

The North's Freight and Logistics network

The North of England's transport network is extensive and encompasses rail, road, inland waterways, sea and air infrastructure in addition to a significant volume of warehousing, particularly around Liverpool, Manchester and Leeds.

The transport infrastructure supports a Northern population of over 15.5 million people¹, and prior to the impact of Covid-19 7.4 million jobs², covering over 38,000 square kilometres of land³. The North of England contributes over £364 billion GVA towards the UK economy⁴.

Freight accounts for 9% of the country's GDP and supports every industry with access to goods and services. In the UK, a total of c1.65 billion tonnes of freight are lifted by all modes per annum. Over a third of freight tonnes lifted comes from the Northern Ports covering both international and domestic traffic.

The North boasts a wealth of freight assets that grant the North a strong multimodal freight capability. These include:

- Eleven major ports (three with provisional Freeport status) in addition to other smaller ports located on the Tyne, Tees, Humber and Mersey as well as in Lancashire, Cumbria and Northumberland;
- Seven international airports including Liverpool John Lennon, Leeds-Bradford, Doncaster-Sheffield, Humberside, Durham Tees Valley and Newcastle in addition to the major international airport at Manchester;
- Three Strategic Rail Freight Interchanges (SRFIs – distribution centres with intermodal terminals) at Ditton, Wakefield and Selby with more emerging;
- Five further Intermodal Terminals at Trafford Park, Leeds, Garston, Doncaster and Widnes;
- A Strategic Road Network focused on the M62/M60/M56 and A66/69 East-West corridors and the M6 and M1/A1 North-South corridors;
- A strategic rail network principally comprising of the West Coast Main Line, East Coast Main Line and Midland Main Lines that connect the North of England to the South and the Transpennine routes; and

¹ Office for National Statistics (2021), 'Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland: Mid-2020: 2021 local authority boundaries'. [Accessible [here](#)]

² Labour Force Survey (Jan-Mar 2020), May 2021, ONS [Accessible [here](#)]. The most recent data (Jan-Mar 2021) indicates that employment across the North is around 7.2 million.

³ Office for National Statistics (2021), 'Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland: Mid-2020: 2021 local authority boundaries'. [Accessible [here](#)]

⁴ Office for National Statistics (2021), 'Regional Gross Value Added (balanced) by industry: all ITL regions' [Accessible [here](#)]

- A significant amount of distribution centre capacity.

Despite these assets being available, many are not being fully utilised due to a number of reasons such as lack of joined up infrastructure or attractive alternative logistics solutions. Gaps in connectivity prevail that urgently require investment; 80% of road freight in the North is domestic traffic, most of which is short haul (making it difficult to justify the use of rail on commercial or efficiency grounds), which places a heavy burden on the strategic road network.

Importance of the freight and logistics sector in the North

In 2016 Transport for the North published the ground-breaking Northern Powerhouse Economic Review. The review identified that the GVA in the North was 25% below the national average which is a significant gap in productivity. This meant that there was an opportunity to articulate the need for investment in the North in a different way – to maximise the productivity of the whole of the UK which would contribute a stronger economic offer for UK PLC.

The prime economic sectors of advanced manufacturing, health innovation, energy and digital were identified as key to the North's success. To support these sectors, Freight and Logistics was identified as an enabling sector alongside finance and professional services and education. This identification of freight as a key enabler was the catalyst for the work on freight and logistics at TfN and the networks and investment needed in the North to close the productivity gap.

The review also identified that it was not the lack of diversity of sector activity in the North but that the difference in productivity within each sector that matters more. There was also a lack of business to business sharing and development of expertise. Whilst this is not fixed easily, as relationships develop across TfN programmes we ourselves can be a catalyst to help change this position.

The freight and logistics sector activity in the North is significant. With high levels of major port and warehousing activity and the clear desire articulated by Members to see the networks strengthened to support the growth of these areas, TfN invested heavily in understanding the pan Northern impact of the sector. This gave freight and logistics prominence in strategy development and the publication of the Enhanced Freight and Logistics Analysis supported the development of the Strategic Transport Plan.

Northern Powerhouse Independent Economic Review

The 2016 Northern Powerhouse Independent Economic Review (NPIER) identified freight as one of the North's key enabling capabilities, playing a vital role in delivering transformational economic growth across the region. This transformational growth will deliver an additional £100 billion in GVA and an extra 850,000 jobs in the North by 2050.

The past experience in the logistics sector has been growth at a slightly faster rate than in the wider economy. The sectoral composition of the North in a transformational growth scenario implies trends that both reduce and boost the demand for logistics: lesser importance on heavy freight imports and exports (and for the future a greater reliance on more sustainable modes, notably rail and water-borne) and supply chain imports associated with those sectors; greater importance of imports of consumer goods and high-value (including air) freight.

Under the transformational scenario, the net effect of these changes are assumed to keep the logistics sector's growth above that of the Northern economy, whilst productivity growth within logistics in the North is assumed to be at a similar or slightly faster rate than in the UK economy as a whole.

Following on from the publication of STP and Investment Programme in 2019, freight requirements have been a key consideration within TfN's Strategic Development Corridors and subsequent work on the Investment Programme Benefits Analysis.

Given its high profile nature and the additional importance of decarbonisation and how the themes interact, it is timely to see this strategy published and ensure the sector itself, Northern Leaders and Government clearly understands and appreciates the Northern priorities we identify and wish to see delivered.

In April 2019, the National Infrastructure Commission published evidence drawn together by Vivid Economics on the Value of Freight⁵. They reported that 'the cost of the UK freight system is equivalent to around 4% of GDP. We estimate that the UK spends up to £80 billion per year on road freight, rail freight and warehousing. Of this, road freight accounts for around £38 billion; rail freight for around £1 billion; and warehousing for £20-38 billion. Labour costs make up around one third of road freight and warehousing costs.'

⁵ <https://nic.org.uk/studies-reports/uk-freight/the-value-of-freight/> Accessed June 2021

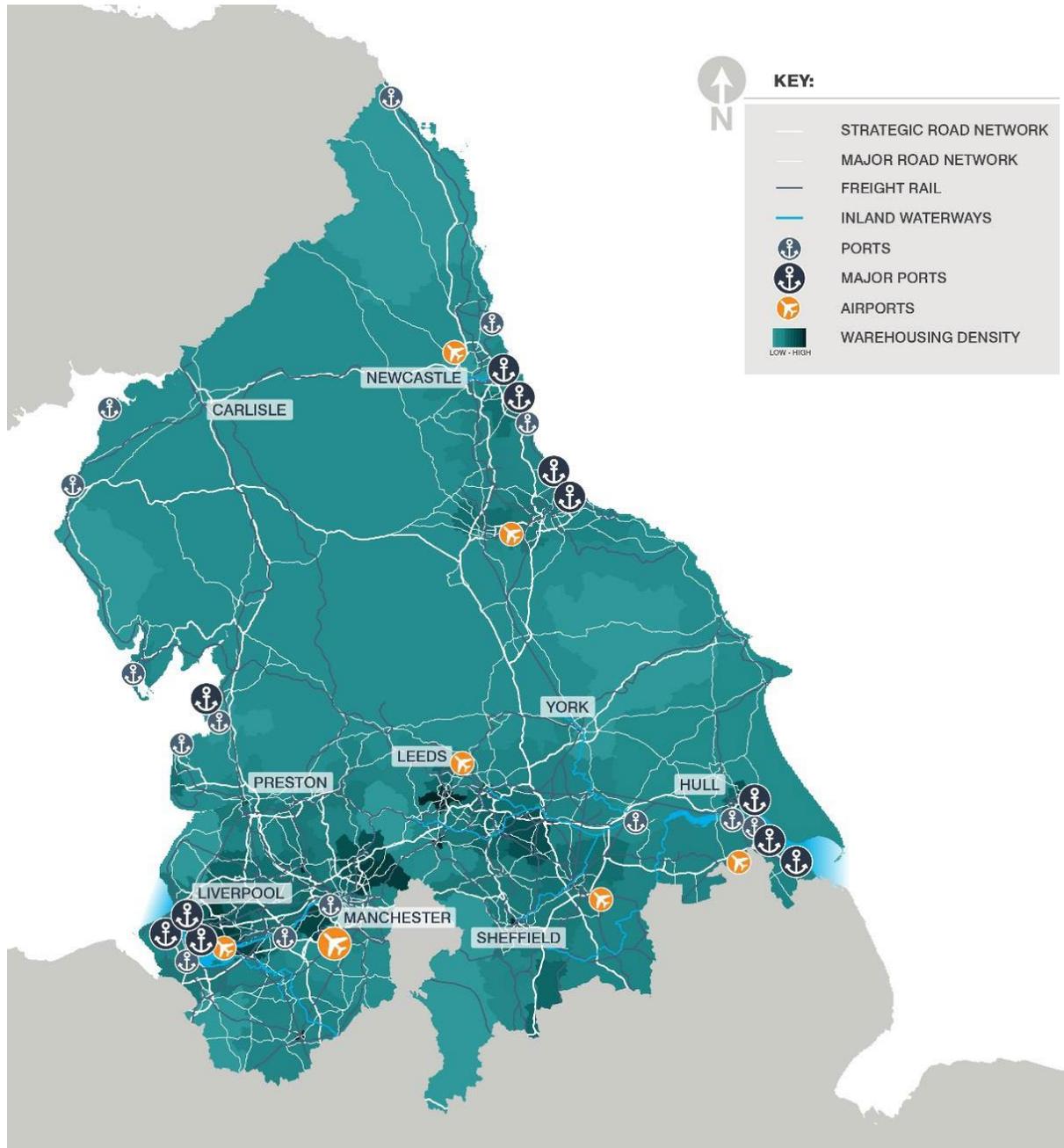
The sector represents a huge opportunity for the North given that over 33% of goods enter through the Northern ports and 25% of GB freight starts in the North and the same proportion of journeys end in the North. However, there is some evidence that constraints in the freight network, nationally, cause inefficiencies. These include a shortage of warehouse capacity (especially rail connected warehousing), the inability of rail to carry containers east-west across the Pennines or elsewhere in the North and the disproportionate reliance on the ports in the South (even when roll on roll off traffic is excluded). This is because the North's rail network cannot fit the containers on it as the tunnels and bridges are not big enough in places. This is known as 'gauge clearance' and the North would like to see the largest gauge, W12 being delivered on the network where possible.

By taking a multimodal approach, and using demand information generated by the modelling and analysis tools developed at TfN, we can consider capacity constraints on the whole network. In terms of road and rail there will be consideration of the importance of well-connected terminals that feed the warehousing clusters of, for example, Warrington in the North West and Wakefield and Doncaster in the East all of which are constantly evolving and securing new business.

The North's Multimodal Freight Flows

The North's freight traffic is carried by road, rail, maritime and air. Inland waterway and air carry very small percentages of overall volumes in the north. TfN recognises that there are opportunities as outlined above.

The key transport infrastructure in the north of England is presented in the map overleaf:



Key Transport Infrastructure - North of England

The UK handles large volumes of imports and exports at various seaports. There are three major port clusters in the North of England: Liverpool, Hull and Immingham, and Tyne and Wear. These ports generate traffic to/from inland terminals and warehouses within the North and beyond. These tend to handle short-sea traffic. In addition, large volumes of freight destined for the North comes the major deep-sea ports in southern England: Felixstowe, Southampton and London Gateway.

The other generators of freight traffic are inland distribution centres, terminals and warehouses. These are scattered across the country for onward distribution to end customers (e.g. retailers, households, or

business users of commodities such as construction sites and factories). In the North, areas of high warehousing density are usually urban clusters, particularly around Manchester, Liverpool, Leeds and the wider Yorkshire region.

Main commodity groups carried by road and rail freight include:

- Intermodal Container
- Construction
- Metals
- Automotive
- Petroleum
- Foodstuffs and household delivery

Freight flows in the North of England can be divided into two main directions, north-south and east-west

Key flows	Main rail routes	Main road routes
North-South	WCML (Crewe – Carlisle)	M6
	ECML (Doncaster – Newcastle)	A1 (M) (especially York and Newcastle)
	MML (south of Sheffield)	M1 (south of Sheffield)
East-West	North Transpennine Line (via Diggle)	M62 (between Liverpool and Hull)
	Calder Valley Line (via Rochdale)	A69 (between Carlisle and Newcastle)
	Copy Pit Line (via Burnley)	A66 (between Penrith and Scotch Corner)
	Hope Valley Line (via Edale)	

All the listed north-south routes are very busy across both road and rail, carrying both traffic to/from or within the North and significant Anglo-Scottish traffic (much of which through the North). The WCML and M6 both carry very high freight volumes south of Warrington.

For east-west traffic, there is currently relatively little rail traffic. There is at present no gauge-cleared route suitable for container traffic. The small number of trains that run are for Construction Aggregates and Biomass.

The busiest east-west road corridor for freight is the M62. The A69 and A66 also play an important strategic freight role, offering strategic links to Scotland and ports. Reflective of this; they carry lower volumes of traffic overall. However HGVs and LGVs account for a large percentage of overall traffic on these routes making them a key route in the North for freight. The A616 and A628 which provides a route to Manchester known more popularly as Woodhead can be affected on multiple occasions throughout the winter. Due to the Pennines topography, these are the only main east-west routes with a lack of suitable alternatives and are susceptible to disruptions. The beast from the East in early 2018 brought extreme temperatures and heavy snowfall to the UK. At one point it was not possible to travel on an East West basis by road due to snow, accidents and closures. Although an extreme event that isn't traditionally planned for in the UK climate, it is worth noting and provides a sobering reminder of the importance of resilient and reliable connectivity. One of the hardest hit industries was the logistics industry as it tried its hardest to

The choice of road versus rail for freight is typically driven by cost. This cost evaluation needs to take account of both haulage costs and indirect costs such as the construction of terminals. Using rail typically involves building a rail terminal which is often larger and more costly than the road equivalent, and where that is the case, the operator will need to include these (extra) capital costs in their calculations.

Road haulage does have typically high economic costs in terms of pollution, highway damage, congestion and noise. The actual body that pay for these costs ends up being the Highway Authority and not the haulier. In rail terms there are less costs absorbed by Councils and more absorbed by the freight operator. This is why the Freight Facilities Grants run by DfT were popular.

Historically bulk cargoes such as construction materials and coal for power stations have been the main commodities of rail. Coal has declined with the shift in power generation to renewables and the earlier "dash for gas". Until recently, other heavy industries had not filled the gap left by coal. In part that is because there is less heavy industry in the UK economy but also because of the gradual shift in power generation. Where offshore wind has grown, the infrastructure required is port side and near the shore.

This in effect removes coal's primary need for rail freight. Construction materials continue to be moved across the UK with the importance of the Peak District quarries increasing. With the limit of lorry movements restricted by the Peak District National Park, the train loads of aggregates have almost doubled. Where a c2400 tonne of aggregates left the Peaks to Wembley twice a week, now 1 train of c4000 tonnes works now. This is

a huge argument for the attraction of modal shift and also highlights the industry's held belief that moving more on bigger trains is possible – even on paths that were designed for much lighter trains.

However, increasingly with the rise in volume of consumer goods and specialised manufacturing (in the UK and globally) and with more rail-served warehousing sites, with terminals are built across the country, the total volume and the proportion of intermodal containers and fast-moving consumer goods travelling by rail has also risen. This trend is expected to continue.

Within any one commodity group the comparison of road versus rail costs will vary by journey:

Distance: Because road costs per extra kilometre are higher than rail costs per extra kilometre, rail is typically more viable (higher mode share) over longer distances than over short distances.

Cargo quantities: Rail is normally not well-suited to small cargo volumes because it takes some time to build up enough freight to warrant running a train. This leads to infrequent and large deliveries (often inconvenient for the customer), and can lead to under-utilised railway assets.

Rail-connected: If there are rail terminals at both the cargo generator and the cargo consumer, then this removes the need for a local road haul between cargo generator/consumer and rail terminals – thus significantly reducing the costs of using rail.

It is often difficult to define mode share by commodity because commodity definitions between modes are often difficult to harmonise.

Future Freight Growth

The growth of freight in the future is heavily attributed to the increasing number of national distribution centres (NDC) and regional distribution centres (RDC) in line with the growth in online retailing and the move towards next-day delivery of a wide variety of goods. In 2050, more NDCs are forecast within Central England, which are predicted to supply RDCs in both the North of England and in Scotland. This also results in longer length of haul by road freight, reflected by an increase in the domestic average length of haul from 93 km in 2016 to 130 km in 2050⁶.

Tyneside and Tees Valley in the North East have seen a significant take up of logistics and distribution space, although this has not been on the same vast scale as the major established UK logistics parks in the Midlands, South East and North West of England. These northern key

⁶ Enhanced Freight and Logistics Analysis Report, TfN, January 2018

logistics hubs are often based on historical geographies, some of which have connections with ports and airports (such as Newcastle International Airport and associated pharmaceutical industry) while others have developed independently.

There are several key logistics centres that serve a wide variety of commodities that are moved around, to, from, within the northern trans Pennines, including fast-moving consumer goods (FMCG), construction and support for the energy supply chain. Across the Northern trans Pennines freight is mainly moved on the road network since there are no significant intermodal locations in this region, as well as the absence of gauge clearance and capacity on rail.

In the West and Wales region, covering the areas of the Liverpool City Region, the Manchester City Region, Cheshire and North Wales, there has been significant growth in recent years in energy, health innovation and advanced manufacturing industries. The recent investment in a deep-water container terminal, Liverpool2 also reflects the aspiration of the region to increase its freight potential.

Along the Southern Pennines corridor there is a significant business and industrial presence, with a strong advanced manufacturing clustered in Sheffield, to add to Manchester's and Liverpool's specialised materials and manufacturing centres.