will work with industry and DfT to secure a common set of service development proposals against which a pipeline of infrastructure investment can be more coherently developed to ensure an effective and joined-up approach across these schemes and programmes.

5. The passenger’s experience

Table 5.1: Key aspects of the passenger’s experience

Changing context	Growing knowledge
<ul style="list-style-type: none"> • The relative importance of non-work travel (e.g. for educational or leisure purposes) has increased. • Some ongoing fears about CoViD in public places may be deterring rail travel, though this is now thought to be minimal. • Personal security is emerging as a major factor regarding attracting new customers to the railway. • Technology and passenger expectations related to integrated ticketing continue to develop. 	<ul style="list-style-type: none"> • Northern’s “Stations as a Place” initiative is exploring new roles for stations. • TfN’s Stations Strategy research has revealed where there are relative deficiencies between the North’s stations and other regions. • The passenger experience during disruption was shown to be a major issue in the Rail Passenger Experience of Disruption Handling report (Feb. 2021). • TfN’s Stations Strategy has indicated costs and benefits for various programme options to improve stations facilities.
Recurring issues	
<ul style="list-style-type: none"> • A “total journey” and “whole network” approach is needed to supplement improvements between the main urban centres. • The current rate of progress regarding accessibility is too slow, as it would take several decades to bring all stations up to an acceptable standard. • The variety of operators in the North makes agreeing consistent standards difficult. • There are disparities in station standards within sub-regions of the North. • Community rail organisations need to successfully harness the support of and reach further into their local communities and the rail industry through a partnership approach. 	

5.1 Transport for the North’s *Strategic Transport Plan* (STP) of 2019 recognised the importance of the rail passenger’s full experience of using the railway, including the provision of information, ease of ticketing, station facilities, accessibility, comfort, and customer service during disruption. The railway industry should aim to provide journeys which are “safe, reliable and pleasurable”, especially where interchange between trains or multiple modes of transport are involved.⁷³

5.2 In order to achieve this, we must understand and satisfy the needs of passengers, both those who use the rail network on a regular basis, infrequent rail travellers, and those who currently feel unable to use the railway due to existing or perceived barriers. TfN’s primary focus has involved the identification and recommendation of pan-Northern strategic transport interventions (such as Northern Powerhouse Rail), which generally facilitate medium or long-distance trips between the North’s major economic centres. However, there needs to be complementary and supporting investment at a local level, in order to

⁷³ TfN, *Strategic Transport Plan*, Feb. 2019, pp. 50-52, p. 74 & p. 93

provide a “whole journey” and “total network” approach to improving transport.

- 5.3 A crucial aspect of this is the passenger’s experience of railway stations. Stations exist to provide an entry point to the railway network (allowing outward journeys to other places in order to access opportunities and services) and to enable inward journeys for the same purposes through providing an exit point. Some stations also have a role enabling interchange between train services, so passengers do not need to enter or leave the station; in these cases, the quality of facilities can be especially important when the waiting period is long.
- 5.4 Taking the “whole journey” approach necessitates considering how passengers reach the station to start their journeys or their onward travel afterwards. This will involve an access mode, and the ease of using these may be affected by station facilities such as car parking, cycle parking, taxi ranks, bus interchanges, and walking or cycling routes. Furthermore, the passenger experience of rail travel will be influenced by how issues such as information provision, lighting, and a sense of security (as encouraged by CCTV or staff levels for example) apply to the access mode as well as the rail journey itself.
- 5.5 It should be noted in particular that the impact of car parking availability has a very complex relationship with passenger satisfaction and rail demand. Research undertaken for the Association of Train Operating Companies indicated that the availability of alternative modes of transport at both origin and destination interacts with the provision of parking to influence travellers’ mode choice, in ways that are not always easy to predict.⁷⁴
- 5.6 Another often-overlooked aspect of the passenger experience is access to and egress from the train. Different rolling stock designs and operational circumstances can make this a more or less pleasant aspect of travel, especially for persons of reduced mobility. We note that some less densely populated areas (e.g. the Cumbrian Coast) are still served by older vehicles (such as Class 156s) which are not as easily accessible as more modern rolling stock, as well as being uncomfortable. Meanwhile, a significant improvement has been made to accessibility at Merseytravel stations by ensuring that platform and train door heights are aligned; this issue could be gradually resolved elsewhere on the network through collaboration between TOCs, Network Rail and rolling stock manufacturers.
- 5.7 To deliver a “whole journey” approach, even greater engagement between the railways and the communities that they serve is necessary. For this, empowerment and expansion of community rail organisations is required to deliver the key pillars of the DfT’s *Community Rail Development Strategy*:⁷⁵

⁷⁴ The Railway Consultancy (for ATOC), *Car Parking Research for PDFC*, 2010
<https://www.railwayconsultancy.com/projects/carparking.php>

⁷⁵ Department for Transport, *Connecting Communities with the Railways: The Community Rail Development Strategy*, 14th April 2020
<https://www.gov.uk/government/publications/community-rail-development-strategy/connecting-communities-with-the-railways-the-community-rail-development-strategy>

- Providing a voice for the community;
 - Promoting sustainable, healthy and accessible travel;
 - Bringing communities together and supporting diversity and inclusion; and
 - Supporting social and economic development.
- 5.8 Following the severe performance problems associated with the May 2018 timetable change, the issue of passenger needs during disruption has gained more prominence. The DfT undertook its own research and policy recommendations on this subject, which were published in May 2021, and TfN recognise the importance of this work.⁷⁶

Challenges for the passengers' experience

- 5.9 There are several challenges to overcome as we develop policies which address passenger experience, namely:
- Numerous Train Operating Companies (TOCs) provide services in the North, either mainly within TfN's territory, or travelling through it and serving some stations. It is therefore challenging to obtain a consistent level of passenger experience across all operators;
 - Railway stations within the North are primarily managed by either Northern Trains Limited or TransPennine Express (TPE), but many are operated by other TOCs or Network Rail. Our stations vary from small unstaffed halts to major city centre hubs and termini, and TfN's recent stations research revealed that the quality of facilities offered varies significantly between regions;⁷⁷ and
 - The volume of work required to improve the passenger experience across the North to a consistent standard would require a long-term funded programme.
- 5.10 As part of the *Northern England Station Enhancements Programme*, TfN have developed what are regarded as minimum, acceptable and desirable standards for station facilities. The table below indicates what were regarded as being required of the major types of station facility in each scenario, with a tick indicating that this level of facility was stipulated for all scenarios for standards, and the letters M, A and D indicating that it was required only in the relevant scenario.⁷⁸

⁷⁶ Department for Transport, *Rail Passenger Experience of Disruption Handling*, May 2021

⁷⁷ Mott MacDonald (for TfN), *Northern England Station Enhancements Programme: Strategic Outline Business Case*, May 2022, pp. 39-40

⁷⁸ Mott MacDonald (for TfN), *Northern England Station Enhancements Programme: Strategic Outline Business Case*, May 2022, p. 60

Table 5.2: Minimum, acceptable and desirable scenarios for station facilities standards

	Category	C: Important feeder	D: Medium staffed	E: Small staffed	F: Unstaffed	Very small
Information	CIS on platform	✓	✓	✓	✓	
	CIS elsewhere	✓	✓	A & D		
	TVMs	✓	✓	✓	A & D	
	Booking office	✓	✓	✓		
	Staff on platform	✓	A & D	D		
	Notice board		✓	✓	✓	✓
Security	CCTV	✓	✓	✓	✓	
Comfort	Waiting room	✓	✓	D		
	Good seats	✓	A & D			
	Toilets	✓	✓	D		
Inclusivity & accessibility	Step-free access	✓	✓	A & D	D	
	Help points		M	M & A	✓	
First & last mile	Landmark building	✓	✓			
	Taxi rank and "kiss & ride" areas	✓	✓	A & D	A & D	
Amenities	Shop or café	✓	A & D	D		
	Vending machine or coffee stall	✓	M	A	D	

5.11 Furthermore, TfN have commissioned some work on the costs and benefits of bringing all 600 stations in our area of interest up to these various standards of facilities, and the results below indicated that there was a relatively strong economic case for progressing a programme of works for both the minimum and acceptable scenarios.⁷⁹

Table 5.3: Economic case for programmes of stations facilities enhancements (£ millions, 2010 market prices, discounted to 2010)

Item	Minimum	Acceptable	Desirable
Present value of benefits (PVB)	375	435	560
Indirect taxation (PVB)	-35	-45	-55
Present value of costs (PVC)	140	215	425
Net present value (NPV)	200	180	75
Benefit-to-cost ratio (BCR)	2.46	1.84	1.18

5.12 TfN will collaborate with other STBs and our local partners across the North, to enhance the passenger experiences in the form of information provision, customer service during times of disruption,

⁷⁹ Mott MacDonald (for TfN), *Northern England Station Enhancements Programme: Strategic Outline Business Case*, May 2022, p. 96

easy to understand ticketing systems, station accessibility, ease of movement around the station and passenger comfort across the North.

5.13 In the *Strategic Transport Plan* adopted in 2019, the relevant Conditional Outputs relating to passenger experience were:

- Providing more space for passengers to enable all passengers to expect a seat on off-peak services, and within 20 minutes of boarding a peak service, and therefore increase passenger satisfaction relating to crowding and on-train conditions;
- All stations should meet our minimum standards and thus increase passenger satisfaction relating to station facilities;
- Increase in number of passengers satisfied with information provision; and
- Increased personal safety and satisfaction.

5.14 As described above, there is the opportunity to deliver a coordinated programme of enhancements to stations in the North of England which will increase the consistency and standard of the product offer, improve satisfaction, and deliver the following transformational outcomes for the items shown in the table below.⁸⁰

Table 5.4: Strategic case for programmes of stations facilities enhancements

User experience	<ul style="list-style-type: none"> • Improved quality for all users with facilities that meet or exceed passengers' expectations • Improved consistency and a 'one network' offer as seen in other parts of the country
Place making	<ul style="list-style-type: none"> • Stations that are attractive gateways to the railway network, promoting mode shift and increasing revenue • Stations that are attractive gateways to the place the railway serves, stimulating regeneration and investment
Economic development	<ul style="list-style-type: none"> • Access to opportunity, especially employment and training, to reduce economic inequalities • Promoting and enabling inward investment in the North
Environment	<ul style="list-style-type: none"> • Support mode shift from more polluting modes, contributing to net zero carbon targets and improving local air quality • Enhancing and protecting the natural and built environment around stations
Security & Safety	<ul style="list-style-type: none"> • Improved real and perceived security for passengers and their personal safety when waiting at stations • Fewer accidents due to slips, trips and falls
Equality	<ul style="list-style-type: none"> • Much improved physical accessibility between street and trains for those with reduced mobility • Addressing other barriers to using trains for people with less visible disabilities through facilities and information
Commercial potential	<ul style="list-style-type: none"> • Increased farebox revenue for the industry through mode shift to rail • Supporting additional commercial activity

5.15 Investing in the North's stations will complement other investment in the railway, wider transport projects and programmes, and UK

⁸⁰ Mott MacDonald (for TfN), *Northern England Station Enhancements Programme: Strategic Outline Business Case*, May 2022, p. 10

Government place-based programmes such as the Towns Deal, Future High Streets Fund (FHSF), Levelling Up Fund (LUF), City Region Sustainable Transport Settlement (CRSTS), and UK Shared Prosperity Fund (SPF).

5.16 It should be noted that another problem with station accessibility is the inconsistent nature of provision between the North's regions and counties. The table below indicates how the proportion of stations enjoying various facilities is uneven across the North, and the proposed enhancement programme would act in order to level this up:

Table 5.5: Accessibility facilities at stations in the North⁸¹

Item	All stations	Cheshire	Cumbria	Greater Manchester	Humberside	Lancashire	Merseyside	North East Combined Authority	North of Tyne	North Yorkshire	South Yorkshire	Tees Valley	West Yorkshire
Number of stations	600	54	48	92	41	62	82	12	19	48	29	24	69
CIS on platform	83%	83%	81%	78%	46%	92%	99%	67%	63%	69%	100%	88%	99%
PA system	77%	57%	31%	83%	46%	82%	95%	92%	68%	71%	100%	92%	99%
Staff on the platform	35%	31%	18%	42%	15%	23%	92%	21%	16%	15%	24%	21%	26%
Help points	59%	57%	29%	67%	39%	21%	93%	33%	53%	31%	90%	50%	83%
CCTV	73%	63%	65%	83%	29%	60%	97%	58%	68%	40%	90%	92%	94%
Acceptable standard of shelter	56%	59%	56%	35%	73%	76%	70%	83%	68%	35%	83%	79%	29%
Desirable standard of step-free access	48%	19%	58%	40%	56%	58%	50%	83%	37%	40%	69%	46%	52%
Induction loop	89%	100%	40%	68%	85%	95%	99%	100%	100%	100%	100%	100%	100%
Ramps for trains	87%	91%	44%	91%	85%	92%	88%	42%	74%	100%	93%	96%	97%
Physically accessible waiting shelters	38%	41%	46%	5%	20%	94%	2%	92%	68%	2%	3%	4%	97%
Information on connecting modes	27%	13%	6%	99%	0%	15%	13%	42%	58%	4%	14%	4%	6%

Connected mobility

5.17 Another crucial aspect of the passenger experience is how the rail industry's customers pay for their journeys, and the integration of the ticketing experience with other modes of transport. With this in mind, TfN has been developing a Connected Mobility Strategy, which includes our *Connected Mobility Hub Plus* policy,⁸² and our *Pay as You Go* position statement.⁸³

5.18 It should be noted that a key aspect of this workstream must be to react to the rapid changes in customer behaviour which have occurred over the period of the coronavirus pandemic. Data provided by Northern has indicated that (between 2018 and 2022) the proportion of journeys made on digital tickets has almost quadrupled, whilst those using traditional magnetic stripe tickets are only about one third as common as previously.⁸⁴

⁸¹ The total of 600 includes 20 stations in Derbyshire, Nottinghamshire and Lincolnshire (for which Northern are the Station Franchise Operator) which are not tabulated separately.

⁸² TfN, *Connected Mobility Hub Plus: Developing a Long-Term Connected Mobility Centre of Excellence to Support Authorities across the North*, Sept. 2022

⁸³ TfN, *Position Statement: Pay as You Go Ticketing for the North of England*, Sept. 2022

⁸⁴ Northern, *Station as a Place: Our Vision for the Future Station*, Dec. 2022, p. 6

- 5.19 The Northern Digital Mobility Strategy has been shaped by members across the North to add value to, and build on, the clear ambitions for more digital and joined up systems for passengers and is designed to help scale existing pilots, projects and successes to other areas. It provides a robust evidence base, standardised delivery frameworks, common technical and governance standards alongside regional case studies that empowers and facilitates the local decision making and delivery of innovative digital mobility systems. The strategy also makes the case for further collaboration, the opportunities for economies of scale and the clear case for more joined-up capital investment to support cross-boundary, cross-border and interoperable digital systems.
- 5.20 Our *Pay as You Go* (PaYGo) position statement aims to emulate the system developed by Transport for London, by using tap-in tap-out cards (which could be contactless bank cards or bespoke travel cards) to record passenger journeys across bus, rail and other modes, and charge customers the minimum amount for the journeys that they have made. As a passenger makes more journeys, they would approach a cap, which would be priced similarly to a day or weekly travelcard.
- 5.21 From 2015 onwards, this goal was pursued by TfN's Integrated & Smart Travel programme, but since 2021 the work has been absorbed within a national programme, with TfN supporting and co-ordinating local delivery.
- 5.22 The initial goal is to integrate rail and bus journeys, which is aligned with the national policies of rolling out contactless PaYGo ticketing across buses⁸⁵ and developing PaYGo price capping for heavy rail.⁸⁶ The *Integrated Rail Plan* (November 2021) made a commitment to rolling out contactless ticketing within 3 years:
- . . . over the next three years we will install contactless tap-in and tap-out ticketing across the commuter networks of the Midlands and North - to unlock integration with bus and tram networks, and do away with queues at ticket windows, and excess fares offices.⁸⁷
- 5.23 TfN recognise that a number of systems for multimodal PaYGo ticketing are being developed, but note that the operator-led Project Coral and Transport for West Midlands' solutions appear to be the most promising at present. We recognise that systems for contracts and procurement will be as important as the technological aspects of any solutions that are developed, and that avoiding duplication of work will be essential to undertaking this efficiently.

⁸⁵ Department for Transport, *Bus Back Better: National Bus Strategy for England*, March 2021, pp. 60-61
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/980227/DfT-Bus-Back-Better-national-bus-strategy-for-England.pdf

⁸⁶ Department for Transport & Williams Rail Review, *Great British Railways: The Williams-Shapps Plan for Rail*, 20th May 2021, p. 66

⁸⁷ Department for Transport, *Integrated Rail Plan for the North and Midlands*, CP 490, Nov. 2021, p. 7
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1062157/integrated-rail-plan-for-the-north-and-midlands-web-version.pdf

- 5.24 TfN’s work so far on this issue suggests that the best way to move towards a pan-regional contactless PaYGo system will be to allow city regions to develop their own systems and capping regimes at first, with the requirement to make provision to integrate the local solutions in to a combined system at a later date (via an “aggregator”).
- 5.25 In order to smooth the path to a single aggregated system, TfN will promote common technical standards, aligned procurement specifications, common business rules, and shared governance and apportionment. This should reduce unnecessary complexity.
- 5.26 To support these activities, TfN (supported by funding from the DfT) is establishing a Connected Mobility Hub, as a “pilot providing Local Transport Authorities with additional specialist capacity and guidance around developing and deploying digital and ticketing initiatives - a Northern knowledge exchange.”⁸⁸ The hub will support the development and delivery of multi-operator ticketing, support fares simplification and reform, and help areas prepare for contactless capping.

Summary of the chapter on the passenger’s experience

In line with the evidence presented in this chapter, Transport for the North desire to improve the passenger’s experience of the railway network by a comprehensive programme of investment in the North’s stations, combining rectification of the poor state of physical accessibility with enhancements in other areas of stations facilities, including:

- Provision of information (e.g. public address and customer information systems);
- Security (CCTV and lighting);
- Inclusivity and accessibility (help points, lifts, ramps, etc.);
- Provision of easy access to other modes (i.e. addressing the “first and last mile” problem); and
- Provision of other facilities (e.g. shops, cafés).

TfN have estimated that to bring all stations in the North up to our minimum suggested standards would generate a “high” value for money case, and bringing all up to our acceptable standard would generate an Economic Case with close to high value for money. For an additional circa £500 million, it would also be possible to bring all stations up to our desirable standard, including step-free access at every station. There is a strong strategic case for this on the grounds of social inclusion.

TfN argue that a “total journey” and “whole network” approach is needed to supplement improvements between the main urban centres. Our NoRMS modelling tool provides a good means of assessing this, as being a 4-stage “mode choice” model it takes the full end-to-end journey in to account during economic appraisal.

⁸⁸ TfN, *Connected Mobility Hub Plus: Developing a Long-Term Connected Mobility Centre of Excellence to Support Authorities across the North*, Sept. 2022, p. 2

TfN also supports the empowerment and expansion of the community rail movement, in order to ensure that community rail organisations flourish as inclusive, independent and sustainable groups.

Chapter 5: Alignment with TfN's policy positions

The information and analysis presented in this chapter supported the following strategic priorities from TfN's *Strategic Transport Plan*:

- Our rail network and wider connections must transform the access to opportunities for millions of people, recognising the need to move beyond the current crisis and take clear steps to create capacity for passenger and freight growth over a sustained period of investment; and
- The importance of local connectivity and multimodal integration in providing door-to-door sustainable transport for people and goods. There is a need invest in improving local connectivity and how this helps address the extent to which our current transport system too often acts as a barrier and how this represents an opportunity to decarbonise transport.

The material in this chapter also supports the following required actions that are listed in the STP:

- Communicating clear road and rail investment and policy priorities for the next two funding periods within the existing funding envelopes that can accelerate transformation in the 2020s;
- TfN will work with industry and DfT to secure a common set of service development proposals against which a pipeline of infrastructure investment can be more coherently developed to ensure an effective and joined-up approach across these schemes and programmes;
- Actively work with partners to bring all stations in the North up to minimum suggested standards as quickly as possible and meeting desirable standards by 2050;
- Support partners in ticketing, digital and fares improvements by supporting analysis for reform fare structures, creation of government systems for multi-operator ticketing, integration of open data sources, and defining new zonal fare structures;
- Continue to work on a new 'Digital Mobility Hub' pilot with a clear focus on improving rural mobility, exploring the viability of demand responsible transport versus the viability of traditional bus services;
- Utilise our extensive pan-Northern evidence base to provide localised evidence to Partners to support the planning and delivery of local transport plans that improve social outcomes, inclusion, equality, and decarbonisation; and
- Proactively work with Active Travel England, DfT and Local Authority Partners to secure investment to enhance the provision, accessibility, and safety of active modes to deliver modal shift.

6. Rail services: Connectivity, frequency, capacity & journey times

- 6.1 This chapter follows a slightly different format than the others, as it links together four topics which could, under different circumstances, be treated separately. The four topics are:
- **Connectivity:** Defined very narrowly, this would be characterised as the ability to catch a direct train between two destinations, without having to change trains.
 - **Frequency:** This is simply the number of opportunities to travel between two destinations, normally expressed as “trains per hour” or “trains per day”.
 - **Capacity:** In this context, this is the ability to carry a certain number of passengers between two points, and can thus be improved by increasing the frequency of trains or increasing the number of passengers that can be carried on each train (normally be adding extra carriages).
 - **Journey times:** In this context we simply mean the time taken to travel between two destinations, though sometimes transport planners will refer to the “generalised journey time”, which is a measure of the total inconvenience of a journey, including likely waiting time and the difficulty of changing train.
- 6.2 The reason that they have been combined in this chapter is due to the fact that railway strategic planning usually involves having to make a trade-off between achieving what is regarded as desirable in each of these areas. Attempting to improve any one of them – by running more through services (and therefore needing to occupy more time on through lines and through platforms at or near stations), running a higher volume of services, running longer trains or increasing the speed differential between trains – all lead to an increased risk that two trains would have to be in the same place (or at least the same signalling block) at the same time. This would lead to timetables that were either impossible to schedule, or would be very poorly performing.
- 6.3 Although always closely interlinked in practice, these attributes of rail services can nevertheless be conceived of separately, as from the perspective of the passenger or local stakeholders they appear to be different issues. A rail journey may be experienced as unpleasant because the train was overcrowded, an inconvenient and difficult change was required, the journey was slow, or a long wait was required at the origin or interchange station.
- 6.4 It is only when an attempt is made to find a solution to these problems that it is understood that they are all subject to the same trade-offs and are aspects of the same train planning issues. This becomes clear when either detailed timetabling is undertaken, or the less detailed Train Service Specifications (upon which future timetables will be built) are developed.
- 6.5 This chapter will therefore examine some of the principles which TfN take to our involvement in timetabling work, and then our workstreams to develop Train Service Specifications for the long-term.

These illustrate our approach to future connectivity, frequency, capacity and journey times. However, at least initially, we can again conceive of the issues as separate, as shown in the tables below.

Table 6.1: Key aspects of connectivity

Changing context	Growing knowledge
<ul style="list-style-type: none"> Ongoing performance problems through major interchanges and busy routes (e.g. Leeds, the Castlefield corridor) will limit the ability to accommodate more direct through services. Reduced post-pandemic demand in some areas will limit the viability of services to new destinations. 	<ul style="list-style-type: none"> Some research suggests that passengers' preference for direct connectivity could be modified by consistently higher reliability. Network Rail's Continuous Modular Strategic Plans (CMSPs) and Strategic Advice reports have improved our understanding of whether direct connectivity will be feasible on some routes in the future, or whether capacity constraints will prevent this.
Recurring issues	Applicable Rail Output Standards
<ul style="list-style-type: none"> Leisure customers still have a strong preference for direct connectivity.⁸⁹ High-quality and efficient access to international gateways is necessary for economic health. Cross-border connectivity with Wales and Scotland should be strengthened. 	<ul style="list-style-type: none"> Rail to directly serve each of the North's airports, with direct services to economic centres within the airport's catchment [7] Direct connectivity between tourist destinations and economic centres in their catchments [8]

Table 6.2: Key aspects of frequency

Changing context	Growing knowledge
<ul style="list-style-type: none"> Reduced frequency is mirroring reduced post-pandemic demand in some places, though overall demand has rebounded more strongly in the North than elsewhere in Britain. Working patterns have changed during the pandemic, and train timetabling will have to reflect this. 	<p>Network Rail's Continuous Modular Strategic Plans (CMSPs) and Strategic Advice reports have identified how frequency may have to be increased in some areas in future in order to accommodate increased demand.</p>
Recurring issues	Applicable Rail Output Standards
<ul style="list-style-type: none"> Two trains per hour is still the minimum frequency that is necessary to compete with the private car. The frequency of direct services between the North's major cities remains poor in relation to comparator regions (e.g. Netherlands, North Rhine-Westphalia). 	<p>All passenger routes to be served by a minimum two trains per hour [1]</p>

⁸⁹ Define Insight & Strategy (for Transport Focus), *Passenger Views on Through Trains versus Changing Trains*, May 2022, p. 15; cf. Transport Focus, *Changing Trains versus Direct Trains: Passenger Views*, Nov. 2022 <https://d3cez36w5wymxj.cloudfront.net/wp-content/uploads/2022/11/07165137/Changing-trains-versus-direct-trains.pdf>

Table 6.3: Key aspects of capacity (passenger and freight)

Changing context	Growing knowledge
Reduced post-pandemic demand in some areas has temporarily alleviated formerly urgent capacity issues.	<ul style="list-style-type: none"> TfN’s Future Travel Scenarios analysis has indicated a variety of plausible future demand levels, including a scenario in which rail demand levels triple by 2050. Network Rail’s Continuous Modular Strategic Plans (CMSPs) and Strategic Advice reports have identified how train lengths may have to be increased in some areas in future in order to accommodate increased demand.
Recurring issues	Applicable Rail Output Standards
In order to accommodate increased demand, capacity enhancement projects continue to face a strategic choice between increased frequency (which can require signalling and junction enhancements and cause performance problems) and train lengthening (which can require platform extensions and sometimes signalling or track alterations). Future investment in the North’s rail network should ameliorate this trade-off.	<ul style="list-style-type: none"> 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 [5] 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 intermodal containers to be carried on standard wagons and weight capability enabling trains to operate unrestricted at the highest speed appropriate for the load [11]

Table 6.4: Key aspects of linespeed and journey times

Changing context	Growing knowledge
<ul style="list-style-type: none"> Hitachi Class 800 series and CAF “Civity” (Classes 195, 331 & 397) rolling stock was introduced from 2019. Rolling stock capable of higher speeds or acceleration continues to be deployed. 	TfN’s Linespeed Improvement initiative developed a methodology for identifying and undertaking linespeed enhancements at significantly lower cost than previously.
Recurring issues	Applicable Rail Output Standards
<ul style="list-style-type: none"> Low linespeeds in some areas mean that the minimum speeds needed to compete with the private car cannot be attained on some routes. Some rail journeys are not competitive because of the need to interchange several times. 	<ul style="list-style-type: none"> Long-distance services to achieve average journey speeds of at least 80mph [2] Inter-urban services to achieve average journey speeds of at least 60mph [3] Local and suburban services to achieve average journey speeds of at least 40mph [4] Improve the average speed of freight services in the North by 50% over the next 10 years (by 2028) [12]

6.6 The first LTRS, published in 2015, noted that poor connectivity was a feature of the North’s railway network, with journeys between some

major population centres (e.g. Harrogate to Stockport or Sunderland to Bolton) often requiring two interchanges.⁹⁰

- 6.7 At present a range of organisations are involved in timetable planning including DfT, Network Rail, multiple Train operating companies (TOCs), Mayoral Combined Authorities, TfN/RNP, freight and open access operators. Access rights are determined by the Rail Regulator (i.e. Office of Rail and Road). This multiplicity of organisations has led to a lack in clarity and sometimes an internal perspective that has not always been customer-focussed.
- 6.8 A further medium-term challenge for creating a better and more reliable timetable is the programme of major enhancements associated with projects in the *Integrated Rail Plan*, including Northern Powerhouse Rail (NPR) and the Transpennine Route Upgrade (TRU). Major blockades and other interventions will place significant pressure on the network. This means that TfN and our partners will need to consider both interim and future scenarios, which could be quite different.

Challenges for service specification

- 6.9 Work undertaken by Network Rail in 2022 to understand the implications of a concept timetable for a post Transpennine Route Upgrade configuration state (mid-2030s) was very useful in flushing out a number of critical issues that needed to be considered in detail to fully understand the implications of overlaying additional service aspirations on a network which struggles with capacity, reliability and resilience issues.
- 6.10 It should also be noted that Network Rail have been taking TfN's ambitions and analysis into account when undertaking long-term planning. Network Rail have been charged with planning to accommodate future demand for rail travel without generating any detriment to performance levels. As rail demand has usually been at the least expected to grow in line with general economic growth, this means that quite significant infrastructure and/or rolling stock changes are needed just to cope with forecast demand.
- 6.11 Network Rail has addressed these issues in recent years in documents known as Continuous Modular Strategic Plans (CMSPs) or Strategic Advice. In order to take a flexible approach to planning, Network Rail have considered TfN's more optimistic growth forecasts and specific issues that TfN have raised.
- 6.12 However, in order to avoid future compromises, TfN would suggest a number of changes to the approach to timetable planning or service specifications:
 - Better consideration of the network at a holistic level earlier in project planning (we need to understand if constraints elsewhere hinder the planned scheme);

⁹⁰ Rail North, *Long Term Rail Strategy: A Twenty-Year Vision to Develop Rail in the North of England*, Oct. 2015, p. 59

https://transportforthenorth.com/wp-content/uploads/Long-Term-Rail-Strategy-2015_web.pdf

- More flexibility in considering network capacity limitations in planning (e.g. for a big scheme which drives major timetable change, we should be seeking no more than 50% to 60% capacity utilisation in early planning; this would provide flexibility for timetable adjustment and later tightening of outputs when there is less uncertainty);
- Recognition that the development of regular “clockface” timetables (where trains run at the same minutes past each hour for almost the whole day) are helpful in building rail demand, as potential travellers gain knowledge of and trust in the railway network and timetable. Routes such as the Cumbrian Coast and Settle & Carlisle currently suffer from irregular service patterns, and this should be rectified where possible;
- Recognition that across many parts of the network, the extension of existing services is often an effective means of improving connectivity. For example, following the reinstatement of the Skipton-Colne link, Leeds to Skipton services could be extended to Burnley Central or beyond, creating numerous new journey opportunities. However, it must also be recognised that extending services through major hubs (such as Leeds) is not practical, as the increase in potential conflicts between train movements would damage performance;
- Limiting the use of “value engineering”; in practice this means squeezing the infrastructure so it might “just work” if all other conditions are right, the wider network is unconstrained, and performance at network level is high without perturbations. The focus should be on “value for money” (or whole life costing) considering capital and operating costs over the lifecycle of the project, as well as driving down the capital cost of schemes; and
- Commitment to funding schemes as a package (rather than making all elements have their own business case) and recognition that sometimes it is right to invest in one area in a logical order, ahead of further investment elsewhere.

Combined Train Service Specifications

- 6.13 Given the complex range of factors that influence timetable options and choices, a broad consultative approach is inevitable. However, this needs to be informed by realistic set of timetable scenarios that can be agreed by the different organisations involved.
- 6.14 TfN’s role involves considering how best to achieve the sort of mix of metro, inter-urban, rural, long-distance and freight that is actually required, taking into account the practical capacity of the rail network in the North. In addition, TfN has an important role in aligning train service specifications to the economic and spatial needs of the local authority partners, and ensuring that they are part of an integrated transport planning solution. Our forthcoming *Investment Programme* will examine local issues in this category on a case-by-case basis.
- 6.15 In 2021 TfN commissioned Atkins to develop a Combined Train Service Specification (CTSS) which represents the train service pattern that would meet the desirable minimum standards set out in the previous

TfN *Long Term Rail Strategy* (LTRS). The CTSS was commissioned to provide a view of a potential end state in 2050, which could then allow progress to be tracked and capability and capacity limitations to be identified. It builds upon the work of Network Rail to consider a timetable configuration state for the mid-2030s (CTT2).

- 6.16 Atkins developed a baseline CTSS 2050 “do minimum” scenario (derived from the LTRS Desirable Minimum Standards), and two more ambitious Train Service Specifications (called TfN+ and TfN++ respectively). The table below shows which service aspirations were included in each scenario.

Table 6.5: Train services included in the 2050 CTSS scenarios

Service requirements	Combined Train Service Specification 2050 scenarios		
	Do minimum for 2050	TfN plus	TfN double plus
Desirable Minimum Standards from the <i>Long Term Rail Strategy</i> (Jan. 2018)	✓	✓	✓
Recommended services from the <i>Integrated Rail Plan for the North and Midlands</i> (Nov. 2021)	✓	✓	
TfN’s partners’ local service aspirations		✓	✓
TfN’s preferred Northern Powerhouse Rail network (see Chapter 4)			✓
Full delivery of HS2 (including the eastern leg)			✓

- 6.17 The table below shows the trains per hour (tph) specified for the busiest rail services in the North in these three scenarios (with busiest being defined as those service groups which carry the most passengers at their busiest point).

Table 6.6: Combined Train Service Specification scenarios for 2050

Service Groups (current TOC)	Pre-pandemic service levels			Off-peak trains per hour in CTSS 2050 scenarios			
	Route	Trains per hour	Typical rolling stock type	Code(s)	“Do minimum”	TfN plus	TfN double plus
GR7000 GR7010 (LNER)	London King's Cross to Newcastle/ Edinburgh/Aberdeen	2.0	9-car BMU	EC4, EC6a, EC6b, EC8, EC8a	3.0	3.0	3.0
NT8706 (Northern)	Leeds to Skipton	2.0	4-car EMU	LNW3	2.0	4.0	4.0
NT8300/6 (Northern)	Leeds to Harrogate/ Knaresborough	3.0	3-car DMU	LNW1, LNW2	3.0	3.0	3.0
NT8196 (Northern)	Leeds to Ilkley	2.0	4-car EMU	LNW4	2.0	4.0	4.0
NT2280/1 (Northern)	Manchester Piccadilly to Hazel Grove/ Buxton	3.0	2-car DMU	WC11, WC12	2.0	2.0	2.0

Service Groups (current TOC)	Pre-pandemic service levels			Off-peak trains per hour in CTSS 2050 scenarios			
	Route	Trains per hour	Typical rolling stock type	Code(s)	"Do minimum"	TfN plus	TfN double plus
NT2250/1 NT2400/1 (Northern)	Manchester Victoria to Wigan Wallgate/ Southport/Kirkby (via Atherton)	3.0	2-car DMU	WC5, WC5a, WC7	2.0	2.0	2.0
TP7300 (TPE)	Manchester Airport to Edinburgh/Glasgow Central	1.0	5-car EMU	WC2a, WC2b	1.0	1.0	1.0
NT2301 (Northern)	Manchester Piccadilly to Hadfield/Glossop	2.0	3-car EMU	WC17	2.0	4.0	4.0
TP7340 (TPE)	Saltburn/ Middlesbrough to Manchester Airport	1.0	3-car DMU	TP3	1.0	1.0	1.0
TP7310 (TPE)	Liverpool to Newcastle/Edinburgh	1.0	5-car BMU	TP2, CTSS21, NPR10, NPR13	1.0	1.0	2.0
NT8710/1/6 (Northern)	Leeds to Manchester Victoria (via Bradford Interchange)	2.0	3-car DMU	CV2	1.0	1.0	1.0
TP7320 (TPE)	Scarborough to Manchester Victoria/Liverpool or Manchester Airport	1.0	Locomotive + 5 cars	CTSS24, TP1a	1.0	1.0	2.0
XC1830 XC1840 (Cross Country)	Plymouth to Edinburgh (via Leeds)	1.0	5-car DEMU	WA3	1.0	1.0	1.0
NT2260/1 (Northern)	Manchester Piccadilly to New Mills Central/ Sheffield (via Marple)	2.0	2-car DMU	HV2	1.0	1.0	1.0
NT3620/1 (Northern)	Manchester Airport to Blackpool	1.0	4-car EMU	WC4	2.0	2.0	2.0
NT3660 NT2980/2 (Northern)	Manchester Victoria to Chester/Liverpool Lime Street (via Eccles or Earlestown)	2.0	3-car DMU	CM6	0.4	0.4	0.4
NT7370 (Northern)	Blackpool to York/ Scarborough (via Leeds)	1.0	3-car DMU	CV3, YO1a	2.0	3.0	3.0

6.18 It is recognised that the 2050 scenarios are aspirational and unconstrained by funding, network capacity or deliverability considerations, and are also based on the Desirable Minimum Standards defined before the pandemic. They are however important in setting out what example service patterns could look like in the future on an unconstrained railway, whilst the continuity in the Rail Output Standards reflects the essentially similar factors involved in making rail an attractive and competitive mode.

6.19 It should be noted that Transport for the North are developing and using cutting-edge analytical tools, which should help us to predict rail demand more accurately in future. The information collated in our development log and accompanying Northern Economy & Land Use Model (NELUM)

will enable more granular forecasts of the rail capacity which will be needed to support a growing economy and population.

The wider benefits of electrification

6.20 One aspect of railway planning which has numerous implications for the issues discussed in this chapter (and Chapter 8) is electrification. This topic has already been discussed in relation to our *Transport Decarbonisation Strategy*, as electric trains will produce only about 7% of the emissions of diesel-powered vehicles by 2050, thereby making a major contribution to the reduction of greenhouse gases.⁹¹ In the long term, a blended approach to decarbonisation would see all of the North's main routes electrified for both passenger and freight traffic, with hydrogen and battery power allowing some lesser-used routes to be served by hybrid vehicles. However, it should be noted that the benefits of electrification extend beyond decarbonisation, and include:

- Electric trains are more reliable than diesel-powered vehicles, thereby reducing passenger delays and cutting maintenance costs;
- Electric trains are quieter, thereby reducing noise pollution for those living and working near the tracks, and reducing noise and vibration for passengers;
- Electric trains can improve journey times due to superior braking and acceleration;
- Electric trains are lighter, therefore reducing the wear and tear on the tracks, the track maintenance costs, and the track access charges that train operators must pay to Network Rail;
- Managed effectively, electrification can therefore reduce the operating costs of running rail services, and if the capital expenditure involved can be controlled, the value for money generated by this investment can be high;⁹² and
- In combination, these benefits can thereby help to encourage modal shift to rail.

6.21 Electrification therefore provides a double benefit, by both decarbonising journeys at the point-of-use, and encouraging modal shift to a lower emissions form of transport. As a result (as can be seen in Chapter 9), electrification contributes towards a number of TfN's headline objectives, including "Share of trips made by public transport will increase to 15%" and "There will be no overall increase in private car vehicle mileage on the North's road network by 2045".

6.22 A number of other electrification issues include:

- The North lags behind other parts of Britain with regards to electrification. At present, 38% of the national network is

⁹¹ Oxford Economics (for the Railway Industry Association), *The Economic, Environmental, and Social Opportunities that Rail Brings to the UK*, Nov. 2022, p. 9
<https://www.oxfordeconomics.com/wp-content/uploads/2022/11/The-Economic-Environmental-and-Social-Opportunities-that-Rail-Brings-to-the-UK.pdf>

⁹² Railway Industry Association, *RIA Electrification Cost Challenge*, March 2019
https://www.riagb.org.uk/ria/newsroom/stories/electrification_cost_challenge_report.aspx

electrified,⁹³ but the routes over which Northern run trains are only 25% electrified, and only 36% of their fleet is electric;

- Bimodal trains (such as those produced recently by Hitachi) are relatively expensive to procure and operate, so may only be an interim measure before full electrification;
- Evidence from Scotland and continental Europe suggests that the cost of electrification could be reduced significantly if planned resourcefully, so a rolling programme of electrification – where skills and equipment are retained and used repeatedly – would be the most efficient way of achieving the goal of wider coverage; and
- The training of electrical engineers required to deliver such a programme could have significant spillover benefits in terms of upskilling the North’s workforce and enabling continuous improvement.

6.23 Establishing a rolling programme of electrification would both reduce the competition for scarce plant by allowing forward planning and create the incentive to, over time, invest in more productive plant, processes and skills to further optimise delivery. Initial strategic work for this has been undertaken by the Railway Industry Association,⁹⁴ with the priority routes for electrification being identified as Manchester-Sheffield/Buxton, Leeds/Doncaster-Selby-Hull and Sheffield-Doncaster.

6.24 This process of prioritising electrification schemes across the North is only the latest in a long series of such exercises, with the TOCs, specialist taskforces, local partner authorities and Network Rail all having preceded the RIA in tackling the subject. However, all agree that electrification is necessary and that a rolling programme is the best means to achieve it.

6.25 This programme would also help to achieve the goals of Network Rail’s *Traction Decarbonisation Network Strategy* (TDNS), and the DfT’s goal to eliminate all diesel-only trains by 2040. The TDNS will be a particularly useful point of reference, as Network Rail have undertaken a detailed examination of their infrastructure, and have concluded that 76% of existing track mileage is suitable for full electrification, with 6% being suitable for hydrogen and 3% for battery-powered trains, leaving 15% requiring further analysis.⁹⁵ The Liverpool-Warrington-Manchester route was identified as a priority for full electrification, with battery power suggested for the Windermere, Penistone, Blackpool South, Bishop Auckland and Whitby lines.

⁹³ Office of Rail and Road, *Rail Infrastructure and Assets, 2019-20*, 5th Nov. 2020, p. 1

<https://dataportal.orr.gov.uk/media/1842/rail-infrastructure-assets-2019-20.pdf>

⁹⁴ Railway Industry Association, *Greener, Faster, Better: Decarbonisation Route Prioritisation for the North’s Railways*, Oct. 2022, p. 25

https://riagb.org.uk/RIA/Newsroom/Publications%20Folder/Greener_Faster_Better.aspx

⁹⁵ Network Rail, *Traction Decarbonisation Network Strategy: Interim Programme Business Case*, 31st July 2020

<https://www.networkrail.co.uk/wp-content/uploads/2020/09/Traction-Decarbonisation-Network-Strategy-Interim-Programme-Business-Case.pdf>

Journey times and linespeeds

- 6.26 The first *Long Term Rail Strategy*, published in 2015, noted that poor journey times were one of the deficiencies of the North's railway network, with average speeds between major cities such as Liverpool, Manchester and Leeds being under 50mph and therefore not competitive with the uncongested car journey time. Furthermore, this was identified as an impediment to economic prosperity, as it reduces the attractiveness of commuting to the major centres of high-paying employment in the larger cities.⁹⁶
- 6.27 The updated strategy from 2018 noted that long-distance journey times were due to be improved by the High Speed 2 and Northern Powerhouse Rail programmes, but that this would leave trains on the wider network still travelling at uncompetitive speeds. Long and unpredictable journey times were also identified as barriers to educational opportunities, with low linespeeds compounding connectivity problems caused by low frequencies and poor reliability.⁹⁷
- 6.28 The January 2018 *Long Term Rail Strategy* included three Desirable Minimum Standards relating to journey times, namely that long-distance journeys should enjoy a minimum end-to-end speed of 80mph, inter-urban trains should provide end-to-end journeys at 60mph, and local trains should run at 40mph. However, very few of the North's train services met these standards at that time, with long-distance services tending to come the closest.

A new approach

- 6.29 At TfN we set out to change how we approach line speed improvement schemes, starting by recognising that the railway infrastructure in many places limits the speed of the rolling stock because rail infrastructure enhancement hasn't kept pace with rolling stock development, which means that newer rolling stock isn't able to be used to its full potential on much of the railway network.
- 6.30 Of course, it's important to recognise that the passenger experience has improved with the introduction of new rolling stock, with better amenities and some would say greater comfort, but passengers and freight operators also want improved reliability and faster journey times.
- 6.31 Very few journey time improvement projects are ever carried out because the conventional approach to such projects is costly and often produces low returns on investment. The conventional approach involves identifying the output required (for example a two minute reduction in the journey time between Leeds and Bradford), then assessing where a higher line speed is required to make the timetable change work. Essentially this approach is timetable-led, and it often prevents projects from proceeding if the required output is not efficiently achievable. Line speed increases for the sake of the range of uses which can be made of them have generally not been considered.

⁹⁶ Rail North, *Long Term Rail Strategy: A Twenty-Year Vision to Develop Rail in the North of England*, Oct. 2015, p. 59

⁹⁷ TfN, *Long Term Rail Strategy: Draft Update*, Jan. 2018, p. 19

Development of the Line Speed Improvement Programme

- 6.32 Working with Network Rail and TransPennine Express, TfN has developed a new process, known as the Theoretical Line Speed process, which uses Network Rail asset information to allow the line speed capability of railway infrastructure assets to be objectively assessed, based on the different infrastructure constraints.
- 6.33 The theoretical linespeed profile can then be used to determine improvements in journey times for the combination of vehicles and stopping patterns used on the particular route. TfN have gained support and acceptance from within Network Rail, DfT, TransPennine Express and Northern Rail for this extended application of the process.
- 6.34 The process was tested on the York to Scarborough route study, which provided Proof of Concept. Network Rail were then commissioned to undertake a five route study, examining:
- Leeds – Blackburn – Preston;
 - Doncaster – Cleethorpes;
 - Manchester Victoria – Clitheroe;
 - Darlington – Bishop Auckland; and
 - York – Scarborough (Up Line).
- 6.35 The findings showed that on all routes that there is latent capability in the network assets, which the desktop study tells us could be utilised without the need for significant infrastructure work to be carried out. The five route Theoretical Line Speed Study suggested maximum savings on each of the routes as shown in the table below.

Table 6.7: Potential journey times savings from linespeed improvements

Theoretical JT savings	Up direction			Down direction		
Routes	Maximum TRT saving (minutes)	% of JT	Stopping pattern	Maximum TRT saving (minutes)	% of JT	Stopping pattern
Leeds – Blackburn – Preston	12:56	13%	Stopper	10:13	11%	Stopper
Manchester – Blackburn – Clitheroe	3:43	6%	Semi-fast	4:56	8%	Semi-fast
Darlington – Bishop Auckland	4:10	16%	Stopper	3:10	13%	Stopper
Doncaster – Cleethorpes	4:26	7%	Semi-fast	4:56	7%	Semi-fast
Doncaster – Scunthorpe	5:54	15%	Stopper	3:46	10%	Stopper
Scarborough – York	2:01	5%	Stopper	2:05	5%	Stopper

- 6.36 These are theoretical journey time improvements, which will require further work to assess what would be the best use of speeding up trains on these routes. The final outputs could include improving reliability and resilience, provision of additional and new station stops without lengthening journey times, increasing service provision without the requirement for additional rolling stock and traincrew, or a passenger journey time improvement.

Summary of the chapter on rail services (connectivity, frequency, capacity & journey times)

In line with the evidence presented in this chapter, Transport for the North have many aspirations in this field. It should be noted that many of the Rail Output Standards (developed in order to make rail competitive with private road transport) still apply in this area, namely:

- All passenger routes to be served by a minimum two trains per hour [1];
- Long-distance services to achieve average journey speeds of at least 80mph [2];
- Inter-urban services to achieve average journey speeds of at least 60mph [3];
- Local and suburban services to achieve average journey speeds of at least 40mph [4];
- 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 [5];
- Rail to directly serve each of the North's airports, with direct services to economic centres within the airport's catchment [7];
- Direct connectivity between tourist destinations and economic centres in their catchments [8]; and
- Improve the average speed of freight services in the North by 50% over the next 10 years (by 2028) [12]

Beyond this, TfN's aspirations include the following:

- TfN's forecasts and aspirations should be taken into account in Network Rail's capacity planning to accommodate future demand;
- TfN's innovative work on linespeed improvements should be progressed, as it identified highly cost-effective ways of generating running time reductions that can be taken as journey time reductions, capacity enhancements or performance improvements; and
- The industry should plan flexibly for various "end states" by developing Train Service Specifications for 2050 and intermediate points.

Chapter 6: Alignment with TfN's policy positions

The information and analysis presented in this chapter supported the following strategic priorities from TfN's *Strategic Transport Plan*:

- Our rail network and wider connections must transform the access to opportunities for millions of people, recognising the need to move beyond the current crisis and take clear steps to create capacity for passenger and freight growth over a sustained period of investment; and
- Increasing the North's international connectivity to perform at a global stage can attract and facilitate businesses and entrepreneurs to work together and reach customers and suppliers across the North, the UK, and the rest of the world. This will encourage outward and inward overseas trade and investment, which will facilitate economic growth.

The material in this chapter also supports the following required actions that are listed in the STP:

- Maximising the impact of committed investment in the North with a focus on capacity, resilience, and reliability, and support the growth of travel markets crucial for economic, social and environmental transformation. At local level, we will be a positive catalyst for change, supporting authority partners with their ambitious plans for local transport networks and place making;
- TfN will work with industry and DfT to secure a common set of service development proposals against which a pipeline of infrastructure investment can be more coherently developed to ensure an effective and joined-up approach across these schemes and programmes;
- Use the Rail North Partnership to rebuild the confidence of rail passengers in the Norths rail services, promote further strong growth in patronage and ensure the next generation of passenger service contracts can meet the needs of the Norths communities and businesses;
- Proactively influence Government to encourage a greater use of the North's airport capacity, within a national aviation carbon budget approach consistent with CCC recommendations; and
- Continue to work with ports, through the Northern Ports Association to ensure that the benefits of Short Sea Shipping routes and the deep-water berthing opportunities continue to see growth and are continually acknowledged at both the regional and national levels.

7. Seven day railway

Table 7.1: Key aspects of seven day railway issues

Changing context	Growing knowledge
The leisure market rebounded most quickly from the pandemic, leaving it accounting for a significantly higher proportion of overall demand.	TfN’s research has indicated that issues such as the timing of first and last trains, and weekend service levels, are linked to transport-related social exclusion (TRSE).
Recurring issues	Applicable Rail Output Standards
Due to established shift patterns and working practices, altering the TOCs’ ability to accommodate different operating hours remains difficult.	<ul style="list-style-type: none"> • Infrastructure to be available to enable a weekday inter-peak level service on Saturdays, Sundays and public holidays [9] • Capacity provision aligned to holiday patterns and events [10]

- 7.1 During the pandemic, the profile of rail demand was shaped by restrictions on leisure travel during lockdowns, and a more general government mandate to work from home where possible. It is clear there remains a desire to continue with some home-working following the end of restrictions, which is likely to result in a long-term reduction in commuting, though evidence presented below indicates that home-working is less prominent in the North than elsewhere.
- 7.2 Increased home and flexible working is also leading to demand being spread throughout the day, as opposed to pre-pandemic patterns where rail usage had two large peaks in the morning and evening, in line with the timing of most commuter journeys.
- 7.3 While there is uncertainty surrounding the future shape and volume of commuter journeys on the rail network, leisure travel may become an increasingly important market segment. While restrictions and uncertainties surrounding international travel have started to ease, a continuation of the increase in UK domestic travel is expected; this presents a significant opportunity for the rail industry to increasingly cater for this diverse but growing market as part of their efforts to re-establish use of rail services.
- 7.4 During the recent pandemic the rail industry came together in the form of the Rail Covid Forecasting Group, of which Transport for the North is a member, to gather together all available evidence about what rail demand is likely to look like post-pandemic.
- 7.5 The evidence from this research work points to the strongest recovery in rail markets being for leisure in general, and for regional rail leisure in particular. Such evidence should also be compared against similar data of the types of ticket that passengers are going to be seeking, where increased use of off-peak and day rover type tickets has been stated by users as the products they now need.

The North's visitor economy

- 7.6 The North is rich with a large array of natural, historical and leisure assets, including National Parks, Areas of Outstanding Natural Beauty (AONBs), and UNESCO World Heritage Sites. These assets make a significant contribution to the society, culture, and environment of the North of England, making the region not only an attractive place to visit, but also in which to live and work. Indeed, it should be noted that railway infrastructure itself (such as station buildings, bridges and viaducts) can be an important part of our region's built environment heritage.
- 7.7 The leisure/visitor economy is an increasingly important contributor to employment, culture and quality of life in the North of England. Analysis commissioned by TfN in 2021 has estimated the value of visitor spend at £21.05 billion per annum across the North in 2019, with a direct GVA contribution of the North's visitor economy estimated at between £9.35 billion and £10.48 billion.⁹⁸
- 7.8 The North's cities are important hubs for the region's visitor economy, receiving the largest numbers of visitors, and supporting the greatest numbers of businesses and jobs. However, the visitor economy is also important to the North's rural areas and market towns, where often a large proportion of economic activity is attributed to the visitor economy. For the Boroughs of Scarborough, Blackpool, and South Lakeland, over 12% of businesses are part of the visitor economy. In Richmondshire, Derbyshire Dales, Scarborough, Staffordshire Moorlands, Eden and South Lakeland, over 15% of employment is attributed to the visitor economy. For these places, the visitor economy is intrinsically linked to local prosperity and wealth.⁹⁹
- 7.9 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 also 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.
- 7.10 The previous STP recognised that rail services must keep pace with the changing economy, with passengers able to access economic centres prior to 07:00, and to depart later than 23:00. It also noted that 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 to enable full economic participation, and to maintain rail's viability as a means of accessing employment and leisure outside of traditional working hours.

⁹⁸ The Leisure Consultancy & Atkins (for TfN), *Visitor Economy and Transport in the North of England*, July 2021 <https://transportforthenorth.com/wp-content/uploads/Visitor-Economy-and-Transport-in-the-North-of-England-Full.pdf>

⁹⁹ The Leisure Consultancy & Atkins (for TfN), *Visitor Economy and Transport in the North of England*, July 2021

Weekend services

- 7.11 In supporting sustainable tourism and leisure (and a seven-day economy), consideration is required as to the transport implications for residents and visitors to the North. Critically this means that service levels on Sundays and off-peak hours should be broadly similar to weekday inter-peak frequencies unless specific factors dictate otherwise.
- 7.12 On some lines, Sundays and/or Saturdays can be the busiest days of the week, something which has been heightened through the leisure-led recovery of passenger demand. Accordingly, weekend base demand might be sufficient on certain lines to justify a 7-day timetable, though different start and end of services times may need to apply.
- 7.13 A better understanding of the availability and costs of staff at weekends is needed to understand the potential for introducing 7-day timetables, in order to gauge how much the marginal revenue covers additional costs. However, it is likely that there will be spare rolling stock available as most maintenance takes place on weekdays. These issues should be examined as part of the Rail Reform workstream.

Changes to peak hours and busiest days

- 7.14 As mentioned above, changes in travel behaviour originating in the pandemic have led to significant variations in how different travel markets have recovered since the easing of travel restrictions. Precise data tends to be commercially confidential, but some general consensus observations on rail travel are that:
- London commuting and long-distance business travel have been most significantly reduced;
 - Non-London commuting and short-distance business travel are also down on pre-pandemic levels;
 - Short and medium-distance leisure journeys by rail are now higher than in 2019;
 - The weekends (especially Saturdays) are now a higher proportion of overall rail demand, with Mondays being the most reduced weekday; and
 - The peak hours (especially the morning peak) are not as prominent as previously.
- 7.15 However, it should be noted that, despite the significant increase in home-working over the last 4 years, the North's three regions were (as of early 2022) more dependent on jobs which cannot be done at home than all the other regions of Great Britain. This is shown in the table below.¹⁰⁰

¹⁰⁰ Labour Force Survey, *Homeworking in the UK - Regional Patterns: 2019 to 2022*, 11th July 2022, Tables 1a, 1b & 1c

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/article/s/homeworkingintheukregionalpatterns/2019to2022>

Table 7.2: Home-working in UK regions (2019 & 2022)

Region or nation	Proportion of workforce working from home		
	October to December 2019	January to March 2022	Change (percentage points)
United Kingdom	14.5	30.6	+16.1
Great Britain	14.6	30.9	+16.3
England	15.1	31.0	+15.9
North East	10.3	22.4	+12.1
North West	12.0	26.7	+14.7
Yorkshire & the Humber	14.3	26.2	+11.9
Wales	12.4	30.4	+18.0
Scotland	10.1	30.2	+20.1
Northern Ireland	10.3	16.4	+6.1

Progress on evening and weekend travel

7.16 The night-time economy can seem to be an afterthought in considering rail demand, despite local market needs such as Bank Holidays, peak holiday season destinations, and major leisure and sporting events. However, catering for later trains needs careful consideration alongside maintenance and renewal possession planning, the needs of freight services, and the options for bus replacement services.

7.17 The table below illustrates the comparison over the last 5 years in 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.

Table 7.3: Comparison of the first and last direct train journeys to/from selected economic centres (May 2017 and May 2022 timetables)

Origin	Economic centre	Outward first arrival				Return last departure			
		2017		2022		2017		2022	
		Weekday	Sunday	Weekday	Sunday	Weekday	Sunday	Weekday	Sunday
Hexham	Newcastle	06:55	10:39	06:51	10:23	22:35	20:15	22:53	21:00
Harrogate	York	07:25	11:25	07:19	10:19	22:11	21:27	22:43	21:45
Kirkby	Liverpool	06:06	08:36	06:01	08:31	23:55	23:55	23:55	23:55
Bolton	Manchester	05:17	09:45	04:55	09:02	23:20	22:03	23:31	23:19
Buxton	Manchester	06:59	09:23	06:56	09:13	23:10	22:49	23:11	22:48
Saltburn	Middlesbrough	06:49	10:01	06:14	09:46	22:06	22:12	22:36	22:22
Skipton	Leeds	06:27	09:14	06:27	09:14	23:19	23:20	23:23	23:20
Ilkley	Bradford	06:50	09:34	06:22	09:25	23:26	22:37	23:16	22:38
Hartlepool	Middlesbrough	08:25	11:18	07:27	10:44	21:10	19:34	21:30	20:33
Blackburn	Preston	06:40	10:31	06:22	09:28	22:45	22:02	23:19	22:01
Barnsley	Sheffield	05:54	09:55	05:51	09:49	23:24	22:39	22:44	23:18
Worksop	Sheffield	07:02	15:35	06:57	09:59	21:42	21:06	22:43	21:24
Beverley	Hull	06:13	10:38	06:18	10:26	23:00	20:30	23:16	20:47

Origin	Economic centre	Outward first arrival				Return last departure			
		2017		2022		2017		2022	
		Weekday	Sunday	Weekday	Sunday	Weekday	Sunday	Weekday	Sunday
Whitehaven	Carlisle	07:33	13:41	07:38	11:24	22:00	21:10	22:01	21:10

Key: **Turquoise highlight** = Improvement of 30 minutes or more
Red text = Deterioration

- 7.18 The table demonstrates that in the last 5 years for the station pairings listed there has been an overall improvement (and in some cases a significant improvement) in outward first arrival (earlier) times both during weekdays and on Sundays and last departure times (later) weekday and Sundays.
- 7.19 Whilst these improvements are welcomed (especially where there is a significant difference in timings such as the Worksop to Sheffield service), it can be demonstrated that rail service provision from economic centres to their catchments continues to be inconsistent across the North. Although there are some good examples of evening connectivity in the North, there are still many examples of last departures earlier than 10pm (particularly on Sundays), despite the level of demand for rail services supporting a seven-day economy.¹⁰¹
- 7.20 First arrival times on Sundays – vital for weekend workers and also those making longer leisure trips – can also be poor in some cases. In the table above only one pairing has a journey arriving on Sunday before 9am. Moreover, certain lines are often closed entirely on a Sunday for maintenance work, preventing any services from operating.
- 7.21 TfN’s work on transport-related social exclusion has explained how people in low-paid jobs often work hours which are not well-served by public transport, and therefore sometimes must purchase a car which they otherwise would not need.¹⁰² These workers would thus benefit most from extended operating hours. Additionally, some areas with high levels of deprivation have had passenger rail services removed, and would benefit from reinstatements which would improve connectivity to more prosperous areas. Examples include the Leamside line, which could be used to connect western parts of the City of Sunderland to Newcastle and Durham, and the Skipton-Colne link, which could connect Burnley, Nelson and Colne to Leeds and the Aire valley.
- 7.22 In order for rail to claim the maximum possible travel share of the existing and future leisure market, a timetable that supports greater evening and weekend operation is needed, alongside a coordinated marketing strategy that promotes safe, clean, user-friendly, punctual,

¹⁰¹ Note that only 4 pairings in the above table have last departure times on a Sunday after 11pm.

¹⁰² Transport for the North, *Transport-Related Social Exclusion in the North of England*, Sept. 2022, p. 24 & p. 33

<https://transportforthenorth.com/wp-content/uploads/Transport-related-social-exclusion-in-the-North-of-England.pdf>

integrated, and sustainable travel modes, with discounted travel and family-friendly ticketing.

- 7.23 It is therefore proposed that a comprehensive and sophisticated package to increase tourism travel market share is assembled and implemented, including direct working with communities to identify their travel needs, building on Community Rail Partnership activity in this area.
- 7.24 Supporting a sustainable leisure and tourism market will be an important element of our economic, social and environmental goals. This can only be achieved in partnership. Currently all train operating companies serving the north have dedicated website sections for promoting destinations across the North including places they don't directly serve. There has also been excellent support from the community rail movement to promote the tourism potential across many rail lines in the North, as well as seeking direct local support for improvements. The role of TfN will be to support more focussed rail tourism, including considering ticketing options and rolling stock provision.

Summary of the chapter on seven day railway issues

In line with the evidence presented in this chapter, Transport for the North desire to see the continuation of the relevant Rail Output Standards developed previously, namely:

- Infrastructure to be available to enable a weekday inter-peak level service on Saturdays, Sundays and public holidays [9]; and
- Capacity provision aligned to holiday patterns and events [10].

TfN also note that some recent developments have increased the importance of this policy area, namely:

- Following the coronavirus pandemic and changed working from home and business travel behaviours, rail demand has recovered more strongly in the "leisure and other" category; and
- TfN's research into transport-related social exclusion has recognised that it is often the least well-remunerated jobs which require working at weekends or unsocial hours, so people in those roles are adversely affected by the reduced availability of rail services at weekends, in the early morning and in the late evening.

Chapter 7: Alignment with TfN's policy positions

The information and analysis presented in this chapter supported the following strategic priorities from TfN's *Strategic Transport Plan*:

- Our rail network and wider connections must transform the access to opportunities for millions of people, recognising the need to move beyond the current crisis and take clear steps to create capacity for passenger and freight growth over a sustained period of investment; and
- The importance of local connectivity and multimodal integration in providing door-to-door sustainable transport for people and goods. There is a need invest in improving local connectivity and how this helps address the extent to which our current transport system too often acts as a barrier and how this represents an opportunity to decarbonise transport.

The material in this chapter also supports the following required actions that are listed in the STP:

- Work with partners to ensure that investment in the major roads, rail, and local public transport networks deliver reductions in transport-related social exclusion; and
- Utilise our extensive pan-Northern evidence base to provide localised evidence to Partners to support the planning and delivery of local transport plans that improve social outcomes, inclusion, equality, and decarbonisation.

8. Reliability & resilience

Table 8.1: Key aspects of reliability and resilience

Changing context	Growing knowledge
Although train performance improved considerably during the pandemic, there has been significant “backsliding” towards the poor performance levels of early 2020.	TfN’s research has shown that there are over 120 small performance-enhancing improvements that could be undertaken, and are otherwise unlikely to be planned.
Recurring issues	
Performance is a key element of passenger satisfaction and an area for improvement to encourage more travel by train.	

Background

- 8.1 The Blake Jones Review, written in response to the May 2018 timetable difficulties, argued that public trust is best restored by the rail industry consistently delivering reliable and punctual services.¹⁰³ Around the same time, the Rail North Partnership team brought in additional resources to scrutinise the TOCs’ preparedness and readiness plans for each timetable change including working on infrastructure (such as platform extensions) and rolling stock. The RNP team also required each TOC to provide a written statement of readiness in advance of each future timetable change.
- 8.2 The Williams Rail Review was also partly a response to the May 2018 crisis, and therefore dealt with performance issues. It was noted that, before the pandemic, performance was disappointing and passengers’ biggest priority for improvement was punctuality. Around half of trains in northern England and a third of trains nationally had been late in 2019-2020, with little improvement in the previous five years. Train services having become too unreliable is one of the most cited reasons given by passengers using trains less frequently, whilst more reliable railways is one of the top improvements likely to encourage non-users to travel by train (alongside cheaper fares and getting a comfortable seat).¹⁰⁴ Furthermore, concerns around unexpected problems and unpredictability is a particular barrier for disabled non-users of rail.¹⁰⁵

¹⁰³ Andrew Jones & Judith Blake, *The Blake Jones Review of the Rail North Partnership: The May 2018 Timetable Crisis & Recommendations for the Future Role and Functioning of the Partnership*, Summary Report, July 2019, p. 29

¹⁰⁴ Transport Focus (for Williams Rail Review), *Barriers to Travel: How to Make Rail More Attractive to Infrequent and Non-Users*, April 2019, p. 13
<https://www.transportfocus.org.uk/publication/williams-rail-review-barriers-travel-make-rail-attractive-infrequent-non-users/>

¹⁰⁵ Department for Transport, *Research on Experiences of Disabled Non-Users of Rail*, Dec. 2021, p. 40, p. 68
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1082490/research-on-experiences-of-disabled-non-users-of-rail.pdf

- 8.3 A key element of the Williams Rail Review was the proposal to replace the franchising system with Passenger Service Contracts, which will focus operators on meeting passengers' priorities and will incentivise them to grow rail usage. Contracts will require operators to meet demanding standards for key passenger priorities such as punctuality, reliability, passenger satisfaction, capacity, staff availability and helpfulness, customer information, vandalism repair, passenger satisfaction, revenue protection and cleanliness.¹⁰⁶
- 8.4 Transport Focus will monitor operators' performance to help hold them to account. Some targets will be adaptable during a contract, so that operators can respond to changing passenger needs, government priorities and economic conditions.
- 8.5 The Williams-Shapps Plan also noted the wider issues in the environment around the railway network could contribute to performance improvement, arguing that a "sustainable, long-term approach to land management on the network will support biodiversity, while also improving reliability and reducing the risk of landslips and flooding."¹⁰⁷

Performance issues around major hubs

- 8.6 In recent years, train performance in the North of England has been significantly disrupted. The "Manchester bottleneck" between Deansgate and Piccadilly is the key location where problems appear, which are often caused by delays to services on their way into the centre. The Secretary of State therefore commissioned the Manchester Recovery Task Force (MRTF), which is investigating and developing infrastructure and timetabling options to alleviate these problems in future. TfN is playing a leading role in the MRTF, and has proposed methods for making the difficult trade-offs that the timetabling option choice will involve.
- 8.7 However, the Castlefield corridor is not the only performance bottleneck in the North. Figures compiled by Network Rail (and shown in the table below¹⁰⁸) indicate that the rail network around several major cities in the region (highlighted in turquoise) were some of the major contributors to reactive delay across the national network in the period prior to the pandemic.

cf. Department for Transport, *Research on Experiences of Disabled Rail Passengers*, July 2019, *passim*
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/814862/experiences-of-disabled-rail-passengers.pdf

¹⁰⁶ Department for Transport & Williams Rail Review, *Great British Railways: The Williams-Shapps Plan for Rail*, 20th May 2021, p. 58

¹⁰⁷ Department for Transport & Williams Rail Review, *Great British Railways: The Williams-Shapps Plan for Rail*, 20th May 2021, p. 90

¹⁰⁸ Network Rail Industry Performance, *Congestion Hotspots*, 23rd July 2019
<https://public.tableau.com/app/profile/nr.industry.performance/viz/CongestionHotspots/CongestionDelayHotspots>

Table 8.2: Train delay hotspots in Great Britain (Dec. 2018 to July 2019)

Rank	Location	Route	Delay minutes
1	Birmingham New Street	North West & Central	87,572
2	Clapham Junction	Wessex	86,602
3	Leeds	LNE & East Midlands	69,951
4	Sheffield	LNE & East Midlands	65,413
5	London Bridge	South East	57,644
6	Deansgate	North West & Central	55,343
7	London Waterloo	Wessex	53,857
8	East Croydon	South East	51,891
9	Wimbledon	Wessex	46,854
10	Manchester Piccadilly	North West & Central	45,882
11	Gatwick Airport	South East	44,881
12	York	LNE & East Midlands	39,216
13	Wolverhampton	North West & Central	36,765
14	Whitehall Junction	LNE & East Midlands	34,544
15	Parks Bridge Junction	South East	32,616
16	Manchester Victoria	North West & Central	29,786
17	Slade Lane Junction	North West & Central	29,395
18	Doncaster	LNE & East Midlands	29,186
19	Lewisham	South East	28,911
20	Stratford	Anglia	28,635

8.8 Presenting the data in this way could be seen as exaggerating the importance of performance issues around major hubs, so it is also useful to understand the relative degree of performance problems along long-distance routes. The table below enables this through clustering performance hotspots together. It also indicates the most significant planning work that is currently being undertaken for these areas, and which will therefore have to consider performance issues.

Table 8.3: Groups of congestion hotspots in the North (Dec. 2018 to July 2019)

Area	Number of hotspots	Delay minutes (Dec. 2018 to July 2019)	Current planning initiatives
Manchester Piccadilly area (including Deansgate, Oxford Road, Slade Lane Junction & Ashburys)	5	158,998	The Manchester Task Force, led by DfT, is developing solutions to performance issues in the Castlefield Corridor (Deansgate to Piccadilly) area, and more broadly considering timetabling and infrastructure options around Manchester.
Leeds area (including Whitehall, Armley, Methley and Engine Shed Junctions)	5	113,883	Immediate issues are being addressed by Network Rail's Leeds Area Programme. DfT are developing terms of reference for a study to examine the area's long-term capacity issues and the integration of HS2.

Area	Number of hotspots	Delay minutes (Dec. 2018 to July 2019)	Current planning initiatives
Sheffield area (including Holmes Junction, Meadowhall, Dore Station Junction & Totley Tunnel East)	5	109,469	Network Rail have developed the <i>Sheffield Single Rail Strategy</i> and is about to submit it to DfT.
East Coast Main Line (North) (York to Alnmouth)	10	94,319	Network Rail is developing a programme of measures to enhance capacity on the ECML North following the April 2020 <i>Church Fenton to Newcastle Strategic Advice</i> . This has been funded by TfN and Transport North East. Reinstatement of the Leamside line would also provide additional capacity north of York, enhancing resilience on the ECML.
West Coast Main Line (North) (Winsford to Carlisle)	11	78,671	Network Rail are undertaking a study of long-term capacity along this route. A number of the measures identified in TfN's <i>Reliability & Resilience Delivery Plan</i> would improve performance in this area. Network Rail are also investigating what upgrades are required on WCML North to support HS2 trains operating on the classic rail network (e.g. power upgrades, ETCS). Meanwhile, DfT are preparing terms of reference for a study looking at alternatives to the Golborne Link.
Trans-Pennine route (Stalybridge to Dewsbury)	9	70,245	Network Rail's Transpennine Route Upgrade (TRU) programme will address long-term capacity on this route, including the provision of major infrastructure enhancements (e.g. 4-tracking around Ravensthorpe).
Manchester Victoria area (including Salford Crescent)	2	45,119	The Manchester Task Force is examining timetable and infrastructure options in the wider Manchester area.
Doncaster area (including Hexthorpe Junction & Loversall Carr Junction)	3	34,103	Long-term planning for this area is being considered as part of the ECML Blueprint which TfN has commissioned Atkins to undertake.
Crewe area (including Sandbach & Madeley Junction)	3	30,901	Network Rail are undertaking a study of long-term capacity along this route. The area to the south of Crewe has already been examined by the <i>West Coast South</i> study.

Area	Number of hotspots	Delay minutes (Dec. 2018 to July 2019)	Current planning initiatives
Stockport area (including Cheadle Hulme & Hazel Grove)	3	27,358	Network Rail are undertaking a study of long-term capacity in the Manchester South area, having previously carried out CMSP work for the Stockport area. The Manchester Task Force will also examine South Manchester capacity.

- 8.9 Problems of slow, unreliable services and commuting capacity issues may have contributed to restricted growth in the North and surrounding towns. There is, therefore, a strong strategic case to supplement the journey time reductions that will be achieved through the Northern Powerhouse Rail programme with a wider programme to improve rail reliability in the North.

Freight performance

- 8.10 Performance improvements are also vital for freight. Britain depends on quick and efficient supply chains, and with the rail freight sector growing, we need to ensure that there is the capacity in place to meet that demand.
- 8.11 Increasing the amount of goods moved on our railways has important economic benefits, by reducing congestion on our roads, improving connectivity, and delivering cost, time and reliability benefits for freight customers. By increasing capacity and capability of the railways for freight, the investments outlined in the IRP will help accelerate modal shift of goods from road to rail; this will support a key part of the Government’s decarbonisation strategy.¹⁰⁹
- 8.12 Additional infrastructure will be required to accommodate the extra services needed to cater for growth, to allow reliable operation, and to provide flexibility to the freight market to meet existing and future demand, thereby improving access to business opportunities across the North. 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 from introducing new services for which there is a demand. This could be achieved by developing new freight routes (e.g. through the reinstatement of the Skipton-Colne link) which would add both capacity and resilience to the network, allowing freight to continue running even if the main routes were unavailable due to engineering works, poor weather conditions or other events.

Climate change and sea level rises

- 8.13 A significant resilience issue with which the railway network may have to cope is the possibility of sea level rises. This problem has been considered in Network Rail’s resilience strategies, as Britain’s railway

¹⁰⁹ Department for Transport, *Integrated Rail Plan for the North and Midlands*, CP 490, Nov. 2021, p. 121

infrastructure is expected to be at risk in the future. At a national and regional level, decarbonisation policies make a contribution towards prevention of the climate change which is driving sea level rises, but it will also be necessary to adapt our infrastructure to the changing environment.

- 8.14 Estimates vary as to the current level of risk to railway infrastructure. The official *Climate Change Risk Assessment* indicated that only 114 kilometres of track and 5 stations were at 'significant' risk in 2021.¹¹⁰ Conversely, other research (undertaken for the Government Office for Science) suggested that 360 kilometres of track and 52 stations were at 'significant' risk (comprising circa 2% of both track and stations), whereas 830 kilometres of track and 113 stations were at either 'significant' or 'moderate' risk (i.e. circa 5% of track and 4% of stations).¹¹¹ In both cases, a 'significant' risk was defined as a greater than 1-in-75 annual probability of flooding.
- 8.15 However, global mean sea levels are rising at an accelerating rate. As a result, coastal erosion and coastal flooding (which have always occurred around the UK) will probably become worse. Current projections predict that the rise will be between 0.27 and 1.12 metres by the end of the century.¹¹² Such sea level rises will create risks for the UK's infrastructure, communities, businesses and natural capital.
- 8.16 Building on earlier work, the 2022 government report on climate change risk recognised specific threats to transport in three areas,¹¹³ namely:
- **I1:** Risks to infrastructure networks (water, energy, transport, ICT) from cascading failures (expected to cost at least £1 billion per annum under all future scenarios for global temperature rises);
 - **I5:** Risks to transport networks from slope and embankment failure (expected to cost at least £10 million per annum and possibly more than £100 million per annum depending on the temperature rise scenario); and
 - **I12:** Risks to transport from high and low temperatures, high winds, lightning (expected to cost at least £10 million per annum and possibly more than £100 million per annum under all future scenarios).

¹¹⁰ Sustainability West Midlands (for UK Climate Risk), *Evidence for the Third UK Climate Change Risk Assessment (CCRA3): Summary for England*, June 2021, p. 65
<https://www.ukclimaterisk.org/wp-content/uploads/2021/06/CCRA-Evidence-Report-England-Summary-Final.pdf>

¹¹¹ Tamsin Edwards (for Foresight, Government Office for Science), *Future of the Sea: Current and Future Impacts of Sea Level Rise on the UK*, August 2017, p. 36
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/663885/Future_of_the_sea_-_sea_level_rise.pdf

¹¹² Sustainability West Midlands (for UK Climate Risk), *Evidence for the Third UK Climate Change Risk Assessment (CCRA3): Summary for England*, June 2021, p. 65

¹¹³ HM Government, *UK Climate Change Risk Assessment 2022: Presented to Parliament Pursuant to Section 56 of the Climate Change Act 2008*, 17th January 2022, p. 11
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1047003/climate-change-risk-assessment-2022.pdf

- 8.17 At present, systemic adaptation is not strongly evident across the railway network, and there is a significant legacy challenge of ageing infrastructure. Nevertheless, adaptation could mitigate some significant infrastructure risks, especially if sea level rise is low. The Government Office for Science report estimates that 90% of expected damage could be offset by enhanced adaptation measures.¹¹⁴
- 8.18 Network Rail's 2021 *Third Adaptation Report* recognised the seriousness of these problems, noting that coastal erosion had already led to major incidents in Devon and Kent. By the 2050s, Network Rail expect their infrastructure to be experiencing the following risks:¹¹⁵
- Overwhelming of drainage and defence topping (moderate risk caused by sea level rise);
 - Scour and undermining of structures (moderate risk caused by coastal erosion);
 - Destabilised and poor track quality causing speed restrictions or line closure (moderate risk caused by coastal erosion);
 - Derailment due to landslip (major risk caused by coastal erosion); and
 - Coastal erosion and defence overtopping (major risk caused by coastal flooding and storm surges).
- 8.19 In the portion of TfN's region adjacent to the Irish Sea, sea level rises are anticipated to pose the greatest risk to the railway in the areas around Liverpool, western Cheshire, Carlisle and the Cumbrian coast. Meanwhile, on the East Coast, a large area around the Humber estuary is under greatest threat, including long stretches of the valleys of the rivers Ancholme, Trent, Ouse and Hull. This area is home to ½ million people, with towns as far inland as Selby, Doncaster and Gainsborough being susceptible to tidal flooding.¹¹⁶

Performance metrics

- 8.20 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. However, the industry is moving toward expressing performance in terms of "right-time" punctuality.
- 8.21 The right-time metric is the percentage of trains (of any category) arriving at their terminating station early or within 59 seconds of schedule. Meanwhile, serious problems with reliability are 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. The figure below illustrates the right-time performance of the North's three largely self-contained operators.

¹¹⁴ Tamsin Edwards (for Foresight, Government Office for Science), *Future of the Sea: Current and Future Impacts of Sea Level Rise on the UK*, August 2017, p. 15

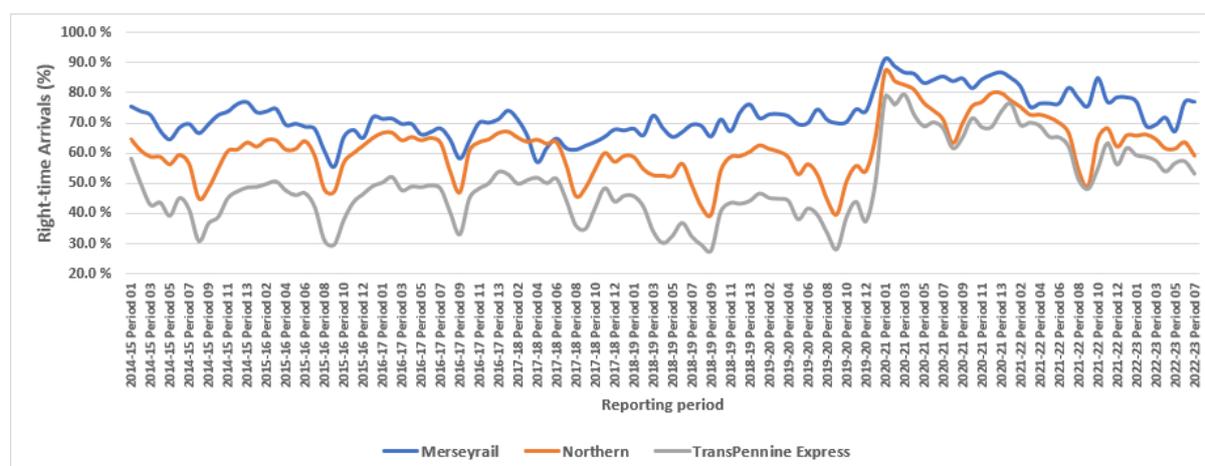
¹¹⁵ Network Rail, *Network Rail Third Adaptation Report*, December 2021, pp. 71-74

<https://safety.networkrail.co.uk/wp-content/uploads/2023/02/Climate-Change-Adaptation-Report-2021.pdf>

¹¹⁶ Environment Agency, *Humber 2100+*, 4th Feb. 2019

<https://consult.environment-agency.gov.uk/humber/strategyreview/>

Figure 8.1: Right-time performance of the North’s three TOCs



Source: Provided directly to TfN by Northern, TPE and Merseyrail

Root causes and remedies of performance problems

8.22 A major problem with improving performance is that the root causes of train delays are very diverse. TfN have researched this issue as part of our recent *Reliability & Resilience Delivery Plan*, and recent trends in the root causes of delays for the two Rail North Partnership TOCs are shown in the table below.¹¹⁷

Table 8.4: Root causes of delay for Northern & TPE services (minutes)

Category	Annual			Northern	TPE	Total		Rank	Proportion
	2019-20	2020-21	2021-22			Both			
External	95,160	62,288	74,682	183,322	48,808	232,130	3	10.8%	
Fleet	185,963	98,863	95,733	317,102	63,457	380,559	1	17.7%	
Network management	85,885	64,288	51,702	156,610	45,265	201,875	5	9.4%	
Non-track assets	115,430	79,327	75,466	207,182	63,041	270,223	2	12.5%	
Operations	46,922	20,009	27,506	87,643	6,794	94,437	11	4.4%	
Other	127,174	56,666	47,734	173,044	58,530	231,574	4	10.7%	
Severe weather, autumn & structures	74,105	57,629	61,886	147,114	46,506	193,620	6	9.0%	
Stations	53,329	14,522	31,187	87,762	11,276	99,038	10	4.6%	
TOC other	57,863	34,966	51,663	125,920	18,572	144,492	8	6.7%	
Track	62,947	25,395	26,936	83,406	31,872	115,278	9	5.4%	
Train crew	104,302	35,497	51,545	149,580	41,764	191,344	7	8.9%	
Annual totals	1,009,080	549,450	596,040	1,718,685	435,885	2,154,570			

8.23 Due to the variety of root causes of reliability issues, TfN recognises that there is no single measure which will make a significant difference to delay levels. Instead, TfN recommend that the industry pursue as many small schemes (of a variety of forms and locations) as practicable. As part of the *Reliability & Resilience Delivery Plan*, a list of

¹¹⁷ TfN, *Reliability & Resilience Delivery Plan*, Draft, August 2022, p. 18

candidate schemes has been prepared, in collaboration with Network Rail and the TOCs.¹¹⁸

8.24 The tables below show the intervention type of the schemes which were identified in the plan, and the details of the schemes which have been cited as the priorities for progression.¹¹⁹ The three highlighted in turquoise have been identified as the most immediately effective measures.

Table 8.5: Types of reliability interventions identified¹²⁰

Type of intervention	Number of interventions	Type of intervention	Number of interventions
Boundary management	1	Mobile equipment	0
Bridges	4	Platform layout/ equipment	31
Crossover	7	Recontrol of signalling/S&C	3
Electrification	4	Sidings	3
Geotechnical engineering	4	Signalling & interlocking	26
Junction enhancement	9	Stabling	3
Level crossings	8	Station approaches	14
Linespeed increases	26	Track	12
Maintenance facilities	10	Train detection	1

Table 8.6: Priority reliability & resilience schemes¹²¹

Item	Scheme detail	Scheme benefits
Lancaster Station	This scheme is intended to solve the overlap issues at Lancaster Station, which delay trains arriving in to Platform 3 from the south when other services are arriving or departing from Platforms 1 & 2.	<ul style="list-style-type: none"> • More punctual arrivals at Lancaster from the south • More flexibility in station operations
Astley Level Crossing	This scheme will investigate the speed restriction at Astley Level Crossing (between Patricroft and Newton-le-Willows) and how this restriction can be raised, thereby completing a 2013 project.	<ul style="list-style-type: none"> • Reduced journey times • Added resilience in the timetable
Selby Swing Bridge	This scheme will investigate opportunities to improve the reliability of the swing bridge operation.	<ul style="list-style-type: none"> • Reduced cancellations and delays when the bridge mechanism (or associated safety equipment) fail

¹¹⁸ TfN, *Reliability & Resilience Delivery Plan*, Draft, August 2022, p. 18

¹¹⁹ The total of the typological table sums to more than 121 because many interventions have been allocated to multiple categories.

¹²⁰ TfN, *Reliability & Resilience Delivery Plan*, Draft, August 2022, pp. 39-42

¹²¹ TfN, *Reliability & Resilience Delivery Plan*, Draft, August 2022, p. 33

Item	Scheme detail	Scheme benefits
Keadby Canal Bridge	This scheme will investigate opportunities to improve the reliability of the bridge operation.	<ul style="list-style-type: none"> • Reduced cancellations and delays when the bridge mechanism (or associated safety equipment) fail
Mickle Trafford to Helsby	Installation of an intermediate block signal between Mickle Trafford and Helsby.	<ul style="list-style-type: none"> • Improved flexibility and capacity
Blackpool South Line	This is a performance enhancement scheme at Moss Side Level Crossing, which will have treadles installed to remove the need for the train to always stop.	<ul style="list-style-type: none"> • A 2 to 3 minute journey time reduction (which can be taken as a performance benefit) per round trip
Menston	This proposal involves local resignalling in order to deliver intermediate block signals which will reduce headways and improve performance.	<ul style="list-style-type: none"> • Improved performance • Potential increased frequency in future
Preston Platform 0	This scheme will upgrade the Parcels Platform to passenger operation in order to provide additional slow lines platform capability and flexibility for terminating services.	<ul style="list-style-type: none"> • Improved platform capacity • Improved performance through operational flexibility
Chaffers Level Crossing	This scheme comprises a further upgrade to Chaffers Level Crossing (near Nelson) in order to remove the need to come to a standstill on approach.	<ul style="list-style-type: none"> • Journey time reduction • Performance improvement
Turton Level Crossing	This requires an upgrade to the crossing in order to increase the linespeed, thereby reducing the time taken to traverse the single line section between Bromley Cross and Darwen.	<ul style="list-style-type: none"> • Journey time reduction • Performance improvement
Glossop & Hadfield Linespeed Improvement	This scheme will increase linespeeds around Dinting (and through to Glossop and Hadfield) in order to reduce journey times and improve performance.	<ul style="list-style-type: none"> • Journey time reduction • Performance improvement

Item	Scheme detail	Scheme benefits
Buxton	This scheme will provide a crossover and signalling in order to enable arrivals into Platform 1 (and the middle road) without the need to shunt, thereby maximising operational flexibility.	<ul style="list-style-type: none"> • Improved performance • Operational flexibility
Leeds/ Manchester Piccadilly	This scheme will explore the feasibility of hand-held devices used to complement TRTS (train ready to start) equipment, and implement them if appropriate.	<ul style="list-style-type: none"> • Improved performance • Improved safety

Summary of the chapter on reliability and resilience

In line with the evidence presented in this chapter, Transport for the North desire to see a significant and sustained improvement in rail performance across the North. There is a significant relationship between performance and customer satisfaction, thereby implying that better punctuality and reliability will be necessary in order to enable the modal shift that we need to support economic and environmental goals.

Improving performance will require that the major programmes and any other significant capacity upgrades planned by Network Rail (or Great British Railways) continue to be designed in such a way as to generate no detriment to performance, whilst a programme of works aimed at specifically reducing delay minutes be enacted in parallel. Due to the diverse nature of the causes of train delays, TfN have assembled a programme of over 120 incremental improvements which could be made (of which 13 have been identified as priority), and we will work with Network Rail and other partners to progress these.

Nevertheless, TfN must emphasise that a major determinant of future performance will be the effectiveness of programmes intended to address capacity constraints (such as our own Manchester Task Force work) and the adequacy of planning for performance undertaken by major programmes such as HS2 and Northern Powerhouse Rail (especially around major rail hubs).

Chapter 8: Alignment with TfN's policy positions

The information and analysis presented in this chapter supported the following strategic priorities from TfN's *Strategic Transport Plan*:

- Our rail network and wider connections must transform the access to opportunities for millions of people, recognising the need to move beyond the current crisis and take clear steps to create capacity for passenger and freight growth over a sustained period of investment; and
- Maximising the utilisation of our rail and inland waterway networks, improving multimodal connectivity and local distribution hubs to improve efficiency, and encouraging modal shift from road to rail/water, to support decarbonisation and improved air quality.

The material in this chapter also supports the following required actions that are listed in the STP:

- Emphasise and embed the importance of maintenance and adaptations to climate change on existing networks as well as for new schemes;
- TfN will work with industry and DfT to secure a common set of service development proposals against which a pipeline of infrastructure investment can be more coherently developed to ensure an effective and joined-up approach across these schemes and programmes;
- Use the Rail North Partnership to rebuild the confidence of rail passengers in the North's rail services, promote further strong growth in patronage and ensure the next generation of passenger service contracts can meet the needs of the North's communities and businesses; and
- Utilise our Northern Freight Growth forecast to collaborate with delivery partners to ensure that our MRN, rail network, ports and airports provide the required capacity and capability to support existing and future freight demand, as set out in our *Freight and Logistics Strategy*.

9. Alignment with monitoring and evaluation targets

- 9.1 Transport for the North have produced a number of metrics which measure various indicators of the quality and strength of the North’s transport network. It is intended that these will be used to guide future work on the monitoring and evaluation of our strategy, in order for TfN to gauge how effective our activities have been in improving the region’s transport.
- 9.2 Some of these metrics map very closely to our headline objectives relating to economic performance, decarbonisation and inclusive transport. The table below shows the metrics which are most relevant to the headline objectives connected to rail, and their alignment with the policies described in this document.

Table 9.1: Monitoring & evaluation targets relating to headline objectives

Ambition	Impact	Objective or target	Current metric (baseline year)	Alignment with the <i>Strategic Rail Report</i> and other TfN strategies
Transforming economic performance	Creating an integrated labour market	37% of the North’s population can access 500,000 jobs by rail within 60 minutes by 2050.	27% (2018)	The reduction of inter-urban journey times generated by the implementation of TfN’s preferred NPR network would contribute to this (Ch. 4).
		75% of the North’s population can access an employment centre (with at least 5,000 jobs) by public transport within 30 minutes by 2050, with a medium-term target of 68% by 2030.	63.4% (2019) <u>Note:</u> 95.3% can do this by car	The implementation of TfN’s preferred NPR network (Ch. 4) and local linespeed improvements (Ch. 6) would contribute to this.
Rapid decarbonisation of surface transport	Eliminate surface transport CO ₂ emissions	Reduce surface transport CO ₂ emissions to 11 million tonnes annually by 2030 and near zero by 2045.	25 million tonnes (2018)	Modal shift to rail, accompanied by traction decarbonisation in the rail network, could achieve this by 2045. ¹²²

¹²² Transport for the North, *Transport Decarbonisation Strategy*, Dec. 2021, pp. 58-67, p. 104 & p. 115

Ambition	Impact	Objective or target	Current metric (baseline year)	Alignment with the <i>Strategic Rail Report</i> and other TfN strategies
Rapid decarbonisation of surface transport	Modal shift to public transport and active travel	Share of trips made by public transport will increase to 10% by 2030 and 15% by 2050.	7% (2018)	All of the measures described in this policy to improve the attractiveness of rail (e.g. reduced journey times, increased frequency, improved reliability, enhanced station facilities) will contribute to this.
		There will be no overall increase in private car and taxi vehicle mileage on the North's road network by 2045.	126 billion kilometres (2018)	
	Freight modal shift to rail	Rail's share of freight carried will triple to 25.5% by 2050.	8.5% (2018)	
Reducing transport-related social exclusion (TRSE)	Improve the performance of the rail network	Achieve a Public Performance Measure (PPM) of at least 91.2% for both TransPennine Express and Northern by 2028.	TPE = 87.2% Northern = 84.0% (2022)	Chapter 8 of this document examines reliability and resilience issues.
	Reducing the number of people affected by transport-related social exclusion	Reduce the number of people living in areas with a high risk of transport-related social exclusion (TRSE) by 200,000 by 2030 and 1,000,000 by 2050.	3.3 million (2019)	Chapter 7 of this document examines "seven day railway" issues which are related to TRSE.
		Reduce the number of people living in areas with a very high risk of transport-related social exclusion (TRSE) by 74,000 by 2030 and 370,000 by 2050.	810,000 (2019)	
	Improved physical accessibility of the transport network	All stations in the North will meet TfN's desired accessibility standards by 2050.	54% (2021)	This will be achieved by implementing the "desirable" stations facilities enhancement programme (Ch. 5).

¹²³ Transport for the North, *Transport Decarbonisation Strategy*, Dec. 2021, p. 60

9.3 Beneath these headline objectives, a number of more detailed attributes of the North’s transport network have been chosen as metrics. The table below shows the metrics which are most relevant to rail, and their connection to the policies described in this document.

Table 9.2: Selected monitoring & evaluation targets

Ambition	Objective or target	Metric detail	Current metric (baseline year)	Description of good	Alignment with the <i>Strategic Rail Report</i> and other TfN strategies
Decarbonisation	Increase the share of the rail network that is electrified in the North.		35.3% (2022)	Increase	TfN’s <i>Transport Decarbonisation Strategy</i> examines this issue. ¹²⁴
	Minimise rail cancellations due to severe weather.	TPE	13.6% of all cancellations (2021-22)	Decrease	Chapter 8 of this document examines reliability and resilience issues.
		Northern	9.9% of all cancellations (2021-22)	Decrease	
	Reduce greenhouse gas emissions for all modes.	Rail	0.77 million tonnes (2018)	Decrease	TfN’s <i>Transport Decarbonisation Strategy</i> examines this issue. ¹²⁵
Economy	Increase the proportion of residents able to access at least two airports within 90 minutes by rail.		14.5% (2018)	Increase	The reduction of inter-urban journey times generated by the implementation of TfN’s preferred NPR network would contribute to this (Ch. 4).
	Increase the proportion of residents able to access at least 16 key visitor attractions by rail.		29.8% (2018)	Increase	The significance of rail to the visitor economy is examined in Chapter 7.
	Increase the proportion of residents able to access a National Park within 90 minutes by rail.		46.5% (2018)	Increase	
	Increase the proportion of businesses able to access at least 10,000 other businesses within 60 minutes travel time by rail.		51.2% (2018)	Increase	The reduction of inter-urban journey times generated by the implementation of TfN’s preferred NPR network would contribute to this (Ch. 4).

¹²⁴ Transport for the North, *Transport Decarbonisation Strategy*, Dec. 2021, p. 63

¹²⁵ Transport for the North, *Transport Decarbonisation Strategy*, Dec. 2021, p. 63

Ambition	Objective or target	Metric detail	Current metric (baseline year)	Description of good	Alignment with the <i>Strategic Rail Report</i> and other TfN strategies
Economy	Increase annual rail passenger numbers.	Journeys within the North	170.7 million (2019-20)	Increase	All of the measures described in this policy to improve the attractiveness of rail (e.g. reduced journey times, increased frequency, improved reliability, enhanced station facilities) will contribute to this.
		Journeys between the North and other regions	49.9 million (2019-20)	Increase	
	The five major ports (Grimsby & Immingham, Hull, Port of Tyne, Teesport and Liverpool) will be served by rail with W12 gauge clearance.		Grimsby & Immingham and Teesport are already served by W12 gauge clearance.	Increase (i.e. upgrade Port of Tyne and Liverpool)	The economic significance of this is discussed in TfN's <i>Draft Freight and Logistics Strategy</i> (January 2022). ¹²⁶
	Increase rail linespeeds so that a higher proportion of services achieve the Desirable Minimum Standards specified in the LTRS.	Long distance (80mph)	26% (2022 timetable)	Increase	TfN's Line Speed Improvement Programme (LSIP) is outlined in Chapter 6 of this policy.
		Inter-urban (60mph)	22% (2022 timetable)	Increase	
Local (40mph)		9% (2022 timetable)	Increase		
Inclusivity	Increase the proportion of postcode areas within 700 metres of a public transport access point.		90.4% (2019)	Increase	The Restoring Your Railway Fund (Appendix A) and any future TfN "network gaps" strategy will address this.
	Improve connectivity to education facilities by public transport.	Proportion of population within 30 minutes of a further education college	84.9%	Increase	TfN's Line Speed Improvement Programme (LSIP) is outlined in Chapter 6 of this policy.

¹²⁶ Transport for the North, *Draft Freight and Logistics Strategy: Consultation Version*, Jan. 2022, pp. 13-14

Ambition	Objective or target	Metric detail	Current metric (baseline year)	Description of good	Alignment with the <i>Strategic Rail Report</i> and other TfN strategies
Inclusivity	Reduce overcrowding on the rail network.	Proportion of passengers standing at key Northern rail hubs in the morning peak	10%	Decrease	Capacity planning is discussed in Chapter 6 of this policy. The implementation of TfN's preferred NPR network would make a major contribution to this.
	Make public transport more affordable, by keeping fare rises in line with overall inflation.	Retail Price Index	2.7% (2021)	Neutral	Chapter 6 examines the operational cost implications of timetabling trade-offs, the importance of whole life costing in investment, and the potential efficiency of TfN's Line Speed Improvement Programme.

10. Conclusion

- 10.1 This report now concludes with a chapter intended to show how all of the themes form a coherent whole, interweaving the main evidence that we have presented, alongside descriptions of the principal interventions that we support and the main objectives which we are pursuing.
- 10.2 Transport for the North's *Strategic Rail Report* is a key element of our forthcoming *Strategic Transport Plan (STP)*, of which a consultation draft was circulated in the Spring of 2023, before a final version is published early in 2024. This is TfN's second STP, building on the award-winning plan which originally appeared in February 2019. TfN now has a wider vision: that by 2050, the North will enjoy "a transformed near zero emission, integrated, safe, affordable, and sustainable transport system, which will enhance connectivity and resilience, support mode shift and improve journey times for all users". In order to achieve this, TfN's objectives now include the promotion of social inclusion as well as economic and environmental goals.
- 10.3 The *Strategic Rail Report* outlines the North's requirements for rail investment in the short, medium and long term. It explains how TfN's own initiatives and programmes complement the investment that has already been pledged by central government, and are in fact necessary in order to begin the transformation of rail travel in the North that will be completed by major programmes such as Transpennine Route Upgrade (TRU), high-speed rail connections to the south of England and Northern Powerhouse Rail (NPR).
- 10.4 TfN's long-term vision is to secure the transport investment necessary to achieve transformational and sustainable economic growth across the North. At present, productivity and incomes in the North lag significantly behind the rest of England, with gross value added (GVA) per capita in the North East, North West and Yorkshire & the Humber being only respectively 70%, 87% and 79% of the UK average.¹²⁷ To achieve "levelling up" between England's regions would therefore in itself be economically transformative. Meanwhile, a virtuous circle would exist linking social inclusion and economic prosperity; removing the transport-related barriers which prevent people from accessing educational and employment opportunities will boost skills, health, disposable income and labour market participation, thereby generating economic growth and further opportunities.¹²⁸ Similarly, reducing car dependency will both enhance social inclusion and contribute to decarbonisation.

¹²⁷ Office for National Statistics, *Regional Gross Value Added (Balanced) per Head and Income Components*, 30th May 2022, Table 2
<https://www.ons.gov.uk/economy/grossvalueaddedgva/datasets/nominalregionalgrossvalueaddedbalancedperheadandincomecomponents>

¹²⁸ TfN, *Transport-Related Social Exclusion in the North of England*, Sept. 2022, p. 3

10.5 “Levelling up” is however not just a question of reducing differences in the economic outcomes between different regions in terms of incomes or unemployment. This is the long-term objective, but reducing the clear differences in the quality of transport provision between the North of England and elsewhere in Great Britain is a crucial step on the path to achieving this. At present, the rail network in the North of England falls below the prevailing standards elsewhere in a number of ways:

- The North’s Train Operating Companies provide almost uniformly poorer performance than those running elsewhere in Britain, with 9 of the 10 Train Operating Companies (TOCs) based in the South achieving a higher proportion of trains on time than any of the 12 TOCs which contribute to connectivity in the North;¹²⁹
- Stations facilities are perceived as poorer, with the provision of full accessibility being particularly unacceptable, as only 48% of stations in the North have step-free access to all areas;¹³⁰
- A lower proportion of the North’s railway network is electrified and a higher proportion of our rolling stock fleet is still diesel-powered, and this has long been identified by local stakeholders as an impediment to modernising the region’s railways;¹³¹
- There is less regional control of transport policy than in more devolved areas such as London and Scotland, leading to poorer responsiveness to local social and economic needs;
- Journey times between the main urban centres are poor by comparison to equivalent regions;¹³² and
- As a result of all these factors, the proportion of passenger trips made by rail is lower than elsewhere. In the last three months of 2020, as rail demand began a temporary recovery from the pandemic, the proportion of people travelling to work by train in the North East, North West and Yorkshire & the Humber were respectively 1.2%, 3.4% and 2.6%, compared to an average for England of 6.6%.¹³³

10.6 “Levelling up” can also be seen as a public health issue, due to the connection between rates of active travel and long-term sickness leading to economic inactivity. It has been noted that rates of

¹²⁹ Office of Rail & Road, *Passenger Rail Performance: 1 April to 30 June 2022*, 15th Sept. 2022, p. 12
<https://dataportal.orr.gov.uk/media/2121/passenger-performance-apr-jun-2022.pdf>

¹³⁰ Mott MacDonald (for TfN), *Northern England Station Enhancements Programme: Strategic Outline Business Case*, May 2022, pp. 42-50

¹³¹ North of England Electrification Task Force, *Northern Sparks: Report of the North of England Electrification Task Force*, March 2015, pp. 15-25
https://transportforthenorth.com/wp-content/uploads/EFT_Report_FINAL_web.pdf

¹³² Leeds City Council, Liverpool City Council, Manchester City Council, Newcastle City Council & Sheffield City Council, *One North: A Proposition for an Interconnected North*, July 2014, pp. 16-17
<https://www.centreforcities.org/wp-content/uploads/2014/09/14-08-07-One-North.pdf>

¹³³ DfT, *Transport Statistics Great Britain: 2021*, 16th Dec. 2021, Table TSGB0108
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1123236/tsgb0108.ods

economic inactivity due to ill health vary by region, with figures from Spring 2022 indicating that circa 7% of the working age population were inactive for health reasons in the North (with the North East having the highest rates in England), compared to under 5% in the South East, London and the East of England.¹³⁴ The promotion of active travel schemes is one of the potential mitigation measures (alongside limiting the density of fast food outlets) whose effectiveness is supported by good evidence.¹³⁵ Encouraging modal shift to rail could assist in this area, as passengers often walk or cycle to the station.

- 10.7 These problems are set against a background where economic, technological and cultural changes could see a requirement to accommodate a very large increase in rail demand over the next 30 years. Transport for the North have produced a number of *Future Travel Scenarios* which examine how different combinations of background factors (such as economic growth, car ownership, working culture, population distribution and the use of information technology) contribute to overall changes in transport demand between today and 2050.¹³⁶ Of the four scenarios outlined, the lowest growth in total rail demand in the North over this period would be 78%. However, in the scenario named “Urban Zero Carbon”, in which population growth would be concentrated in urban areas (with a corresponding fall in car ownership), rail demand would almost triple, experiencing 193% growth.¹³⁷ Although such a large increase in rail demand might appear to be unrealistic at first glance, it must be remembered that this only represents a small drop in the proportion of journeys made by private car, and thus a modest modal shift overall.
- 10.8 Accommodating this level of growth in passengers will require the full implementation of the major programmes supported by TfN, namely TRU, high-speed connections to southern England and NPR. Our view on the importance and complementarity of these programmes is given in Chapter 4. However, these infrastructure programmes are still many years from completion, with the final phase of TRU (Leeds to York electrification) likely to complete in the early 2030s, and the final phases of NPR due to complete in the early 2040s.¹³⁸ TfN’s view is that these programmes should aim to deliver the full HS2 and NPR

¹³⁴ Chris Thomas (for Institute for Public Policy Research Commission on Health and Prosperity), *Getting Better? Health and the Labour Market*, Dec. 2022, p. 25

<https://apo.org.au/sites/default/files/resource-files/2022-12/apo-nid321128.pdf>

¹³⁵ Chris Thomas (for Institute for Public Policy Research Commission on Health and Prosperity), *Getting Better? Health and the Labour Market*, Dec. 2022, p. 31

¹³⁶ Transport for the North (2020), *Future Travel Scenarios: Adaptive Planning to Deliver Our Strategic Vision in an Uncertain Future*, Dec. 2020, esp. pp. 104-105

https://transportforthenorth.com/wp-content/uploads/TfN_Future_Scenarios_Report_FULL_FINAL_V2.pdf

¹³⁷ Transport for the North (2020), *Future Travel Scenarios: Adaptive Planning to Deliver Our Strategic Vision in an Uncertain Future*, Dec. 2020, pp. 59-77

¹³⁸ Department for Transport, *Integrated Rail Plan for the North and Midlands*, CP 490, Nov. 2021, pp. 134-135
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1062157/integrated-rail-plan-for-the-north-and-midlands-web-version.pdf

networks, including significantly improved links from the East Midlands and Sheffield to Leeds. Furthermore, in some areas of the NPR scope (e.g. Leeds to Hull) it should be possible to make significant improvements in a much shorter timeframe. In order to support such long-term planning, TfN have produced three scenarios for the level of train services which should be provided across the North in 2050, in the form of our Combined Train Service Specifications; these are detailed in Chapter 6.

10.9 However, TfN do not believe that it is acceptable or even plausible to expect that radical changes in travel patterns will only occur when these major programmes have been implemented. A modal shift towards rail travel needs to begin during the 2020s, and this *Strategic Rail Report* contains a number of TfN initiatives designed to achieve that. These include:

- A programme of improvements to stations facilities with options to bring all stations in the North up to a choice of three levels of common standards. This includes an Economic Case which demonstrates that medium or high value for money can be produced by the two investment options in the £¾ billion to £1 billion range;
- A *Reliability & Resilience Delivery Plan* which identifies over 120 small-to-medium interventions which could improve train performance across the North, including 13 which have been noted as priorities;
- A programme of 22 routes which have been identified as having high potential for linespeed increases, of which five have already progressed to more detailed studies, and two (York to Scarborough and Darlington to Bishop Auckland) have entered Network Rail's implementation process; and
- The principles which TfN will adopt in our collaboration with DfT and Great British Railways Transition Team in order to secure our vision of "double devolution" in the future governance of the railway industry. This is intended to bring more local knowledge in to the service planning process, thereby enabling a rail network more immediately responsive to local needs.

10.10 It should be stressed that these TfN initiatives complement the major programmes backed by the Department for Transport, including the Manchester Task Force, Transpennine Route Upgrade and East Coast Main Line Upgrades; through infrastructure remodelling, electrification and power supply upgrades, these programmes are also intended to improve performance and further decarbonisation. However, the TfN initiatives described above could be enacted sooner than most of the DfT programme work, and begin to encourage the modal shift to rail and performance improvements needed to lay the groundwork for the major investments of the 2030s and beyond. Our rail reform agenda would also promote additional local influence over the rail industry,

thereby allowing local knowledge of our communities' social and economic needs to be reflected in decision-making.

10.11 As well as complementing the major programmes, the measures described in the *Strategic Rail Report* are aligned with TfN's overall transport objectives for 2050, in particular:

- The reduction of inter-urban journey times generated by the implementation of TfN's preferred NPR network would contribute to increasing the proportion of the North's population who can access 500,000 jobs by rail within 60 minutes from 27% to 37%;
- The implementation of TfN's preferred NPR network and local linespeed improvements would contribute to increasing the proportion of the North's population who can access an employment centre (with at least 5,000 jobs) by public transport within 30 minutes from 63.4% to 75%;
- Modal shift to rail, accompanied by traction decarbonisation in the rail network, would contribute to reducing the North's surface transport emissions from 25 million tonnes of CO₂ equivalent to near zero by 2045;
- All of the measures described in this policy to improve the attractiveness of rail (e.g. reduced journey times, increased frequency, improved reliability, enhanced station facilities and easier interchange) will contribute to increasing the share of trips made by public transport from 8% to 15%; and
- The measures described to improve performance will help to achieve a Public Performance Measure (PPM) of at least 91.2% for both TransPennine Express and Northern by 2028.

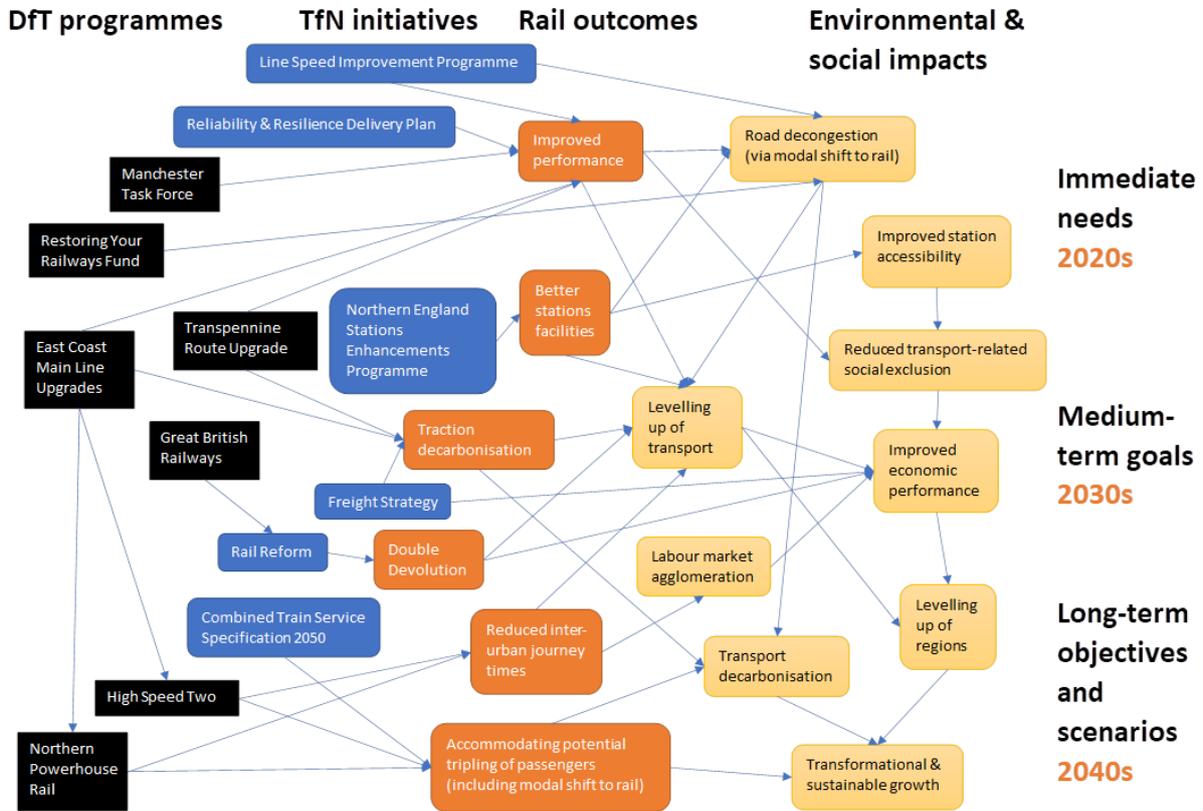
10.12 It is recognised that Transport for the North's focus regarding rail strategy has hitherto been directed mainly towards enhanced east-west links, especially those which will be improved by Northern Powerhouse Rail. This has been because TfN have direct influence over the decisions of both Northern and TransPennine Express through the Rail North Partnership, and also due to the potential economic benefits of developing an agglomerated labour market across the Pennines.

10.13 However, TfN are equally aware of the importance of the fast north-south links provided by long-distance high-speed operators, with major populations centres (such as Preston, Carlisle, Sheffield, York and Newcastle) lying directly on routes served by Avanti, East Midlands Railway, CrossCountry and LNER. Our open access operators (Hull Trains, Grand Central and Lumo) are also crucial providers of north-south connections, and direct links to London for cities such as Hull, Sunderland and Bradford. Furthermore, TfN recognises that although our territory is the north of England, it is the centre of the United Kingdom, and our north-south rail routes form part of numerous transport links passing through the North which connect the south of England, Midlands and Wales with Scotland and Northern Ireland.

- 10.14 Nevertheless, east-west links can also be useful in connecting otherwise remote areas. The rail services which connect Manchester or Manchester Airport to other major population centres (e.g. Preston, Sheffield and Leeds) extend to provide direct connectivity to coastal towns such as Barrow-in-Furness, Grimsby, Cleethorpes, Scarborough and Redcar, and constitute important economic links for these areas. Both east-west and north-south links are therefore essential to the “levelling up” agenda, and will benefit the whole of the United Kingdom.
- 10.15 TfN would particularly like to emphasise the centrality of good performance to our vision of the rail industry. Not only have performance issues dominated perception of the industry throughout 2022, but any continuing inability to return to good levels of punctuality and reliability will hamper the industry’s ability to gain new customers in the long term. It would also restrict our strategic decision-making, as when passengers cannot rely on connections their preference for direct trains and aversion to interchange rises significantly, which will influence the types of solutions that we adopt. Furthermore, performance is a social inclusion issue, as evidence has emerged to suggest that some workers have lost their jobs due to persistently late or cancelled train services. The improvement of punctuality and reliability is thus both a short-term and long-term imperative.

10.16 The relationship of these programmes, initiatives and goals is shown in the diagram below.

Figure 10.1: Inter-relationship of programmes, initiatives, outcomes and impacts



Direct connectivity

10.17 One issue that is expected to form the background to future decisions regarding rail connectivity in the North is the choice between what could be termed a “direct connectivity” strategy and an “integrated connectivity” (sometimes colloquially called “hub and spoke”) strategy. The approach in the North to date has been a blended one, driven often by infrastructure and timetable constraints. Opportunities to fundamentally change the approach are only likely to present themselves when major timetable changes are undertaken and/or new infrastructure is delivered.

10.18 A “direct connectivity” strategy would emphasise developing timetables which require fewer changes of train for as many passengers as practical. Some of the service developments that were initiated before the pandemic were moving in this direction, with the introduction of direct TransPennine Express services from Newcastle to Manchester Airport, and regular direct LNER services from London to Harrogate and London to Middlesbrough.

10.19 Direct services can generate more demand than those requiring interchange, as some passengers find changing trains inconvenient or worry about missing connections; the standard industry techniques for forecasting demand stipulate quite significant penalties when

interchange is required.¹³⁹ Direct “through” services also usually spend less time in stations (and therefore take up less platform capacity) than those which terminate and reverse, unless the direct services themselves have to reverse (as, for example, former services from Leeds to Manchester Airport via Piccadilly were required to before the construction of the Ordsall Chord).

10.20 However, direct connectivity does sometimes come at a cost in terms of reduced performance. Direct services often have to use the “through” platforms at stations, which are sometimes few in number (as at Manchester Piccadilly). They also generate more “conflicting moves” in the approaches to stations and at junctions, where some trains have to cross over lines which are also being used by trains travelling in the opposite direction; this reduces the overall capacity of the rail network and exacerbates knock-on train delays. As a result, direct services which intersect with many other routes (e.g. Cleethorpes to Manchester Airport) have often been amended when there have been performance problems. The operational viability of such services is clearest where the infrastructure exists to segregate them from potentially conflicting routes, as is the case with the Middlesbrough to Carlisle service (which does not need to interface with the East Coast Main Line at Newcastle). The infrastructure to achieve this – such as grade-separated junctions – can be very expensive to provide where it does not already exist.

10.21 The alternative “integrated connectivity” strategy argues that the demand impact of requiring interchange can be ameliorated by providing convenient and reliable interchanges at transport hubs, between both connecting rail services and other modes of transport. If the performance of the rail network can be improved and maintained, passengers will be less worried about missing connections. The network can then concentrate on proving direct connections between the main destinations, with good interchange on to branch lines serving the wider market. This is not without some costs, as a greater reliance on terminating branch lines services could require more bay platforms at major stations. However, the development of integrated connectivity to link heavy rail services, light rail and bus is seen as the key future requirement by many partners; West Yorkshire Combined Authority in particular have examined this strategy in depth.¹⁴⁰

10.22 A background factor that gives this issue particular salience at present is the changed travel market following the coronavirus pandemic, and the cultural changes which were accelerated by this. The demand for train travel by customers travelling for “other” reasons (e.g. leisure, shopping, visiting friends and relatives, personal business) has

¹³⁹ Passenger Demand Forecasting Council, *The Passenger Demand Forecasting Handbook*, Rail Delivery Group, Dec. 2017, Version 6.0, p. B4/14

<https://www.raildeliverygroup.com/files/Publications/pdfc/PDFH6/PDFH6B4GJT.pdf>

¹⁴⁰ West Yorkshire Combined Authority, *West Yorkshire Rail Strategy: A Vision for Rail in the Region*, Jan. 2021, esp. pp. 44-48

<https://www.yourvoice.westyorks-ca.gov.uk/6690/widgets/19659/documents/9204>

rebounded from the pandemic more rapidly than journeys made on employers' business or for commuting (to employment or education).

- 10.23 This increasingly significant leisure market has more choice about whether to travel by train as opposed to other modes of transport, and indeed more choice about whether to travel at all or instead pursue leisure activities at home. By comparison, traditional commuters or business travellers often had little choice about using rail; it could be viewed as a "distress purchase" due to the lack of practical alternatives.
- 10.24 Commuters and business travellers are thought to more concerned about frequency of connections and total journey times than other passengers. Conversely, leisure travellers are more influenced in their decisions by other aspects of train travel, such as comfort, station facilities, and the necessity of changing trains. Accordingly, the emerging significance of the leisure market would suggest that "direct connectivity" may provide more benefits in the future than it has previously. This has been supported by recent market research which indicates that those travelling for leisure purposes are more attracted by seeing a variety of destinations served directly than by a high frequency of services.¹⁴¹
- 10.25 The Rail North Partnership are currently initiating some research in to how the subsidy received by the North's railway industry can be reduced, by targeting the train services provided more closely at the new post-pandemic travel markets. Demand has been redistributed by time of day and day of the week, and this thorough re-evaluation of how we are serving our customers should be an opportunity to make progress on the "direct connectivity" versus "integrated connectivity" question.
- 10.26 Where trade-offs and difficult decisions have to be made, the recent work by the Manchester Task Force on the Deansgate to Piccadilly corridor has provided a template for how to do this. Many options for timetabling have been presented, and the programme team has investigated how multi-criteria analysis can be used to weight the importance of direct connectivity alongside other goals (such as performance, capacity and financial impact).¹⁴² Various workstreams are therefore currently investigating the issue of direct versus integrated connectivity, and TfN recognise the importance of adapting to changed demand patterns in developing the rail network of the future.
- 10.27 Nevertheless, it should be emphasised that direct connectivity is preferable wherever it can be provided pragmatically and efficiently. This is particularly the case given the recent relative increase in importance of the leisure market, and the evidence that leisure travellers are more likely to be dissuaded from rail travel by the need

¹⁴¹ Define Insight & Strategy (for Transport Focus), *Passenger Views on Through Trains versus Changing Trains*, May 2022, p. 15; cf. Transport Focus, *Changing Trains versus Direct Trains: Passenger Views*, Nov. 2022 <https://d3cez36w5wymxj.cloudfront.net/wp-content/uploads/2022/11/07165137/Changing-trains-versus-direct-trains.pdf>

¹⁴² TfN, *Manchester Recovery Task Force: Policy Scoring Workshop (Report)*, Draft, 14th August 2022

to interchange than those travelling for occupational or educational purposes.¹⁴³ Direct connectivity will therefore continue to be a major criterion by which proposals for service provision and timetabling will be judged.

¹⁴³ Bart de Keizer, Marco Kouwenhoven & Freek Hofker, 'New insights in resistance to interchange', *Transportation Research Procedia*, Vol. 8, 2015, p. 74
<https://core.ac.uk/download/pdf/81997558.pdf>

11. Appendix A: Additional tables

Table 11.1: Desirable Minimum Standards specified in the 2018 Long Term Rail Strategy

No.	Desirable Minimum Standard	No.	Desirable Minimum Standard
1	All passenger routes to be served by a minimum two trains per hour	7	Rail to directly serve each of the North's airports, with direct services to economic centres within the airport's catchment
2	Long-distance services to achieve average journey speeds of at least 80mph	8	Direct connectivity between tourist destinations and economic centres in their catchments
3	Inter-urban services to achieve average journey speeds of at least 60mph	9	Infrastructure to be available to enable a weekday inter-peak level service on Saturdays, Sundays and public holidays
4	Local and suburban services to achieve average journey speeds of at least 40mph	10	Capacity provision aligned to holiday patterns and events
5	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	11	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 intermodal containers to be carried on standard wagons and weight capability enabling trains to operate unrestricted at the highest speed appropriate for the load
6	Direct connectivity between economic centres and Manchester Airport	12	Improve the average speed of freight services in the North by 50% over the next 10 years (by 2028)

Table 11.2: The Restoring Your Railways Fund¹⁴⁴

Stage of development	Proposals					
	North East	Origin	North West (and adjacent parts of North Wales and the West Midlands)	Origin	Yorkshire and the Humber (and adjacent parts of the East Midlands)	Origin
Schemes developing to SOBC	Reopened lines and new passenger services, Consett-Newcastle	Ideas Fund 2	Reopened lines and new passenger services, Bolton-Radcliffe / Bolton-Bury	Ideas Fund 2	Reopened lines and new passenger services, Gainsborough-Barton	Ideas Fund 2
	Reopen the Darlington-Weardale line to passenger services	Ideas Fund 3	New station at Beeston Castle and Tarporley, Crewe-Chester	Ideas Fund 2	New station at Waverley, Sheffield-Chesterfield	Ideas Fund 2
			Enhanced existing passenger services, Preston-Blackpool South	Ideas Fund 2	Reopen the Askern Branch line	Ideas Fund 3
			Reopen the Ashton-Stockport line to passenger services	Ideas Fund 3	Reinstate the Beverley-York line	Ideas Fund 3
			Reopen the Middlewich line to passenger services	Ideas Fund 3	Reopen the Don Valley line to passenger services	Ideas Fund 3

¹⁴⁴ Department for Transport, *Restoring Your Railway Fund: Programme Update*, June 2022, pp. 8-11 <https://assets.publishing.service.gov.uk/media/62d6c9e6d3bf7f28583b0179/restoring-your-railway-programme-update.pdf>

Stage of development	Proposals					
	North East	Origin	North West (and adjacent parts of North Wales and the West Midlands)	Origin	Yorkshire and the Humber (and adjacent parts of the East Midlands)	Origin
			Reopen the Rawtenstall-Buckley Wells line to passenger services	Ideas Fund 3		
			Reopen the Stoke-Leek line	Ideas Fund 3		
Schemes progressing past SOBC	New station at Ferryhill, Ferryhill-Stockton-on-Tees	Ideas Fund 2	To reinstate the Fleetwood Railway Line	Pre-Ideas Fund	To reintroduce passenger services on the Barrow Hill line between Sheffield and Chesterfield	Ideas Fund 1
			To reopen the Meir Station between Stoke-on-Trent and North Staffordshire	Ideas Fund 1	Haxby Station	New Stations Fund 3
			Deeside Station	New Stations Fund 3		
Schemes being delivered	Northumberland Line [by Dec. 2023]	Advanced Proposal			Thorpe Park Station [by March 2024]	New Stations Fund 3
					White Rose Station [in 2023]	New Stations Fund 3

Table 11.3: The Rail Network Enhancements Pipeline (RNEP) in the North (as of Autumn 2019 DfT update and Autumn 2022 RIA update)

Scheme	Network Rail Region	Last DfT milestone (Oct. 2019)	Output	Railway Industry Association unofficial update (Oct. 2022)
Leeds Station Capacity	Eastern	Initiate	Additional capacity to accommodate train service enhancements and passenger demand growth, also supporting Leeds City Council's Masterplan proposal	£161m of upgrades were completed in January 2022, and the project was included in the Government's 2022 Growth Plan.
Skipton-Colne Reinstatement	Eastern	Initiate	Improved passenger access between East Lancashire and the Leeds City Area; provision of an additional trans-Pennine freight route	On 6 th December 2021, then Rail Minister Chris Heaton-Harris said he could offer no assurance that the DfT will be able to prioritise further spending on the line.
Cross-Manchester Capacity and Performance (Castlefield Corridor)	NW&C	Initiate	To support continued growth in rail usage on the corridors in to and out of Manchester	On 11 th March 2022, then Transport Secretary Grant Shapps announced £84m for this and other schemes.

Scheme	Network Rail Region	Last DfT milestone (Oct. 2019)	Output	Railway Industry Association unofficial update (Oct. 2022)
Wigan-Bolton Electrification	NW&C	Initiate	To electrify the remaining section of route originally proposed under NW Electrification Programme	On 1 st September 2021, then Rail Minister Chris Heaton-Harris announced £78m of funding.
Wrexham-Bidston & North Wales	Wales & West	Initiate	To improve journey times in North Wales by increasing line speeds and connectivity to High Speed Rail, and improve links between North Wales and Liverpool, thereby connecting populations to employment sites and commercial areas	In September 2021, Transport for Wales said that additional services are being delayed by driver training issues.
East Coast Digital Programme	Eastern	Develop	Digital signalling on the East Coast Main Line to increase capacity and improve performance	On 29 th June 2022, then Transport Secretary Grant Shapps announced £1bn of funding.
Middlesbrough Station Capacity	Eastern	Develop	To determine options to accommodate franchise and other track access commitments (including alternative service operation choices)	On 8 th March 2022, planning approval was granted.
Northumberland Line	Eastern	Develop	Reintroduction of passenger services along the freight only Ashington-Blythe-Tyne line, including six new stations	In August 2022, Network Rail said this was on target to be completed by December 2023.
Robin Hood Line	Eastern	Develop	Reopening of a branch of the Robin Hood Line with aims including improvement of access to employment opportunities	The <i>Integrated Rail Plan</i> (published November 2021) stated that the line extension was going ahead.
Cumbrian Coast Capacity	NW&C	Develop	To increase freight capacity on the Cumbrian Coast Line, in order to accommodate expected demand from industrial developments and facilitate passenger service requirements	In May 2022, Network Rail submitted the business case for the project.
Harrogate Station Franchise Capacity	Eastern	Design	Capacity work to enable Class 800 services to operate to and from Harrogate	In 2020, Network Rail said that further work was needed to accommodate Class 800 services.
Transpennine Route Upgrade	Eastern	Design	To deliver improved performance, capacity and journey times between Manchester, Leeds and York	On 19 th July 2022, then Transport Secretary Grant Shapps announced an additional £959m of funding.
Hope Valley Capacity	NW&C	Design	To provide additional capacity on the Hope Valley line	On 11 th March 2021, then Rail Minister Chris Heaton-Harris announced £137m of funding.



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