Value and importance of rail freight
Since the previous edition (2010) rail freight has:
• continued to grow
• developed further into the intermodal and retail markets
• started serving a new market for biomass to power stations
• improved its competitiveness through enhanced productivity and higher performance standards which beat road in key markets.

Credit is due to the train operators, freight customers, terminal developers and logistics companies who have collaborated to achieve this success.

Network Rail plays its part by enhancing the rail infrastructure via the “Strategic Freight Network” programme. The Strategic Freight Network consists of a series of linked schemes which improve the performance, economic efficiency and capacity of freight on road. Governments have provided public funding for these projects and demonstrated their commitment to modal shift.

We are pleased that the Strategic Freight Network will benefit from further investment in our next funding period, 2014 – 19. We are also looking further ahead to develop longer term strategic plans for freight and maintain the momentum of the programme. However, we also recognise that Network Rail must continue to deliver a successful day to day operation to keep freight trains running on time and add to the productivity and value of the mode.

Rail’s environmental benefits have long been acknowledged but it is important to recognise its contribution to the economy. Rail freight helps economic growth through de-congesting the highway network and providing a productive and high performing competitive option for logistic operations in Britain.

This booklet goes into more detail about the success and benefits of rail freight – I hope you will find the story interesting and helpful. My team and I are committed to advising you further about logistics on rail and securing modal shift.
The economy relies on rail freight

Rail freight plays a vital role in Britain’s economy. Every year it directly contributes £870 million to the economy but it supports an output of £5.9 billion, over six times its direct turnover. Rail freight transports goods worth around £30 billion annually.

Since the privatisation of rail freight in the mid 1990s the industry has revolutionised itself in terms of:

- competition – bringing customer focus and a high quality service culture to rail freight
- growth – reversing decades of decline
- enhancing productivity and delivering real cost reductions across all activities
- investment in more productive locomotives, wagons and terminals

Establishing a rolling programme of investment in more effective infrastructure – branded as the “Strategic Freight Network” – has been pivotal in this transformation.

Rail freight has traditionally been associated with the transport of heavy bulky goods and construction materials. It continues to be extremely important for these goods but its role today is much broader.

More and more industries and major companies, like Jaguar Cars, Tesco and Sainsbury’s, are turning to rail as their first choice for transport.

During the last 15 years, rail freight has undergone a transformation and has taken an increasingly important role in the transport of consumer goods. Over the past eight years alone, consumer goods carried by rail have grown by 75%, the greatest growth of any freight market.

Road congestion

Rail freight provides a disciplined network in terms of planning and management with sophisticated timetabling and signaling systems designed to optimise reliability. More than eight out of every ten freight trains complete their journey on time and for premium delivery such as Direct Rail Services/Stobart trains for Tesco, punctuality over the last nine months of 2012 averaged over 97%. In many instances rail can match and often beat road freight in terms of reliability.

The more we can reduce congestion by shifting freight from road to rail, the better in terms of reliability for businesses and cost to the economy.

Cost effective

Moving goods by rail is increasingly the most cost-effective way of transporting freight.

Rail haulage is more fuel efficient than road haulage. Less fuel is needed to transport a tonne of goods by rail than by road, saving both money and greenhouse gas emissions.

On average a gallon of fuel will move a tonne of goods 246 miles on the railway, but only 88 miles by road.

In addition to this, rail:
- is competitive on price in many markets
- mitigates the impact of fuel price uncertainty as less fuel is used per tonne transported
- builds resilience into supply chains by increasing the number of delivery options
- reduces operating costs by removing between 43 and 77 Heavy Goods Vehicles (HGVs) per freight train
- can help keep goods secure from theft and damage
- reduces carbon emissions and helps companies meet sustainability targets.

The unique role of rail freight

In a number of instances rail provides solutions which are not practical by road. This applies particularly where rail moves a vast bulk of material and the electricity generating industry is a case in point. Britain’s largest power stations were built around “merry go round” rail facilities so that their bulk fuel can be delivered at a rate of millions of tonnes per year. The congestion and pollution which would be caused by moving these volumes on our roads is hard to imagine and the logistics involved would be unsustainable.

But rail also fulfils some other specialist roles which would be difficult to achieve using any other mode.
People & communities rely on rail freight

Rail freight is an indispensable part of our everyday lives. It plays a pivotal role in supplying food to our supermarkets and delivering goods to our shops.

The wide range of goods moved by rail includes:
- Royal Mail letters and parcels
- soft drinks, bottled water, sugar, cakes, confectionery, washing powder and household cleaners
- wine and Scottish whisky
- cars such as Minis and Landrovers for the domestic and export markets
- fresh fruit and vegetables directly from Spain to London.

Lorries contribute to a disproportionate number of accidents on our roads per km travelled. DfT figures suggest that between 1999 and 2009 there were 124,500 accidents involving HGVs. By reducing the number of lorries on our roads and transferring freight to rail, people would benefit not only from improved safety in their local communities, but a reduction in noise and pollution.

![Image of freight train](image)

**PICTURE 1**
Potential for a fully loaded freight train to remove lorries

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Full Loaded Train Equivalent</th>
<th>Potential Number of Heavy Goods Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>1,500 tonnes</td>
<td>52</td>
</tr>
<tr>
<td>Metals and ore</td>
<td>1,000 to 2,500 tonnes</td>
<td>40</td>
</tr>
<tr>
<td>Construction materials</td>
<td>1,500 to 3,000 tonnes</td>
<td>77</td>
</tr>
<tr>
<td>Oil and petroleum</td>
<td>2,000 tonnes</td>
<td>69</td>
</tr>
<tr>
<td>Consumer goods</td>
<td>600 to 1,100 tonnes</td>
<td>43</td>
</tr>
<tr>
<td>Other traffic</td>
<td>1,000 to 1,500 tonnes</td>
<td>43</td>
</tr>
</tbody>
</table>

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Rail freight also makes towns and villages across the country more pleasant places to live and work by reducing the number of lorries on Britain’s roads.
The environment relies on rail freight

Climate change is a major challenge facing the world, and one the UK Government takes very seriously. We are keen to play our part in ensuring sustainable economic growth by enabling freight, and passengers, to travel with lower carbon emissions than other modes.

Rail freight has a vital role to play in tackling climate change and helping the Government meet that commitment. With road transport in Britain currently contributing 21% of carbon emissions, 7% of this originating from road freight, it is vital more freight is transferred to rail. This is all the more apparent given that per tonne of cargo, rail freight produces 76% less carbon dioxide than road freight.

In the extreme case that all freight currently carried by rail was transferred to road, there would be an additional 1.9 million tonnes of carbon dioxide produced each year. This is equivalent to the carbon saved by more than 230,000 solar panels. Rail freight also produces fewer harmful gases than road freight in terms of other emissions that impact upon people’s health – less than a tenth of the nitrogen oxide and fine particulates of road haulage per tonne carried when compared to road transport.

CASE STUDY
Aggregates by rail

Bulk commodities remain important to the rail freight sector despite the growth in consumer goods conveyed. Aggregates are found abundantly throughout most of Britain but their extraction can create an intrusive industry for its near neighbours. As a result, many local quarries and gravel pits have exhausted their consented reserves and gone out of production. Rail has stepped into the gap this has created in the construction market by moving bulk aggregate over longer distances from rail served super quarries using Britain’s heaviest trains – up to 5,000 tonnes gross weight from the Somerset Mendips to London. Long term demand for rail is still growing in this sector which has expanded its range over the last 30 years:

- 20 – 30 years ago it was mainly a London and South East business
- 10 – 20 years ago it spread to other large cities such as Manchester, Leeds and Birmingham
- more recently rail terminals have sprung up and more are being sought in medium sized conurbations such as Exeter, Preston and Hull.

The rail market for construction materials continues to develop with recycled products, imported aggregates, higher quality premium materials and cement all growing on rail. Britain’s construction industry has delivered major projects such as the 2012 Olympics Park by working in close partnership with rail suppliers.

The figure shows the journey of a typical consumer item transported by rail. A tin of beans starts its journey by being loaded onto a container at the national distribution centre of a major supermarket chain. A number of other goods such as cleaning products, toiletries and other food stuffs will also travel with the beans. This container is then transported by road to a rail freight terminal. The container is transferred to rail for the trunk leg of its journey before completing the final miles by road.

It also shows the CO2 at each stage of the journey if the tin were carried by rail or a road alternative. Even after including the carbon cost of the road legs at either end, the rail option produces a third (22kg compared to 66kg) of the CO2 of the road route.

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The future of rail freight

This is an exciting time for Network Rail and the freight industry. To cater for anticipated future demand and challenge the dominance of road haulage it is important that, together with governments, we continue to put in place the right plans to allow freight to be a successful part of a vibrant, growing railway. It is also important that we develop the railway to make this possible.

Over the coming years, the rail industry will continue to work with passenger users, business and government to prioritise those freight schemes that bring the greatest benefit to the network and the economy. This will involve delivering the vision of a “Strategic Freight Network” and providing value for money through:

• increasing capacity for more trains
• improving the efficiency of the network by rebuilding our infrastructure to allow trains to carry more containers
• enabling the infrastructure to cater for longer, more productive trains
• separating flows of freight and passenger traffic where this makes sense for both
• speeding up freight journeys to improve productivity and profitability for operators.

The launch in early 2013 of the plans for Phase 2 of Britain’s new high speed railway “HS2”, serving Manchester and Leeds, is also beneficial for rail freight. By attracting the growth of inter city passenger rail travel, HS2 will free up essential capacity for more freight on the classic network. Building HS2 is vital for the future of rail freight.

Our vision is to increase the modal share of rail and to take freight off Britain’s roads, improving the economy, our quality of life and substantially reducing carbon emissions.

Biomass – a success story. It is vital to our economy and helps make Britain a better place to live.

CASE STUDY
Enhancing the gauge to Southampton

“Freight gauge” is the spatial envelope that a train needs in order to pass through bridges and tunnels safely. Britain’s railways were mostly built in the nineteenth century with arched structures to accommodate vehicles with rounded roof profiles. However, the freight market has developed strongly in favour of larger rectangular loads - in containers. Enlarging the network to facilitate container traffic is known as “gauge enhancement”. And the containers have grown larger making the need for gauge enhancement much stronger.

The enhanced route to ABP’s Port of Southampton was commissioned in Spring 2011. This investment brought rapid gains in terms of business growth and productivity on rail for the port. Independent research by the University of Westminster found that, within a few months of the commissioning date:

• market share had risen by 6%
• train capacity rose by 19% – measured across the same number of trains
• train payload had risen by 28%

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The electricity generating industry faces substantial change as a result of the need to reduce its CO2 emissions and limit the damage caused by global warming. EU and UK legislation is creating a strong incentive framework to move the country away from burning coal to make electricity. Biomass is emerging as an important alternative fuel.

Most biomass consists of compressed pellets of waste wood from the timber industry – the plantation thinnings, smaller branches and sawdust which would otherwise be left to decay or be burned at the plantation. Supplies are sourced with extreme care to ensure that they are truly sustainable. The sustainability case is strongly supported by the fact that, were the material left to decay, it would release methane – a worse greenhouse gas than CO2.

The majority of biomass is expected to pass through our ports and rail is proving to be the ideal mode of transport to carry it to power stations. The rail freight industry is adapting rapidly to the opportunity presented by this new traffic with investment in wagons and infrastructure. Biomass is emerging as a critical new contributor to the success of rail freight – and to rail keeping the lights on for Britain.