Rail Delivery Group

National Rail

BRITAIN RUNS ON RAIL

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Response to:

National Infrastructure Commission Freight Study: call for evidence

Date: 16th March 2018

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The Rail Delivery Group (RDG) brings together passenger train operators, freight train operators and Network Rail together with the rail supply industry. The rail industry is working in partnership for Britain's prosperity to improve and secure prosperity in Britain now and in the future.[1] The RDG provides services to enable its members to succeed in transforming and delivering a successful railway to the benefit of customers, taxpayers and the UK economy. In addition, the RDG provides support and gives a voice to passenger and freight operators, as well as delivering important national ticketing, information and reservation services for passengers and staff.

RDG is working in partnership with the Rail Supply Group (RSG) – which was established in 2014 to strengthen the capability and competitiveness of the UK rail supply chain – to better coordinate shared objectives and further strengthen the rail industry's voice.

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[1] *In Partnership for Britain's Prosperity*, RDG (October 2017): https://www.raildeliverygroup.com/files/Publications/2017-10_in_partnership_for_britains_prosperity.pdf.

1. Overview

The RDG welcomes the opportunity to respond to the National Infrastructure Commission's (NIC's) Freight Study call for evidence. We have responded selectively to those questions where we can provide evidence and therefore add the most value: these are questions 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 3.1, 3.2, 4.1, 4.3, 5.1 and 5.3. Here, we also set out some broader observations that we believe the NIC should reflect on:

A. Rail freight makes a significant contribution to the UK and has achieved a great deal since railway privatisation. RDG's Freight Britain (2015)[2] states that rail freight operators transport over £30bn worth of products including high-end goods, aggregates, construction materials and nuclear waste. One in four containers that enter the UK's south east deep-sea ports travels by rail;

B. Rail freight provides clearly evidenced consumer, environmental, social and safety benefits. Recent analysis shows that rail freight operators secured £1.73bn of economic benefits in 2016 comprising £1.17bn in productivity benefits and £0.56bn in externality benefits from reduced road congestion, improved air quality, lower carbon emissions and improved road safety. Rail freight is also helping to address some of Britain's biggest challenges: rail freight reduces carbon emissions by 76% compared to road for the equivalent mass hauled and each freight train removes up to 76 HGVs from Britain's roads;

C. The value and importance of rail freight is recognised by central government and devolved administrations who have published rail freight strategies to promote the benefits of rail freight and set out a vision for the future of the sector. The government has also committed to funding further infrastructure enhancements in the rail freight network over the next five years;

D. Rail freight volumes have declined in recent years driven largely by a fall in coal volumes and the sector has been through a period of transition to adjust to its new future. Despite fall in coal volumes, intermodal and construction volumes have been strong, underlining the potential of the sector in freight distribution;

E. Rail freight will have an important role to play in the delivery of nationally significant infrastructure including housing, HS2 and Crossrail and has strong credentials for doing so: one freight train carries enough material to build 30 houses[3] and 40% of construction materials in London are delivered by rail[4];

F. Rail freight is also a key part of Britain's partnership railway. A recent project looking at freight paths that were unused as the market changed away from coal saw freight operators relinquishing over 50% of freight paths. This has freed capacity for future freight growth and for some new passenger rail services. The freight sector also provides services which enable Network Rail to efficiently operate, maintain and renew the network.

For rail freight to continue to deliver these positive outcomes, the industry would like to see the following policy levers deployed to support the sector:

- Long-run efficient, stable and affordable access charges and incentives;
- A more level playing field between road and rail freight policy;
- Stable long-term industry planning framework to encourage further enhancements through the new pipeline process;
- Continued investment through the Strategic Freight Network; and
- Streamlined UK planning processes to establish freight terminal locations and railheads in urban areas.

We have appended a resources list to our submission to provide the NIC with some information sources on rail freight. We hope this will support the NIC in identifying any supplementary information required to develop evidence-based policy recommendations in its final report.

[2] *Freight Britain: Continuity and Certainty for Rail Freight*, RDG (2015): https://www.raildeliverygroup.com/files/Publications/2015-02_freight_britain.pdf.
[3] Mineral Products Association.
[4] Network Rail.

2. Response to Questions

Q1. What are the key constraints to the effective and efficient movement of freight in the UK and what can be done to overcome them?

1.1. What do you see as the key drivers to a successful freight system that is fit for the future?

We have identified the following as the key drivers to a successful freight system that is fit for the future:

Customer Demand

Network Rail's Freight Market Study (2013)[5] shows demand forecasts over a 10, 20 and 30-year planning horizon, with preferred routeing of services and the implied requirements in terms of network capacity and capability. The forecasts indicate 2.9% overall rail freight growth per annum to 2043. Network Rail is currently consulting on forecasts produced for the industry's next control period (2019-24). The forecasts underline the fact that rail has the potential to continue contributing significantly to freight distribution in future, provided the right conditions are in place.

Continued Government commitment to rail freight

A successful rail freight industry relies on continued commitment from central government and other funding bodies to maintain a railway framework that supports freight growth. The importance of rail freight in delivering environmental and economic benefits to Great Britain has been recognised by successive administrations. The Department for Transport (DfT) published its Rail Freight Strategy[6] in 2016, which set out a clear vision for the role of rail freight in limiting road congestion and reducing transport carbon emissions. The strategy moreover highlights the economic and social benefits of rail freight to the UK economy. The value and importance of rail freight is also recognised by devolved administrations, as underlined by the Scottish Government's Scotland Rail Freight Strategy[7] and Transport for the North's Strategic Transport Plan.[8]

Ensuring rail freight is underpinned in government policy will provide certainty to rail Freight Operating Companies (FOCs) to continue delivering for Britain.

Infrastructure Investment to improve capability and capacity

Investment in infrastructure will continue to unlock capability and capacity in the rail freight network while enabling the sector to leverage private sector financing, creating a virtuous cycle of investment. £700m has been invested by government directly into the rail freight network over the last two control periods, removing some of the previous restrictions on both gauge and length on core routes. This has been complemented by investment from ports, terminals and other rail freight users. Investments through the Strategic Freight Network (fund) have delivered excellent value for money with a typical benefit-cost ratio of between 4:1 and 8:1.[9] DfT's recently published rail vision, *Connecting people: a strategic vision for rail*[10], describes subsequent developments, and includes a clear commitment of ongoing funding for freight improvements in the industry's next five-year funding period – generally referred to as Control Period 6 – which runs from 2019 to 2024.

1.2. Which are the key freight corridors that matter the most? Where are the bottlenecks in the freight network, and what investments in upgrades could deliver the best value for money for freight efficiency and UK plc?

[5] *Freight Market Study*, Network Rail (2013): https://www.networkrail.co.uk/wp-content/uploads/2016/11/Freight-Market-Study.pdf.
[6] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/552492/rail-freight-strategy.pdf.
[7] https://www.transport.gov.scot/media/5362/ts-rail-freight-strategy-a4-aw3.pdf.
[8] https://transportforthenorth.com/wp-content/uploads/TfN-Strategic-Plan_draft_lr.pdf.
[9] *Freight and National Passenger Operator Route Strategic Plan*, Network Rail (February 2018): https://cdn.networkrail.co.uk/wp-content/uploads/2018/02/FNPO-Route-Strategic-Plan.pdf
[10] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/663124/rail-vision-web.pdf.

Strategic Rail Freight Corridors

The Strategic Rail Freight Network (SFN) was enshrined by DfT in 2009[11] and promotes the progressive realisation of a core network of freight-capable rail corridors linking the nation's key deep sea, short sea and bulk ports with the terminals and railheads serving centres of production, distribution and consumption. These Strategic Freight Corridors (SFCs) are set out in Network Rail's Freight Network Study (2017).[12] The table below describes these in turn (see appendix 2 for corridors on a map):

Table 1: Key freight corridors and location of infrastructure constraints

No.	Corridor	Locations of key capacity constraints
1	West Coast Main Line	• North of Preston to Scotland • Between Crewe and Warrington
2	East Midlands and Yorkshire	• South Yorkshire Joint Line
3	Felixstowe[6] to the West Midlands and the North via London or Ely	• 'Cross Country' via Ely and Leicester
4	Southampton to the West Midlands and the West Coast Main Line	• Didcot and Oxford areas • Basingstoke area
5	Channel Tunnel	• Channel Tunnel classic routes (i.e. the non-HS1 routes)
6	Cross London flows including Essex Thameside	• Looping availability on the North London and Gospel Oak to Barking Lines
7	South West and Wales to the Midlands	• Water Orton Area and Cross Birmingham
8	Northern Ports and Transpennine	• Transpennine flows via Diggle, Calder Valley and Hope Valley routes • Access to Ports, including Liverpool and Teesport
9	Midland Main Line	• Bedford, Leicester area and Sheffield
10	Great Western Main Line	• Didcot area
11	Anglo-Scottish and Northern regional traffic	• East Coast Main Line (north of Newcastle upon Tyne) • West Coast Main Line North of Crewe

Source: *Freight Network Study 2017*, Network Rail

Bottlenecks and Investment in Upgrades

The industry has identified five of the 11 freight corridors referenced in the Freight Network Study that warrant the most urgent intervention which, if addressed, could alleviate currently constrained traffic growth and deliver value for money for freight efficiency and UK plc. The table on page 6 highlights some key interventions that are investment options for each of these five high priority corridors:

[11] *Strategic Rail Freight Network: The Longer Term Vision*, DfT (2009): http://webarchive.nationalarchives.gov.uk/20110218174805/http://www.dft.gov.uk/pgr/rail/strategyfinance/strategy/freightnetwork/strategicfreightnetwork.pdf.

[12] *Freight Network Study*, Network Rail (April 2017): https://cdn.networkrail.co.uk/wp-content/uploads/2017/04/Freight-Network-Study-April-2017.pdf.

Key Freight Corridor	CP6 Candidate Freight Schemes	Estimated cost range
Felixstowe to West Midlands & the North	– Doubling of Haugley Jn	£10m – £15m
	– Signalling Headways Bury	£50m – £70m
	– Ely area (level crossings / bridge speeds)	£100m – £250m
	– Ely to Soham doubling	£120m – £150m
	– Peterborough - Syston signalling/level crossings	£50m - £60m
	– Syston – Sheet Stores gauge (W10/W12)	£5m - £10m
	– Further refine layout at Ipswich Yard	£1m - £5m
Southampton to West Midlands & WCML	– Kenilworth doubling	£100m - £170m
Channel Tunnel classic route	– Gauge enhancement (up to W12)	£50m - £80m
Cross-London, and Essex Thameside	– Ripple Lane Nodal Yard	£10m - £15m
	– Thameside Level Crossings (capacity)	£30m – £40m
Northern Ports & Trans Pennine	– Trans Pennine gauge enhancement (up to W12)	£100 - £200m
	– New loop between Up Decoy and South Yorkshire Joint Line	£5m-£10m
	– Trans Pennine freight capacity	tbc
	Total	*c.£0.6bn - £1bn*

Source: *FNPO Route Strategic Plan,* Network Rail

Network Rail's Freight and National Passenger Operator Route Strategic Plan (2018)[13] also identifies examples of longer term (CP6 and beyond) schemes that have the potential to positively impact freight capacity and capability if they are scoped and developed appropriately. These include:

- Grade separation of Werrington Junction, near Peterborough
- East-West Rail scheme linking Oxford with the West Coast and Midland Main lines
- HS2

The DfT's and Scottish Government's Statements of Funds Available (SoFA) make commitments to funding further investment to enhance the rail freight network in the industry's next Control Period, CP6 (2019-24).

1.3. To what extent are the economic benefits of freight factored into wider transport infrastructure investment planning?

To date, government benefit assessments of rail freight have largely focussed on its environmental benefits. Two grant schemes currently operate to promote the environmental and social benefits of moving goods by rail instead of road. These are:

- **Mode Shift Revenue Support (MSRS) scheme**: administered by the DfT, the MSRS assists companies with the operating costs associated with running rail and inland waterway freight transport instead of road (where rail/ inland waterways are more expensive than road but offer significant environmental benefits). DfT estimated that this scheme could remove up to 23,562 lorry journeys from roads in Great Britain between October 2016 and March 2017 and achieve an environmental cost-benefit ratio in excess of 4.06:1.[14]
- **Freight Funding Grant (FFG):** the Scottish and Welsh Governments also offer FFGs, which help offset the capital cost of providing rail and inland water freight handling facilities.[15]

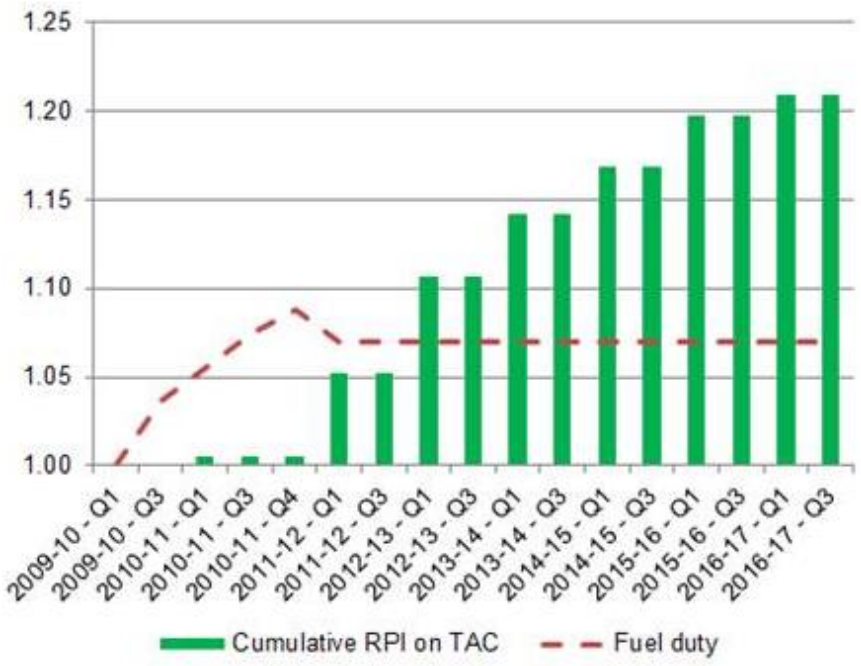
[13] *FNPO Route Strategic Plan*, Network Rail (February 2018).
[14] Grant funding to support the transportation of freight by rail and water, October 2016, DfT.
[15] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/643021/MSRS_Guide_2015_16.pdf.

At present, government benefit assessments of freight do not take account of the productivity benefits offered by rail freight – the industry would like to see government factor in the productivity benefits of rail freight in future. Recent research by KPMG on behalf of the industry highlights that rail freight made a £1.73bn economic contribution to the UK in 2016, with £1.17bn of productivity gains generated and an additional £0.56bn in benefits from reduced road congestion, air quality, carbon emissions and improved safety.[16]

1.4. What are the regulatory and legal issues that, if changed, could improve freight efficiency without increasing costs or reducing efficiency?

The industry would encourage the development of a strong evidence base to inform policy development on the fairness of competition between rail and road freight transport. An example of existing analysis comes from Campaign for Better Transport (CBT), which finds that hauliers only internalise 30% of the societal costs, while effectively receiving a £6.5bn annual subsidy in costs in terms of congestion, road safety and air pollution. Furthermore, hauliers have benefitted from a freeze in fuel duty since 2011.[17]

The CBT analysis also shows that regulated Track Access Charges (TACs) paid by rail freight operators have increased since 2011, when fuel duty was frozen (see the chart below). CBT estimate that, by the end of the industry's current control period (CP5), these TACs will have increased by 15% overall.



Source: Office for National Statistics, Network Rail, Campaign for Better Transport

We welcome the measures the Government is taking already, including the Transport Secretary's guidance to the ORR in which he states that he wishes the *"ORR to have regard to the affordability of freight charges and to ensure that the rail freight industry has sufficient clarity and certainty about the costs that they will face in CP6 as soon as possible."*[18] The ORR is currently undertaking a review to assess what level of charges the rail freight industry is able to bear.

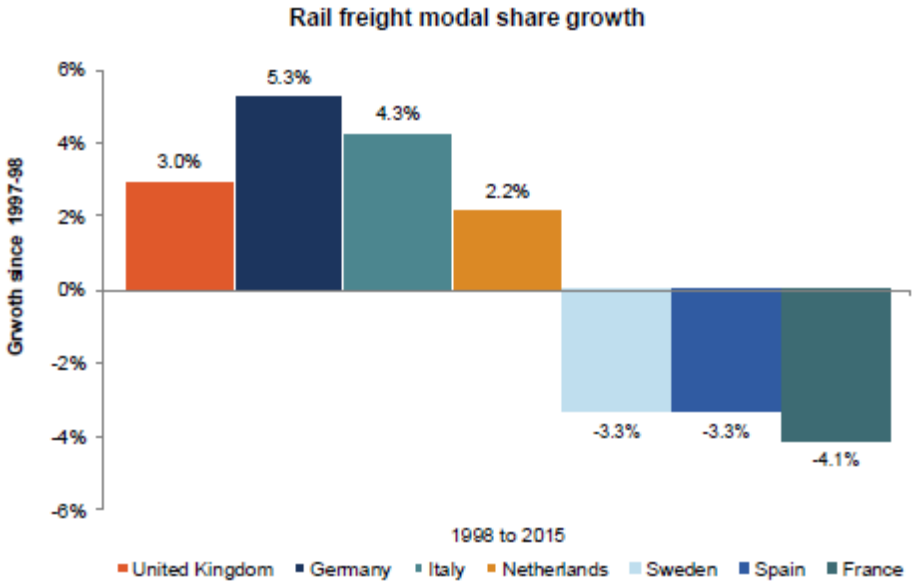
We would encourage the Government to consider what further steps can be taken to provide a level playing field between rail freight and HGVs. This could include broadening the scope of the benefits assessments of rail and road modes undertaken within government to consider the economic, productivity, societal and environmental impacts/benefits of both.

[16] KPMG Analysis, January 2018.
[17] http://freightonrail.org.uk/ConsultationsHMTreasuryCallforEvidenceRedDiesel.htm.
[18] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/629698/guidance-to-the-office-of-rail-and-road.pdf.

Q2. How might the demand for freight develop and change over the next 20-30 years?

2.1. How has the demand for freight, and types of freight, changed over the last two decades, and what will be the drivers for changes in the future?

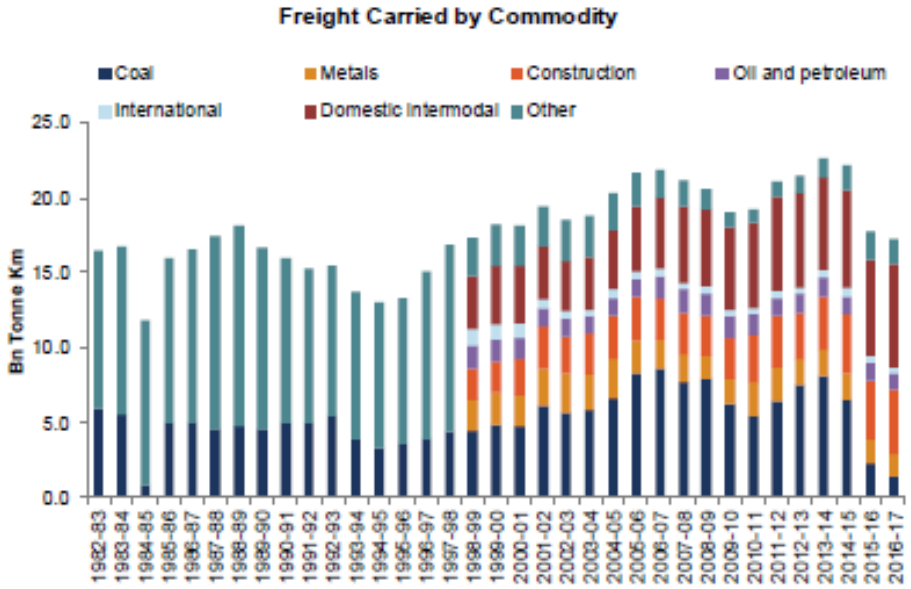
For most of the post-privatisation period, freight has been one of rail's biggest success stories. From a 59% decline between 1953 and 1996-97, rail freight volumes rose 80% between 1996-97 and 2013-14, with growth in 13 of the last 19 years.[19] Rail freight now accounts for 9% of goods moved.[20] As the chart below (*rail freight modal share growth*) illustrates, relative to a number of other European countries, the UK has experienced one of the highest levels of rail freight mode share growth since 1997-98: at 3% it is behind only Italy and Germany.



Source: Eurostat Database, RDG

The chart below (*freight carried by commodity*) provides an overview of rail freight commodity trends. The chart highlights that coal volumes have declined since privatisation. In 2015-16, this decline has been a lot sharper than in previous years – driven to a large extent by government decarbonisation and energy efficiency targets. This decline in coal has resulted in an overall decline in rail freight volumes in each of those years. Other traffic has grown significantly: intermodal volumes have increased 93% since 1998-99 and construction material traffic has also grown as businesses have increased their presence on rail, and larger quarries have replaced smaller sites that were not previously linked to rail.[21]

[19] *Partnership Railway in numbers, RDG* (October 2017), *Freight Britain*, RDG (2015).
[20] 'Domestic Freight' TSGB0401, *Transport Statistics for Great Britain*, DfT, 2017: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/661933/tsgb-2017-report-summaries.pdf.
[21] *Partnership Railway in numbers, RDG* (October 2017), Freight Rail Usage, ORR, 2018.



Source: ORR Data Portal, RDG

Drivers of Change

In future, freight demand is likely to be driven by a number of factors including: de-carbonisation and the increased focus on air quality; industrial developments and strategy; and the economic impact of Brexit.

- ***De-carbonisation and air quality*** – The UK government's commitment to reduce carbon emissions by 80% by 2050 (in line with EU and UN targets), will drive further reductions in the use of coal in industrial processes and therefore reduce rail freight coal volumes further. The drive to reduce local air pollution could also impact on freight distribution, with polluting modes of transport potentially facing penalties based on the level of their emissions.

- ***Industrial strategy*** – freight demand will also be influenced by the Government's housing strategy and the development of major infrastructure such as HS2, Crossrail 2 and the third runway at Heathrow Airport. This will require increases in construction materials and bulk materials such as steel.

- ***Brexit*** – as the UK prepares to leave the EU, increased focus will be given to ports to ensure the UK sustains its competitiveness globally. Subject to the future trade deals agreed between the UK and its international trading partners, rail freight could become a key enabler in facilitating export growth and in reducing the congestion that may arise from enhanced border checks.

2.2. How is the freight industry planning for future changes in the demand? What levers might be available to shape future demand for freight transport?

Together, the rail industry plans for future freight demand through the Network Rail Long-Term Planning Process (LTPP) which looks at the long-term capability of the network up to 30 years into the future to ensure efficient use of network capability and capacity, within a mixed freight and passenger rail environment. Outputs of this process include the Freight Market Study and Freight Network Study which: forecast long-term growth for the sector; and set out the infrastructure requirements needed to deliver this growth respectively. The Freight Market Study (2013) predicted 2.9% overall rail freight growth per annum up to 2043.[22] Network Rail is also consulting with freight operators on forecasts for the industry's next control period, 2019 to 2024. This process enables individual freight operators to make more effective commercial decisions and plan their businesses with greater predictability and efficiency.

In addition to the LTPP, freight operators are also taking action to prepare their businesses for future changes in demand. Examples include:

[22] *Freight Market Study*, Network Rail (April 2017).

- Responding to declining coal volumes and decarbonisation efforts by purchasing new equipment to venture into new renewable markets such as biomass, while consolidating in intermodal markets and growing construction traffic;
- Increasing operational efficiency by running fewer, longer trains. As such, operators have been able to relinquish 50% of their freight paths, freeing up capacity for future freight growth as well as some new passenger services to support likely increases in passenger demand;
- Investing in innovative technologies, such as stop-start, which help to improve air quality through reducing carbon emissions from freight locomotives; and
- Trialling new technologies through the Digital Railway Programme to improve operational efficiency.

Policy Levers to support rail freight

The industry has identified a number of policy levers that will enable rail freight to continue to meet demand and play a crucial role in delivering government objectives:

- Long-run efficient, stable and affordable access charges and incentives to enable long-term investment and growth;
- A more level playing field between road and rail in policy and investment decisions. The impact of the fuel duty freeze on modal shift could be modelled. We propose an enhancement and broadening of scope for Mode Shift Revenue Support (MSRS). This could see the rail share of the deep-sea container market rise;
- A stable long-term rail industry planning framework and continued investment through the Strategic Freight Network (in capacity and capability improvements);
- Streamlined planning policy and processes to enable freight terminal locations and railheads to be established in urban areas. Strategic retention of land is essential for operational use and growth. The use of rail freight needs to be specified on planning consents, refuse management, HS2 delivery etc;
- Sufficient certainty of funding for Digital Railway and the rail freight cab fitment of traffic control systems to improve capability.

Q3. What effects does congestion have on the efficiency of freight movement and emissions?

3.1. How does congestion impact upon the productivity and economic contribution of freight? To what extent does congestion affect changes to mode, time or other freight choices?

KPMG analysis shows that supporting rail freight growth could help to reduce rising levels of congestion on the UK's road network, with rail freight generating £556m in externality benefits for the UK economy in 2016. The case for modal shift to rail is already strong. Each freight train removes up to 76 heavy goods vehicles from Britain's roads. Rail freight operators transport goods that would otherwise require 7.79 million HGV journeys each year. This results in 1.66 billion fewer HGV kilometres every year, freeing up capacity on Britain's roads.[23]

Rail freight could play a greater role in tackling congestion on key road corridors. Research by Campaign for Better Transport and the DfT[24], identifies opportunities for targeted upgrades of existing rail lines to enable large numbers of lorry loads to be transferred to rail. The resulting modal shift would significantly contribute to lower congestion on these key road corridors.

The study highlights the need to holistically consider cross-modal interventions on a corridor-by-corridor basis when evaluating options to reduce congestion.

3.2. How does congestion affect the environmental impacts of the movement of freight?

In supplement to their initial report, further research by MTRU on behalf of Campaign for Better Transport looked at the impact of congestion upon emissions factors along key rail freight corridors.[25] Examining the A14 between

[23] *Freight Britain*, RDG (2015), *Impact on road haulage*, ORR, 2016.
[24] *Impact on congestion of transfer of freight from road to rail on key strategic corridors*, MTRU (March 2017).
[25] *Supplementary report on environmental and safety impacts of the transfer of freight from road to rail on key strategic corridors*, MTRU (December 2017).

Felixstowe and the Midlands, the A34 from Southampton to the Midlands and the M6 and M62 motorways (which collectively carry around 38,000 HGVs per day), the study finds that encouraging modal shift to rail could reduce the number of HGVs on the road by 2,000 a day, resulting in lower levels of harmful NOx, particulates and carbon emissions. The potential emissions savings are described in the table below:

Emission Type	Source	Reduction (%)
NOx	All road traffic in the corridors studied	10%
Particulates	All road traffic in the corridors studied	7%
Carbon	All HGVs over 3.5t gvw nationally	2.5%

Source: Campaign for Transport, MTRU

The study underlines the potential environmental benefits that could be garnered with appropriate levels of investment in key rail lines and infrastructure.

Q4. How can freight lower its carbon and air quality impacts?

4.1. Are there efficiencies within freight management and distribution practices that could help reduce the CO_2 and NO_x emissions from freight?

Rail freight is already recognised as a relatively 'green' mode of transport, reducing carbon emissions by 76% compared to road.[26] A tonne of goods can travel 246 miles by rail as opposed to 88 miles by road on a gallon of fuel. Rail fundamentally uses less fuel than road and therefore emissions per tonne of freight moved are also lower.[27] Freight operators have made progress in streamlining operations to reduce air pollution including investing in new rolling stock, with class 68s and 70s replacing older locomotives as well as by running fewer, longer trains.

There are other opportunities to reduce pollution impacts by distributing goods by rail. For example, some local authorities will be focused on reducing the number of HGVs on sensitive sections of their road network. This could open the way to considering alternative freight movement strategies in both local government as well as the private sector. Combining rail freight with low emission first/last mile delivery options raises new opportunities including: rail-based transport to edge-of-town trans-shipment centres; and new freight rail services running into cities.[28]

Additionally, the Rail Technical Strategy Capability Delivery Plan highlights the opportunity for the introduction of freight to passenger trains or so-called "flexible freight". This would see, *"freight solutions working in tandem with passenger services opening up new freight markets for the railway, providing a reliable, high speed and energy efficient alternative to road freight"*.[29] This could contribute towards fuel usage and emissions reductions.

4.3. What technologies could best and most realistically be utilised to manage the carbon impacts of freight, both within urban areas and on longer strategic journeys?

Electrification of the UK railway network remains a long-term solution to managing the carbon and air quality impacts of rail freight. However, there are other opportunities for more immediate deployments of technology which are already, and could further, reduce rail freight emissions.

For example, Direct Rail Services (DRS) have invested in a fleet of 10 class 88 dual electric and diesel locomotives which can go anywhere on the network; and retrofitting of start-stop technology has been adopted on class 66 locomotives to reduce fuel usage.

As set out in response to question 5.1, the Digital Railway Programme is accelerating digital enablement of the rail freight industry, creating operational efficiencies which could support reductions in rail freight emissions. The

[26] *Freight Britain*, RDG (2015).
[27] https://www.raildeliverygroup.com/files/Publications/consultations/2017-11_rdg_response_hoc_air_quality_inquiry.pdf.
[28] http://www.rfg.org.uk/wp-content/uploads/2017/12/Air-quality-freight-FINAL-2.pdf.
[29] *Rail Technical Strategy: Capability Delivery Plan*, RSSB (2016): https://www.rssb.co.uk/rts/Documents/2017-01-27-rail-technical-strategy-capability-delivery-plan-brochure.pdf.

priority scheme for rail freight is the European Train Control System (ETCS) cab fitment. However, other Digital Railway technologies, such as the 'Connected' Driver Advisory Systems (C-DAS), have the potential to enable reductions in fuel and energy consumption, thereby reducing emissions.

Q5. How could new technologies be utilised to increase the efficiency and productivity of UK freight?

5.1. How will new technologies change the capacity and performance of the freight transport network? Over what timeframes might these new technologies begin to affect the freight transport network?

Digital Railway Programme

In the case of rail, there is an urgent need to deliver greater capacity on the existing rail network and to move towards a more resilient railway that recovers from disruption more quickly than currently. The Digital Railway Programme is a rail industry-wide initiative designed to benefit the economy by accelerating the digital enablement of the railway. The rail freight industry has identified two key elements that need to be considered and specified within the Digital Railway development process:

- Due to the nomadic nature of fleet flows, freight locomotives will have to be prioritised for initial European Train Control System (ETCS) fitment in order for line side signals to be removed;
- To realise the maximum benefits of the Digital Railway, the ETCS technical and operating parameters must be optimised to reflect the latest freight braking performance data to ensure that freight performance and capacity are not restricted;

Key benefits for the freight industry that Digitalisation could provide, centre on the following areas:

- Additional capacity through enhanced signalling system capability delivering consistently higher train velocity and headway reduction;
- Improved quality of freight paths with enhanced traffic management capability, adapting real-time changes for cross-route flows across regional control centres. In itself, this has the potential to improve the quality of paths, the interaction between freight and passenger services and overall network management;
- Digitalisation could also improve freight pathing by optimising live network timetable data. There is an opportunity to create a wider traffic management network, connecting the cross-London freight flows to the key radial intermodal corridors from the ports of Felixstowe, Southampton and London Gateway across London to the Midlands, North and Wales;
- Train control and operation could be optimised if systems were capable of dynamic modelling of freight rolling stock capability.

In December 2017, Network Rail awarded Siemens Rail Automation a contract to design, test and obtain approval for installing Trainguard 200 onboard ETCS equipment on freight traction. The design, testing and approvals stage for each class of vehicle starts now, with heaviest used freight locomotives a priority, and work to retrofit the entire freight fleet will begin in 2022 and continue through to Control Period 7 (CP7, 2024-2029).[30]

Other Freight Technologies

Additionally, the freight industry has been collaborating to leverage small-scale technological improvements and has delivered benefits through Control Period 5 to date. Potential future schemes could include:

- Forward Facing CCTV (FFCCTV) – It is proposed that Network Rail could support the purchase and fitment of FFCCTV equipment and associated interfaces. Freight Operating Companies (FOCs) would then provide Network Rail with access to that data for use in investigating Signals Passed at Danger (SPaDs), maintenance and vegetation management etc;
- Application Programming Interface and Open Data - Network Rail could provide FOCs with open access to systems and data owned by Network Rail. This would improves transparency and allow single sourcing of reliable information. It is expected to help improve FOC efficiency;

[30] https://www.networkrail.co.uk/feeds/freight-trains-in-britain-to-be-upgraded-with-delay-busting-digital-technology-in-multi-million-pound-deal/.

- Improved planning tools - FOCs have highlighted issues with the current planning and path bidding process and want a new, easy to use visual tool to simplify processes and improve bid success rate. Network Rail System Operator (SO) has a project currently being trialled called "Whole System Modelling";
- Total Operations Processing System (TOPS) Replacement – The TOPS system has been the backbone for recording the operational lifecycle of freight wagons for the past four decades within the rail freight industry. However, it is now a very old system, and is poorly placed to meet the needs of the modern freight industry. A programme is being developed to manage the replacement of TOPS in a safe and controlled manner.

Given that funding for these schemes has not been finalised, it is not possible to provide detail on timescales at this stage.

5.3. How do you see technologies such as HGV platooning, digital railway signalling, and autonomous vehicles being integrated into freight distribution?

Please refer to our response to question 5.1 on how the Digital Railway programme is being integrated into freight distribution.

HGV Platooning and Autonomous Vehicles

As set out in previous evidence to the NIC[31], we do not believe that HGV platooning can yet be confidently proposed as the solution to alleviating congestion, poor air quality and other challenges on our transport networks. The technology is essentially untested, and other transport bodies (for example, the Road Haulage Association, AA and RAC) have expressed concern regarding the impact it will have on other motorists in terms of safety and congestion. The concept of platooning, namely enabling vehicles to run closely together in order to improve fuel efficiency and make better use of road space, is effectively what trains, both passenger and freight, already deliver: one freight train can remove up to 76 lorries from our roads.[32] In addition, the congestion benefits of rail freight are not just associated with motorways, where lorry platooning is being considered, but on "A" roads as well. Given that more than two thirds of rail freight traffic is non-containerised, we would argue that it would be neither practical or desirable to see this traffic moved by road.

Moreover, modal shift to rail is underpinned in government policy – as evidenced by the confirmed Rail Freight Strategies of DfT and Transport Scotland and Transport for the North's Strategic Transport Plan – and is supported by the public. Recent polling by Campaign for Better Transport shows that almost two thirds of the public want to see more freight moved by rail, with only 2% wanting to see more freight moved by road.[33] Further, the widespread adoption of autonomous and/or electric vehicles on the road network, will rely on a significant cultural change – for example, around driver behaviour: we are not aware of evidence to demonstrate the likelihood of achieving this shift in the foreseeable future.

[31] https://www.raildeliverygroup.com/files/Publications/consultations/2018-01_rdg_response_nic_consultation_national_infrastructure_assessment.pdf
[32] *Freight Britain*, RDG (2015).
[33] http://www.freightonrail.org.uk/PressRelease30-06-2017-opinion-poll.htm.

ANNEX I – SUPPLEMENTARY RESOURCES LIST

Department for Transport

- *Connecting people: a strategic vision for rail* (November 2017)
- *Freight Carbon Review: Moving Britain Ahead* (February 2017)
- *Rail Freight Strategy: Moving Britain Ahead* (September 2016)

Rail Delivery Group

Consultation Responses

- NIC call for evidence on a National Infrastructure Assessment (January 2018)
- House of Commons inquiry on Improving air quality (November 2017)

Reports

- *In Partnership for Britain's Prosperity* (October 2017)
- *Freight Britain: Continuity and certainty for rail freight* (2015)
- *Keeping the lights on and the traffic moving: Sustaining the benefits of rail freight for the UK economy* (2014)

Data

- *Partnership Railway's Transformation in numbers: Dataset on rail industry finances, performance and investment since 1997-98* (December 2017)
- *Investment in rail: the economic benefits*, Oxera (October 2017)

Transport Scotland

- *Delivering Your Goods: Benefits of using Rail Freight* (2017)
- *Delivering the goods: Scotland's rail freight strategy* (2016)

Network Rail

Business Plans

- *Freight and National Passenger Operator Route Strategic Plan* (February 2018)
- Digital Railway Programme Strategic Plan (January 2018)
- Geographical Route Strategic Plans: https://www.networkrail.co.uk/who-we-are/publications-resources/strategicbusinessplan/
- *Railway Upgrade Plan 2017/18* (2017)

Reports

- *Freight Network Study* (April 2017)
- *Freight Market Study* (October 2013)
- *Value and Importance of Rail Freight* (July 2010)

Other

- Strategic Freight Network: https://www.networkrail.co.uk/industry-commercial-partners/rail-freight/

Freight on Rail

- *Impact on congestion of transfer of freight from road to rail on key strategic corridors*, MTRU (March 2017)
- *Supplementary report on environmental and safety impacts of the transfer of freight from road to rail on key strategic corridors*, MTRU (December 2017)
- Useful Facts and Figures: http://freightonrail.org.uk/FactsFigures.htm
- *Heavy Lorries: do they pay for the damage they cause?*, MTRU (2008)

ORR

- Rail Freight Usage, ORR Data Portal: https://dataportal.orr.gov.uk/browsereports/13

ANNEX II – MAP OF STRATEGIC FREIGHT CORRIDORS