Department for Transport

England's Port Connectivity: the current picture

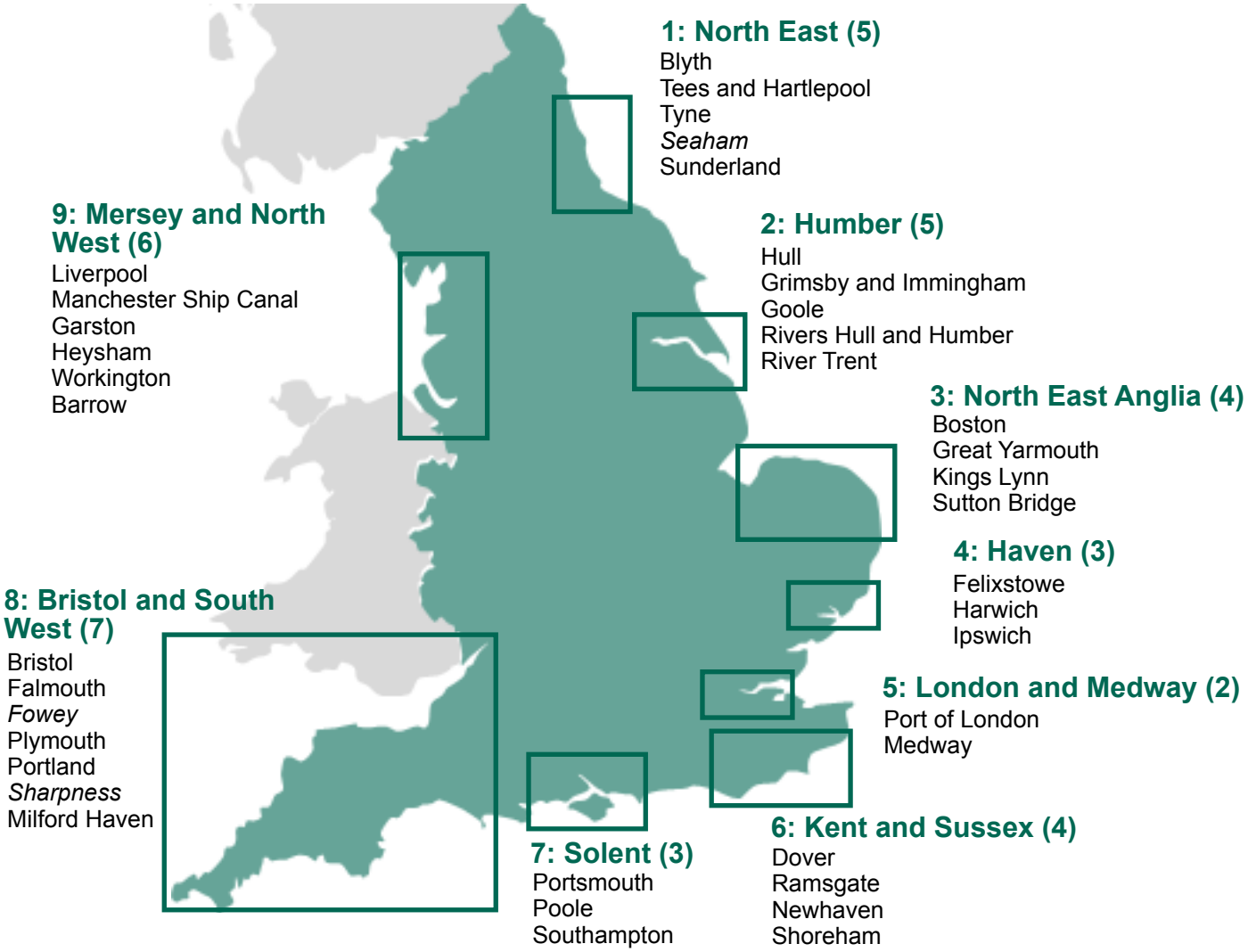
9 regional case studies

Introduction

As part of the Port Connectivity Study (PCS), all ports in England which reported freight tonnage in 2015 and Milford Haven* were invited to complete a survey requesting information about connectivity issues affecting them as well as current and future freight traffics, development plans and port aspirations. Local authorities and Local Enterprise Partnerships (LEPs) with ports in their area were also asked to participate in a similar survey. This document presents relevant results from the surveys to highlight issues assessed by the respondents as having an impact on port connectivity.

Due to the range of issues raised, and matters of commercial sensitivity, this document provides only a high level summary of the information provided; the fuller responses will however be used within the Department to build an in depth understanding of port concerns, developments and priorities. For the purpose of this document, ports have been defined as the statistical ports used within the Department's port statistics for England, grouped geographically in order to present wider connectivity issues alongside more specific local concerns. Ports have been grouped into one of the 9 broad areas as shown in the map below.

Statistical ports covered by geographical grouping (39):



Ports listed in *italics* did not respond to the port connectivity study survey, but were covered by a response from a relevant local authority or LEP.

*In light of their unique governance arrangements, under the Wales Act 2017 the largest nationally significant trust ports remain accountable to the Secretary of State for Transport. As the only such trust port in Wales, Milford Haven has therefore been included as the sole non-English port in the study.

Coverage: ports and data sources

This analysis largely reflects the 48 responses to the Port Connectivity Survey (out of 84 surveys sent), covering 34 statistical ports which handled freight*. 32 responses were also received from local authorities and Local Enterprise Partnerships (LEPs). Less information is available for those ports that did not provide a response to the survey.

The summary also draws on DfT port freight statistics which cover statistical ports in England, of which more detailed information is available for the 29 major ports (those handling over 1 million tonnes of cargo per year) as recorded in the department's port freight statistics.

Other sources include industry estimates of the economic contribution of the maritime sector produced for Maritime UK, and in-depth studies by DfT, Highways England (HE) and Network Rail (NR). It is not the intention to comprehensively cover all issues raised; instead this document signposts to more detailed information and where it is published.

Full details of sources and links to further information are provided at the end of this document.

Further work

Compiling this document has helped to highlight the extent of the data that readily exists and can be used to develop an understanding of port connectivity across the country. The Department intends to build on this initial work to ensure it has an up-to-date picture of port connectivity across all ports in England. In order to achieve this, we intend to:

- Seek to gather data from ports on a more regular basis, liaising with the ports and the port associations to determine the best way to approach this, so that the resulting exercise adds value in ensuring Government decisions are based on sound evidence, whilst minimising the burden on those supplying information.

- Work with other bodies, including Highways England and Network Rail, to ensure that good data exist to monitor connectivity on the road and rail network around ports.

- Develop and maintain a deeper understanding of the importance and impact of port connectivity issues, including attempting to estimate the economic value of the main corridors to and from ports.

This work is captured by recommendations 1 and 2 of the main port connectivity report.

Acknowledgement

The Department is grateful to all those ports and local bodies which took time to complete the Port Connectivity Study survey, or to otherwise engage with this work.

* Responses received from ports which handled very little or no freight were noted by the Department but excluded for the purposes of this analysis. A statistical port consists of one or more ports, normally controlled by a single port authority, able to record ship and cargo movements, so that in some cases more than one response was received for a single statistical port.

National overview

As an island nation, international trade, in the form of imports and exports, is a vital factor in economic growth, productivity and inward investment.

Ports are critical to this success, but the onward connections by rail and road are equally as crucial to facilitate these international movements. Congestion and capacity issues on these networks, even away from ports, can impact on the efficiency of moving goods to markets.

This section looks briefly at the core road and rail networks in relation to England's ports.

Ports and markets

Across the UK as a whole, the ports sector alone directly contributed an estimated £1.7 bn in Gross Value Added (GVA) in 2015, and employed an estimated 24,000 people. When the activities that rely on ports - shipping and ship-building - are also included, these figures increase to £7.6 bn and 101,000 jobs*.

The majority of this is accounted for by England's ports (see box). At the regional level, London, the North West and the South East account for the largest shares of both GVA and jobs.

England's ports - including shipping and shipbuilding activities - account for an estimated...

£6.1 billion GVA
81% of the total contribution made by all ports in the UK (2015)

79,000 jobs
78% of the total employed in the ports sector in the UK (2015)

Source: CEBR

Port contribution to GVA and employment by region: 2015

North East
£360m GVA (6%)
7,200 jobs (9%)

Yorkshire and Humber
£620m GVA (10%)
8,400 jobs (11%)

North West
£960m GVA (16%)
15,200 jobs (19%)

East Midlands
£40m GVA (1%)
500 jobs (1%)

West Midlands
£30m GVA (0%)
400 jobs (1%)

East of England
£540m GVA (9%)
6,300 jobs (8%)

London
£2,100m GVA (34%)
20,000 jobs (25%)

South West
£640m GVA (10%)
10,100 jobs (13%)

South East
£890m GVA (15%)
11,200 jobs (14%)

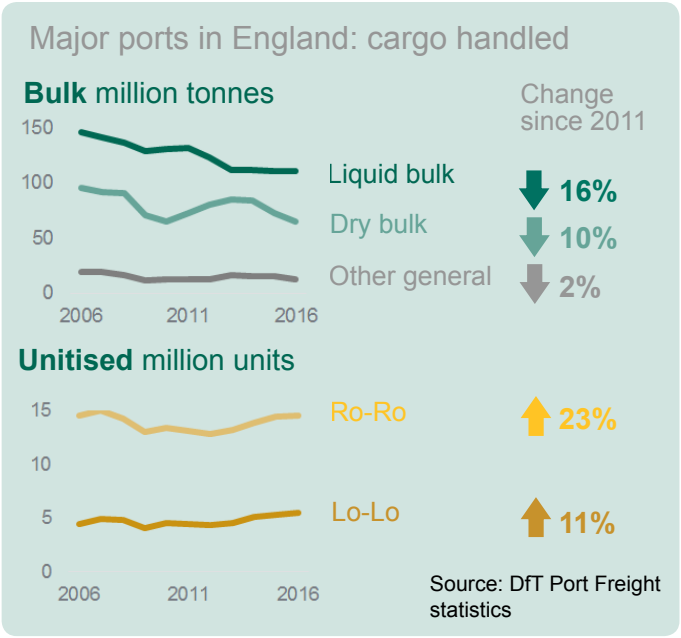
Source: CEBR

* Throughout this report, where figures are quoted in relation to the economic contribution and employment for the ports sector at a regional level, it is this wider scope - including shipping and ship-building - which is used.

Cargo handled - national overview

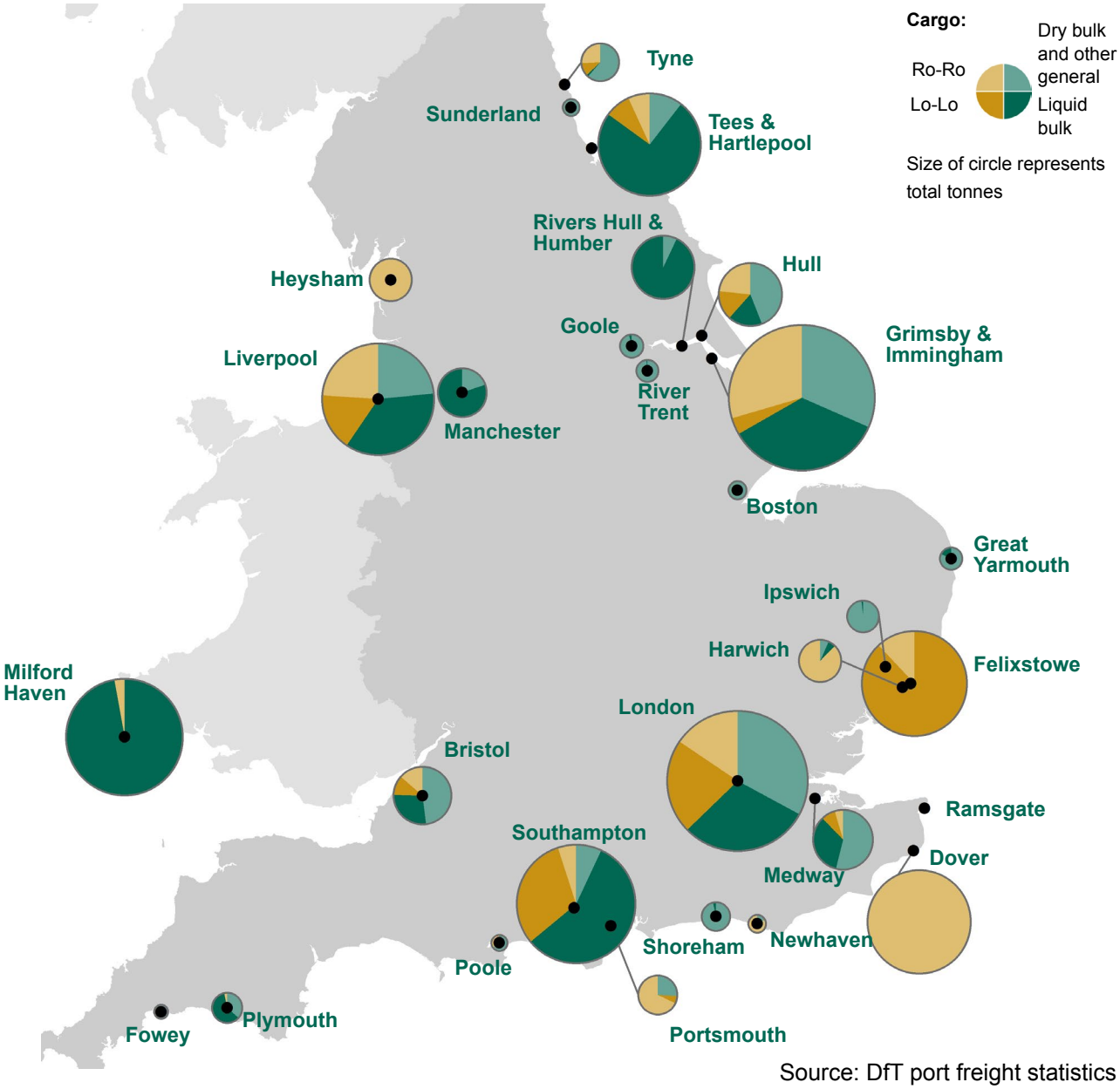
England's ports handle a range of cargo types, though national statistics capture only a high level categorisation. Based on tonnage handled, bulk freight accounts for the largest proportion though has declined in recent years, with growth in unitised traffic - both Roll-on Roll-off (Ro-Ro) lorries and Lift-on Lift-off (Lo-Lo) containers.

Further information on cargo handled by UK ports is available in the annual port freight statistics.



Major ports in England by cargo: 2016

Major ports are those which handle over 1 million tonnes of cargo per year or are considered important for a particular cargo type.

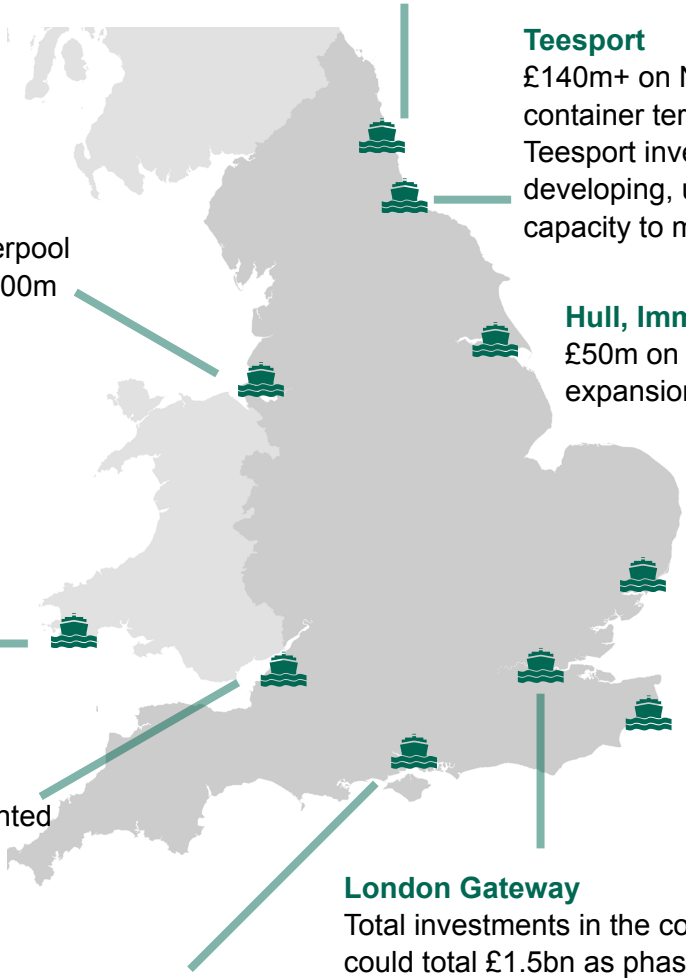


Source: DfT port freight statistics

Port developments

Despite decline in some bulk cargoes, many ports expect growth over the next decade, in a range of areas including container traffic, automotives, biomass and support for the offshore energy sector. Consequently ports are investing in increasing their capacity, with some of the headline investments undertaken or planned shown below. Besides these larger investments, smaller ports are also developing to support growth - with some examples briefly indicated in the regional studies.

Examples of recent or planned port investments:



Tyne
£30m on berth enhancements and handling facilities in addition to £21m spent on infrastructure in 2015

Teesport
£140m+ on Northern Gateway container terminal on top of £80m at Teesport invested over the last 5 years developing, upgrading and enhancing capacity to meet customer demand.

Liverpool
Has invested £400m in Liverpool 2 container terminal and £100m in biomass silos.

Hull, Immingham
£50m on container terminal expansions.

Milford Haven
In 2015 alone, the port re-invested £7.3m of its turnover back into improving port operations such as construction of the new dock lock.

Felixstowe
The port announced a £200m investment in 2015 to upgrade its capacity with improved berthing capabilities.

Bristol
£20m in new car handling facilities as well as a consented development for a potential £800m container terminal.

Dover
£250m in Dover Western Docks Revival project.

London Gateway
Total investments in the country's newest port could total £1.5bn as phases are rolled out according to market demand.

Southampton
£50m on multi-storey car handling facilities (part of a £1bn 5-year investment program across all Associated British Ports ports).

Tilbury
The port, its customers and tenants are delivering a £1bn capital investment programme 2012 to 2019, including the new Tilbury 2 terminal.

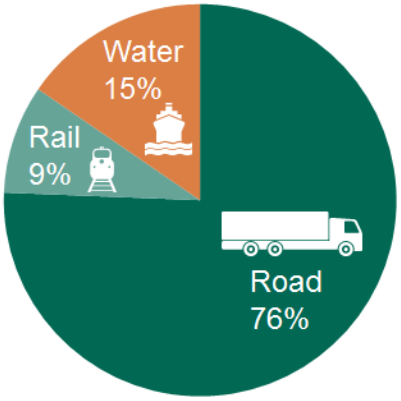
Source: Information provided by ports

Freight movement: modal share

The majority of domestic freight in England is moved by road, with rail and water important for some locations and cargo types.

Unsurprisingly, for a majority of ports, **road** was stated as the most important mode for movement of freight inland, with almost all ports reporting some movement by road*. Many ports - including key Ro-Ro ports such as Dover and Harwich - rely entirely on roads for movement of freight to/from the port on the land side.

Domestic freight mode share: goods moved (billion tonne kilometres) 2015



Source: Transport Statistics Great Britain, table TSGB0401

In total, 18 ports** in England have an active connection to the national **rail** network (a further 6 have an operational connection which is not currently used). Though rail is not the main mode for freight movement for any port, the ports with the highest rail share are key container ports, including Felixstowe, London and Southampton. Felixstowe reported that over a quarter of freight in/out of the port is moved by rail, the highest share of any port.

Besides road and rail, **water** (both inland waterways and coastwise shipping) is used for domestic freight movements by some ports. The following case studies focus on road and rail networks only, however recommendation 3 of the main report instigates work to consider the opportunities and barriers for freight use of inland waterways.

Freight corridors - road and rail

The majority of goods imported and exported to the UK (around 95% by volume) pass through our ports; getting these goods to and from markets across the UK relies on good connectivity particularly for the main national corridors.

The main report illustrates some of the main freight corridors for some of the main types of cargo moved through ports; although they are informed by information gathered as part of the Port Connectivity Study, they should be considered as an illustration of key routes, rather than a definitive analysis (further work to understand the economic value of key freight corridors will be carried out as outlined in recommendation 2 of the main report). However, these corridors serve to illustrate the extent to which the movement of goods relies on the entirety of the strategic road and rail freight networks.

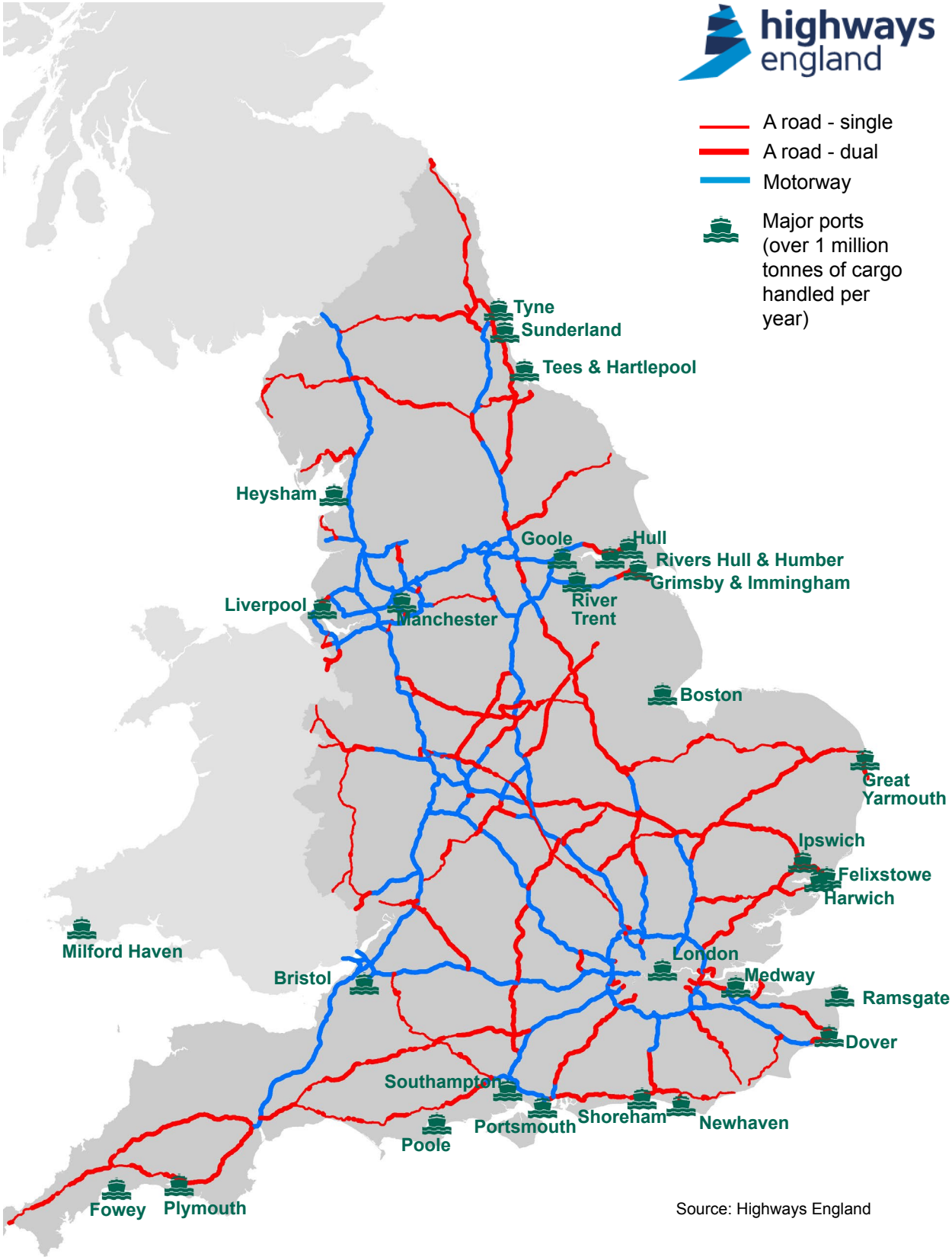
*For a small number of ports handling liquid bulks, freight is moved solely by pipeline or ship.

**Statistical ports as defined in the DfT's port freight statistics, which may include a grouping of several ports or wharves within a geographical area

Strategic road network: connections to ports

The Strategic Road Network (SRN) in England is managed by Highways England (HE). Their 'Road to Growth' sets out the strategic plan for optimising the economic impact of the SRN, including responding to economic and political challenges and providing efficient routes to global markets through international gateways. For example, this might be achieved through effective handling of disruptive incidents and increasing capacity at these locations.

Major ports in England: Connections to the HE strategic road network

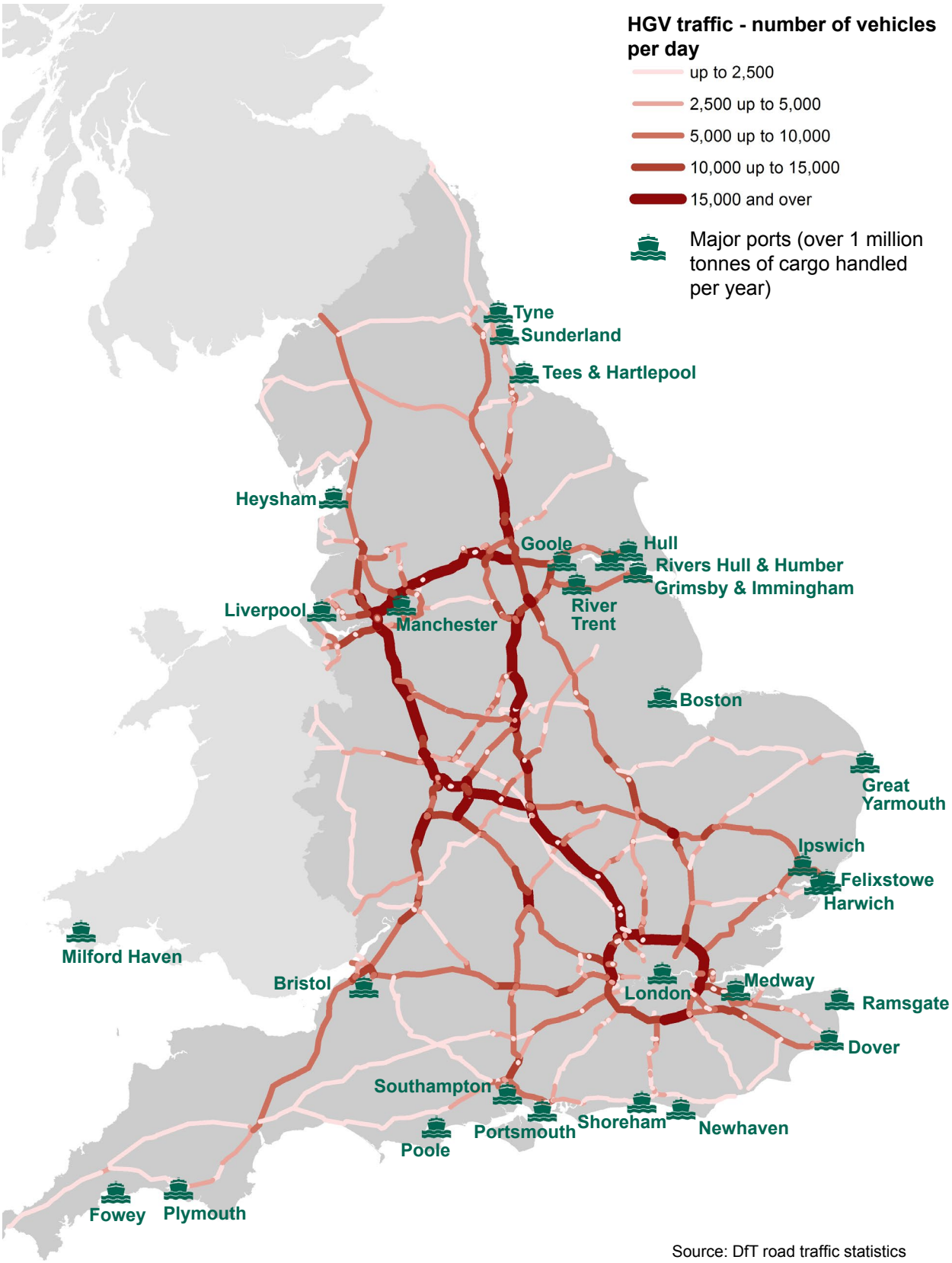


Source: Highways England

Delay and HGV flows

The highest HGV vehicle flows on the Strategic Road Network include key North-South and East-West routes which connect ports and their markets.

HGV traffic on the strategic road network: year ending December 2016

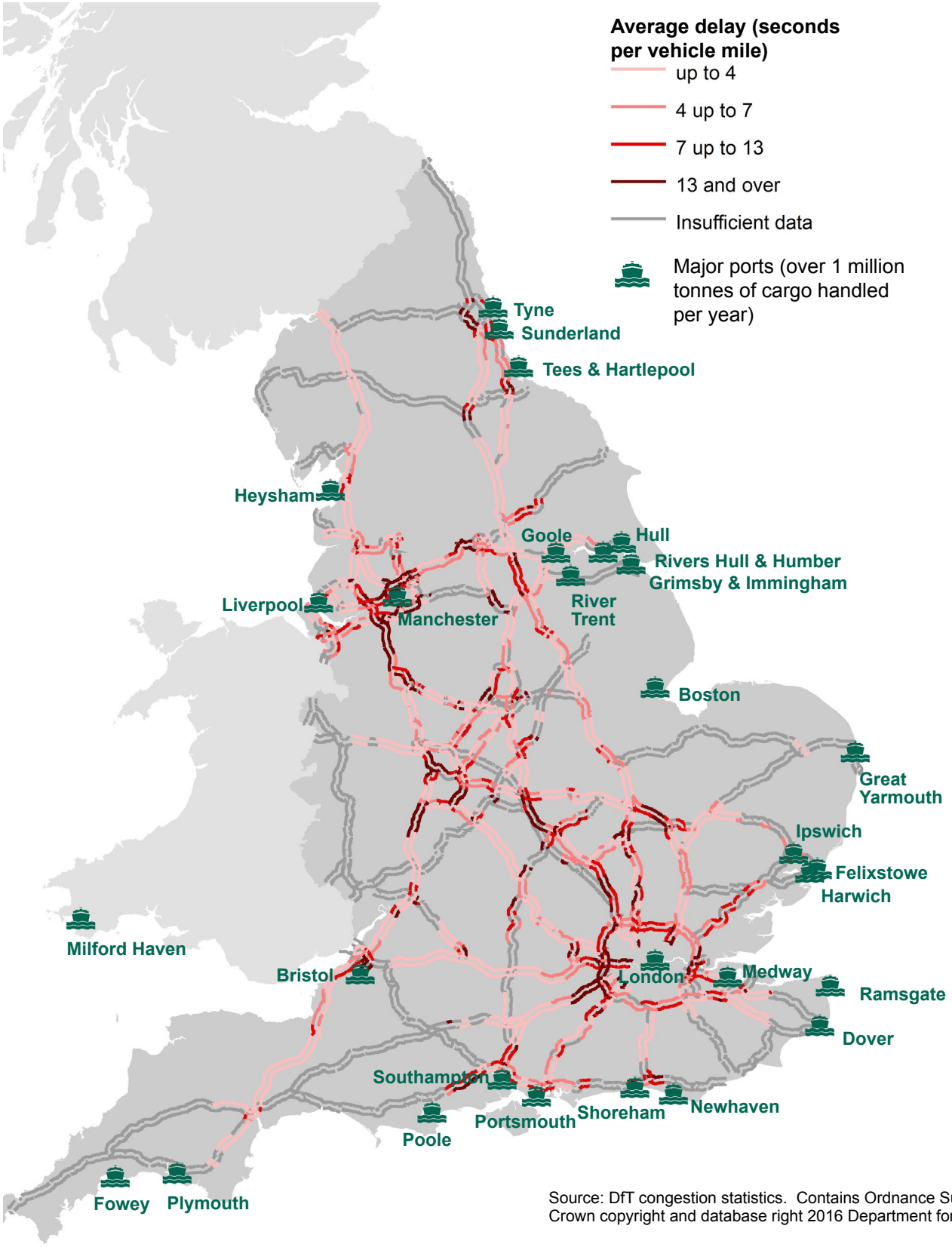


Source: DfT road traffic statistics

Average delay (time lost per vehicle mile) is HE's current performance measure related to supporting economic growth. Delay on the HE's international gateway routes is currently lower than on the rest of the network.

In general, the greatest level of delays correspond to these heavily-trafficked roads; areas of high delay also broadly correspond with parts of the network which HE identify as accident hotspots. Some of the areas with the highest level of oncoming vehicle incidents are located around ports, including Bristol, Southampton and Dover.

Delay on the strategic road network: year ending December 2016

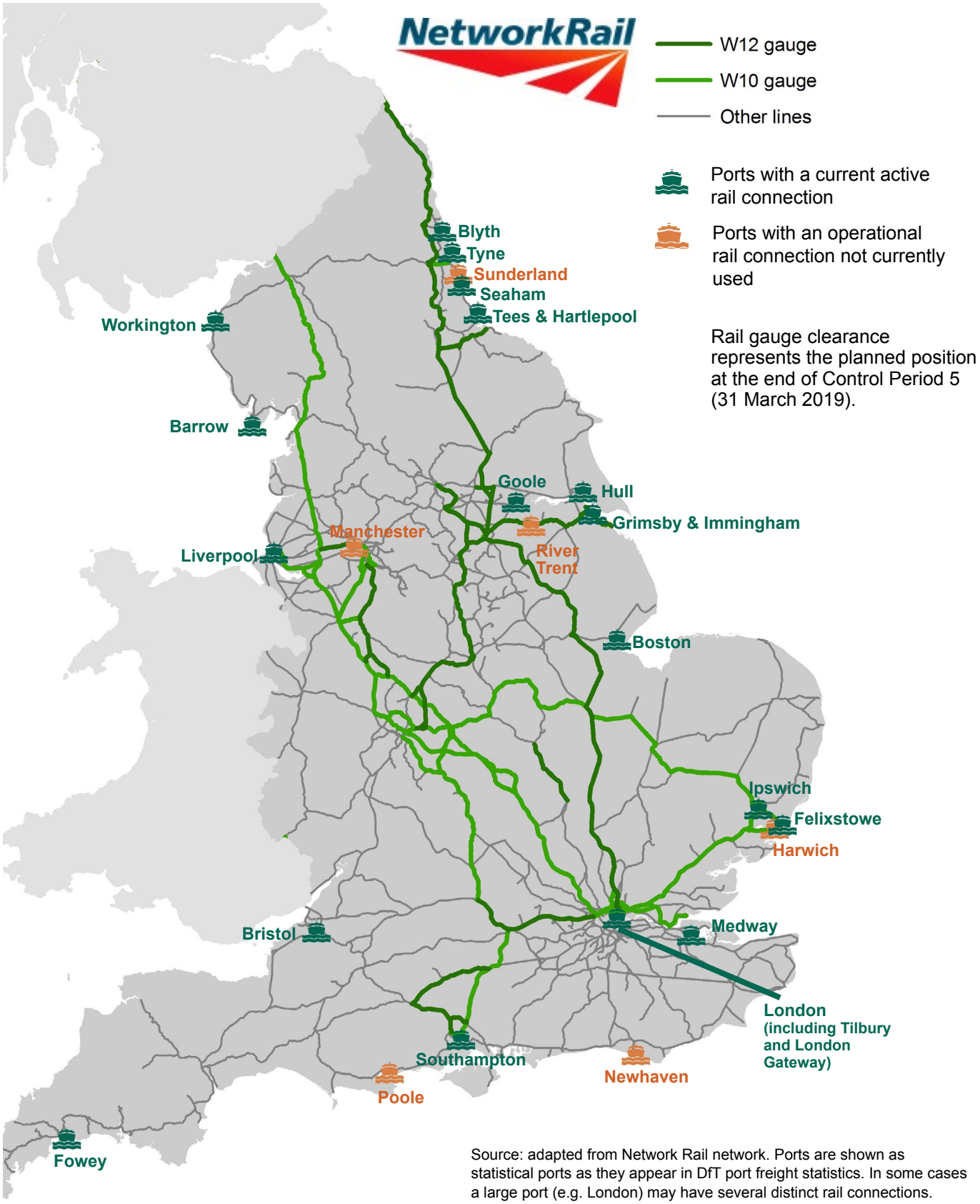


Source: DfT congestion statistics. Contains Ordnance Survey data. Crown copyright and database right 2016 Department for Transport

National rail network - port connections

24 statistical ports in England have connections to the national rail network. The map below shows how these rail-connected ports relate to the current network, highlighting the W10 and W12 loading gauge sections which are important for movement of containerised freight by rail (W10 allows maritime containers to be carried on standard wagons, while W12 allows for the additional width of refrigerated units).

Rail-connected ports in England: connections to the national rail network

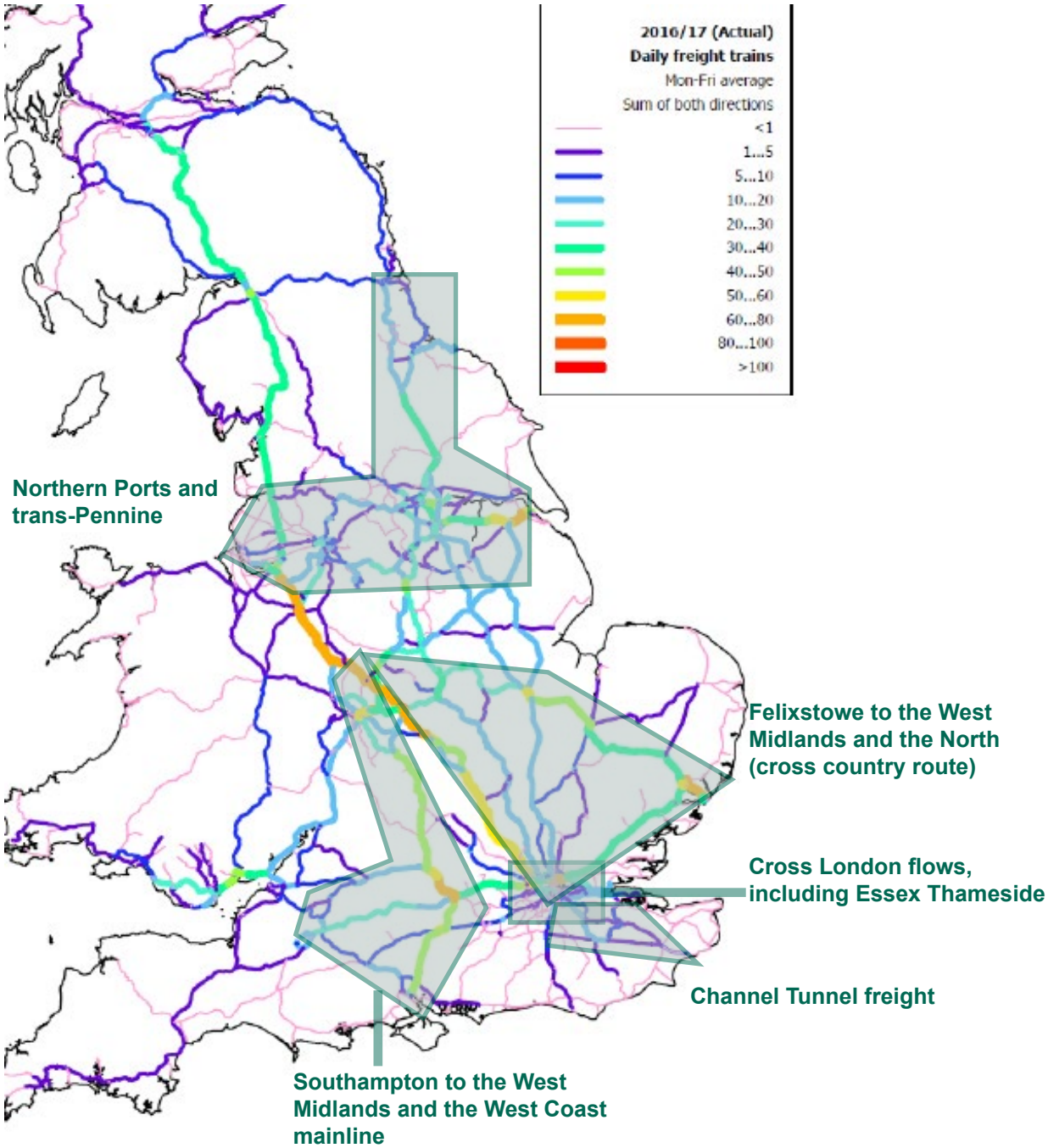


Source: adapted from Network Rail network. Ports are shown as statistical ports as they appear in DfT port freight statistics. In some cases a large port (e.g. London) may have several distinct rail connections.

The rail freight network in England is managed by Network Rail (NR), with the East and West coast main lines and the lines to the main container ports being important corridors for rail freight movements. NR's Freight Network Study sets out details of the main rail freight corridors and options for addressing capacity and capability issues on them, though at this stage these represent 'options for funders' with decisions not yet made for Control Period 6.

The map shows the parts of the network that are most heavily used at present, with NR corridors which relate to ports outlined.

Rail freight: daily freight trains and selected Network Rail freight corridors



Source: information on daily freight trains taken from rail freight forecasts produced for Network Rail by MDS Transmodal (map shows the baseline position; an outline of the forecasts is available from MDS Transmodal). Corridors shown are based on those in the NR Freight Network Study.

Regional case studies

England's ports are of national importance and businesses are reliant on inland transport networks to provide the vital economic links to ports and their markets. Key freight routes can link distant parts of the country, for example a truck entering Dover with goods destined for the North West. As such port connectivity is a national issue, and in the main report the principles, themes and recommendations are considered from that national perspective.

However, in terms of highlighting individual port connectivity issues, and gathering pertinent information from ports and local bodies, connectivity issues are best illustrated at a more localised level. The following sections of this document therefore consider 9 regions drawing on the information provided by ports and local bodies, published documents, relevant statistical information and brief details of potential infrastructure developments.

While there are common themes across the country, and a range of issues affecting different ports within each region, we have summarised the key connectivity issues for each of the regions considered, based on the feedback received.

Summary of the main connectivity issues for each region

Region 1: North East ports
Ports in the North East serve markets including energy and automotive, with Tees and Hartlepool being the largest port in the region. North - South connectivity is important, with ports identifying a need for upgrades on the key A1 and A19 roads as well as to port access roads.

Region 2: Humber ports
The Humber region includes England's largest port in Grimsby and Immingham, with ports handling bulk cargo as well as unitised traffic on Northern routes. Improved rail gauge clearance (to W12) was identified as a key connectivity enhancement which would increase potential for multi-modal solutions, with congestion in Hull, the A63 Castle Street, being a particular pinch-point on the road network.

Region 3: North East Anglia and the Wash
The ports in this area are smaller, handling mostly dry bulk and general cargo. Tackling congestion around the ports based in the larger towns in Boston and Great Yarmouth was identified as an issue.

Region 4: Haven ports
Haven ports largely handle unitised cargo and provide a key international gateway to a national hinterland, including the country's largest container port in Felixstowe. Connectivity issues include the need for greater resilience and capacity on key strategic road and rail corridors in East Anglia, including the A12 and A14, and the Felixstowe to Nuneaton (F2N) rail route.

Region 5: London and Medway

Ports in this area handle a variety of freight types, and support a growing logistics sector, but are located in areas where transport networks are heavily used. Ensuring sufficient capacity for freight to move across and around London by road and rail is important for access to wider markets. In particular, North and South access is important to this port group, and the Dartford crossing is a current notable pinch-point.

Region 6: Kent and Sussex

Ports in this region are vital for trade with Europe, including Dover which is one of the continent's largest Ro-Ro ports. Strategic road corridors to London and beyond are vital, with improvement to the M2/A2 required as well as tackling bottlenecks at Dartford. East - West links including the A26 and A27 are also important.

Region 7: Solent area

Solent ports handle a mix of bulk and unitised cargo, including Southampton which is the country's second largest container port and smaller ports handling Ro-Ro freight. With key markets in the Midlands, North-South road (e.g. A34) and rail corridors access is vital, whilst Northwest road access to the West country (e.g. A350, A36) is also important, in addition to addressing local pinch points in the vicinity of the ports.

Region 8: Bristol and the South West (including Milford Haven)

Ports in this region are diverse, from Bristol as a multi-modal transport hub to smaller ports serving regional or local markets. As such, a range of connectivity issues were highlighted both in the vicinity of ports in cities, and on key corridors including the A30, A38, M4 and M5. The need for improved gauge clearance from Bristol was also noted.

Region 9: Mersey and North West

Ports in the North West vary considerably in terms of location and size, from Liverpool (one of England's largest ports handling a diverse range of cargo) to smaller ports in Cumbria. Pinch points near to ports on key routes to wider North-South road and rail corridors were identified by several ports in this area and felt to constrain potential for port growth.

Notes on the information presented in the case studies

The case studies presented here provide a high level overview of port connectivity in a given region. We have sought to indicate the status of issues identified through colour coded entries.

Issues identified

The concerns presented (shown alongside the maps in **grey** boxes) are those identified by ports and other respondents (local authorities and LEPs). The detail of these has not been independently assessed, but where these are connectivity issues not already identified by wider government, they are a potentially important indicator of where future assessment could be targeted. However, the case studies do show that broadly, government assessment and planning has recognised similar issues (shown in **yellow** boxes) and in many instances is undertaking action to address the issue (shown in **green**). Alongside the road and rail maps:

Grey background indicates that the matter was highlighted by a port, local authority or LEP

Yellow indicates that the issue is being considered by government or infrastructure bodies, for example an option for funders for a rail scheme.

Green indicates that funding has been approved, a project is in preparation, or a project is underway.

Infrastructure schemes

As well as survey provided information the data is gathered from the following sources in particular:

- For **strategic roads**, the majority of the schemes listed are part of the first Road Investment Strategy (RIS1) - this represents projects where funding has been committed and includes work at various stages. In addition, the Congestion Relief Programme (CRP), announced on 10 March 2017, addresses a number of pinch points across England. For local roads, schemes shown include those mentioned by local authorities as part of the Port Connectivity Study survey, or funded by Local Pinch Point funding or Local Growth Fund bids (some of which may be subject to final business case approval before funding is awarded).
- For **rail**, most of the enhancements identified relate to 'options for funders' set out in the Network Rail's 2017 Freight Network Study (FNS); these represent options which the rail industry considers to be priorities for enhancing the rail freight network over both the short and long terms. Further details of the full range of options can be found in the FNS report. Besides this, several schemes funded by the CP4 and CP5 Strategic Freight Network (SFN) are also identified, where relevant.

It is important to be clear that while the schemes shown provide an illustration of current or potential future work which will address many of the key connectivity concerns raised by ports in the survey, this information is not intended to be comprehensive or to provide a complete or detailed picture of every potential scheme; the links provided at the end of this document include further detail.

Notes on the regional maps

- Road maps by carriageway type include network information from Highways England.
- Road maps showing HGV traffic from DfT traffic statistics.
- Rail maps show baseline gauge status from Network Rail.
- Port locations are approximations and should not be considered as the definitive location of individual wharves or harbours, which can stretch over a large distance particularly for larger ports.
- Maps contain Ordnance Survey data. Crown copyright and database right 2016 DfT.

Region 1: North East ports

Ports in the North East serve a range of markets, including energy and automotive, with bulk cargo (including biomass) accounting for the majority of tonnage handled. Overall, exports account for a larger share of tonnage handled than imports for ports in this region.

Feedback from the ports suggests that the main connectivity issues in this area relate to roads, rather than rail; many of the key issues identified are being addressed through infrastructure improvements in progress or planned.

Ports and markets

Tees and Hartlepool is the largest port in the North East region (and England's 7th largest) measured by tonnage handled. It handles more crude oil than any other English port.

Tyne is a key regional port, facilitating key automotive exports and biomass imports, with Blyth, Sunderland and Seaham being smaller ports in this region but undertaking important regional roles.

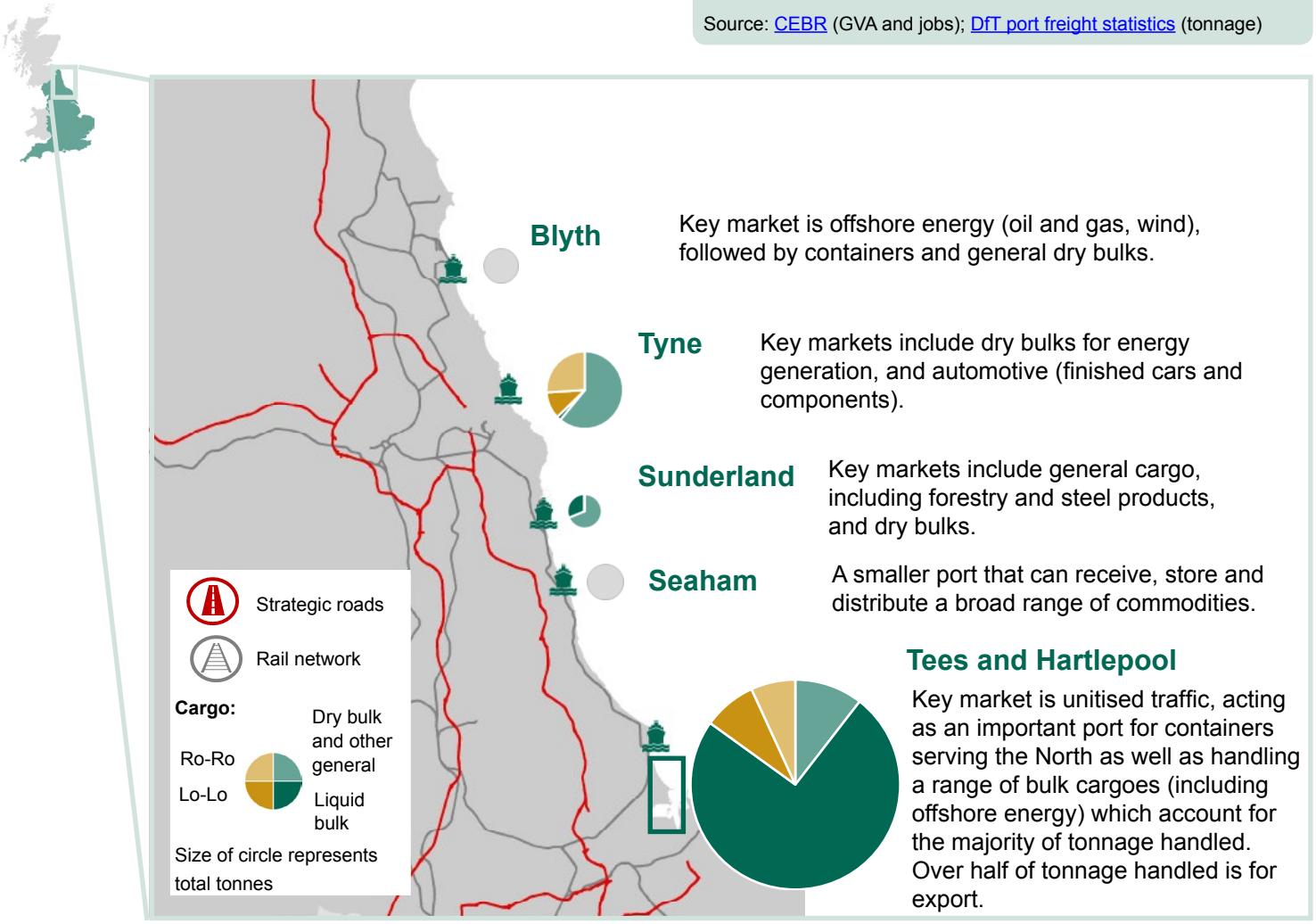
North East ports account for an estimated...

£360m GVA
6% of the total contribution made by all ports in England (2015)

7,200 jobs
9% of the total employed in the ports sector in England (2015)

10% of the total tonnage handled by English ports in 2016

Source: CEBR (GVA and jobs); DfT port freight statistics (tonnage)



Blyth
Key market is offshore energy (oil and gas, wind), followed by containers and general dry bulks.

Tyne
Key markets include dry bulks for energy generation, and automotive (finished cars and components).

Sunderland
Key markets include general cargo, including forestry and steel products, and dry bulks.

Seaham
A smaller port that can receive, store and distribute a broad range of commodities.

Tees and Hartlepool
Key market is unitised traffic, acting as an important port for containers serving the North as well as handling a range of bulk cargoes (including offshore energy) which account for the majority of tonnage handled. Over half of tonnage handled is for export.

Note: cargo breakdown is unavailable for those ports classified as 'minor ports' in DfT statistics, which includes Blyth and Seaham

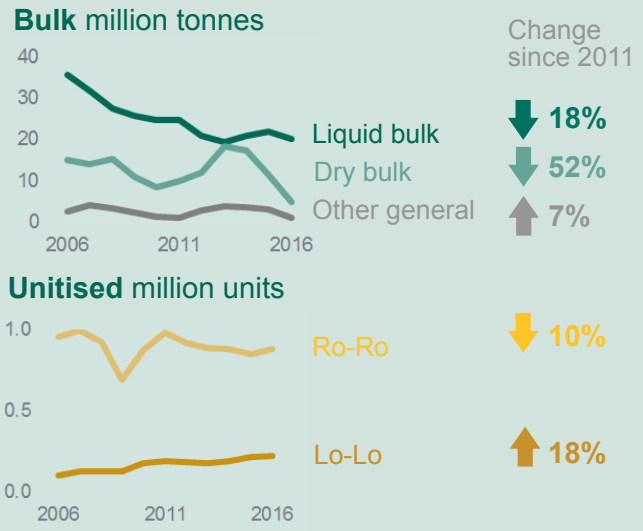
Cargo trends and developments

Total tonnage handled by North East ports has declined in recent years - by almost a quarter in the last 5 years.

Bulk tonnage handled has fallen largely due to reductions in coal and crude oil – though ports anticipate future growth across a range of key markets, for example biofuels.

Container traffic handled by North East ports has increased steadily over the past decade. Ro-Ro traffic has remained broadly stable following a dip during the 2008-09 economic downturn.

North East major ports: cargo handled



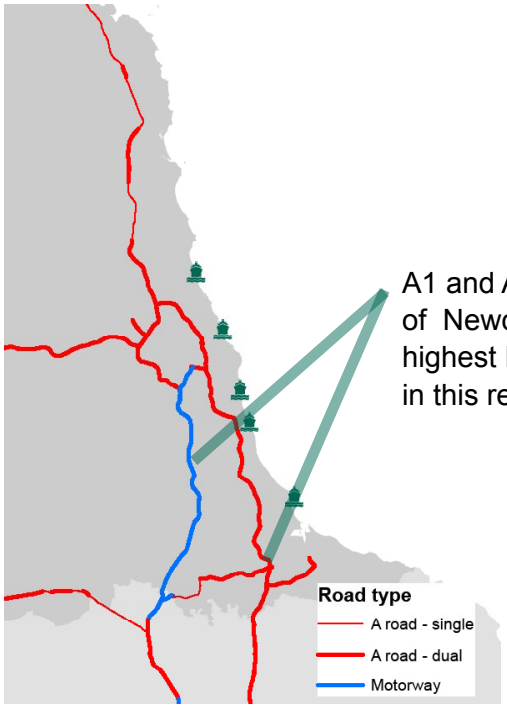
Source: Based on DfT port freight statistics

Main freight corridors - road and rail

North-south access to the ports from the Strategic Road Network is via the A1 and A19.

Most road freight from the areas in which the ports are located moves across the Northern region - within the North East and Yorkshire regions.

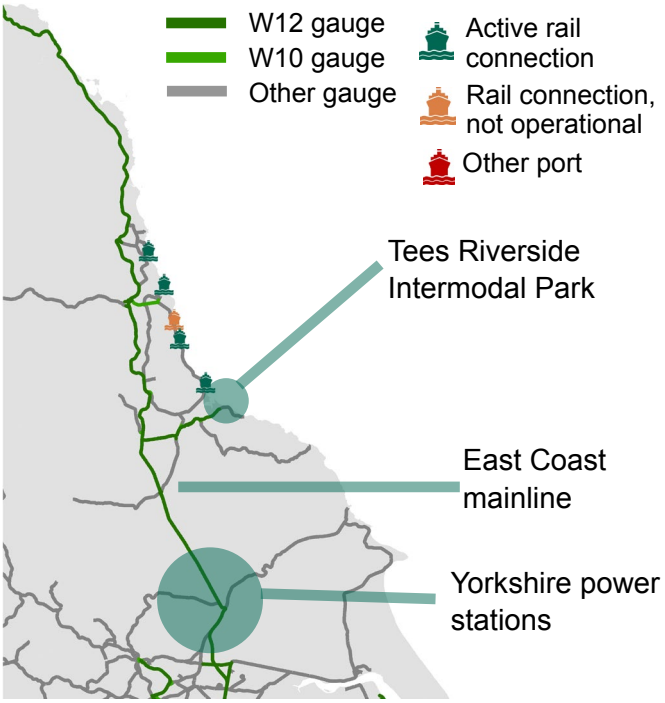
Road network by carriageway type: North East



Tyne, Teesport, Sunderland Seaham and Blyth are all connected to the national rail network.

Key rail freight corridors in the region include movement of energy (coal and biomass) into Yorkshire for power generation. The East Coast mainline is the key north - south rail route.

Rail network by gauge: North East



Connectivity issues - road

Work planned as part of RIS1 is addressing many of the connectivity issues raised in relation to strategic roads. Ports also highlighted issues on local roads as impacting on traffic movements to and from their ports.

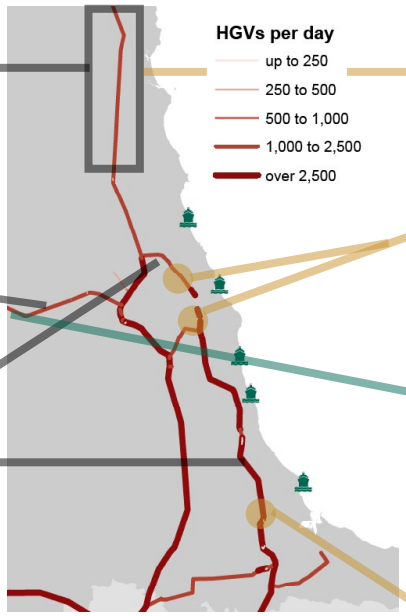
Strategic road network

Connectivity issues identified by ports, local authorities and LEPs:

A1 North of Newcastle - a key access route, currently single carriageway and would benefit from dualling (see intervention 1).

A69 mentioned as requiring improvement - a key East-West connection (see intervention 3).

A19 is the closest SRN road to all of the North East ports, with upgrades felt to be needed, including Moor Farm junction (see interventions 2 and 5).



HGV traffic: Average daily flows on SRN motorways and A roads: 2016

Selected interventions

1: A1 in Northumberland dualling - upgrading to dual carriageway to provide continuous high quality dual carriageway from Morpeth to Ellingham, with further improvements to the north including climbing lanes and junction improvements (RIS1).

2: A19 junction improvements - several schemes to improve the A19 from Yorkshire to north of Newcastle, and improve capacity near to Nissan (RIS1).

3: A69 junction improvements - Hexham and Corbridge (CRP).

4: A19 Norton to Wynyard - widening the Billingham bypass to three lanes (RIS1).

Local A roads and port access

Connectivity issues identified by ports, local authorities and LEPs:

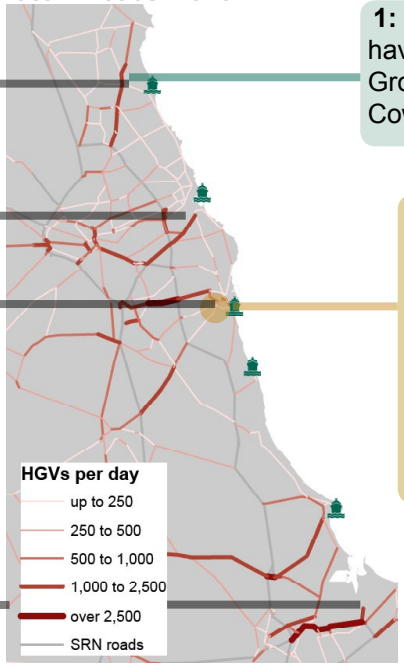
Blyth: Congestion issues mainly on local roads including A199, A193 Cowpen Rd (congested at peak times) and A1061 where the level crossing causes congestion (see intervention 1).

Tyne: A185 link to A19 is congested and would benefit from dualling.

Sunderland: A1018 after Wearmouth bridge has high levels of delay; the A1231 is congested on the north side of the new Wear crossing - addressing these issues would improve access to the SRN (see intervention 2).

Teesport: Single carriageway road access from the port to A66 causes congestion; addressing this would provide greater resilience and improve travel times.

HGV traffic: Average daily flows on local A roads: 2016



Selected interventions

1: Cowpen road - Northumberland have recently implemented a Local Growth Fund scheme to improve Cowpen Road in Blyth (LGF).

2: Sunderland Strategic Corridor and new Wear crossing - the new Wear crossing is funded (work underway), the final stages will improve links between the A19 and Sunderland City Centre and the Port of Sunderland are not yet funded.

Connectivity issues - rail

Although road provides the main means of freight transport, rail access is highlighted as important for some cargos (notably bulk fuels) with 5 ports being rail connected. Whilst some potential improvements were identified, maintaining existing paths and making better use of existing infrastructure were also noted as important in aiding modal shift to rail.

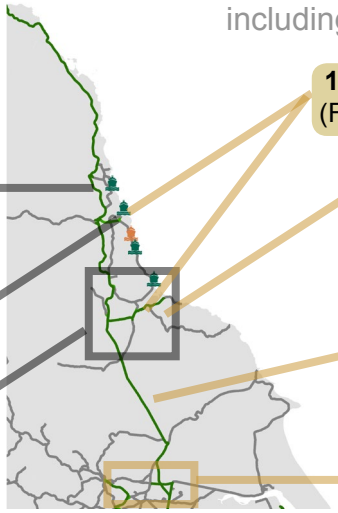
Connectivity issues identified by ports, local authorities and LEPs:

Blyth: Reinstatement of passenger services and extension of metro system to Blyth could impact on available rail slots.

Tyne: Reconnection of Leamside line at Pelaw would allow connection to customers for automotives (Nissan) and reduce road traffic.

Teesport: Yarm tunnel restrictions, Darlington loop and Northwest gauge clearance issues all contribute to the access, efficiency and cost of delivering rail services to the port (see interventions 2 and 5).

Selected interventions and future options, including from NR Freight Network Study



1: Level crossing enhancements (FNS options).

2: Diversionary access for Teesport (FNS option).

3: Capacity interventions on ECML between York & Newcastle (FNS options).

4: Electrification of South Yorkshire freight routes, and gauge clearance to W12 of South Yorkshire Joint Line (FNS options) .

5: A programme of gauge clearance schemes to W12, including connections to Tees and Tyne ports, will improve the ability to move a wider range of containers between the north and south of the UK (CP4/5 - work to be completed 2019).

Engagement with local and national bodies

Based on the feedback received from ports and 4 local bodies (local authorities and LEPs) in the North East as part of this study:

Local authorities and LEPs report strong relationships with the larger ports in their areas; relationships with smaller ports are generally considered neutral.

Ports are more likely to be in regular contact with local authorities (4 of 5) and LEPs (3 of 5) than Highways England (2 of 5) where discussion has related to past or future developments.

3 of the 4 rail connected ports are in frequent contact with Network Rail to discuss requirements including paths needed.

Local authorities and LEPs report a good awareness of port development plans and connectivity issues.

Further information: North East

Ports: Port of Tyne, Teesport

Road and rail: London to Scotland East route strategy, Transport for the North

Other bodies: Tees Valley Combined Authority, North East LEP

Region 2: Humber ports

The Humber region includes England's largest port by tonnage, Grimsby and Immingham. Ports in this area handle bulk cargo for energy generation, as well as unitised traffic to Northern destinations.

Key corridors include trans-Pennine routes, with important markets in Yorkshire and the Midlands. Key connectivity issues include congestion in Hull city centre, as well as a need for gauge clearance to facilitate multi-modal freight movements.

Ports and markets

Ports in the Humber region handle a variety of cargos, accounting for nearly a quarter of England's total tonnage handled, with the majority being bulk cargos.

Grimsby and Immingham is England's largest port by tonnage, and alone accounts for a quarter of dry bulk and 17% of liquid bulk handled by English ports. Hull is also an important port for dry bulk and forestry products.

Humber ports account for an estimated...

23% of the total tonnage handled by English ports in 2016

..and as a whole the Yorkshire and Humber region contributes ...

£620m GVA
10% of the total contribution made by all ports in England (2015)

8,400 jobs
11% of the total employed in the ports sector in England (2015)

Source: CEBR (GVA and jobs); DfT port freight statistics (tonnage)

Goole

Key markets include general cargo and bulks, including steel, timber and scrap; connected by river to Leeds.

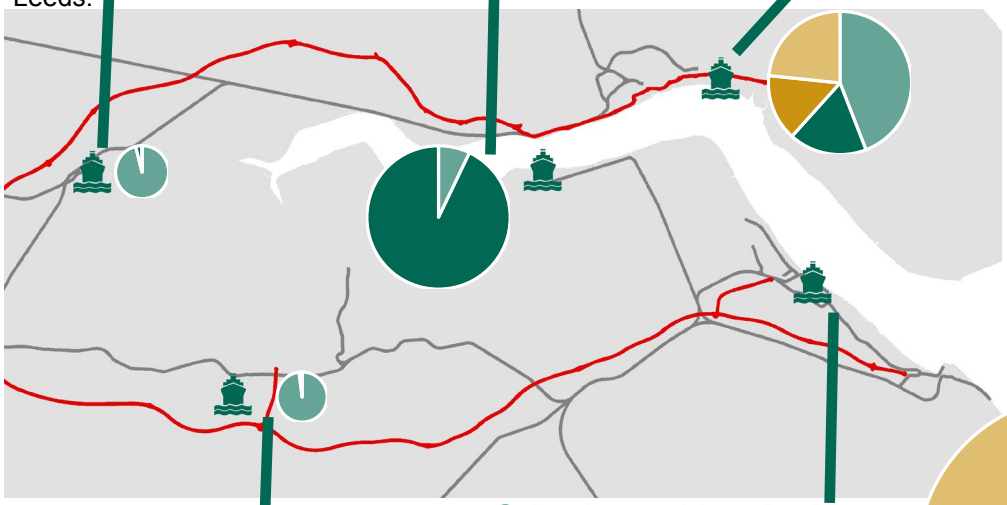
Rivers Hull and Humber

Barrow on Humber, Tetney terminal

Tetney supplies crude oil to refineries via pipeline, while Barrow handles timber, steel and concrete blocks.

Hull

Important markets are forestry products, edible oils and RoRo, where the port acts as link in Trans Europe freight markets from Russia to Ireland.



River Trent

Keadby, Groveport

Key markets are dry bulk and general cargo, including timber, steel and scrap, with primary markets across Yorkshire and Lincolnshire.

Grimsby and Immingham

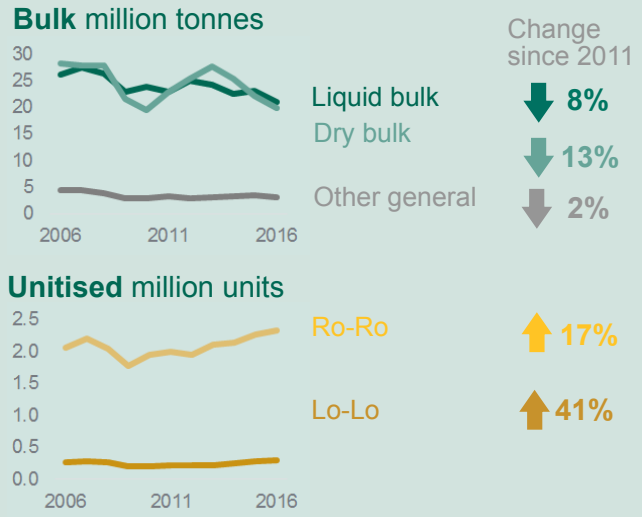
England's biggest port by tonnage and nationally significant infrastructure. Handles a range of cargo types with important freight markets including fuels and chemicals, biomass and coal, short sea containers, Ro-Ro and automotives.

Cargo trends and developments

Total tonnage handled by ports in the Humber region was 3% lower in 2016 than 5 years earlier, largely due to decline in bulk tonnage, particularly coal. A further decline in coal tonnage is expected due to closure of nearby coal power stations.

Unitised cargo handled by ports in the region has grown, although still accounts for a relatively small proportion of total tonnage. Across the Humber area, ports anticipate continued growth in unitised cargo and are making investments to support this (including container terminals at Hull and Immingham, and additional storage for trade vehicles at Grimsby).

Humber area major ports: cargo handled



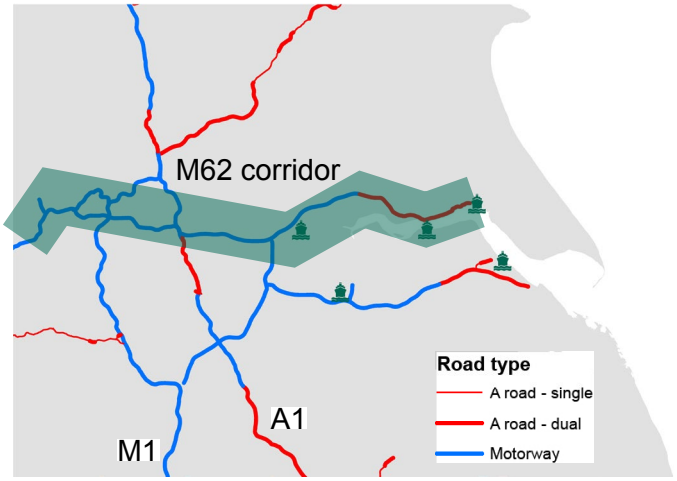
Source: Based on DfT port freight statistics

Main freight corridors - road and rail

Key road corridors for freight movements to ports in the Humber region include the M62 corridor to the west, and routes to markets in the Midlands and throughout the UK (e.g. for Ro-Ro and containerised freight).

Main connections to these corridors from the area's larger ports include the A63 (Hull) and M180/A180/A160 (Grimsby and Immingham)

Road network by carriageway type: Humber area

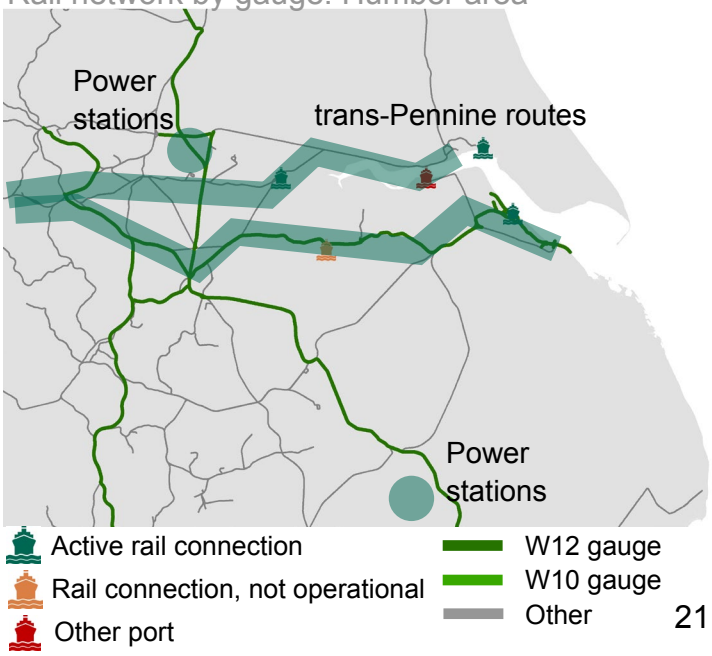


Four of five ports in the region are rail connected, with Immingham accounting for around a quarter of UK rail freight movements. Midlands and trans-Pennine routes were highlighted as important.

Key corridors include to Yorkshire and the Midlands for energy cargos (e.g. biomass to Drax and coal to Ratcliffe power stations).

Steel and bulks are moved locally to Scunthorpe, and to the Midlands (notably Wolverhampton).

Rail network by gauge: Humber area



Connectivity issues - road

Relatively few issues were identified with strategic roads in this area, though the A63 in Hull was noted as a priority issue to address. Many of the smaller ports are located in rural areas, and specific local issues e.g. port access road issues were reported.

Strategic road network

Connectivity issues identified by ports, local authorities and LEPs:

A63: Castle Street Hull - improvement essential to reduce congestion and journey times for port traffic (see interventions 2 and 3).

A1033 Hull - dual carriageway with no hard shoulder; resilience issues.

HGV traffic: Average daily flows on SRN motorways and A roads: 2016

Selected interventions

1. Various improvements on M62 and A1 - including upgrade of M62 to smart motorway across the Pennies, and upgrade of section of A1 to motorway between Leeming Bar and Barton (after 2021) - will provide better connections to wider markets (To be developed in RIS1 for delivery in RIS2).

2. A63: Castle Street Hull - grade separation of the A1079 Mytongate junction in Hull to reduce congestion and improve safety; improvements to the surrounding roads including new pedestrian and cycle access across the A63 (RIS1).

3. A63: Garrison Road signals and road improvement (CRP).

4. A160/A180 improvements to Immingham Improvements to the junction between the A160 and A180 near Immingham plus a full dual carriageway link from the A180 to the Port of Immingham, supporting business growth at the port, now open (RIS1).

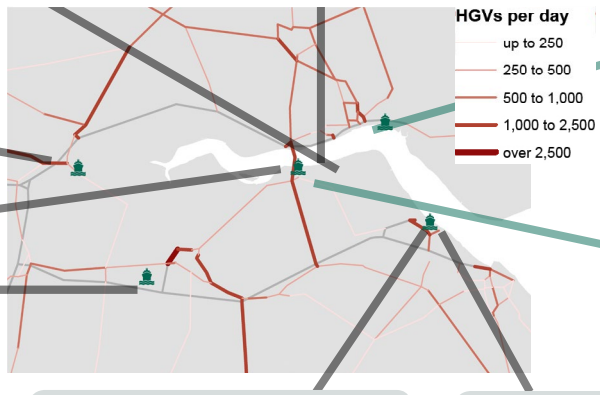
Local A roads and port access

Connectivity issues identified by ports, local authorities and LEPs:

Selected interventions

Tetney terminal: Road access for personnel only; single carriageway rural roads, with potholes/damage.

HGV traffic: Average daily flows on local A roads: 2016



Goole: access to port is via M62, link road and A161 - no current issues.

Barrow: Access via A15, B1206 and rural roads - no issues.

Keadby (River Trent): B road with traffic restrictions; SRN within 5 miles. No issues noted.

Groveport (River Trent): No issues noted.

Immingham: Access road resurfacing required (single carriageway stretch between West gate and A160).

Immingham: Additional link road requires completion to access development sites.

1. A1105 Anlaby Road Flyover Structural Maintenance Hull - funding from local pinch point fund, work reduces delays to commercial traffic citywide, now complete.

2. Barrow: Resurfacing and drainage works on rural roads around Barrow Haven.

Connectivity issues - rail

Immingham, Hull and Goole all have active rail connections; the key issue reported is lack of W12 gauge clearance, restricting potential for growth and multi-modal solutions.

Connectivity issues identified by ports, local authorities and LEPs:

Hull: Gauge clearance currently restricted to W8, with W10 or W12 clearance needed for container movements.

Goole: 300m train length is a constraint, increasing this would increase potential as a multi-modal hub. Reinstatment of connection to Leeds line would also offer scope for longer trains.

Immingham: Gauge enhancements needed to W12 to accommodate containers and automotive traffic, supporting multi-modal solutions for customers.

A single access route to Immingham has been highlighted as a network resilience issue (see intervention 2).

Selected interventions and future options, including from NR Freight Network Study

1. Renewal of signalling between Scunthorpe and Immingham will improve reliability including freight to the port (complete 2017).

2. Diversionary access for Immingham; the proposed 'Killinghome loop' would add resilience (FNS option).

3. Gauge clearance to W12 of South Yorkshire joint line (FNS option).

4. Gauge clearance schemes to W12, including connections to Immingham port, will improve the ability to move a wider range of containers between the north and south of the UK (Local Growth Fund).

5. Electrification of Yorkshire freight routes is an option in the FNS.

Engagement with local and national bodies

Based on the feedback received from ports and 2 local bodies (local authorities and LEPs) covering the Humber area as part of this study:

Hull City Council report an excellent relationship with the port, with a long history of joint working. Greater Lincolnshire LEP consider relationships to be neutral and constructive when issues arise in relation to ports and their connectivity.

Hull and Grimsby and Immingham have engaged with their relevant LA, LEP and Highways England on road issues around their ports, though the smaller ports reported less engagement.

All 3 of the rail connected ports reported frequent contact with Network Rail to discuss requirements including Goole investigating allowing longer trains to access the port.

Local authorities and LEPs who responded reported awareness of port development plans and connectivity issues.

Further information: Humber ports

Ports: Immingham, Hull

Road and rail: HE A160/A180 Port of Immingham project

Other bodies: Humber LEP, Greater Luncolnshire LEP

Region 3: North East Anglia and the Wash ports

Ports in North East Anglia and around the Wash account for a relatively small share of national tonnage, with specialisms including dry bulks and general cargo.

Roads were generally reported to be more important than rail for the ports in this area, with congestion in the larger towns of Boston and Great Yarmouth identified as issues, as well as single carriageway roads.

Ports and markets

Ports in the North East Anglia and Wash area handle a range of dry bulk and other general cargo.

The largest port in the region, Great Yarmouth, cites offshore wind and gas as its main sector with growth anticipated in offshore support and decommissioning over the next 20 years. Other ports have dry bulk as their main sector, including steel, timber and grains.

NE Anglian ports account for an estimated...

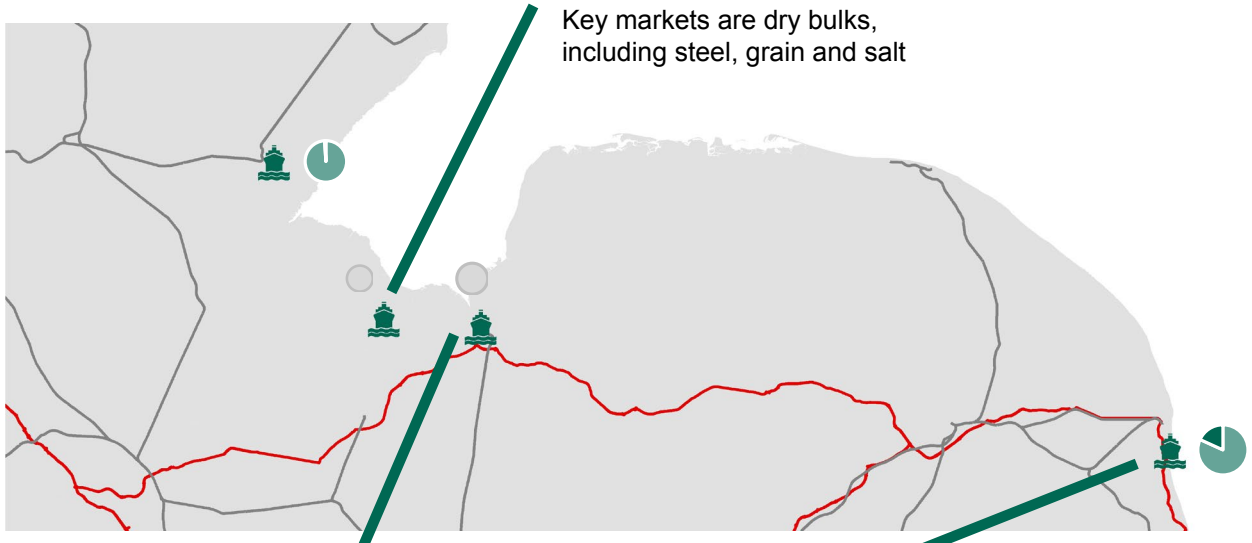
1% of the total tonnage handled by English ports in 2016

..and as a whole the East of England region (which include Haven ports) contributes ...

£540m GVA
9% of the total contribution made by all ports in England (2015)

6,300 jobs
8% of the total employed in the ports sector in England (2015)

Source: CEBR (GVA and jobs); DfT port freight statistics (tonnage)



Boston
Key markets are general cargo and bulks, including automotive and industrial steel, timber and paper

Sutton Bridge
Key markets are dry bulks, including steel, grain and salt

Kings Lynn
Key markets include wheat/barley and timber, with local produce transported to the port for export

Great Yarmouth
Port provides support for the offshore energy sector and automotive sector, as well as handling bulk cargoes including aggregates.

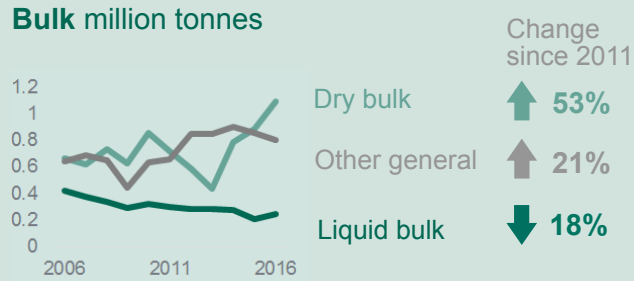
Note: cargo breakdown is unavailable for those ports classified as 'minor ports' in DfT statistics, which includes Kings Lynn and Sutton Bridge

Cargo trends and developments

Total tonnage handled by the ports in NE Anglia and around the Wash has increased 12% in the past 5 years but remains slightly below the level 10 years ago. Cargo handled is entirely bulk freight.

Dry bulk handled by Great Yarmouth has increased over the last decade, with a decline in dry bulk at Boston over the same period.

NE Anglia major ports: cargo handled



Source: Based on DfT port freight statistics

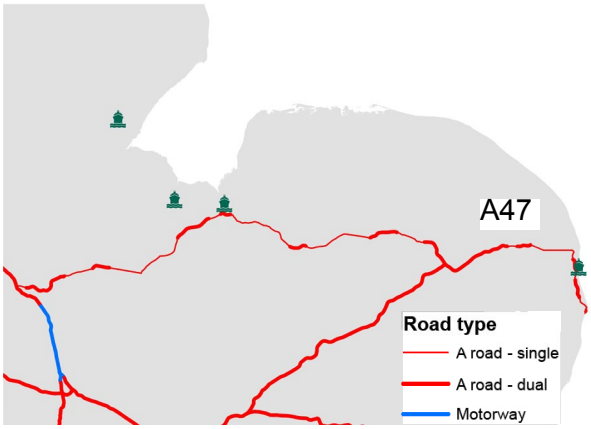
Developments include port investment in additional storage capacity at Boston to compensate for the loss of the West Midland rail terminal at the other end of a key supply route. There is also increased investment to support the offshore industry at Great Yarmouth, in anticipation of sector growth.

Main freight corridors - road and rail

Ports in this region are relatively far from the core strategic road network, with the East-West roads including the A47 (to Yarmouth) and the locally managed A17, A16 and A52 (around Boston) highlighted as important.

Beyond the immediate area, routes North-South and to the Midlands including the A1, M1 and M6 were reported as important for some of the ports and their traffics.

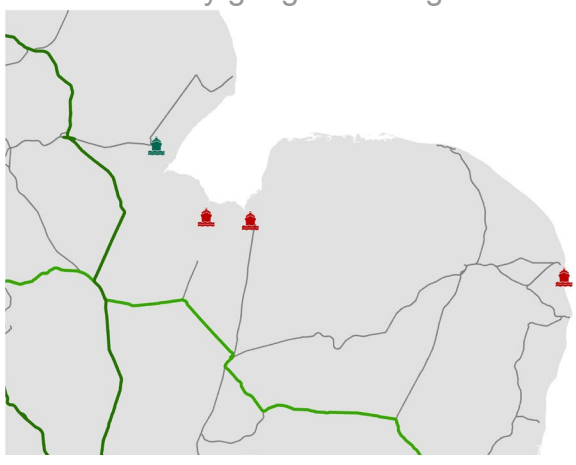
Road network by carriageway type: NE Anglia



Boston is the only port in this area with an active rail connection.

The main route is the West Midlands for movement of steel imports and bulks. The closure of a key rail terminal in Birmingham was reported likely to impact negatively on the amount of freight that can be moved by rail.

Rail network by gauge: NE Anglia



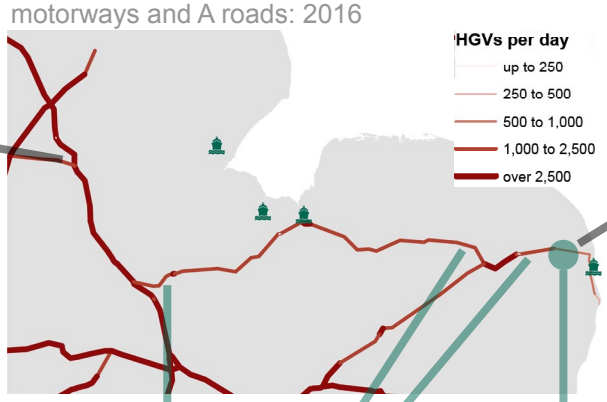
Connectivity issues - road

Ports in the North East Anglia and Wash area are relatively far from the strategic road network - the A47 is a key route where upgrades are required. Consequently, a majority of the connectivity issues reported related to local roads and immediate port access.

Strategic road network

Connectivity issues identified by ports, local authorities and LEPs:

HGV traffic: Average daily flows on SRN motorways and A roads: 2016



A52 Grantham: A bottleneck on the route from Boston to the SRN.

A47 Acle Straight: Dualling needed to relieve congestion and severe disruption in the case of an accident (see intervention 2).

Selected interventions

1. A47 dualling: including Wansford to Sutton, and North Tuddenham to Easton and Blofield to North Burlingham (the latter two sections to provide full dualling between Dereham and Acle) (RIS1).

2. A47 Acle Straight: Addressing safety concerns by making short term and long term improvements, potentially including installation of safety barriers, junction and road-widening improvements (RIS1 - completed).

Local A roads and port access

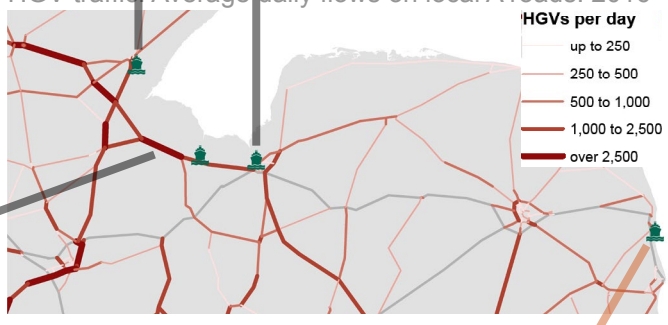
Connectivity issues identified by ports, local authorities and LEPs:

Boston: Local roads congested with cross-town traffic. Southern access to port could benefit traffic flow on the A16.

Kings Lynn: single carriageway roads to port

The A1121/A17 junction arrangement could be improved, with potential traffic flow and safety benefits.

HGV traffic: Average daily flows on local A roads: 2016



Sutton Bridge: A17 is the main route to the SRN**, with** no issues reported.

Yare third crossing: Third crossing needed; port access affected by Yamouth town centre traffic, and would provide a more direct route to port for freight traffic.

Selected interventions

1. Yare third crossing: £98m unding announced in Autumn 2017 towards the cost of £120m new bridge across the Yare

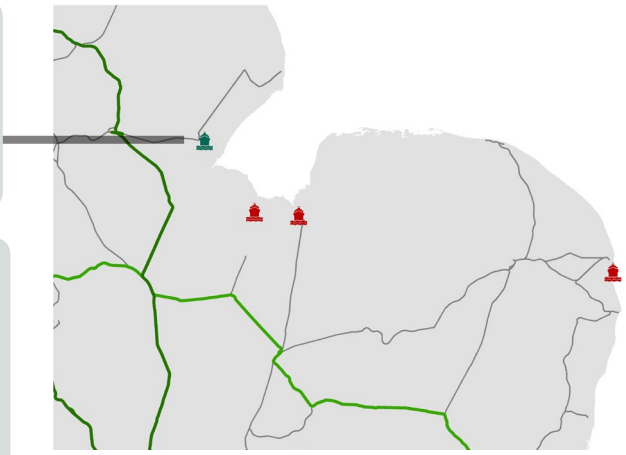
Connectivity issues - rail

Boston is the only port in this area with an active connection to the national rail network for freight. No local issues were identified, however the port notes that potential for rail freight growth is limited due to a lack of rail linked distribution hubs.

Connectivity issues identified by ports, local authorities and LEPs:

Boston: Loss of rail freight terminal in West Midlands means increased need for storage at the port, with additional road freight movements needed to compensate.

The port notes that potential for rail freight growth is limited, as it requires the customer to be rail linked or to use a rail distribution centre, so road often remains cheaper. Better inland distribution hubs needed.



Engagement with local and national bodies

Based on the feedback received from ports and 4 local bodies (local authorities and LEPs) covering the North East Anglia area as part of this study:

Local authorities and LEPs report good or neutral relationships with the ports in their areas and all recognised the regional importance of their ports and their contribution to the economy.

Two out of five ports reported a relationship with their local authority. Great Yarmouth also reported engagement with their LEP and HE, and noted the port's membership of the A47 Alliance.

Boston is the only port in the region with a rail connection; although Boston did not report direct a relationship with NR they did highlight interaction with rail freight operators regarding connectivity needs.

Half of the local authorities reported awareness of port development plans and connectivity issues in their area.

Further information: North East Anglia ports

Ports: King's Lynn, Lowestoft
Other bodies: New Anglia LEP

Region 4: Haven ports

Haven ports are an important international gateway for unitised cargo, including the UK's largest container port in Felixstowe, from where containers are moved throughout the country by road and rail.

In view of the national hinterland for these ports - especially Felixstowe - connectivity issues reported relate to strategic roads and the rail network where there are capacity and capability issues which may constrain growth.

Ports and markets

The majority of tonnage handled by ports in Haven is unitised traffic. Felixstowe is England's largest port for lift on lift off (Lo-Lo) containers, accounting for 41% of total Lo-Lo tonnage handled by English ports. Harwich is mainly a roll on, roll off (Ro-Ro) port - England's 6th largest. Ipswich specialises in dry bulks and aggregates. Although ports in this region cite London and the South East as important markets, Felixstowe in particular also handles considerable freight volumes for destinations in the North and Midlands.

Haven ports account for an estimated...

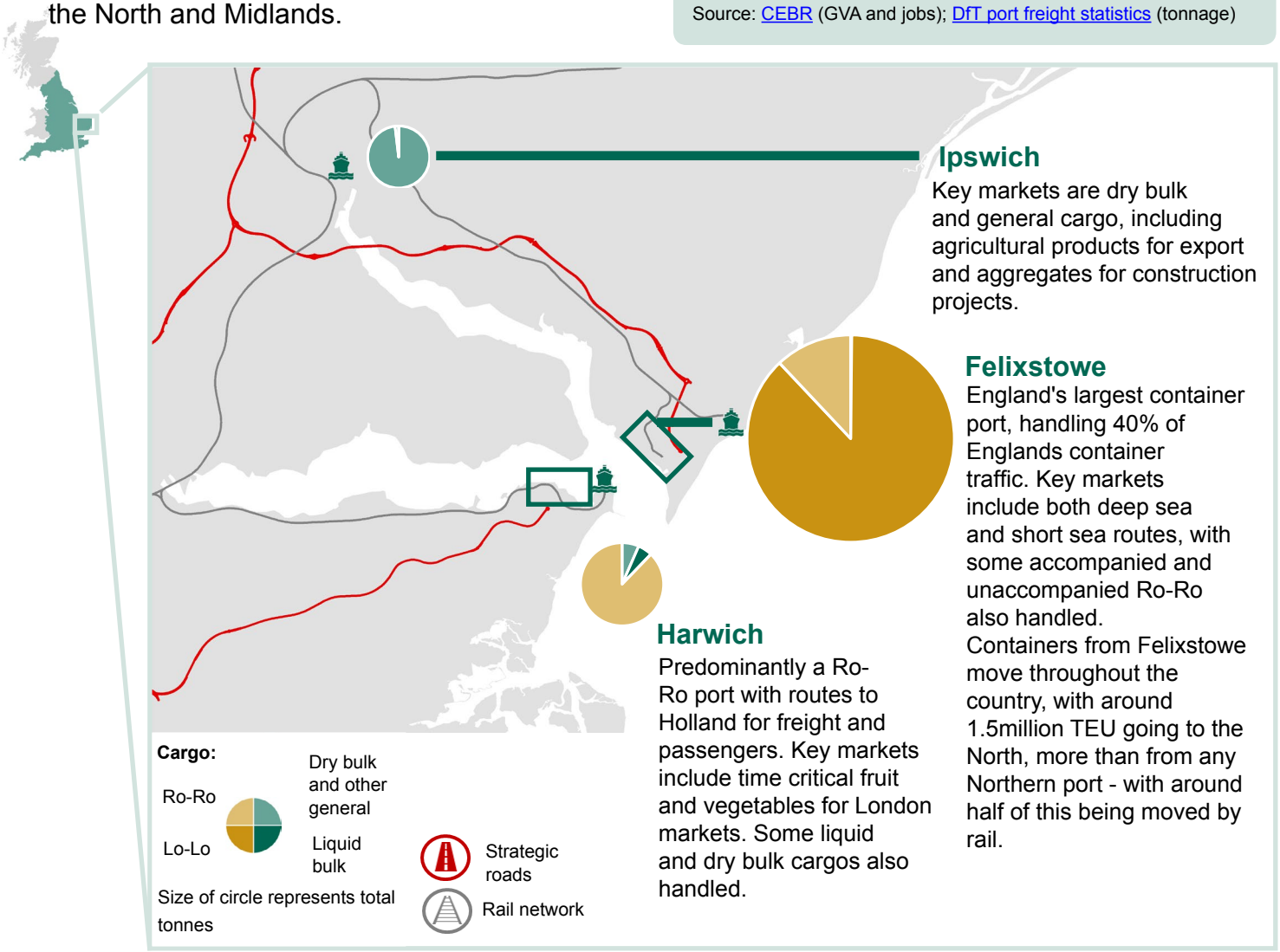
11% of the total tonnage handled by English ports in 2016

... and as a whole the East of England region contributes ...

£540m GVA
9% of the total contribution made by all ports in England (2015)

6,300 jobs
8% of the total employed in the ports sector in England (2015)

Source: CEBR (GVA and jobs); DfT port freight statistics (tonnage)



Ipswich

Key markets are dry bulk and general cargo, including agricultural products for export and aggregates for construction projects.

Felixstowe

England's largest container port, handling 40% of Englands container traffic. Key markets include both deep sea and short sea routes, with some accompanied and unaccompanied Ro-Ro also handled. Containers from Felixstowe move throughout the country, with around 1.5million TEU going to the North, more than from any Northern port - with around half of this being moved by rail.

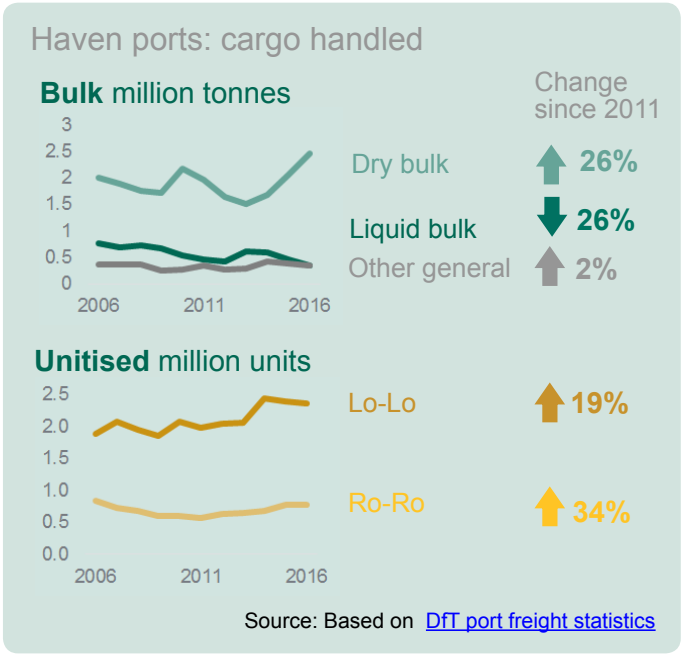
Harwich

Predominantly a Ro-Ro port with routes to Holland for freight and passengers. Key markets include time critical fruit and vegetables for London markets. Some liquid and dry bulk cargos also handled.

Cargo trends and developments

Total tonnage handled by Haven ports has increased 9% over the last 5 years. Container traffic (measured by units) has increased by 19% in this period, following a period of fluctuation, while Ro-Ro traffic has returned to the same level as 10 years ago. Dry bulk handled by Haven ports has also increased by 26% in the past 5 years; Ipswich accounts for the majority of this and cites infrastructure/construction projects as a reason for increased demand.

All ports anticipate future growth, with developments planned including an international container terminal at Harwich, berth developments at Felixstowe and additional storage for bulks at Ipswich.

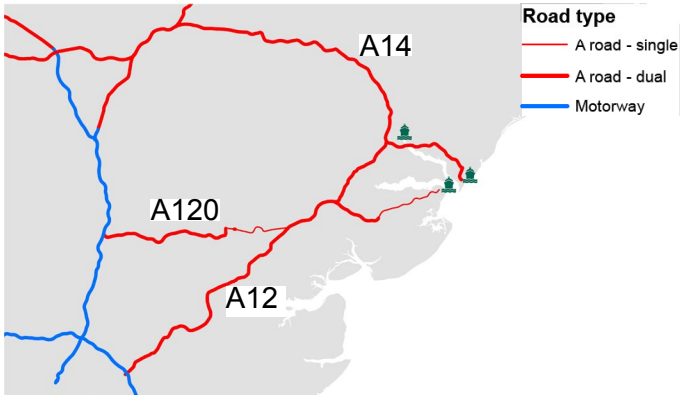


Main freight corridors - road and rail

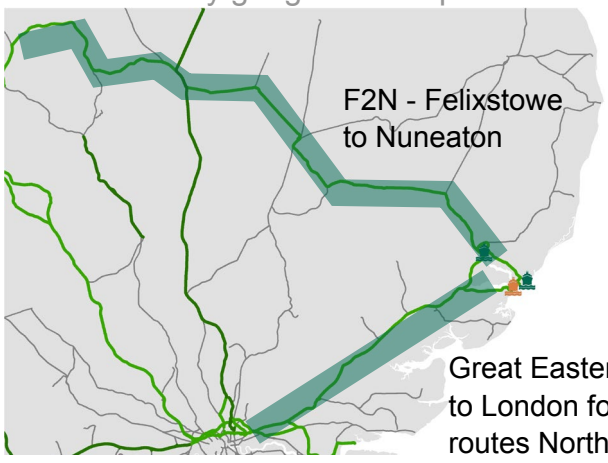
Haven ports are located close to the strategic road network, with A14, A12 and A120 recognised as the key connections to the wider network.

The ports - particularly Felixstowe - have a national hinterland so that efficient movement of freight to markets depends on much of the SRN, for example the M25 and M6 as well as connectivity more locally.

Road network by carriageway type: Haven ports



Rail network by gauge: Haven ports



The three Haven ports all have rail connections, though Harwich has no active rail traffic for freight.

Felixstowe is one of the main ports for rail freight, with around 30% of freight passing through it being moved inland by rail. Key routes are to the Midlands (F2N), North West and Yorkshire (Doncaster/Leeds) meaning that much of the national network is important - including Great Eastern mainline, North London Line, and East and West Coast mainlines.

From Ipswich, the main rail connectivity is to the Midlands.

W12 gauge
W10 gauge
Other

Active rail connection
Rail connection, not operational
Other port

Connectivity issues - road

As the Haven ports are located close to the Strategic Road Network (SRN), the majority of road connectivity issues relate to the SRN, with lack of resilience on key routes including the A12 and A14 identified as particular concerns.

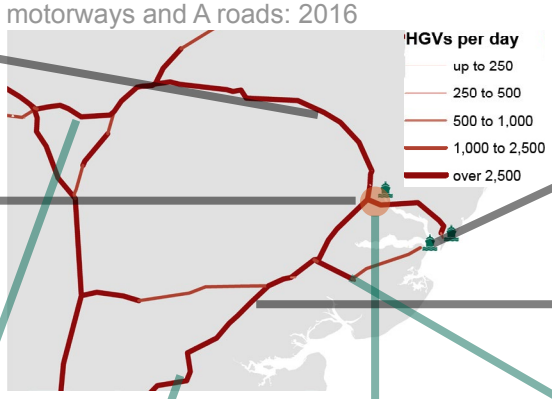
Strategic road network

Connectivity issues identified by ports, local authorities and LEPs:

A14: Main route for approximately 70% of road freight to Felixstowe; lack of resilience with no hard shoulder meaning accidents can lead to delays.

Orwell bridge: A major bottleneck on the A14 route, at capacity during peak periods. Enhancement needed in medium term, with feasibility work urgently required (see intervention 3).

HGV traffic: Average daily flows on SRN motorways and A roads: 2016



Harwich: A120 is single carriageway for 8 miles to the port, leading to congestion and hold ups and with no suitable diversion route for HGV traffic.

A12: Congestion during peak periods, with a lack of resilience (e.g. no hard shoulder) (see intervention 2).

Selected interventions

1. A14 Cambridge to Huntingdon. Major upgrade between the A1 and A10 at Milton, widening to dual three lanes, a bypass for Huntingdon, new distributor roads for local traffic and remodelling key junctions (RIS1).

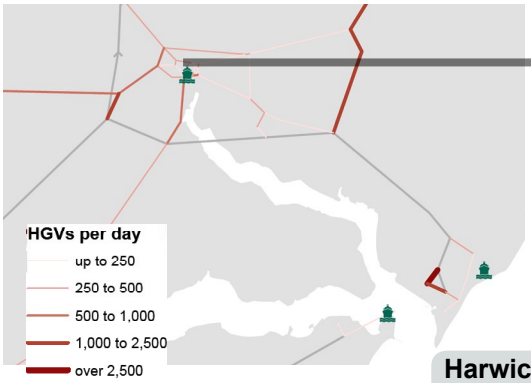
2. A12 Chelmsford to A120 widening the A12 to three lanes between junction 19 (north Chelmsford) and 25 (A120 interchange) (RIS1).

3. A14 Orwell Bridge to junction 62 - maintenance works including concrete repairs, provision of CCTV monitoring system, and road resurfacing (Highways England maintenance scheme).

4. A120 Improvement Scheme - new roundabout at Harwich Road and closure of central reserve gaps to prevent drivers making right-turn manoeuvres on the A120 and improve safety (Highways England).

Local A roads and port access

HGV traffic: Average daily flows on local A roads: 2016



Connectivity issues identified by ports, local authorities and LEPs:

Ipswich: The locally managed A1156 is congested during peak periods.

Felixstowe: the Strategic Road Network (A14) runs up to the port, with a short access road - no issues reported relating to the local road network.

Harwich: No reported local road issues as Strategic Road Network (A120) leads to the port gates.

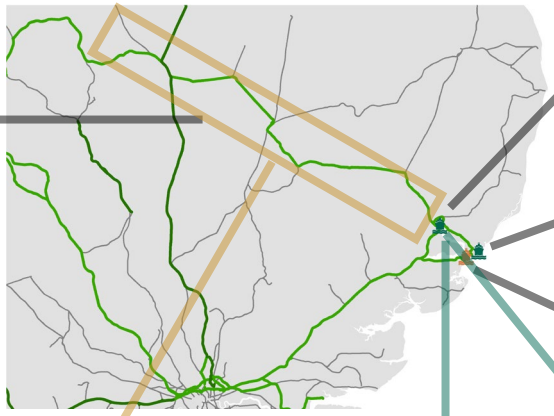
Connectivity issues - rail

Ports in the Haven region anticipate potential for strong future growth in rail freight, though at present there are capacity constraints which limit this.

Connectivity issues identified by ports, local authorities and LEPs:

Ipswich: Revised branch and port siding arrangement would improve operational efficiency, increase train length and enable greater tonnage to move by rail.

Capacity constraints on the F2N route including at Ely, Leicester, Haughley Junction and Ely to Soham. Addressing these would allow more trains to serve Felixstowe and enable a timely rail service for effective competition with road.



Felixstowe: Path availability for freight restricted by single track branch line between port and Ipswich, operating at capacity - passing loop needed.

Harwich: New terminal would increase demand for rail freight.

Selected interventions and future options, including from NR Freight Network Study

4. Ipswich yard: increased capacity to handle container trains from the Felixstowe branch (completed 2014).

1. A range of capacity and gauge options identified along the Felixstowe to West Midlands corridor in the NR Freight Network Study (FNS) particularly in the Ely area. Technical and feasibility work associated with the Ely area has secured funding from LEPs to provide options to increase capacity.

3. Ipswich chord - direct access from Felixstowe branch to 'cross country' route via Ely, increasing capacity and reducing journey times for Felixstowe container trains (completed 2014).

2. Felixstowe branch line work to increase capacity to 47 train paths per day, to complete in 2019. Options on the branch between Felixstowe and Ipswich set out in the FNS.

Engagement with local and national bodies

Based on the feedback received from ports and 2 local bodies (local authorities and LEPs) covering the Haven area as part of this study:

Local authorities and LEPs report excellent relationships with the ports in this area, recognising their national importance and contribution to the economy.

All ports in the area have been in regular contact with relevant LAs, LEPs and Highways England and report being part of various boards for specific road issues affecting the area, for example the Haven Gateway Partnership.

Felixstowe and Ipswich, the ports with active rail freight connections, are in frequent contact with Network Rail to discuss requirements including branch line capacity and longer term planning.

Local authorities and LEPs were aware of port development plans and connectivity issues, and actively working with ports to support development.

Further information: Haven ports

Ports: Felixstowe, Ipswich

Road and rail: Haven Gateway Road and Rail plans

Other bodies: Haven Gateway

Region 5: London and Medway ports

The Port of London is the second largest port in England, and has grown over recent years including the development of London Gateway.

These ports on the Thames are located in areas where the transport networks are heavily used, and serve markets further afield; ensuring sufficient capacity for freight to move to/from the ports across London to key North-South corridors is important, for both road and rail.

Ports and markets

Together, London* and Medway handle almost a fifth of the total tonnage handled by England's ports, with London alone accounting for 15% of the total.

The ports in this region handle a range of cargo, with London - which includes London Gateway and Tilbury - being one of the 5 largest ports for all of the four main cargo sectors.

London and Medway ports account for an estimated...

18% of the total tonnage handled by English ports in 2016

..and as a whole the London region contributes ...

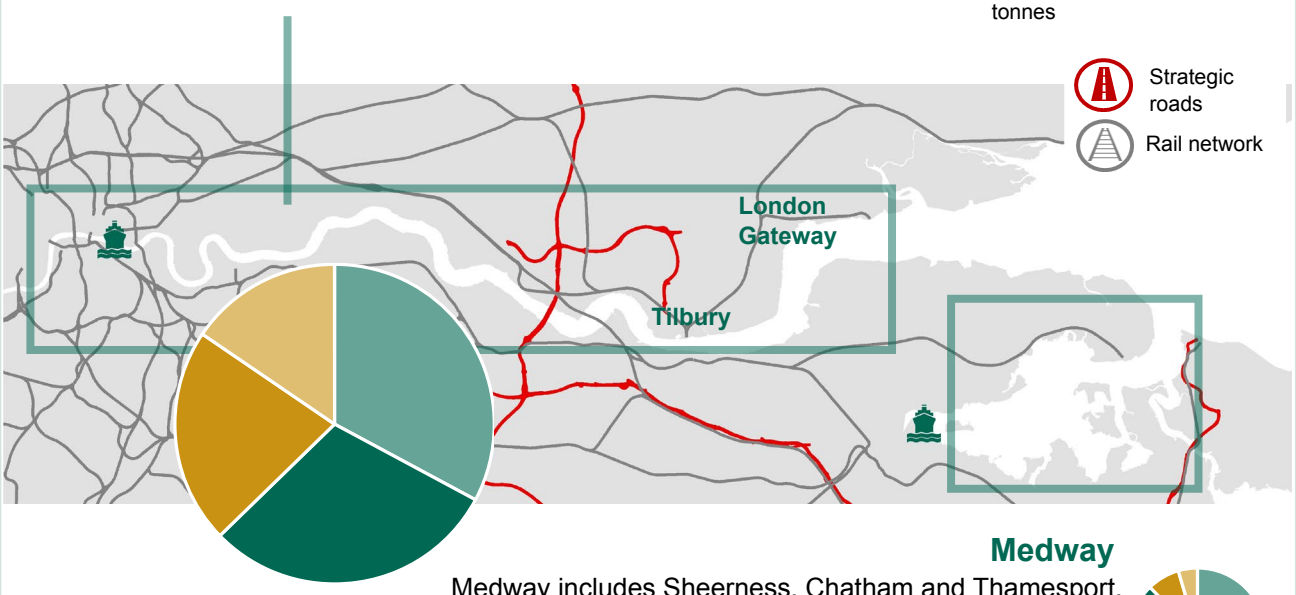
£2,100m GVA
34% of the total contribution made by all ports in England (2015)

20,000 jobs
25% of the total employed in the ports sector in England (2015)

Source: CEBR (GVA and jobs); DfT port freight statistics (tonnage)

London

The Port of London includes docks along the Thames from Teddington to the sea, including Tilbury and London Gateway, and is regionally and nationally important.
Key markets include petroleum products, aggregates and unitised traffic (containers and Ro-Ro), with growth expected at varying rates.



Medway

Medway includes Sheerness, Chatham and Thamesport.
Key markets include Ro-Ro (automotives), with the port also handling bulk and general cargo including steel, forestry products and dry bulks

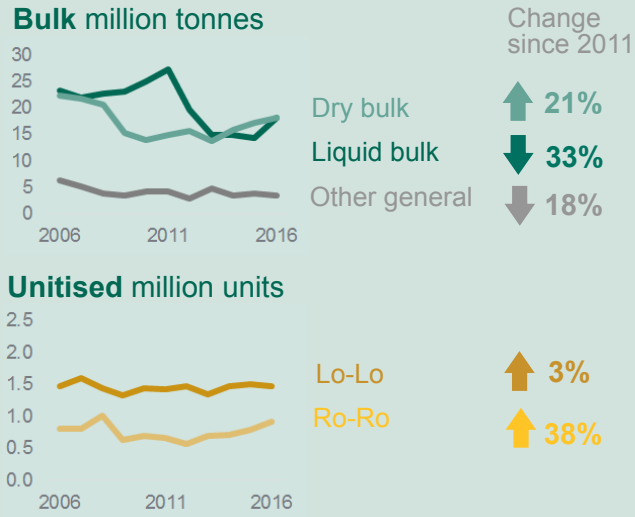
*The Port of London is not located in one area - it stretches along the tidal river, including central London, with many individual wharfs, docks, terminals and facilities, including for example Tilbury and London Gateway.

Cargo trends and developments

Total tonnage handled by London and Medway ports has been declining steadily for the past 10 years and is now 16% lower than in 2006. This is largely due to the decline in liquid and dry bulk.

However, the last 3 years have seen increases in total tonnage, with growth in unitised cargo in particular over this period. The ports expect this to continue, and to include other commodities, due to expansion plans, e.g. the new Tilbury2 terminal, continued expansion and logistics park at London Gateway, as well as further port expansion in Medway. These ports have a national reach, but also support markets across London and the South East.

London and Medway ports: cargo handled



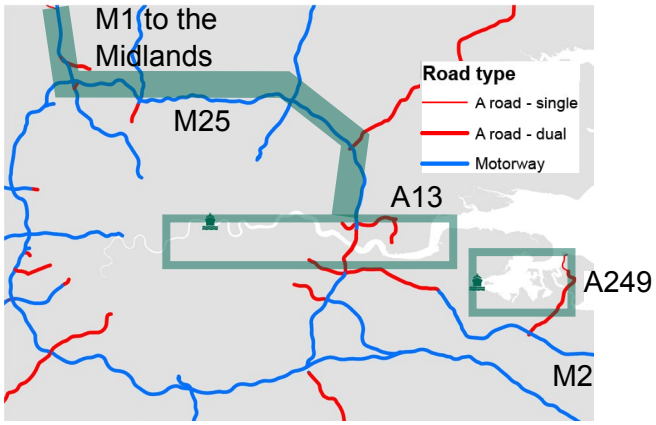
Source: Based on DfT port freight statistics

Main freight corridors - road and rail

The Port of London covers a wide area and has connections within and across London. London Gateway and Tilbury ports rely on the A13 and M25 for connections to London, as do other London port facilities moving construction materials or fuels. The wider road network is also important, including the M1 to the Midlands where distribution centres are located.

For Medway, the A249 and M2 are key connections.

Road network by carriageway type: London and Medway

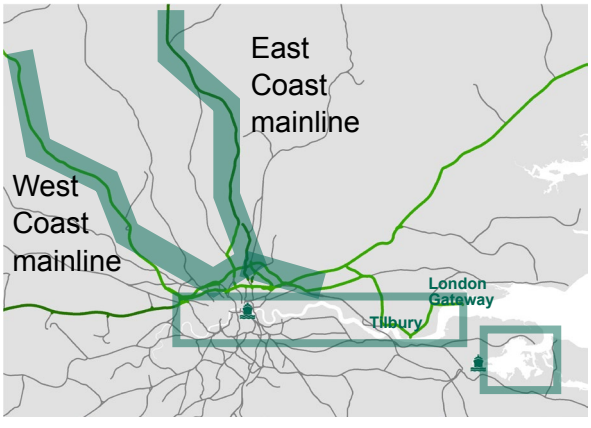


There are a number of rail terminals within the Port of London, handling a range of cargoes for example aggregates supplies for construction.

For London Gateway, cross London rail (via the North London line) to the East and West Coast mainlines is vital for movement of containers to Midlands distribution centres, and to other destinations in Yorkshire and the North West.

The Essex Thameside route, with several freight generating parties, is a busy corridor for Tilbury, where intermodal and bulk freight are moved to the Midlands and North.

Rail network by gauge: London and Medway



Connectivity issues - road

The ports in this area rely on some of the busiest and least reliable sections of the strategic road network, including the Dartford crossing - additional capacity in this area is required so port growth is not constrained.

Strategic road network

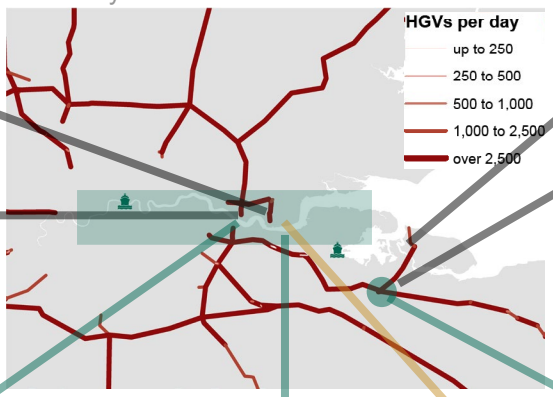
Connectivity issues identified by ports, local authorities and LEPs:

Tilbury: Connection to the SRN lacks resilience and reliability; A13 congested (see intervention 2).

Dartford crossing (M25/A282) is unreliable, with a high accident rate, congestion and repeated closures; additional capacity needed (see intervention 2).

Lower Thames crossing would help alleviate congestion at Dartford (see intervention 2).

HGV traffic: Average daily flows on SRN motorways and A roads: 2016



Potential to upgrade sections of the A249 near to the port of Sheerness, and locate the HGV entrance further from the town.

Improvements to junction 5 of M2 (providing link to A249) would improve journey time reliability for the port of Sheerness (see intervention 2).

3. M2 junction 5 (A249): Additional capacity at the junction through improvements to slip roads and enhanced approaches to the junction (RIS1).

4. Dartford Improvement package: a 5 year investment plan for the Dartford crossing to modernise the roads within the area; the scheme will cut congestion and reduce journey times (Highways England).

Selected interventions

1. M25 Junction 30 (A13): comprehensive expansion of the junction including free-flowing links from the southbound M25 to the eastbound A13. The scheme improves access to ports in the Thames estuary (RIS1 - completed).

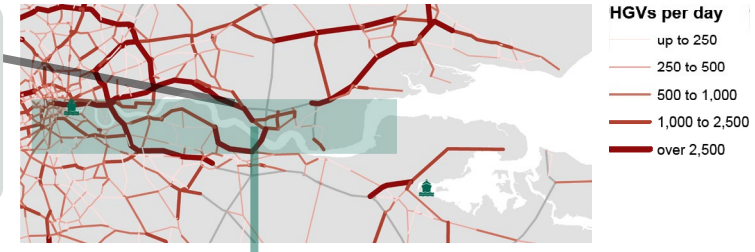
2. Lower Thames Crossing: a planned new crossing connecting Essex and Kent. Located east of Gravesend and Tilbury, this new crossing will offer improved journeys, new connections and network reliability. Preferred route announced in 2017 includes a junction for Tilbury port (To be developed in RIS1 for delivery in RIS2).

Local A roads and port access

Connectivity issues identified by ports, local authorities and LEPs:

HGV traffic: Average daily flows on local A roads: 2016

London Gateway: A13 widening to three lanes and trunking of A13 Manorway interchange and down to the port gate needed (see intervention 1).



1. London Gateway: widening A13 Stanford-le-Hope bypass from 2 to 3 lanes. Thurrock Council project with port funding (to be completed by the end of 2019).

Connectivity issues - rail

Freight is moved from the ports in the east of London to destinations across the country; good links for freight from the ports to the main lines north are important.

Connectivity issues identified by ports, local authorities and LEPs:

London Gateway: North London routing needs to grow capacity in line with port growth, to enable efficient movement of freight by rail.

Medway has rail connections at Thamesport (Isle of Grain) and Sheerness. The latter note ability to move freight trains to/from the Isle of Sheppey around London and on to the West Coast mainline as an aspiration though the connection is not currently active.

Level crossing issues at Stanford-le-Hope and other locations. These are felt by the local authority to affect the road network and limit rail capacity (see intervention 3).

Selected interventions and future options, including from NR Freight Network Study

1. On the wider network, improvements to infrastructure in the Midlands will allow longer, heavier trains carrying construction materials (to be completed 2019).

2. Gauge clearance to W12 between London and Bedford is an option in the Freight Network Study.

3. Thames Haven level crossing improvements will allow longer trains to and from London Gateway (to be completed 2019 with a report prepared outlining further enhancement options to increase capacity).

Engagement with local and national bodies

Based on the feedback received from ports and two local bodies (local authorities and LEPs) covering London and the Medway as part of this study:

The two local authorities which submitted a survey response both report excellent relationships with the ports in their area, with regular discussion and active engagement around port developments and making the case for transport investment.

London and Medway ports report regular engagement with LAs, LEPs and Highways England regarding road infrastructure improvements. For example London Gateway reported positive meetings in relation to A13 widening.

The constituent ports with rail connections (e.g. London Gateway and Tilbury) report regular contact with Network Rail regarding planning and developments, with Medway in discussion regarding future demands.

Both of the local authorities reported awareness of port plans and developments, recognising the need to promote port growth and the importance of the ports to local and national economies.

Further information: London and Medway ports

Ports: Port of London Authority, Sheerness
Road and rail: Highways England- Lower Thames Crossing, A13 widening
Other bodies: South East LEP, South East LEP-Growth Deal, Thames Vision Development Project

Region 6: Kent and Sussex ports

Ports in Kent and Sussex provide important services for road freight to the continent, with Dover being one of the largest Ro-Ro ports in Europe and vital for UK trade. Other ports provide alternative routes and resilience.

The main connectivity issues raised by the ports in this area relate to the strategic road network, both near the ports and on key routes to wider markets given their national reach.

Ports and markets

Kent is home to one of the busiest roll-on roll-off (Ro-Ro) operations in Europe, the port of Dover, which alone handles a third of Ro-Ro traffic in England. With Newhaven and Ramsgate also citing Ro-Ro as their most important freight market, reliable and efficient road connections to the region are essential. Shoreham, the other port in this area, largely handles dry bulk cargo.

Most of the ports in this region forecast strong growth in Ro Ro, with development work to support this.

Kent and Sussex ports account for an estimated...

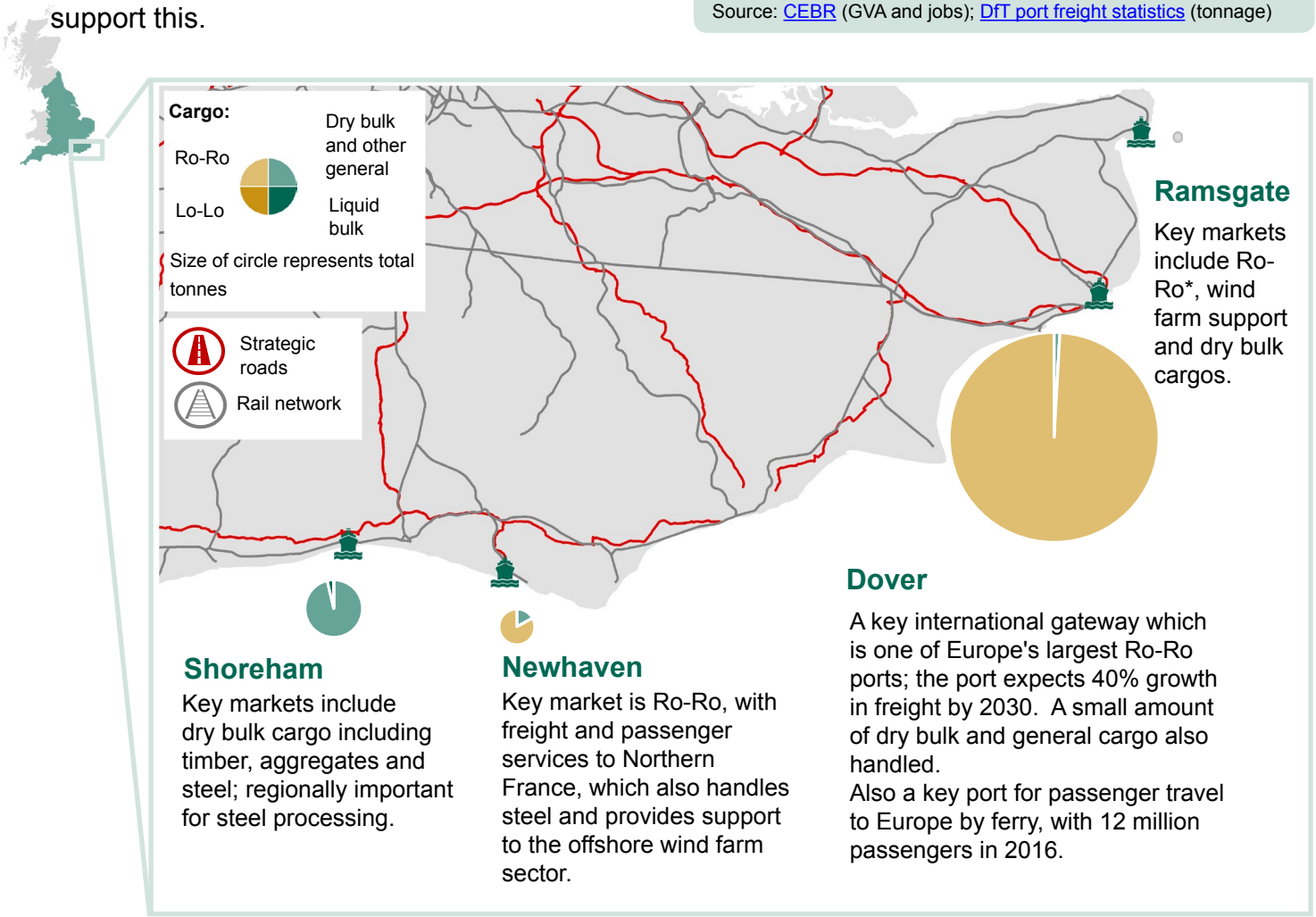
9% of the total tonnage handled by English ports in 2016

...and as a whole the South East region, including Solent ports, contributes ...

£890m GVA
15% of the total contribution made by all ports in England (2015)

11,200 jobs
14% of the total employed in the ports sector in England (2015)

Source: CEBR (GVA and jobs); DfT port freight statistics (tonnage)



Ramsgate

Key markets include Ro-Ro*, wind farm support and dry bulk cargos.

Shoreham

Key markets include dry bulk cargo including timber, aggregates and steel; regionally important for steel processing.

Newhaven

Key market is Ro-Ro, with freight and passenger services to Northern France, which also handles steel and provides support to the offshore wind farm sector.

Dover

A key international gateway which is one of Europe's largest Ro-Ro ports; the port expects 40% growth in freight by 2030. A small amount of dry bulk and general cargo also handled.
Also a key port for passenger travel to Europe by ferry, with 12 million passengers in 2016.

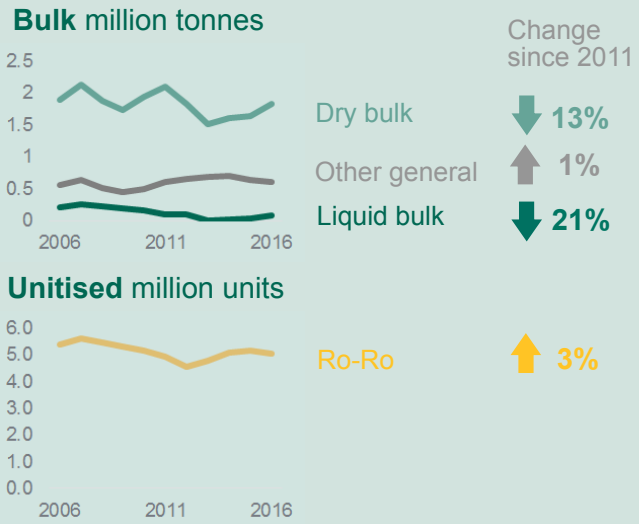
*Passenger ferry operations ceased at Ramsgate in 2013, but the local authority retains ambitions to restart these, providing further resilience to the cross-channel market and benefitting from Ramsgate's good connectivity.

Cargo trends and developments

Dover accounts for 90% of the tonnage handled by ports in this region, mostly Ro-Ro freight. Ro-Ro units handled increased 3% in the 5 years to 2016 but remain 6% lower than 10 years previously. Besides freight, these ports handle large volumes of sea passengers though the number has declined in the past decade.

Most of the ports in this region forecast strong growth in Ro-Ro particularly, with planned developments including Western Dock redevelopment at Dover (including a new cargo terminal) and expansion at Ramsgate to increase capacity. Shoreham (developing a port road and acquiring an additional wharf) and Newhaven (new berth and development area) are also planning expansion.

Kent and Sussex major ports: cargo handled



Source: Based on DfT port freight statistics

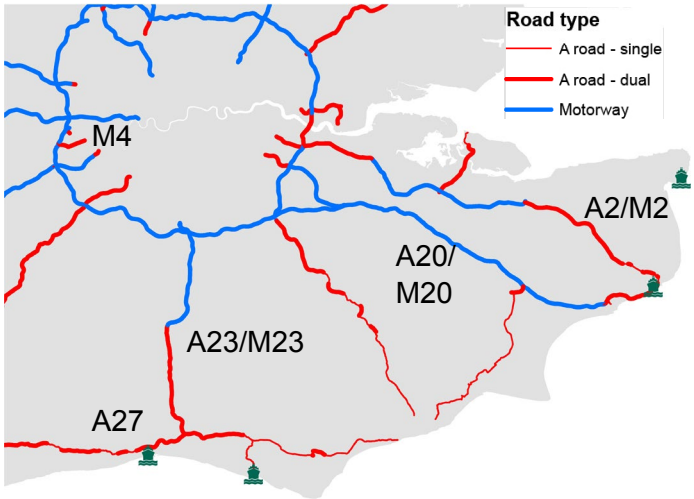
Main freight corridors - road and rail

As the majority of port freight handled by ports in Kent and Sussex is Ro-Ro, strategic roads are particularly important not just to the region, but nationally.

Key corridors are towards London, including the M20/A20 and M2/A2, as well as the A23/M23. Beyond this, the M25 and M4 are important for movement of freight to the North and West (much of Dover's Ro-Ro freight traffic moves beyond London to the Midlands and North), with the Dartford crossing a key connection.

For the Sussex ports, East-West connectivity is also important including the A27 and A26.

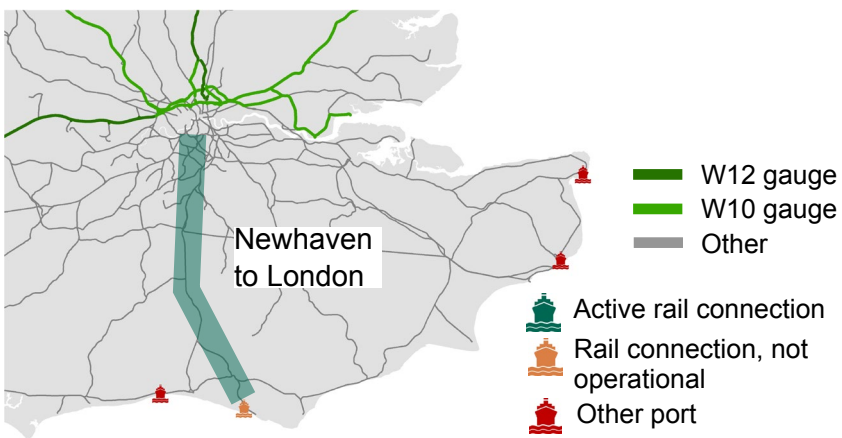
Road network by carriageway type: Kent and Sussex



Of the ports in this area, only Newhaven has a rail connection, with aggregate traffic moved to a range of destinations including London.

The key rail corridor from Newhaven is to Greater London, and other destinations including Surrey, Oxfordshire and Kent.

Rail network by gauge: Kent and Sussex



Connectivity issues - road

The majority of road connectivity issues reported by ports in Kent and Sussex relate to the strategic road network, on routes to the ports or key connectivity to wider markets, notably the Dartford crossing.

Strategic road network

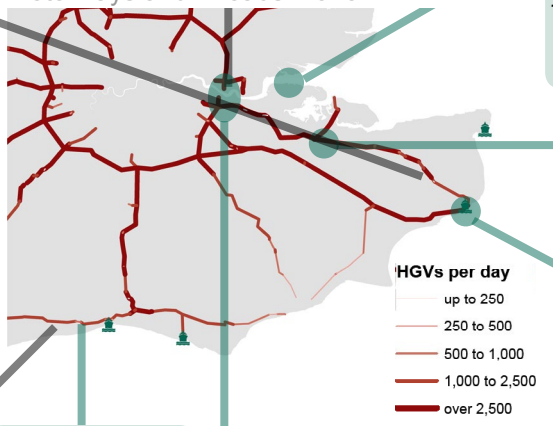
Connectivity issues identified by ports, local authorities and LEPs:

Dartford crossing on M25 is a bottleneck; a second Thames crossing would improve travel times (see intervention 4).

A2/M2 route: currently an alternative route to Dover in times of disruption, but inadequate and needing improvement e.g. has inconsistent lane provision with single carriageway sections; dualling needed at Lydden and Dover to upgrade to expressway standard. Also capacity issues at M2 J7 (Brenley Corner) (see intervention 2).

A27 bottlenecks: including at Arundel, Worthing, Shoreham and Lewes; also between Lewes and Polegate; improvements on this key East-West route would increase attractiveness for hauliers (see intervention 5).

HGV traffic: Average daily flows on SRN motorways and A roads: 2016



Selected interventions

1. Lower Thames Crossing: a planned new crossing connecting Essex and Kent. Located east of Gravesend and Tilbury, this new crossing will offer improved journeys, new connections and network reliability (RIS1).

2. M2 junction 5: additional capacity for the junction through improvements to slip roads and enhanced junction approaches (RIS1).

3. A20 access to Dover: upgrades to the at-grade junctions along Dover harbour front, providing better access to the ferry terminal (RIS1 - funded from other sources).

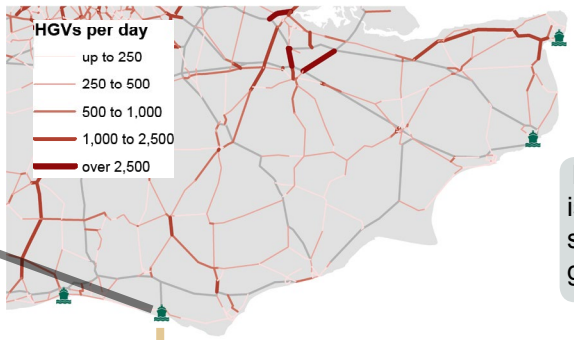
5. A27 Worthing and Lancing: improvements to capacity and junctions along the A27 (RIS1).

4. Dartford Improvement package: a 5 year investment plan for the Dartford crossing to modernise the roads within the area; the scheme will cut congestion and reduce journey times (Highways England).

Local A roads and port access

Connectivity issues identified by ports, local authorities and LEPs:

HGV traffic: Average daily flows on local A roads: 2016



Ramsgate: A299 is the local port access road which bypasses the town; no issues reported.

Dover: No local road issues reported as strategic roads run to port gates.

Newhaven: Current port access road unsuitable for HGV traffic and constraint to growth (see intervention 1).

Shoreham: No issues with locally managed roads reported.

Selected interventions

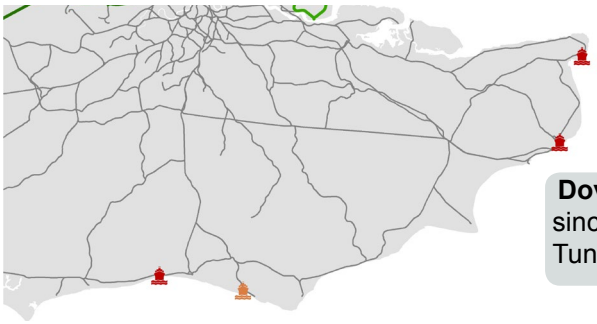
1.Newhaven Port Access Road (NPAR) - will improve access to the port from the SRN. (Successful Local Growth Funding bid, currently undergoing full business case assessment).

Connectivity issues - rail

Newhaven is the only port in this area to have a connection to the national rail network, so rail connectivity issues related to ports in this area are reported as relatively minor.

Connectivity issues identified by ports, local authorities and LEPs:

Newhaven: Rail freight used for transporting aggregates.
Planned closure of Newhaven Marine station to passengers will enable greater prioritisation for rail freight from the port.



Dover: Not currently rail connected since the opening of the Channel Tunnel.

Engagement with local and national bodies

Based on the feedback received from ports and 3 local bodies (local authorities and LEPs) covering the Kent and Sussex area as part of this study:

Local authorities in Kent and Sussex report excellent relationships with the ports in their areas, with engagement via a variety of forums; for example Kent Council hosts a Strategic Freight Group with representation from the ports.

All four ports are in contact with local authorities and LEPs regarding road issues which affect them, with Dover and Newhaven also in contact with Highways England.

Both Newhaven and Dover reported contact with Network Rail regarding current or potential future rail connectivity.

Both Kent and Sussex councils are aware of port developments and plans; for example East Sussex Council reported engagement in developments at Newhaven port.

Further information: Kent and Sussex ports

Ports: Dover, Ramsgate, Newhaven, Shoreham
Road and rail: Highways England-Lower Thames Crossing, A20 improvement scheme, Highways England- Dartford Improvement Package
Other bodies: Coast to Capital LEP, South East LEP, South East LEP-Growth Deal

Region 7: Solent area ports

Ports in the Solent area – notably Southampton – are of national importance. Ensuring good connectivity between these ports and their markets in the Midlands and the North is important to support businesses across the country.

While strategic road issues were noted, ports also emphasised the importance of maintaining and enhancing port access to the SRN, with local funding limited. On rail, scope for modal shift was reported to be constrained by existing infrastructure.

Ports and markets

Most of the port traffic in the Solent area is handled by Southampton, England's third largest port by tonnage, and the country's largest cruise port.

The other ports in the area - Portsmouth and Poole - handle Ro-Ro freight on routes to France and Spain, meaning that connectivity to a range of destinations is important.

Solent ports account for an estimated...

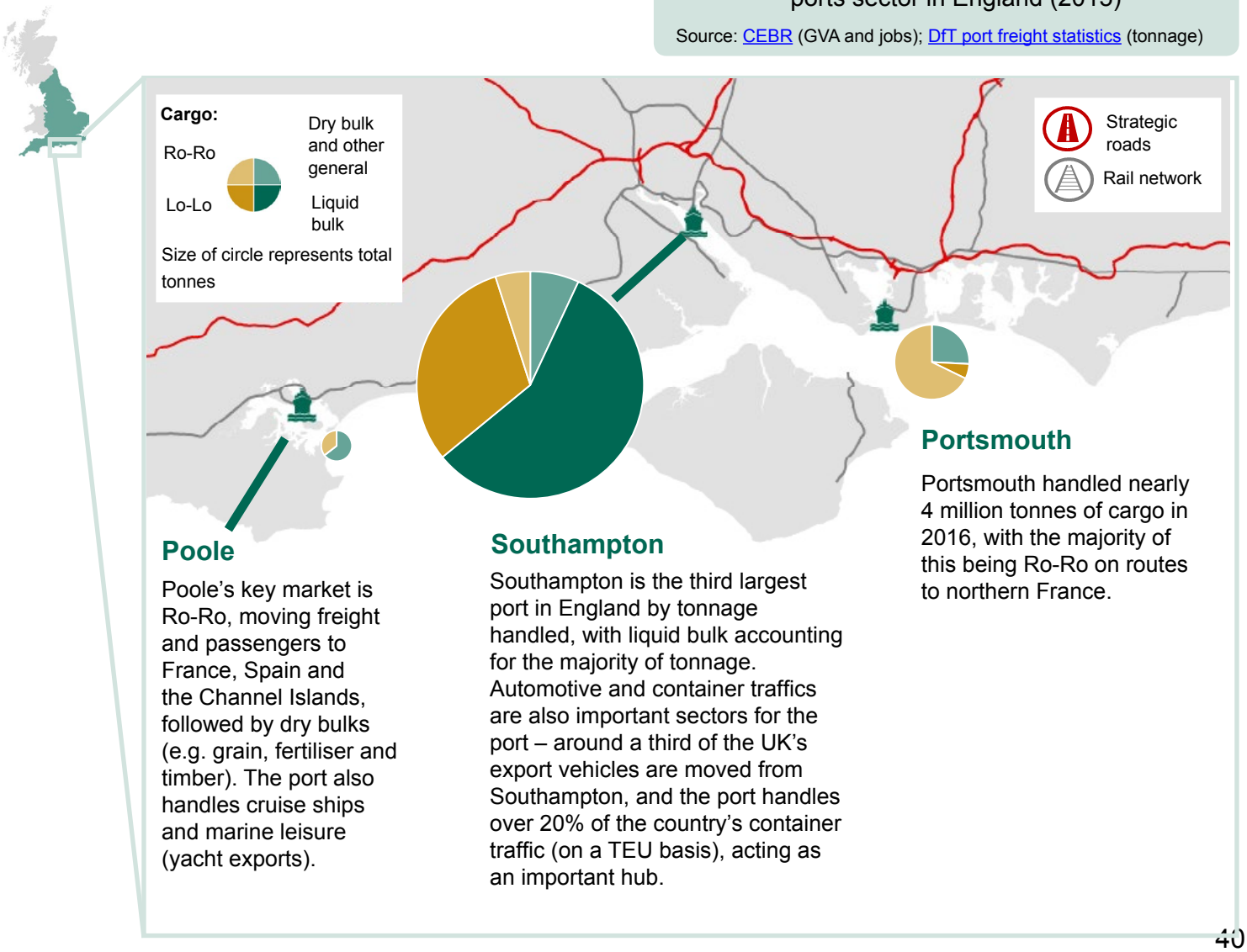
12% of the total tonnage handled by English ports in 2016

..and together with Kent and Sussex ports are part of the South East which contributes ...

£890m GVA
15% of the total contribution made by all ports in England (2015)

11,200 jobs
14% of the total employed in the ports sector in England (2015)

Source: CEBR (GVA and jobs); DfT port freight statistics (tonnage)



Poole

Poole's key market is Ro-Ro, moving freight and passengers to France, Spain and the Channel Islands, followed by dry bulks (e.g. grain, fertiliser and timber). The port also handles cruise ships and marine leisure (yacht exports).

Southampton

Southampton is the third largest port in England by tonnage handled, with liquid bulk accounting for the majority of tonnage. Automotive and container traffics are also important sectors for the port – around a third of the UK's export vehicles are moved from Southampton, and the port handles over 20% of the country's container traffic (on a TEU basis), acting as an important hub.

Portsmouth

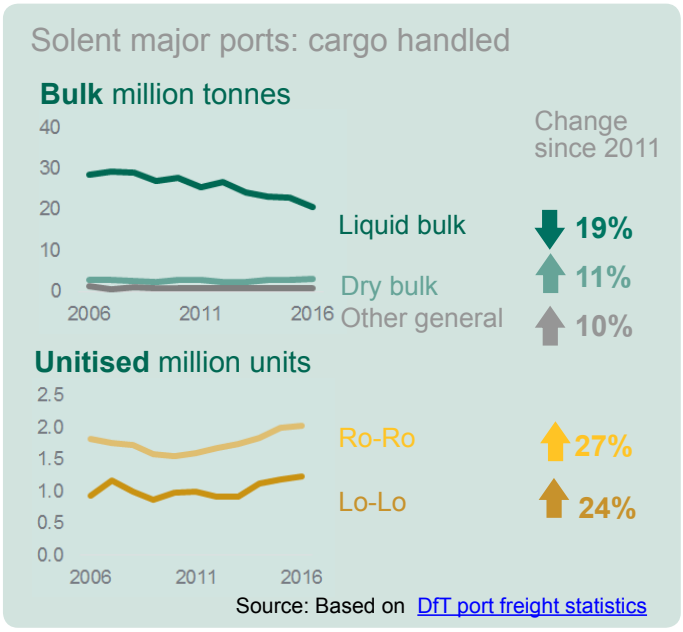
Portsmouth handled nearly 4 million tonnes of cargo in 2016, with the majority of this being Ro-Ro on routes to northern France.

Cargo trends and developments

Port of Southampton accounts for the vast majority of tonnage handled by ports in the Solent area.

Whilst bulk tonnage has declined, both Ro-Ro and container traffic have grown steadily over the last five years.

Future developments may add further capacity. These include enhanced storage for export vehicles at Southampton, and a new quay currently being constructed at Poole, adding capacity for cruise vessels and bulk cargo.

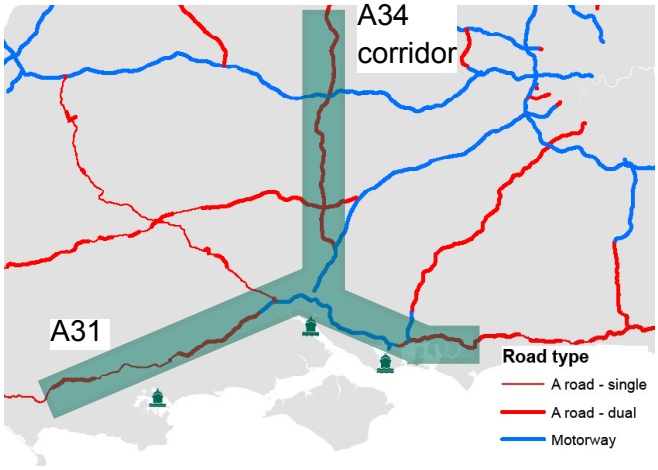


Main freight corridors - road and rail

Solent ports serve multiple locations throughout the UK, with the A34 a key corridor to markets in the Midlands for automotive trade, but also for container imports.

The M3 and A3 provide connections towards London, and east-west connectivity is provided by the M27, A27, A31 and A35. The A350 and A36 also provide important links to the West Country and for freight travelling North West from the Solent.

Road network by carriageway type: Solent area

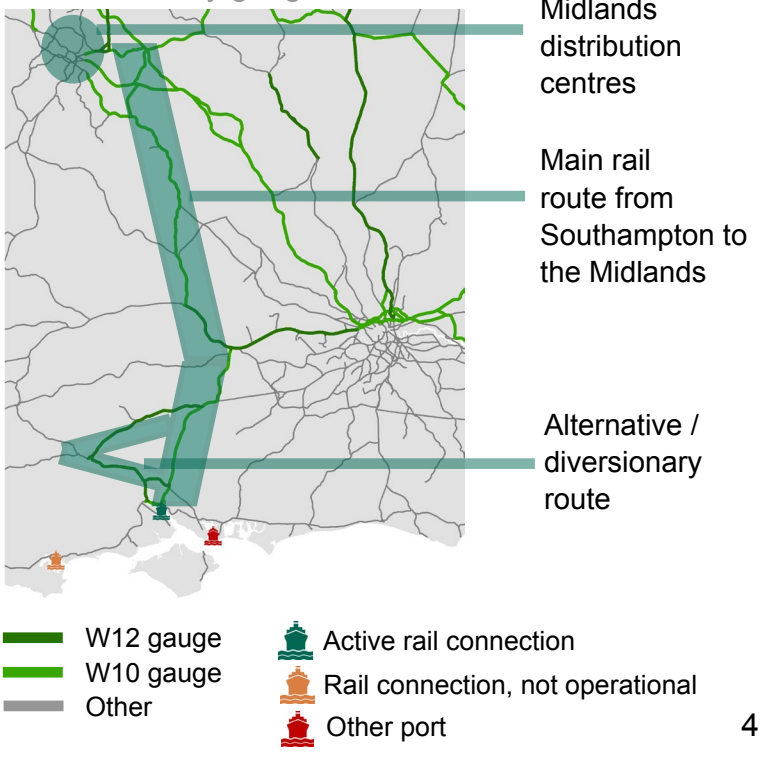


Southampton is the only active rail-connected port in the area, with around 30 freight trains per day - mostly containers and automotives. Poole has a connection to the rail network which is not currently used.

The main rail route from Southampton is via Basingstoke, Reading and Didcot to the West Coast main line around Birmingham.

A range of destinations across the Midlands and in the North of England are served by rail, for both container and automotive traffics.

Rail network by gauge: Solent area



Connectivity issues - road

Ports identified a need to not only maintain but to improve connectivity on key corridors to the North. This also included ensuring that the last few miles to ports are included in road management planning.

Strategic road network

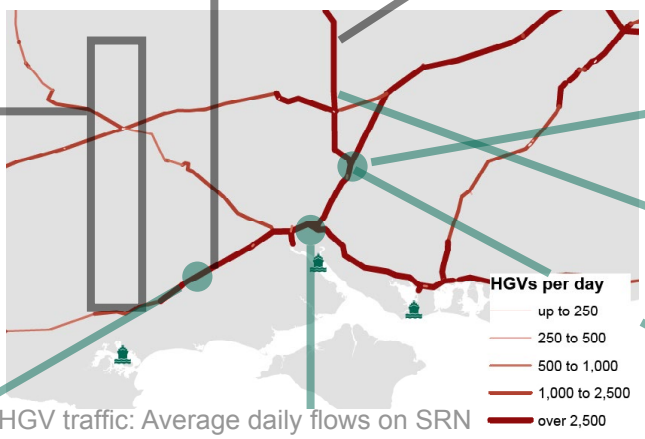
Connectivity issues identified by ports, local authorities and LEPs:

Poole lacks a reliable North: South connection to the M4/ M5, with the A350 unsuited to HGV traffic so freight often detours via the A31, M27 and A34. A viable route to the M4 would improve connectivity and increase freight and passenger volumes.

Stretches of the A31 at capacity, with stop-start traffic and slow speeds (see intervention 1).

Need to ensure that pinchpoints on the key A34 route to the Midlands are resolved (see intervention 5).

Bottleneck at M3 junction 9 connection to A34 (see intervention 4).



HGV traffic: Average daily flows on SRN motorways and A roads: 2016

Selected interventions

1. A31 widening at Ringwood: HE scheme widening to three lanes and junction improvements providing more capacity will relieve congestion (RIS1).

2. M271/A35 Redbridge roundabout upgrade junction improvements to provide a dedicated left turn lane for traffic leaving the M271 for Southampton port and free flow traffic from the port onto the M271 (RIS1).

3.M27 Southampton junctions A range of works to upgrade the motorway (RIS1).

4. M3 Junction 9 improvements and improved slip roads at Junctions 10-11 and 12-14 (RIS1).

5. A34 Junction improvements : Oxford (RIS1).

Local A roads and port access

Connectivity issues identified by ports, local authorities and LEPs:

Poole: The roads from the port to A31 are single carriageway with multiple junctions that can slow down traffic flow (see intervention 1).

HGV traffic: Average daily flows on local A roads: 2016

Southampton: Essential works needed to Millbrook Roundabout which is the main access point to the Western Docks (see intervention 2).

Selected interventions

1. Growth Deal funding for Port of Poole access improvements; completion of the package of works will increase capacity on the A349 to the A31.

2. Southampton Bridges to Prosperity: essential maintenance work to ensure that the key bridges in Southampton continue to provide uninterrupted transport links to national, regional and local use. (Local pinch point funding - work complete).

Connectivity issues - rail

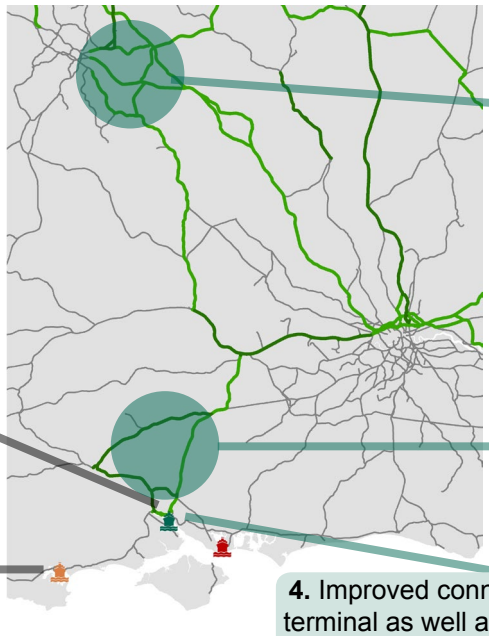
Whilst some potential improvements were identified, ports thought that modal shift from road to rail is restricted by the presence of limiting infrastructure on key routes to the Midlands.

Connectivity issues identified by ports, local authorities and LEPs:

Achieving modal shift from road to rail would help to reduce congestion on the roads between Southampton and the Midlands; changes in available grants are felt to have impacted on the potential for growth.

Southampton: Longer sidings needed to enable longer trains (See intervention 4).

Poole: Has a rail connection, which is not currently used - bridge heights restrict access for some trains, which impacts on the potential for modal shift.



Selected interventions and future options

1. Improved loops at various points in the Midlands will allow longer freight trains to operate between Southampton and the West Midlands (to be completed 2019).

2. Banbury area remodelling will add capacity for freight trains (to be completed 2019).

3. Work to provide W12 gauge clearance on the diversionary route between Southampton and Basingstoke completed 2016, allowing continuity during maintenance closures.

4. Improved connections to Southampton maritime terminal as well as the Western Dock branch line are being delivered in CP5 as part of a line of route enhancement through to the West Midlands.

Engagement with local and national bodies

Based on the feedback received from ports and 5 local bodies (local authorities and LEPs) in the Solent as part of this study:

Responses from both ports and local bodies suggest strong working relationships with regular liaison and recognition of the importance of ports to the local economy.

Two ports reported having engaged with LAs, LEPs and Highways England in relation to road infrastructure and capacity issues affecting the port

Southampton is the only port with an active rail connection; discussions were reported as being held with Network Rail (but not with LAs or LEPs in relation to rail) including as part of the Wessex Stakeholder Alliance.

All 5 of the local bodies were aware of port plans and developments, and engaged in port masterplanning, where relevant.

Further information: Solent ports

Ports: Southampton, Poole, Portsmouth
Road and rail: HE Southampton to Midlands route strategy
Other bodies: Solent LEP

Region 8: Bristol and South West ports

Ports in the South West of England support a range of local, regional and national markets; Bristol is the largest port in this area handling bulk cargo and unitised traffic.

Most of the ports rely on road for inland freight movement, with congestion issues in the areas around the ports and on key corridors including the A30, A38 and M5. Rail connectivity, in particular gauge clearance for containers, is important for the port of Bristol.

Ports and markets

Ports in the South West serve a range of markets - though the majority of tonnage handled is bulk cargos, unitised traffic is important for Bristol (the area's main freight port) and Plymouth. The leisure sector is also important for ports in this area, including super yachts and cruises.

Milford Haven specialises in liquid bulk, handling more liquid bulk tonnage than any English port.

Bristol and SW ports account for an estimated...

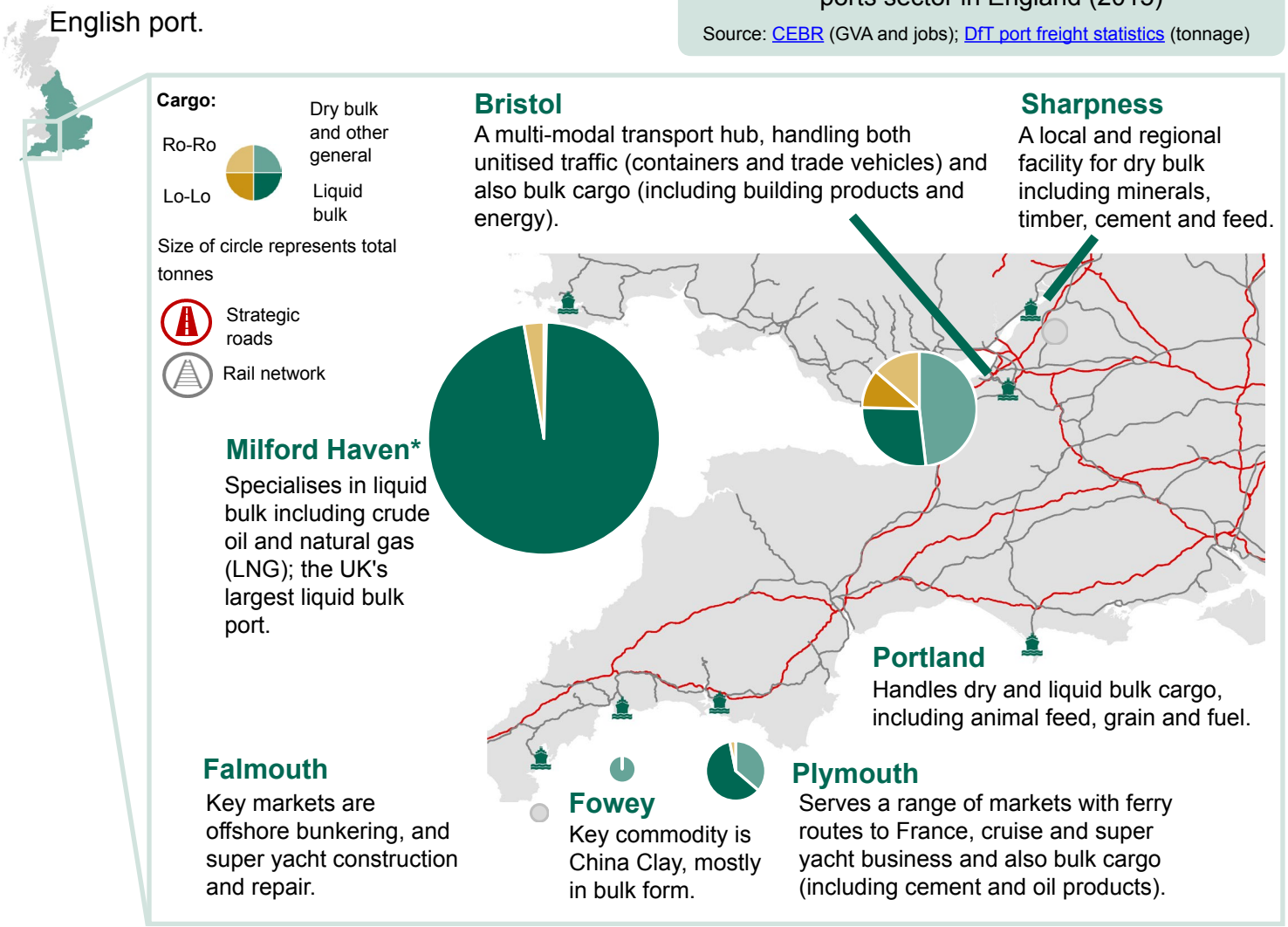
4% of the total tonnage handled by English ports in 2016 (excluding Milford Haven)

..and as a whole the South West region contributes ...

£640m GVA
10% of the total contribution made by all ports in England (2015)

10,100 jobs
13% of the total employed in the ports sector in England (2015)

Source: CEBR (GVA and jobs); DfT port freight statistics (tonnage)



Note: cargo breakdown is unavailable for those ports classified as 'minor ports' in DfT statistics, which includes Falmouth

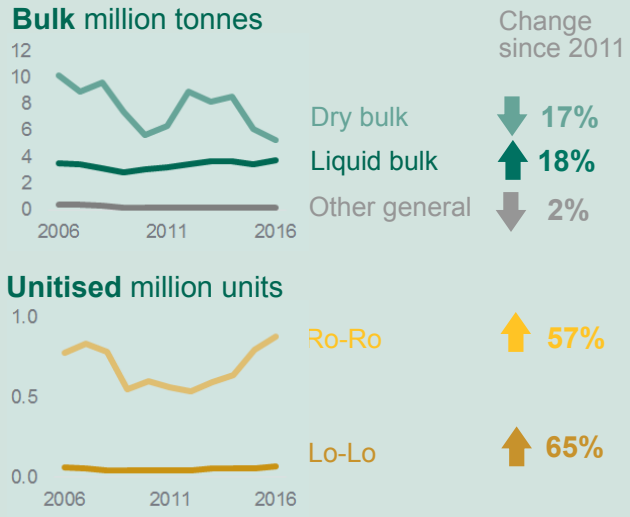
*In light of their unique governance arrangements, under the Wales Act 2017 the largest nationally significant trust ports remain accountable to the Secretary of State for Transport. As the only such trust port in Wales, Milford Haven is included as the sole non-English port in this study.

Cargo trends and developments

Total tonnage handled by ports in the Bristol and South West region fell during and after the 2008-09 economic downturn, though unitised traffic in particular has grown since then. Decline over the past two years is largely driven by a 38% fall in dry bulk since 2014, which reflects reduced coal imports.

Whilst containers account for a very small amount of tonnage in the region, it has been growing steadily over the past 5 years and Bristol, who are developing a deep sea container terminal, expect container traffic to continue to increase.

South West major ports: cargo handled



Source: Based on DfT port freight statistics

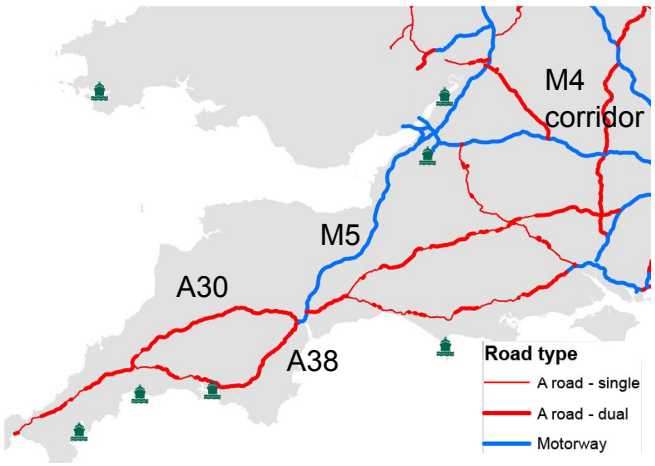
Other planned developments by ports in this area include additional storage (for automotives at Bristol, fuel at Falmouth and dry bulks at Portland) and berth enhancements at Plymouth, to support the cruise and yacht sectors. At Milford Haven, a waterside development is planned to attract tourism.

Main freight corridors - road and rail

While some of the smaller ports in the region serve local or regional markets, the key corridors for road freight moved more widely include the M4 to London and the M5 to the Midlands. Within the South West region, the A30/303 and A38 are important strategic roads.

Levels of congestion on many of these routes can be adversely affected by seasonal holiday traffic.

Road network by carriageway type: Bristol and SW

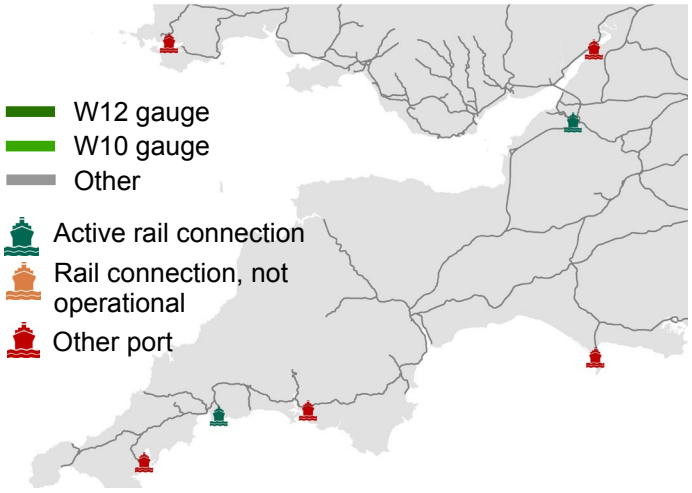


Of the ports in this area, only Bristol and Fowey have an active connection to the national rail network.

Freight moved by rail through Bristol includes dry bulks, containers and automotive with a range of destinations served including London and the South East, the South West and the Midlands, with less frequent services to Scotland.

Rail freight at Fowey is wholly associated with the export of china clay. At Milford Haven there is an unused rail connection, while liquid bulks are sent by rail from the nearby Robeston facility.

Rail network by gauge: Bristol and SW



Connectivity issues - road

Ports in the South West report journey time and reliability issues, both in the vicinity of ports (in Bristol and Plymouth) and on key corridors - notably the A30, A38 and M5 - with potential impacts on potential for growth.

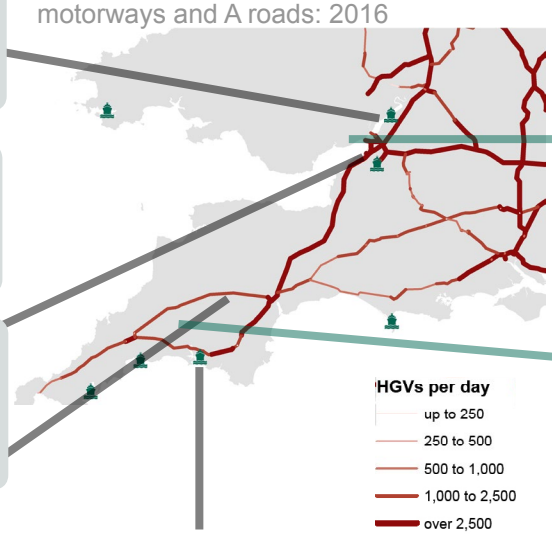
Strategic road network

Connectivity issues identified by ports, local authorities and LEPs:

Selected interventions

Sharpness: Junction improvements on A38 could reduce delays accessing and leaving the B4066.

HGV traffic: Average daily flows on SRN motorways and A roads: 2016



1. M49: Construction of a new junction on the M49 in the Avonmouth region (RIS1).

Milford Haven: Peak hour delays on M4 route to port including around Newport, Port Talbot and Swansea.

2. A30 dualling: Upgrade to dual carriageway between Temple and Higher Carblake, and Chiverton to Carland Cross; improving the A30 to expressway standard from Camborne to the M5 (RIS1).

Bristol: Evening peak congestion at M5 Junction 19, particularly during holiday season, can impact on efficient movement of freight and people.

There are journey time and reliability issues on the A30 and A38/M5 corridors (see intervention 2).

Plymouth: Plymouth city centre access to the A38 can be an issue and impacts on freight turnaround times.

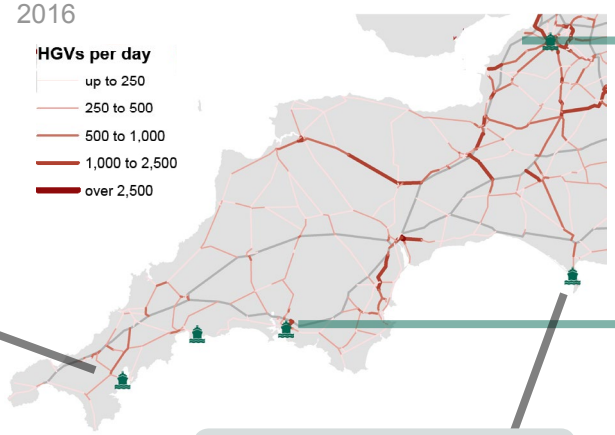
Local A roads and port access

Connectivity issues identified by ports, local authorities and LEPs:

Selected interventions

Milford Haven: Congestion at peak times on local routes including through Haverfordwest town.

HGV traffic: Average daily flows on local A roads: 2016



1. Bristol: Resurfacing and rebuilding of A403 near Bristol port.

Falmouth: Port access via single carriageway roads with parking on access roads causing difficulties for freight traffic; improved approach road needed for larger loads.

2.Plymouth: Scheme to address pinch point at Charles Cross on the A374.

Portland: Need for Western Relief Road to relieve congestion around Weymouth.

Connectivity issues - rail

Bristol is the only port in the South West to be connected to the national rail network; gauge clearance is required for rail lines serving the port.

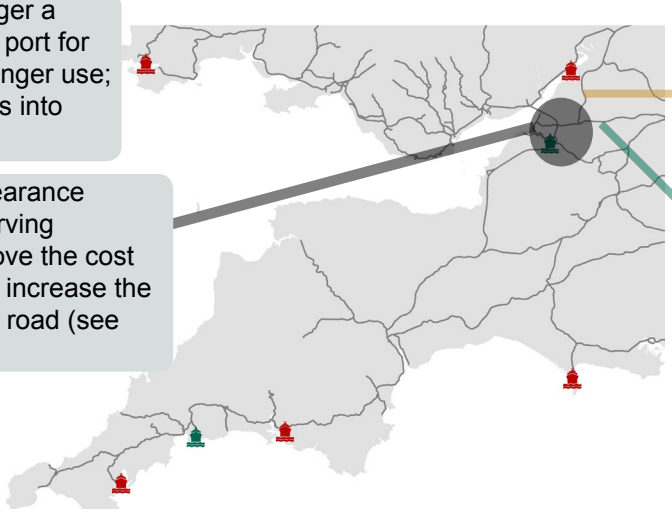
Connectivity issues identified by ports, local authorities and LEPs:

Milford Haven: No longer a working rail link into the port for general freight or passenger use; no W10/12 gauge routes into Pembrokeshire.

Bristol: W10 gauge clearance required for rail lines serving Bristol port; would improve the cost effectiveness of rail and increase the likelihood of a shift from road (see intervention 1).

Removing potential conflicts with passenger services is also identified as a priority by Bristol port.

Selected interventions and future options, including from NR Freight Network Study



1. Gauge clearance to W10 of Bristol to Birmingham line (FNS option).

2. Gauge clearance infill to W12 between London, Bristol and Cardiff at specific sites on the Great Western mainline (to be completed by 2019).

Engagement with local and national bodies

Based on the feedback received from ports and 10 local bodies (local authorities and LEPs) covering the Bristol and South West area as part of this study:

The strength of the relationship between ports and local bodies varies across the region, but is reported as strong in relation to Bristol, the largest port in the area, with for example regular discussion of issues on the local highway network affecting the port.

Four ports reported having engaged with LAs regarding road issues affecting their ports, though only Bristol also mentioned engagement with LEP and Highways England via regular, constructive meetings.

Bristol reported holding regular discussions with Network Rail (and with the local authority and LEP in relation to rail issues). Similarly they reported that the strategic significance of Bristol and its rail access needs are understood.

Almost all of the local bodies(8 out of 10) were aware of port plans and developments for the areas which they have authority.

Further information: Bristol and South West ports

Ports: Falmouth, Milford Haven

Road and rail: Highways England- M49 Avonmouth Junction

Other bodies: Heart of the South West LEP, Cornwall and the Isles of Scilly LEP, West of England LEP

Region 9: Mersey and North West ports

Ports in the North West vary considerably in terms of location and size, from Liverpool which is one of England's largest ports to the smaller ports in Cumbria.

Connectivity between the ports and the key North-South and East-West (trans-Pennine) corridors is felt to be poor in places, particularly Cumbria, with improvements required on road and rail to ensure that anticipated port growth is not constrained.

Ports and markets

Liverpool is the largest port in the North West region, and the 4th largest port in England by tonnage, handling bulk and unitised cargo.

The smaller ports in the region tend to be more specialised serving local and regional markets, for example Heysham handling Ro-Ro and Manchester handling largely bulk freight.

Mersey and NW ports account for an estimated...

13% of the total tonnage handled by English ports in 2016

..and as a whole the North West region contributes ...

£960m GVA
16% of the total contribution made by all ports in England (2015)

15,200 jobs
19% of the total employed in the ports sector in England (2015)

Source: CEBR (GVA and jobs); DfT port freight statistics (tonnage)

Workington
Key markets are general cargo and bulks including forestry products, biomass, as well as support to the offshore wind sector and providing materials for construction projects.

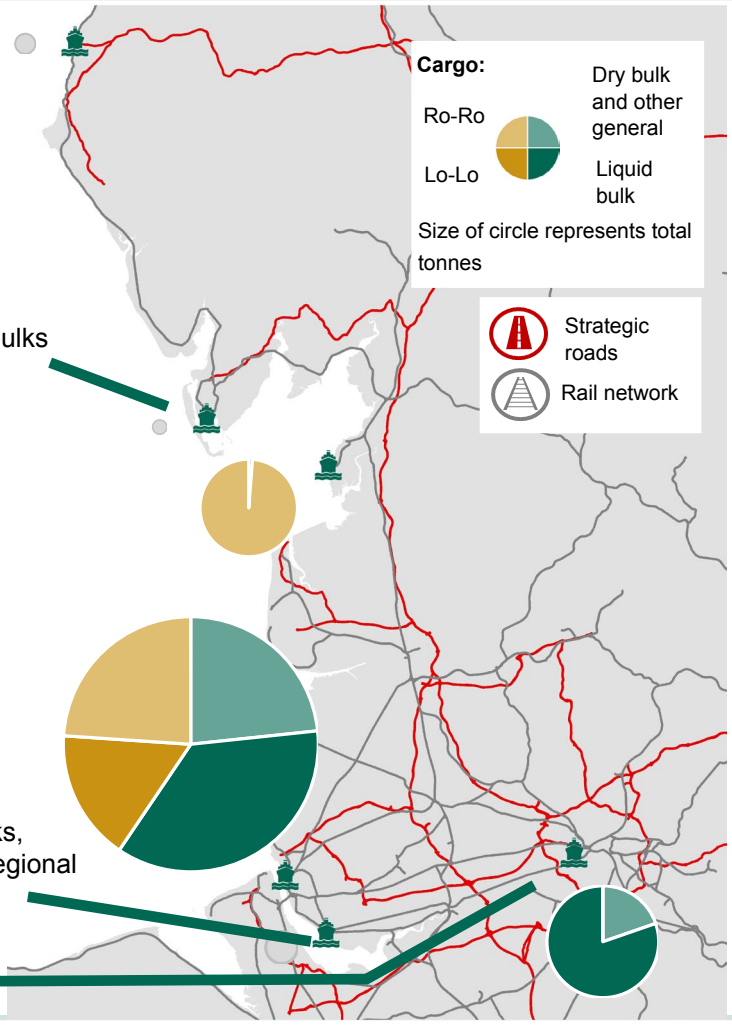
Barrow-in-Furness
Shipbuilding support services as well as bulks for energy production.

Heysham
Predominantly a Ro-Ro port with routes to Ireland and the Isle of Man.

Liverpool
Has a diverse range of activity supporting many sectors, including containers, liquid and dry bulks (with specific freight markets including grain, animal feed, biomass and petrochemicals), and the port also supporting automotive and food manufacturing sectors.

Garston
Dry bulks including agribulks, aggregates and scrap for regional markets.

Manchester
Docks from the Mersey to Salford handling liquid and dry bulk cargo.



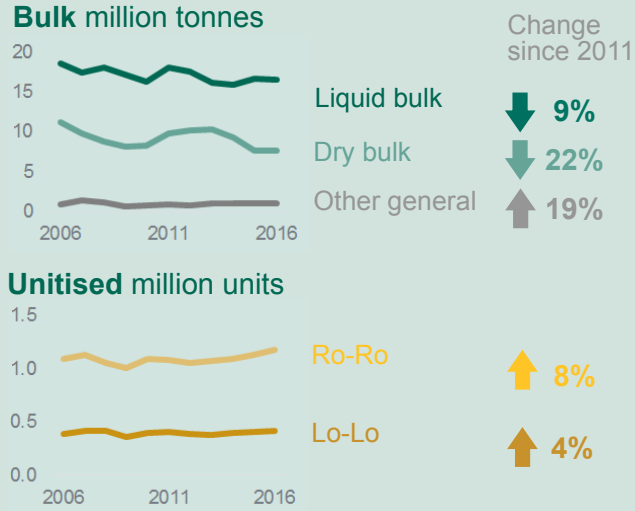
Note: cargo breakdown is unavailable for those ports classified as 'minor ports' in DfT statistics, which includes Barrow and Workington

Cargo trends and developments

Reductions in liquid bulk and dry bulk (the latter mostly driven by falling coal imports over the past two years), contributes to a 4% decline in total tonnage in the region since 2011. However Ro-Ro freight has increased gradually over this period, with a stable trend in container traffic.

Ports anticipate future growth with developments to support this, including new container terminal and biomass storage at Liverpool, infrastructure maintenance at Workington related to freight train capacity, development of a tri-modal freight interchange at Salford and additional warehouse storage at Garston.

North West major ports: cargo handled

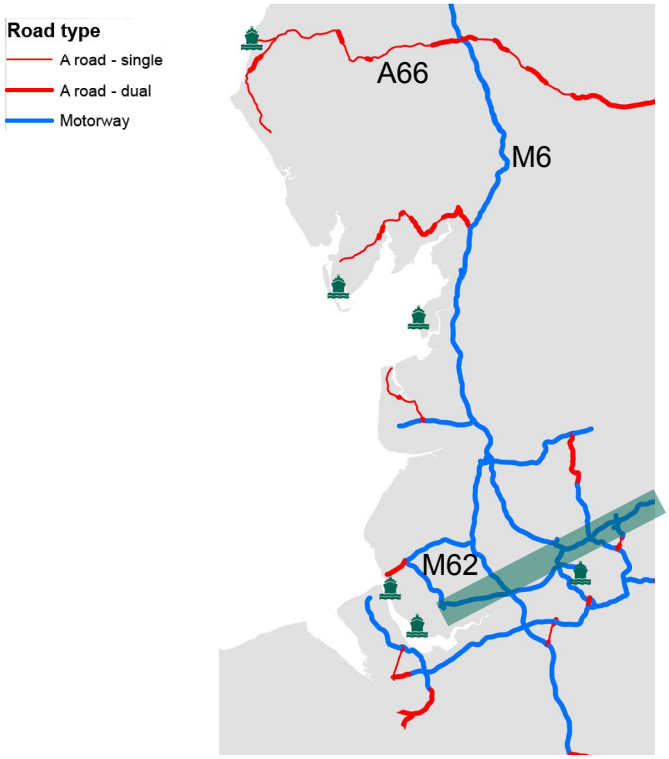


Source: Based on DfT port freight statistics

Main freight corridors - road and rail

Road freight moves from ports in the North West across the North of England, with the trans-Pennine M62 corridor important for freight movement to the East, and the M6 a key North-South corridor.

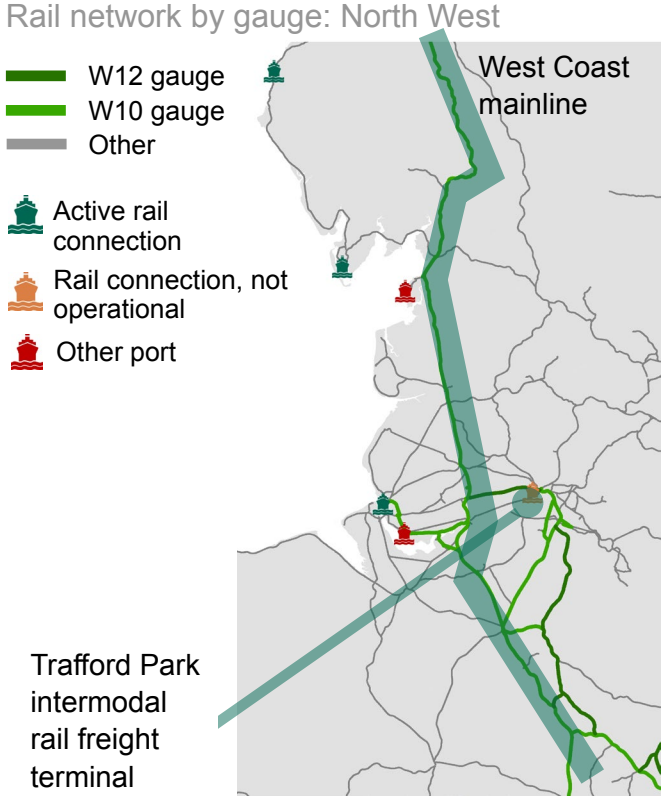
Road network by carriageway type: North West



Liverpool, Manchester, Barrow and Workington have rail connections, with rail freight largely used for bulk freight including biomass outwards from Liverpool to Drax on the trans-Pennine route. Following their Liverpool2 container terminal development, Liverpool also has plans for container traffic by rail.

North-South connectivity is predominantly via the West Coast mainline, but East-West connectivity is also important for freight.

Rail network by gauge: North West



Connectivity issues - road

There are reported pinch points on strategic and local roads between the regions ports and the main North-South and trans-Pennine routes; for example the Cumbrian ports are constrained by poor connectivity between ports and the M6.

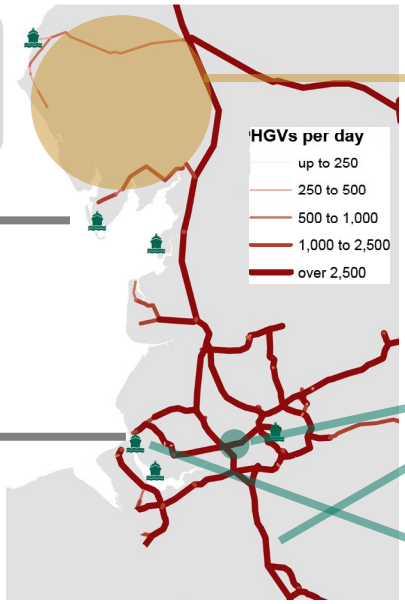
Strategic road network

Connectivity issues identified by ports, local authorities and LEPs:

Workington: Capacity and reliability challenges on the A66 between the port and M6 (see intervention 1).

Barrow: Pinch points on the A590 including at Ulverston and Greenodd; Ulverston by-pass needed.

Liverpool: A5036 is the main access road to the port, which also acts as a key commuter route for the city centre, with journey time reliability issues (see intervention 3).



HGV traffic: Average daily flows on SRN motorways and A roads: 2016

Selected interventions

1. West of M6 strategic connectivity study: undertaken by Cumbria LEP to identify improvements needed on A595, A66, A590.

2. M6, M60 and M62 smart motorway: upgrade of various sections around Manchester including M6 between junctions 16 and 19 as the northern end of a 'smart spine' linking the North West and London (RIS1).

3. A5036: comprehensive upgrade to improve access to the Port of Liverpool; this is a central element of the Liverpool Local Growth Deal (RIS1).

Local A roads and port access

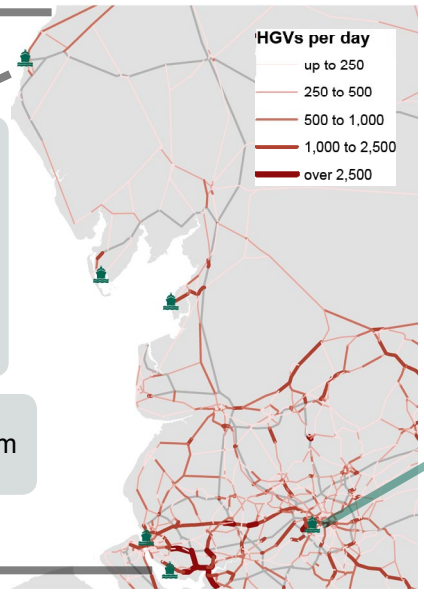
Connectivity issues identified by ports, local authorities and LEPs:

Pinch points on the A595 between Workington and the M6.

Workington: Pinch point where A66 terminates at Ramsey Brow (see intervention 1 in SRN section). Access to the port is constrained by a weak road bridge over the railway that restricts the carriage of heavy cargo and limits resilience (see intervention 1).

Barrow: The south access route, Cavendish Dock Road, could benefit from improvement to its condition.

Garston: Peak time congestion on the Runcorn bridge, but also concern about capacity on A561/A562 to handle future port traffic.



HGV traffic: Average daily flows on local A roads: 2016

Selected interventions

1. Workington bridge: LEP funded project to replace weak rail bridge (Local Growth Fund).

2. A57 improvements: work in progress will improve access to the port at Salford with better traffic flows.

Connectivity issues - rail

Liverpool, Manchester and the Cumbrian ports are all rail connected; connections at ports and branch lines to the mainline rail network are the main connectivity issues reported.

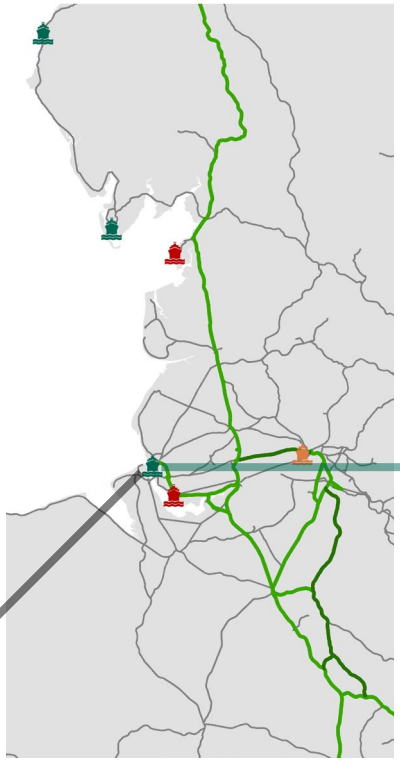
Connectivity issues identified by ports, local authorities and LEPs:

Workington: Investment needed on line to Carlisle to re-instate cross-overs from mainline to port sidings and upgrade signalling - this would allow greater use of rail as an alternative to road freight.

Barrow: Salthouse junction is an issue as trains have to go south before going north; addressing this would improve rail access.

Ensuring suitable paths are available on the Chat Moss line and over the Pennines is vital for ports to reach their markets.

Liverpool: Bootle branch line is the sole rail connection to the port of Liverpool; delivery of improvements within the current Control Period is important (see intervention 1).



Selected interventions and future options, including from NR Freight Network Study

1. Bootle branch line improvements to be delivered including installation of a second track at the port boundary to enable two freight train paths an hour into and out of the port (to be completed by 2019).

Engagement with local and national bodies

Based on the feedback received from ports and two local authorities covering the Mersey and North West area as part of this study:

Responses from both ports and local bodies suggest good working relationships; for example at Liverpool there is a Port Access Steering Group between the port and local authorities.

All the ports which replied to the PCS survey reported having engaged with LAs and LEPs in relation to road infrastructure and capacity issues affecting the port, though only Liverpool reported having had discussion with Highways England.

Liverpool, the largest rail connected port in the region, have regular contact with Network Rail. By contrast, Cumbrian ports noted limited engagement.

Both local bodies which responded to the PCS survey were aware of port plans and developments, for example plans for developments at Port Salford were included in the Greater Manchester Transport Strategy.

Further information: Mersey and North West ports

Ports: Mersey Ports

Road and rail: Liverpool LEP-High Speed Rail, Cubria LEP-West of M6, Highways England-A5036

Other bodies: Atlantic Gateway, Lancashire LEP, Cumbria LEP, Liverpool City Region LEP

Annex A: Glossary

Glossary of terms used throughout this document

Agribulks	Agricultural bulk products, including grain, fertiliser and animal feed
CP5	Control Period 5 (2014 – 2019)
CP6	Control Period 6 (2019 – 2024)
CRP	Congestion Relief Programme
DfT	Department for Transport
FNS	Freight Network Study
HE	Highways England
HGV	Heavy Goods Vehicle
LA	Local Authority
LEP	Local Enterprise Partnership
LGF	Local Growth Fund
Lo-Lo	Lift-on Lift-off (containers)
NR	Network Rail
PCS	Port Connectivity Study
RIS 1	Road Investment Strategy 1 (2015 – 2020)
RIS 2	Road Investment Strategy 2 (2020 - 2025)
Ro-Ro	Roll-on-roll-off
SRN	Strategic Road Network
TEU	Twenty-foot Equivalent Units (a standard measure of container size)
TfN	Transport for the North

Annex B: Notes and data sources

The following are data sources used in this document.

Ports and maritime

Port Connectivity Study: port, local authority and LEP surveys

As part of the PCS data gathering, a survey was sent to each port in England requesting information on main freight markets and cargos, current road and rail connectivity and mode shares, and connectivity issues. A similar survey was sent to local authorities and LEPs. The summary presented here draws on the information provided via the surveys, though full individual responses have not been published.

For some ports, separate returns were received covering different terminals or wharves. For presentational purposes, ports have been grouped at the level of statistical ports as defined in the Department's port freight statistics.

Department for Transport port freight statistics

DfT publishes National Statistics on ports on both a quarterly and annual basis. These provide a breakdown of cargo, for each port, by mode of appearance.

The latest annual port freight statistics are for 2016 and further information about the methods used to compile these statistics as well as the full range of the Department's other statistics are available from the maritime statistics page.

Economic estimates of the ports sector (CEBR for Maritime UK)

Estimates of the economic contribution of ports are taken from work by CEBR for Maritime UK. In this work, the ports sector includes activities which take place in ports, including shipping services and shipbuilding. Figures quoted here represent direct contribution measured by Gross Value Added (GVA) and direct employment. More detailed information including statistics on turnover, and indirect and induced benefits as well as details of the methodology used can be found in the published report.

The CEBR work estimates a regional breakdown; this does not correspond to the geographical grouping used here - in these cases, the most appropriate figure is reported.

Port master plans and local bodies

More detailed information on individual ports cargo and markets and planned developments can be found in port plans. These are referenced at the end of each of the individual area studies above.

Similarly, local bodies including LAs and LEPs often publish information about recent and proposed schemes to improve connectivity, including those affecting ports in their area. Again, relevant links have been provided where known.

Road and rail

DfT Road statistics (traffic and freight)

Information from DfT road traffic and road freight statistics has been used to provide background information on road freight corridors by region. These statistics cannot directly identify movements to and from ports; instead they highlight HGV traffic flows and movements in areas in and around ports.

DfT Road Investment Strategy

Details of schemes funded under RIS1 can be found at: https://www.gov.uk/government/collections/road-investment-strategy

Congestion Relief Programme schemes can be found at: https://www.gov.uk/government/news/220-million-to-help-motorists-beat-congestion

Highways England

Highways England have published a range of reports covering the performance of the Strategic Road Network and future planning which have been used to inform these case studies. Relevant documents include:

- HE Strategic Road Network Initial Report
- HE Strategic Economic Growth Plan, including evidence report on international gateways
- HE route strategies and strategic studies

We are also grateful to the Performance Analysis Unit at Highways England who provided unpublished information on traffic and delay around ports to inform the Port Connectivity Study.

Network Rail

Network Rail have published a range of information relating to rail freight including its importance, completed schemes and longer term planning. Documents used as background for these studies include:

- Rail freight - including links to reports summarising the importance of rail freight and recently completed schemes
- Long term planning - including links to the recently completed rail freight market study and freight network study

Additionally, this study draws on unpublished information on rail freight movements and rail schemes which we are grateful to Network Rail for providing; this information was largely used to assess the main rail corridors for freight moved to and from major ports, and to provide details of current rail interventions.

Cover page picture credits:
Top left - Gavin Dispain, DfT) (top right and bottom right - Ralph Spegel) sourced from the Department for Transport's Flickr Account / Picture (bottom left) provided by Drax Power Limited

Annex C: Port Connectivity Surveys

Survey questionnaires sent to ports, local authorities and Local Enterprise Partnerships. The response to these surveys provides the basis for the majority of information contained in this document.

Ports survey

1 Port contact details

2 Markets and sectors served

2a How do you categorise your port (rank the following sectors 1-5 in order of importance: Container/Lo-Lo/Ro-Ro, Liquid bulk, Dry bulk, General cargo, Other)

Within these categories, we'd like to know about your key freight markets or customers. What do you see as your main areas of business and the specialisations of your port? (up to 4 markets)

2b Thinking about your projections for potential future growth or decline in these sectors, please indicate where you envisage the greatest growth or decline is likely to be over the next 5-10 years, and whether these projections are linked to any planned developments.

2c Does your port provide a key node in a supply chain, for example port-centric warehousing, large industrial site or key manufacturing area that is: co-located or local; regionally important; or nationally important. Please provide details and indicate the key transport corridors or routes that are important to this supply chain.

2d Are you aware of any time or other dependencies which impact your port and movement? (e.g. production line/supply chain impacts, or possible market pressures on perishable items)

3 Port related employment

How many jobs are supported by the port - a) direct employees; b) wider port employees, if known e.g. port-centric warehousing or other tenants; c) If known,indirect jobs supported by the port.

4 Planning and developments

Please provide details of up to 3 planned developments (including a brief description, start and end dates, an outline of the additional capacity provided, estimated cost of enhancements and additional forecasts for port freight as a result of the development.

5 Road transport access

5a Please detail the core road access routes to your port and any current issues that impact on port traffic (on the strategic road network, and on local authority roads)

5b Of the above issues, please explain the priority issue. How would improvements to this issue benefit your business?

5c Please identify any particular bottlenecks, blackspots or regular points of disruption for road freight traffic on these routes.

5d What other national road routes/corridors (besides those given in 2c) are important to your business now, or in the future?

5e Do you currently use a vehicle booking system to manage traffic flows through your port?

5f If you have any further detailed breakdown to illustrate peak/off-peak periods or seasonal differences, this would be welcome

5g If you have an estimate of total changes in road freight traffic volumes linked to port operations by 2027, please provide details.

Road transport access (continued)

5h With respect to any development projects, what are the additional road traffic impacts of these developments?

5i Please indicate whether you engage with the following in relation to road access issues affecting the port: Local authority, Local Enterprise Partnership, Highways England

5j Please provide any further comments on road access to your port that you believe relevant

6 Rail transport access

6a Does you port currently have live active access (fully functioning, active access) to the national rail network? If yes, please describe the current rail freight facilities and capabilities.

6b How many rail freight paths are currently required (in and out) on a daily basis?

6c How many rail freight movements and of what type currently operate from your port on a daily basis?

6d Do you have an estimate of total changes to rail freight traffic volumes linked to port operations by 2027? Please give additional detail/context to your estimate if possible.

6e How many rail freight paths would that equate to (in and out) on a daily basis?

6f With respect to any development projects, what are the additional rail freight traffic impacts of these developments?

6g What are (i) the main routes/destinations currently served by rail freight from your port; (ii) the frequency of these main routes/destinations; and (iii) additional to 2c, what other national rail routes/corridors are important to your business now, or in the future?

6h Please describe any rail infrastructure issues that potentially constrain rail freight access to your port, or efficiency of freight movements on those routes/destinations identified.

6i Do you have regular contact with Network Rail regarding rail freight arrangements for your port?

6j Please indicate whether you engage with the following in relation to road access issues affecting the port: Local authority, Local Enterprise Partnership, Network Rail

6k Of the rail access issues identified, in your view please explain the priority issue

6l How would improvements to the above issue benefit your business?

6m Please provide any further comments on rail access to your port that you believe relevant

7 Freight by mode and modal shift

7a What is your best estimate of the current modal shares for freight from/to your port? (rank and % share - Road, Rail, Coastwise shipping, Inland waterways)

7b What are your estimates of modal shares for freight from/to your port in 5 and 10 years?

7c In terms of coastwise shipping and domestic feeder services, please provide details of regular established routes to/from your port?

7d In your view, what are the constraints or difficulties that may impact on: (i) increased use of coastwise and domestic feeder services for movement of freight by water, rather than by road or rail freight (ii) increased use of international short sea services, rather than road or rail freight routes.

Thank you and final comments

Thank you for your time and attention in providing us with valuable information regarding your port's operations and connectivity issues. If you have anything further which you would like us to know about, please provide details here. Thank you.

Local authority survey

1-5 **Contact details**

6 **Relationship with ports**. Please describe the relationship that you have with the ports in your area, with reference to the below criteria and providing more details as necessary:
a. Excellent relationship with regular contact between Local Authority and relevant ports leading to a detailed understanding of each other's priorities and plans, or even joint working;
b. Good relationship with annual contact between Local Authority and relevant ports leading to a broad understanding of each other's priorities and plans;
c. Neutral relationship with no regular contact but constructive when matters of shared interest arise or discussions are requested, with minor knowledge of each other's priorities and plans;
d. Relationship is limited with little to no contact except when issues arise, leading to little to no knowledge of each other's priorities and plans;
e. No relationship.
Please also provide information on what mechanisms you use to facilitate regular liaison with local ports, how the port can best engage with your local authority (what type of information/data is most useful).

7 Do you consider that the relevant local port is a:
a) Key local & regional economic asset that provides benefits to your local authority area;
b) National asset, where the majority of benefits are derived outside of your local authority area;
c) Both a national & local/regional asset where the benefits are shared?

8 Are you aware of the port's development plans for the next 5-10 years, and to what extent do the effectiveness of road and rail links in relation port & freight connectivity feature in your local economic plans?

9 **Roads**. Are there any local congestion hot-spots or bottlenecks that have an impact on freight traffic to a port in your area?
If yes, please provide details of the issue, of any short to medium-term plans (5-10 yrs) to address the identified road issues, and provide details of proposed projects (including costs and dates) and the potential project benefits.

10 Over the last three years, what improvements have you made to the local highway network, which has had a direct or indirect effect on the efficiency/quality of the road network serving the port industry in your area? Please provide details of the projects undertaken, costs, dates and benefits etc.

11 Where there is an interface between the Strategic Road network and a local authority road that provides the "last mile" access to a port, have you engaged with Highways England to discuss the two road networks in relation to overall freight access to the relevant port?

12 **Rail.** Have you identified any local port connectivity issues in relation to rail freight? If so, please provide details of the issues and any engagement with Network Rail etc to improve rail freight access to the port.

13 **Freight (general)**. Do you have a local freight and logistics plan? If so please provide details or a relevant web link to the plan.

14 Please provide any further comments on port and freight connectivity that you think relevant.

Local Enterprise Partnership survey

1-5 **Contact details**

6 **Relationship with ports**. Please describe the relationship that you have with the ports in your area, with reference to the below criteria and providing more details as necessary:
a) Excellent relationship with regular contact between LEP and relevant ports leading to a detailed understanding of each other's priorities and plans, or even joint working, that can inform preparations for funding rounds
b) Good relationship with annual contact between LEP and relevant ports leading to a broad understanding of each other's priorities and plans, that can inform preparations for funding rounds
c) Neutral relationship with no regular contact but constructive when matters of shared interest arise (such as a funding round) or discussions are requested, with minor knowledge of each other's priorities and plans
d) Relationship is limited with little to no contact except when issues arise, leading to little to no knowledge of each other's priorities and plans
e) No relationship.
Please also provide information on what mechanisms you use to facilitate regular liaison with local ports, how the port(s) can best engage with your LEP (what type of information/data is most useful) etc, and if your LEP has representation from the port industry, e.g. on the LEP board.

7 Do you consider that the relevant local port is a:
a) Key local & regional economic asset that provides benefits to your LEP area;
b) National asset, where the majority of benefits are derived outside of your LEP area;
c) Both a national & local/regional asset where the benefits are shared?

8 Are you aware of the port's development plans for the next 5-10 years, and to what extent do the effectiveness of road and rail links in relation port & freight connectivity feature in your strategic economic plans?

9 In terms of LEP funding bids to date, please provide details of successful, and unsuccessful bids, related to port connectivity/road/rail access, noting name and aim of project, funding/bid amount, and other project details

10 Do you have regular contact with the following bodies regarding improvements to your region's port and freight connectivity? a) Highways England; b) Network Rail; c) Local Authorities; d) Other (please state). Please provide any details on these relationships, relevant discussions, and whether there is scope to further strengthen the engagement on these issues.

11 Please provide any further comments on port and freight connectivity that you think relevant.

END