



**Freight Network Study  
Summary Document  
April 2017**



# 1. The Freight Network Study

*Rail freight is vital to the economy of Great Britain. It is an intrinsic part of our lives, improves productivity and reduces road congestion.*

*The Freight Network Study sets out the rail industry's priorities for enhancing the rail freight network to ensure it is fit for the future. The dominant issue is the need to create capacity on the network. This will enable it to serve the future needs of the rail freight market, ensuring the sector remains competitive and expands.*

The study identifies two priorities:

1. Increasing the future capacity of the network - to enable more trains to operate
2. Enhancing its capability - to make more efficient use of the rail freight network.

It also provides a range of options for investment on the key rail freight corridors in the short, medium and longer term, up to 2043.



## 2. Railfreight: the story so far

Rail freight is an economically attractive and environmentally efficient form of transport. The size of the rail freight market in Great Britain has increased significantly since privatisation in the mid-1990s and the sector is a significant and growing part of the national economy. Over the 20 years to 2014/15, rail freight volumes have increased by over 70%, to in excess of 22 billion net tonne kilometres. In 2015/16 volumes fell by about 20%, primarily due to a fall in coal traffic to power stations. Nonetheless, 2015/16 total volumes are still over 30% above 1995/96 levels<sup>1</sup> and strong growth is forecast over the next 30 years.

### *Recent structural changes in the rail freight market*

- New markets have developed with the growth in imports and exports of containerised goods through the major ports. By 2015/16, containerised intermodal freight has become the largest single commodity sector conveyed by rail.
- The traditional bulk markets for rail, such as coal for power stations, have declined. Coal volumes have fallen substantially in the last year (by 64% between 2014/15 and 2015/16).
- In addition to growth in intermodal markets there has been an increase in the volume of construction traffic by approx. 3.5% per annum in the last four years.
- The Freight Market Study, published in 2013, anticipates strong growth for rail freight to 2043, with average annual growth of approximately 3%. This reflects strong growth in the intermodal sector in particular.

As the rail freight sector has grown, the markets served have evolved. This has seen a geographical shift in freight flows, more freight services requiring to travel towards population centres. Passenger numbers on these corridors are also increasing. This has led to increasing capacity constraints on the rail network. Investment in infrastructure is necessary to accommodate the anticipated growth in rail freight on the network.



<sup>1</sup> Data taken from ORR and refer to financial years. Data exclude Network Rail engineering.

### 3. *The drivers of change: the benefits of rail freight*

The rail freight industry provides a fast, sustainable, safe and efficient means of transporting goods across the nation.

The benefits of rail freight to the national economy include<sup>1</sup>:

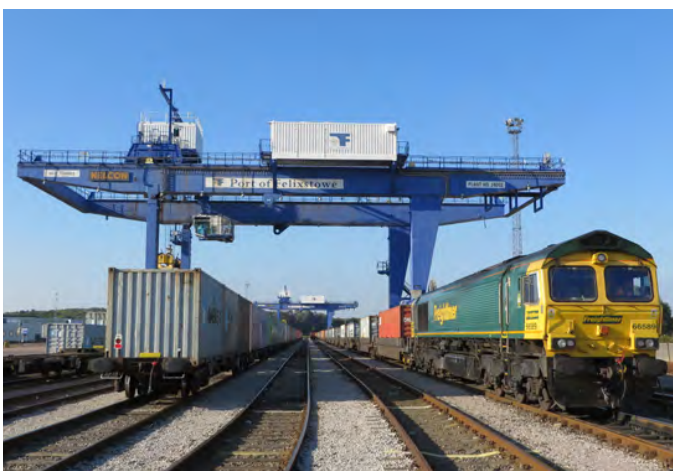
- **Productivity** - the rail freight sector delivered productivity benefits for businesses of £1.1 billion in 2013/14
- **Congestion, environmental and safety** - the rail freight sector delivered £0.5 billion worth of such benefits in 2013/14, rail freight produces 76% less carbon dioxide per tonne of cargo relative to road haulage<sup>2</sup> and each freight train removes up to 76 lorries from the roads
- **Efficiency** - on average, a gallon of fuel is able to move a tonne of goods 246 miles on the railway but only 88 miles by road<sup>3</sup>

#### Rail freight operators

Freight Operating Companies (FOCs) operate freight train services to customers in a competitive market environment. There are currently in excess of ten FOCs operating on the UK rail network.

In order for the rail freight industry to continue to prosper, it has the objective to develop strategic rail corridors that provide for:

- longer trains
- enhanced gauge clearance
- quicker end-to-end journey times
- increased axle weights
- seven-day access to the network
- sufficient capacity to accommodate growth.



<sup>1</sup> Source (unless otherwise stated): Rail Delivery Group (2015) Freight Britain.

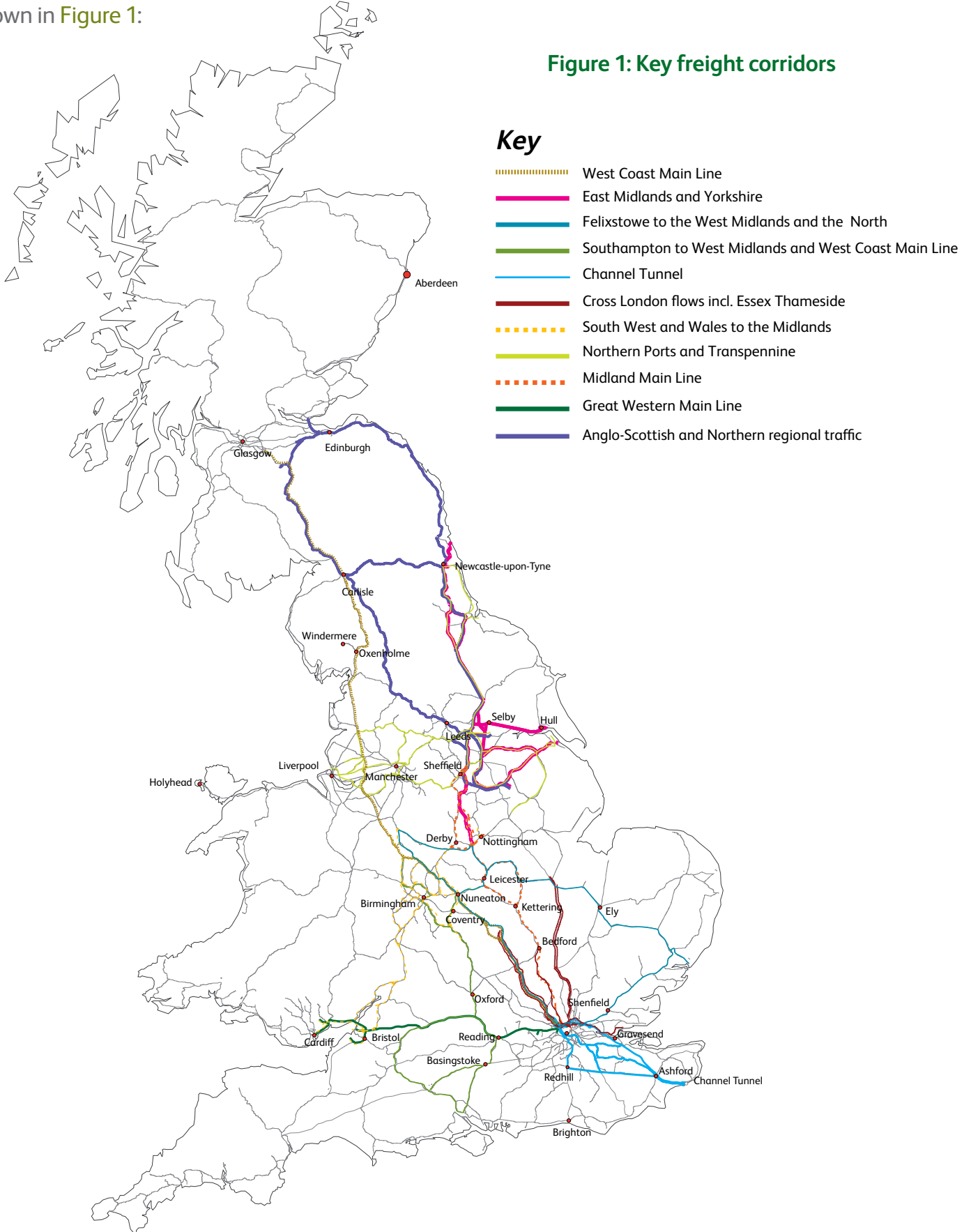
<sup>2</sup> Network Rail (2013) Value and importance of rail freight.

<sup>3</sup> Network Rail (2013) Value and importance of rail freight.

# 4. Key freight corridors

The nature of the freight market means that certain rail corridors are of vital importance for particular commodities, with flows of goods correlating to shipping movements, industry and wider market forces. In order to ensure that the Freight Network Study sets out an effective, long-term vision for the future of the rail freight sector, the study focuses on the movement of freight across eleven key corridors, as shown in Figure 1:

Figure 1: Key freight corridors



## 5. Strategy and Options for Funders

*The Freight Network Study recommends short-term options for the development of the core arterial freight network, building on the schemes delivered in previous Control Periods.*

The strategy focuses on developing capacity and capability, primarily for intermodal traffic from the major ports and the Channel Tunnel to key terminal locations. In particular, the industry recognises the importance of capacity from Felixstowe and Southampton ports as being a key driver for growth in the Midlands and the North of England.

The strategy creates a nationally cohesive freight network with complete 'line of route'<sup>1</sup> enhancements to enable the forecast growth in traffic to be realised. This is illustrated in [Figure 2](#) on page 9. The highest short term<sup>2</sup> priorities for investment are shown in [Tables 1, 2 and 3](#) on page 8 for each of capacity, gauge, and capability respectively.

The methodology employed and the rankings assigned in prioritising the short term options have been agreed by the Freight Network Study Working Group.

### Capacity

To enable the FOCs to accommodate growth in traffic on the network, a number of interventions will be required. These could include:

- split-level junctions (dive-unders and flyovers)
- additional tracks to enable trains to be held while faster trains pass
- track capacity (additional lines).

### Capability

To enable the FOCs to deliver a commercially viable service to their customers, they require consistent, high quality train paths, whereby the network has the capability to run trains of appropriate gauge, length and weight, and at an attractive journey time. The availability of such high-quality freight paths is critical to the attractiveness and success of the rail freight sector.

The key short term capability priorities are listed below:

#### Average speed

- Removal of long sections of low line speed to enable achievement of a greater average speed, reducing end-to-end journey times and increasing network capacity.
- Removal of restrictive line speeds in specific locations, e.g. temporary/permanent speed restrictions at entry/exit to loops.
- Enhancement of locomotive power to increase average speed and reduce impact of gradients on the speed of freight services.

#### Gauge

Development of a gauge-cleared core network and gauge-cleared diversionary routes to enable new intermodal freight flows.

#### Train length

Development of 775m capability across the core network.

<sup>1</sup> The study recognises the national nature of rail freight and adopts an end to end, programme approach to enhancements.

<sup>2</sup> Short term refers to enhancement options expected to be required in the next 10 years, longer term refers to the period to 2043.

### Other capability outputs

**Nodal yards** - freight hubs that act as freight traffic staging and regulation points. Further development of the nodal yard concept, following implementation at Ipswich, Wembley and Ripple Lane (in East London) to support higher freight and passenger flows across constrained sections of the network.

**Digital Railway** - a programme that will allow more efficient use of the network by implementing state-of-the-art signalling and traffic management technology. The freight industry will seek opportunities to integrate and maximise the benefits of the Digital Railway programme, both to enhance the network's capacity for rail freight and its capability, through improved average journey times and higher quality freight paths.

### Longer term options

In addition to these short term options, in the longer term, it is expected that significant investment will be required in order to accommodate overall rising demand and changes to each market sector. An example of a larger long-term project is the introduction of sections of four-tracking to the existing two-track railway between Carlisle and Carstairs.

The full Freight Network Study identifies the potential longer term options to enhance the network for rail freight and provides further details of the short term options identified in [Tables 1, 2 and 3](#).



**Table 1: Short term capacity options for funders**

Category	Priority and corridor	Scheme
Highest priority	1. Felixstowe to West Midlands & the North <sup>3</sup>	<ul style="list-style-type: none"> <li>Track infrastructure capacity enhancements in Haughley Junction area</li> <li>Signalling enhancements between Syston Junction and Peterborough, and in the Bury St Edmunds area. There may be an opportunity to deploy Digital Railway technology here</li> <li>Track doubling between Ely and Soham in Cambridgeshire</li> <li>Infrastructure works at Ely</li> <li>Leicester area capacity enhancement including split-level junction and additional track</li> </ul>
	2. Cross-London inc. Essex Thameside	<ul style="list-style-type: none"> <li>Cross London freight capacity</li> </ul>
	3. West Coast Main Line	<ul style="list-style-type: none"> <li>Track doubling at Stafford South Junction</li> <li>Preston station area capacity enhancement and remodelling</li> </ul>
	4. Southampton to West Midlands & West Coast Main Line	<ul style="list-style-type: none"> <li>Split-level junction at Didcot East Junction</li> <li>Capacity improvements in the Oxford area</li> </ul>

**Table 2: Short term gauge options for funders**

Category	Priority and corridor	Scheme
Highest priority	1. Channel Tunnel	<ul style="list-style-type: none"> <li>Gauge clearance between the Channel Tunnel and Wembley via Maidstone and/or Tonbridge</li> </ul>
	2. West Coast Main Line (WCML)	<ul style="list-style-type: none"> <li>WCML gauge clearance: Midlands Terminals to Wigan / Trafford Park</li> <li>WCML gauge clearance: Wembley to Midlands terminals</li> </ul>
	3. Northern Ports and Transpennine	<ul style="list-style-type: none"> <li>Transpennine gauge clearance</li> </ul>
	4. East Midlands & Yorkshire	<ul style="list-style-type: none"> <li>South Yorkshire Joint Line gauge clearance</li> </ul>

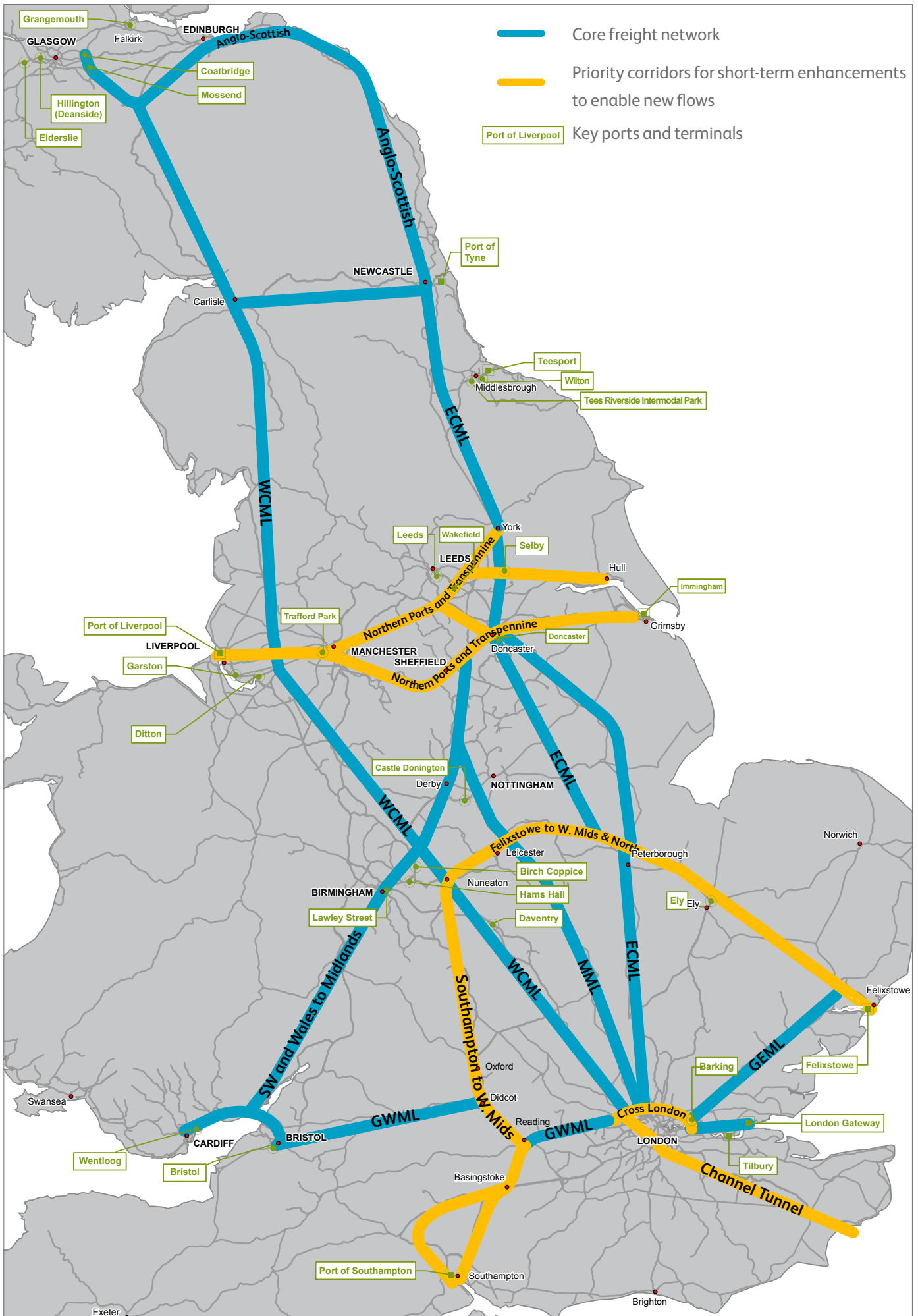
**Table 3: Short term capability (excluding gauge) options for funders**

Category	Priority and corridor	Scheme
Highest priority	1. Cross-London inc. Essex Thameside	Remove cross-London Heavy Axle Weights restrictions
	2. West Coast Main Line (WCML)	Enhance WMCL North loop entry and exit speeds
	3. Felixstowe to West Midlands & the North	Remove Anglia speed restrictions
	4. West Coast Main Line	Remove Northampton station speed restrictions
	5. West Coast Main Line	Remove speed restrictions on WCML between the West Midlands and the North West
	6. Cross-London inc. Essex Thameside	London Gateway 775m train length capability
	7. Cross-London inc. Essex Thameside	Remove cross-London speed restrictions
	8. Midland Main Line (MML)	Remove MML North speed restrictions (from less than 60mph)
	9. Midland Main Line	Remove MML South speed restrictions (from less than 60mph)
	10. West Coast Main Line	Enhance WMCL South loop entry and exit speed

<sup>3</sup> Ely to Soham doubling and Leicester area capacity schemes were announced by Government to be funded for delivery in CP5 (2014-19) but have been deferred and are established priorities for delivery in CP6 (2019-24). Doubling refers to the provision of a two track railway in place of a single line.



Figure 2: Core freight network corridors for priority short-term intervention



# Consultation

The Freight Network Study Draft for Consultation was published on the Network Rail website on 11 August 2016 for a 90-day consultation period, which ended on 9 November 2016. A strong response was received during the consultation period and we would like to thank everyone who provided responses. A summary of the responses received is provided in Chapter 10 of the full Freight Network Study. Both this document and the full study have been updated as appropriate to reflect the points raised.

The full Freight Network Study is available at:

[www.networkrail.co.uk/running-the-railway/long-term-planning/](http://www.networkrail.co.uk/running-the-railway/long-term-planning/)

