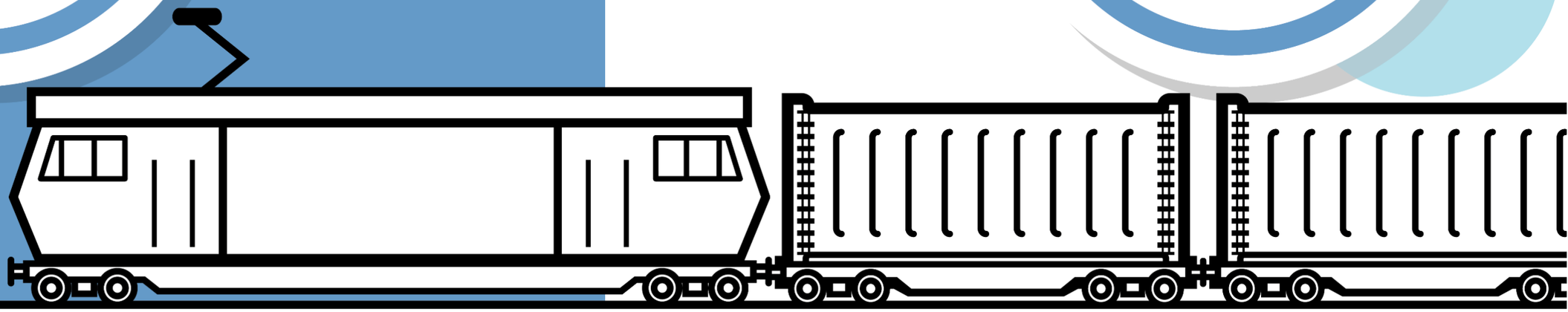


THE LONDON RAIL FREIGHT STRATEGY

OPTIONS FOR THE FUTURE

SUMMARY REPORT

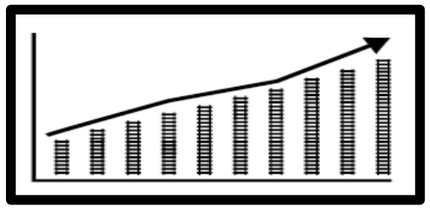
EXECUTIVE SUMMARY

RAIL FREIGHT

Rail freight delivers substantial benefits to Britain and has major advantages over road haulage in terms of its social and environmental impacts. Recent history has seen the market realigned to become dominated by sectors based around serving the needs of population centres, necessitating the use of those parts of the rail network where passenger traffic is also most prevalent and capacity is at a premium.

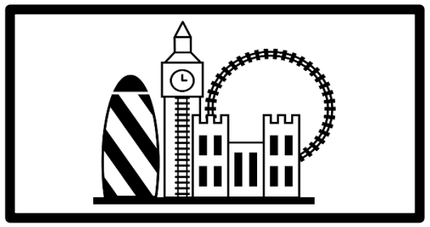
FUTURE GROWTH

Industry established forecasts indicate that very strong long-term growth in demand for rail freight services should be expected between now and 2043, even when allowing for a range of possible scenarios. This includes significant forecast growth in market demand for rail freight movements in London. In addition, the government's legal commitment to a target of net-zero greenhouse emissions across the economy by 2050 is expected to further drive demand for the movement of freight by rail, by effecting significant long-term modal shift away from road transport. Realising as much as possible of that enormous potential will depend on enhancing network capacity and capability for freight, in the challenging context of a mixed-use railway where balance and accommodation with passenger needs is required.



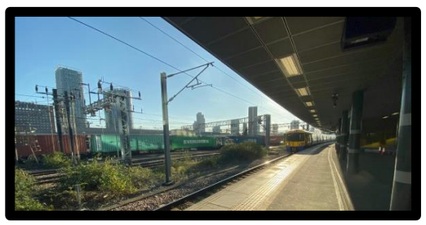
LONDON

London's construction sector depends on rail freight for the materials it needs to support the development of housing, business facilities and major infrastructure projects. The rail network in London also supports vital movements of containerised goods as a key link in supply chains serving consumers both in the South East and nationwide. Import and export movements of cars and automotive parts rely on lines in London, a substantial proportion of the city's waste is removed by rail and Heathrow airport is supplied with a fifth of its aviation fuel by cross-London flows of freight trains. Rail freight in London faces a range of challenges, chief among which are maintaining sufficient rail-connected terminals across the city and securing capacity on the rail network for trains to reach them.



THE LONDON RAIL FREIGHT STRATEGY

Recognising these challenges, freight stakeholders identified the development of a London Rail Freight Strategy as a strategic planning priority. The London Assembly Transport Committee also recommended the development of a joint rail strategy for London with Network Rail and the wider industry in its 2018 'Broken Rails' report, a key component of which should be a freight workstream. The London Rail Freight Strategy (**LRFS**) thus has dual roles, as both a study to produce strategic advice for the Government, within NR's Long-Term Planning Process, and as a workstream forming part of the developing NR and TfL **Rail Strategy for London**.



FUNDING STRATEGY

This strategy is comprised of a range of enhancement options for funders, identified elements of existing projects or programmes whose progression is supported in the interests of freight and recommendations for further study in areas where this is required. The **LRFS** is intended to be not just a freight strategy, but a holistic plan to address the long-term capacity challenge on the London orbital routes, with an emphasis on the need for collective solutions to the collective constraints faced by both freight and passenger operations. Network Rail intends to seek funding to deliver core elements of this strategy through the Department for Transport's Rail Network Enhancements Pipeline (RNEP – see p.10). Progression of the options identified by this strategy is therefore contingent on the availability of funding, in the context of a finite overall railway enhancements envelope, as well as the production of compelling business cases to demonstrate their strategic fit and value for money. This is a long-term set of options, with a view to implementation across a thirty-year period. In light of a constrained funding environment, following the impact of the Covid-19 crisis on the rail industry and wider public finances, it should be noted that the larger schemes in particular are expected to proceed to detailed development only when affordability permits. In the meantime, Network Rail will also focus on progressing the recommendations of the **LRFS** that do not depend on RNEP funding, in particular the London Rail Freight Land Review and 'Target 26' workstreams (see 'Future terminal capacity for London', p.23). For more information on the RNEP, see https://www.gov.uk/government/publications/rail-network-enhancements-pipeline

THE CAPACITY CHALLENGE

A range of capacity and capability challenges have been identified, all of which need to be addressed as far as is possible, if long-term freight growth in London is to be realised. These include straightforward line of route capacity, the mixed traffic nature of the orbital routes, the provision and type of regulating points on the network, the prevalence of flat junctions and a specific constraint associated with traction changeover on the West London Line. Issues relating to maximum lengths and trailing weights, Heavy Axle Weight restrictions, loading gauge and electrification also inhibit freight trains' ability to operate with optimal efficiency in many cases and therefore need to be considered alongside pure network capacity constraints.

CORE INTERVENTIONS

The development of this strategy and the identification of options for funders has been informed by capacity analysis, focused on the London orbital routes. This took an Indicative Train Service Specification (**ITSS**) representing future growth in an off-peak scenario for the 2040s and assessed how it could be accommodated on those routes. The **LRFS** proposes a set of core interventions, which the capacity analysis work concluded would, over the next thirty years, support the unlocking of the long-term growth represented by the **ITSS**. These are:

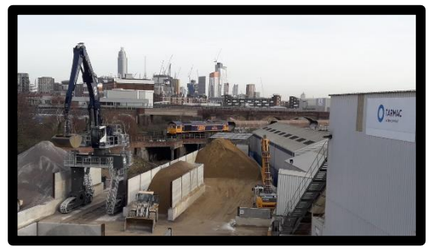
Camden Road platform 3	Kensal Green junction improvement	WLL AC/DC changeover relocation	Clapham Junction platform 0	NLL, GOB and WLL headway reductions
Reinstatement of a third track and platform on the northern side of Camden Road station, utilising part of the former 4-track formation through the station.	Upgrade of the junction, moving it slightly to the east and realigning the layout, to facilitate faster crossing speeds sufficient for a 3-minute planning margin.	Extension of the overhead wires further along the WLL, to provide AC electrification as far south as Shepherd's Bush station.	Creation of additional bay platform capacity at the northern end of Clapham Junction station, for the use of London Overground WLL services.	These are improvements on which this strategy is dependent, but are expected to be realised through wider enhancement programmes, so are not being directly proposed by the **LRFS**.

ADDITIONAL OPTIONS

A series of additional options are also put forward by this strategy to supplement the core interventions in the previous section, ensuring that the **LRFS** presents a broad range of options to address the range of rail freight needs in London over the long term, as well as tackling capacity at key locations. They are:

- Harlesden Junction Doubling
- West London Line AC/DC Changeover relocation to Kensington Olympia
- Stratford Regulating Point Extension
- Nunhead Junction Improvement
- Longhedge Junction Speed Increases
- Gospel Oak Speed Increases
- East Coast Main Line South Bi-directional Capability
- A cross-London package of works to remove Heavy Axle Weight speed restrictions
- A package of works to remove the Heavy Axle Weight speed restriction on the Gospel Oak-Barking line
- Development of loading gauge enhancements, with W12 across north London a priority

YARDS AND TERMINALS



Whilst there is a need to develop the rail network for future freight growth, doing so can only be effective if there are sufficient number and standard of yards and terminals for goods to be moved between. Currently, provision of these facilities around London is very much a mixed picture, with good quality nodal yards at certain locations and a wide array of construction railheads, but gaps elsewhere. Improvements in this area will require continued collaboration across the rail sector, but are also dependent on a favourable planning environment.

The **LRFS** proposes the development of a cross-London programme of works to realise a consistent operational standard for construction sector terminals, with a minimum capacity for 20-wagon trains and a target of 26 wagons. This strategy also proposes a comprehensive review of railway-adjacent land across the London area, with a view to the identification and safeguarding of any remaining sites with potential to be of value for future freight use.

CONCLUSION

Accommodating London's rail freight requirements over the next thirty years demands a multi-faceted approach that will alleviate constraints, increase capacity, improve capability and facilitate growth. This strategy aims to set out a high-level approach for this to be achieved, by presenting options for enhancement schemes to the railway's funders, identifying industry workstreams that should be supported and highlighting the importance of the ongoing development of rail freight terminals and new markets.

CONTEXT OF STUDY

The movement of goods by rail is vital to Britain. The past thirty years have seen the rail freight market and its role in the economy substantially re-shaped, with the industry adapting to maintain its role as a critical link in supply chains even as the range of sectors these serve has continually evolved. The next thirty years will bring new challenges and opportunities and an unprecedented need for rail to expand its share of the overall freight market still further. Rail is a key part of the solution for logistics in Britain to become more efficient, safer and greener in years to come. Strategies like this one seek to set out the industry's collective vision for achieving this.

THE BENEFITS OF RAIL FREIGHT

In recent times, rail freight has moved in the region of £30bn worth of goods annually and has been calculated to generate £1.7bn of benefits to the economy and society every year. The latter figure includes £1.2bn in productivity gains for businesses that choose to use rail freight instead of road, added to which is £0.5bn of benefits derived from reduced road congestion, carbon emissions and road accidents and better air quality. Rail freight continues to drive up its own efficiency – between 2003/04 and 2019/20, the number of freight train movements on the rail network fell by 50 %, whilst the tonnage lifted per train increased by 66 %. Rail is also markedly more fuel efficient than road haulage and is responsible for 76 % less carbon dioxide per tonne of cargo.

MARKET TRENDS

This success has taken place in a context of substantial and at times rapid change. The major trend in the market has been a shift away from rail freight's former primary role serving traditional heavy industry and electricity generation, as demand has declined due to wider structural changes to the economy and the phasing out of coal-fired power stations. Coal for the electricity supply industry, once the backbone of British rail freight, has seen a rapid decline over the past five years and is no longer a leading commodity. That mantle has increasingly been assumed by containerised ('intermodal') freight and construction materials, as rail has shifted focus in an economy reliant on the import of manufactured goods and a vigorous urban property market. Both the intermodal and construction sectors are based around serving the needs of population centres, necessitating the use of those parts of the rail network where passenger traffic is also most prevalent and capacity is at a premium. These trends have led industry observers to observe a general shift in the rail freight industry's centre of gravity towards London and the South East. This brings with it a particular set of challenges for rail freight to address and these have prompted freight stakeholders to identify the development of a London Rail Freight Strategy as a strategic planning priority.

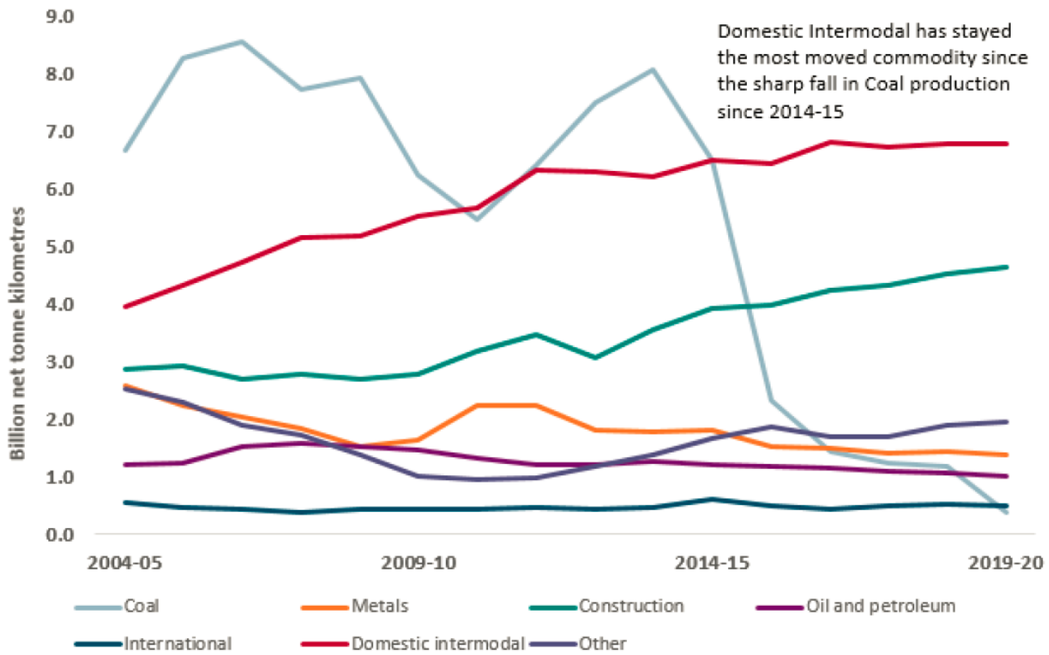


Figure 1: Rail Freight moved in Great Britain by commodity

Source: Freight Rail Usage and Performance 2019-20 Q4 Statistical Release, Office of Rail and Road (June 2020)
N.B. 'Domestic Intermodal' refers to ports and domestic intermodal, distinct from Channel Tunnel International

FUTURE GROWTH

If those challenges can be successfully overcome, the potential gains for the industry and benefits to Britain as a whole are substantial. Industry established forecasts indicate that very strong long-term growth in demand for rail freight services should be expected between now and 2043, even when allowing for a range of possible scenarios (see fig. 2). In addition, the government's legal commitment to a target of net-zero greenhouse emissions across the economy by 2050 is expected to further drive demand for the movement of freight by rail, by effecting significant long-term modal shift away from road transport due to the absence of a viable non-emitting alternative to the diesel Heavy Goods Vehicle, particularly for longer distance and bulk flows. Established rail freight forecasts, although recent, were developed prior to the 2019 legislation introducing this target and therefore do not account for its impact. This only adds to expectations of burgeoning growth, as a step change in rail's modal share of surface freight appears essential for the net-zero commitment to be upheld.

However, forecasts of market demand and policy-driven expectations serve merely to indicate freight's potential – they do not reflect the constraints imposed by finite rail network capacity. Realising as much as possible of that enormous potential will depend on enhancing network capacity and capability for freight, in the challenging context of a mixed-use railway where balance and accommodation with passenger needs is required.

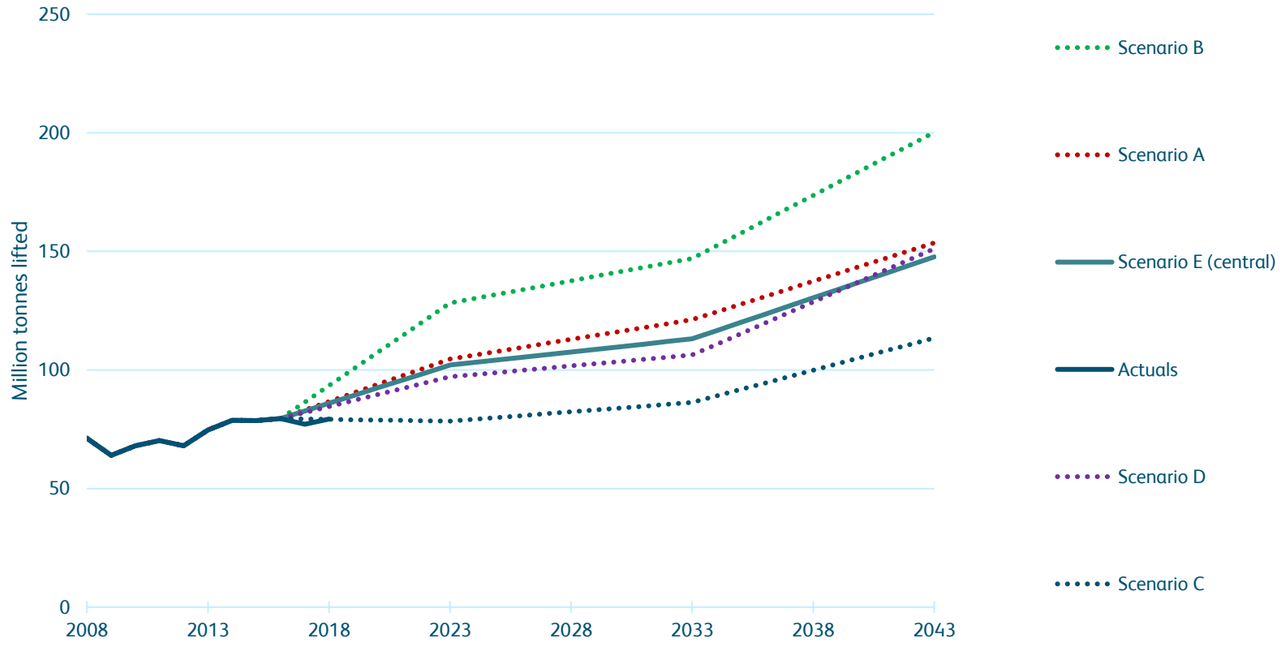
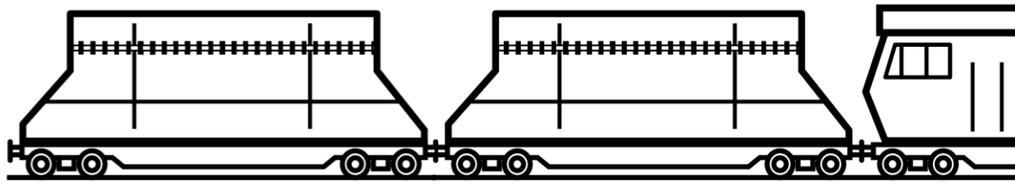


Figure 2: Rail freight forecasts (unconstrained): total tonnes lifted in GB excluding coal for Electricity Supply Industry

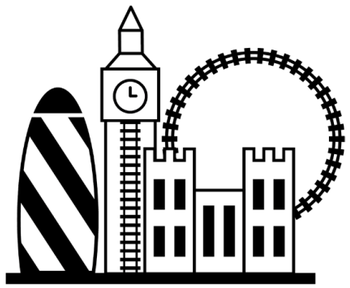
Source: 'Rail freight forecasts: Scenarios for 2033/34 & 2043/44', MDS Transmodal for Network Rail (August 2020), available at https://www.networkrail.co.uk/running-the-railway/long-term-planning/
These forecasts are not constrained by the capacity of the network. Years refer to financial years.



LONDON

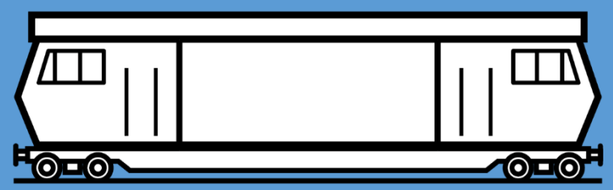
London has in recent years increasingly become a focal point for the overarching trends in the rail freight and wider logistics markets described in the previous section. This is evident nowhere more so than in the construction market, reflecting the buoyancy of that industry and its subsequently voracious demand for materials to feed the building sites of the capital. Freight railheads within London itself are overwhelmingly aligned to this commodity sector, which has seen the strongest growth of any over the past five years. London's relationship with the intermodal sector is different, though no less significant, and heavily influenced by geography, the nature of the British rail network and consumer goods supply chains.

THE ROLE OF RAIL FREIGHT



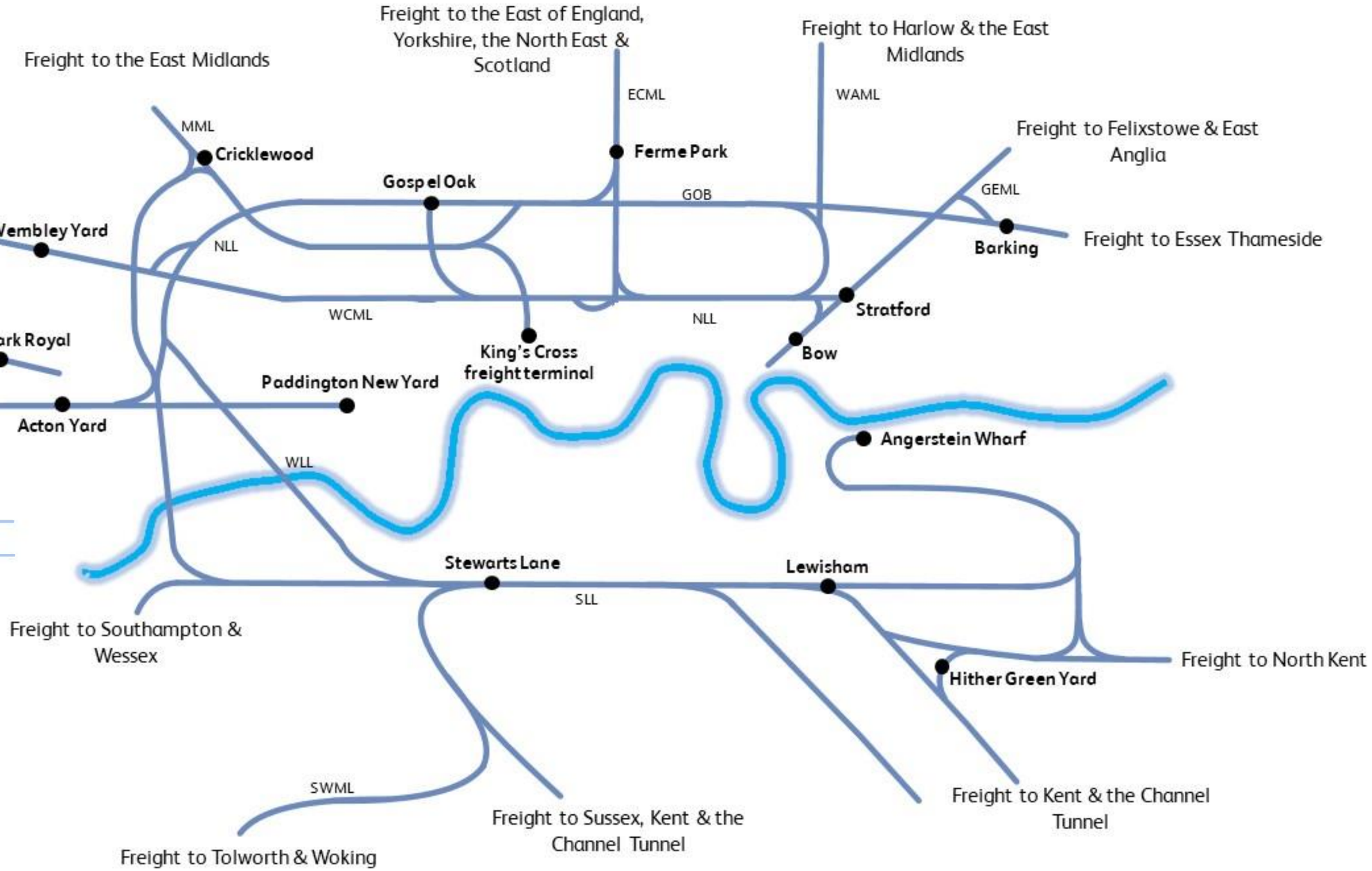
London's construction sector depends on rail freight for the materials it needs to support the development of housing, business facilities and major infrastructure projects. Using rail enables large volumes of the 'aggregates' needed to make cement and other essential building materials to be brought close to urban construction sites, minimising the use of Heavy Goods Vehicles.

The rail network in London also supports vital movements of containerised goods as a key link in supply chains serving consumers both in the South East and nationwide. Import and export movements of cars and automotive parts rely on lines in London, a substantial proportion of the city's waste is removed by rail and Heathrow airport is supplied with a fifth of its aviation fuel by cross-London flows of freight trains.



Key facts:

- Approximately 40 % of all aggregates used in London are delivered by rail
- Rail freight moves one in four containers entering the UK
- In 2019, the North London Line was used by over 10,000 intermodal trains
- There are 32 active rail freight terminals in Greater London
- CO2 emissions per tonne of material delivered by rail are 76 % lower than by road
- Rail freight produces up to ten times less small particulate matter than road haulage and as much as 15 times less nitrogen oxide for the equivalent mass hauled
- One freight train can remove up to 76 Heavy Goods Vehicles from the road
- Rail freight is estimated to generate £130m in annual economic benefits to London and a further £87m to the wider South East



Key	
GWML	Great Western Main Line
WCML	West Coast Main Line
NLL	North London Line
MML	Midland Main Line
WLL	West London Line
ECML	East Coast Main Line
GOB	Gospel Oak Barking
WAML	West Anglia Main Line
GEML	Great Eastern Main Line
SLL	South London Line
SWML	South West Main Line

Figure 3: Schematic map of rail freight routes in London (Not to scale).

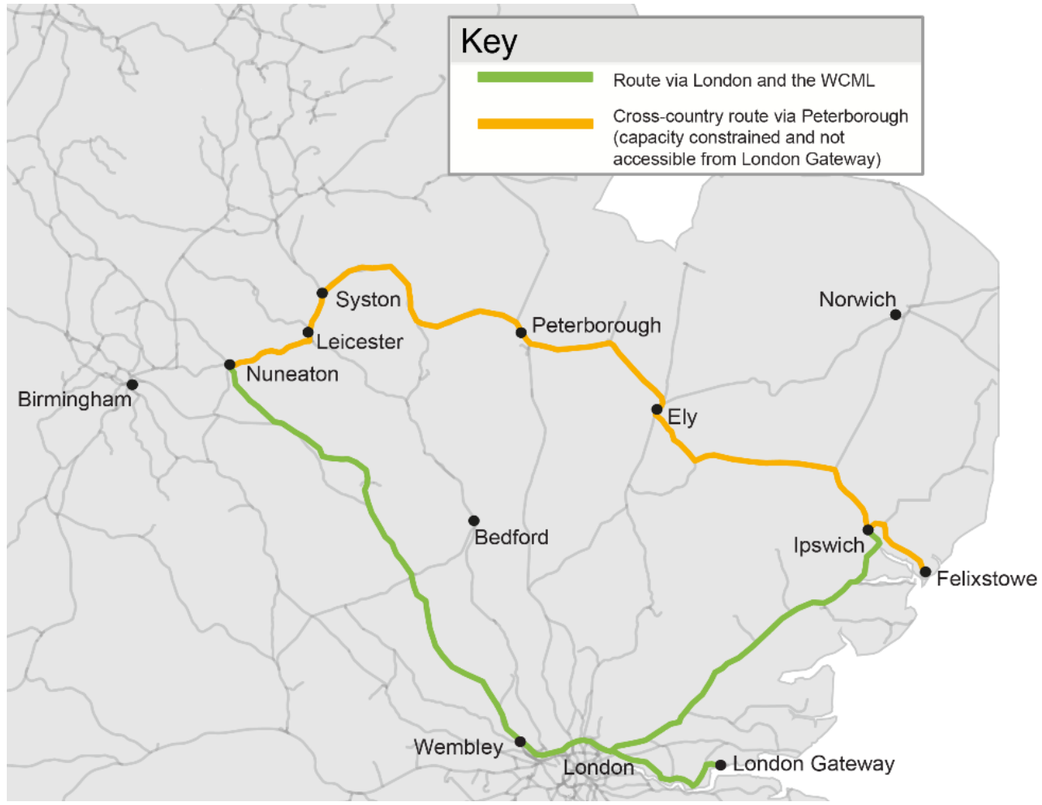
Source: Network Rail

CHALLENGES

The availability of suitable terminals for rail freight is a challenge in the London area. Construction railheads need to be safeguarded and protected from inappropriate adjacent housing development, which can threaten the imposition of restrictions to their operations. London and the South East also suffers from a marked lack of rail-connected facilities within the consumer goods supply chain. There are few inland intermodal rail freight terminals within the region and most Regional Distribution Centres across the South East are served by road only.

Rail freight in London also shares in the capacity challenge faced by passenger services. Having rail-connected construction materials sites in relatively central locations is a major advantage to the industry, but it does mean that freight trains must share busy routes in and out of London, where the need for passenger capacity is already high. The 'wheel and spoke' layout of the national railway network means that some major intermodal freight flows cannot avoid being routed via London's orbital lines, where the expansion of the London Overground in recent decades has reduced available capacity.

The major 'deep sea' ports, those receiving the largest container ships and serving as the gateways to global trade for the entire island, are all located on the South East fringes of Great Britain, close to shipping routes. As a result, a large proportion of the country's imported goods arrive through Felixstowe or London Gateway but need to be moved to distribution centres in central England or terminals nationwide to reach their intended destination (**see map above right**). The geography of intermodal supply chains therefore means that some trains from Felixstowe and all of those from London Gateway have to use routes via London, in the former case because the 'cross-country' route via Peterborough is currently at capacity and in the latter because no alternative route exists.



THE RAIL STRATEGY FOR LONDON

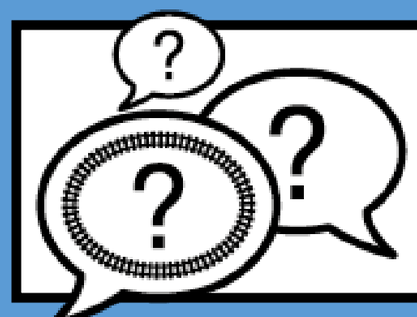
Due to the widely recognised challenges outlined above, rail freight stakeholders identified a study on London rail freight as a top priority. The **LRFS** is an output of Network Rail's Long-Term Planning Process, which produces strategic advice for the rail industry and its funders in order to meet NR's license obligation to plan the long-term future of the rail network up to thirty years hence.

Network Rail and Transport for London, with input from the rail industry and its stakeholders, are working together to develop a joint strategy for the rail network in the London area. This strategy proposes a series of thematic workstreams for further detailed study, with each to be led by either NR or TfL and developed in partnership with the passenger train operators, freight operators and the Department for Transport. The London Rail Freight Strategy is ideally placed to serve as the Rail Freight workstream and is therefore the first part of the wider **Rail Strategy for London** to have been completed.

The London Rail Freight Strategy thus has dual roles, as both a study within NR's Long-Term Planning Process and as a constituent part of NR and TfL's **Rail Strategy for London**. NR and TfL will continue to collaborate in working towards the realisation of the **LRFS**'s proposals, however implementation of options for funders, where the main source of funding is expected to be the RNEP (see p.10), will be dependent on future Government investment decisions and cannot be committed to by NR and TfL themselves.

STUDY APPROACH

The aim of the strategy is to answer the strategic question shown below, which was identified with stakeholders as the central task remitted to this study. The result of this is a comprehensive strategy for the long-term development of London rail freight. This strategy is comprised of a range of enhancement options for funders, identified elements of existing projects or programmes whose progression is supported in the interests of freight and recommendations for further study in areas where this is required. The enhancement options proposed are deliberately varied in terms of the size, nature and expected delivery timescales of the resultant schemes. This reflects a conscious intent to provide funders with options that address a breadth of rail freight priorities and range from targeted interventions to secure incremental freight benefits by improving network capability at key locations, which could be delivered relatively quickly, through to major capacity enhancements needed to secure long-term growth. For any of the options within this range to be developed into enhancement schemes, they will require demonstration of the value for money on funder investment that they will deliver (see p.10). Investment decisions are made with consideration to affordability, in the context of the wider rail enhancements portfolio, therefore it is important to note the thirty-year scope of this strategy when considering possible implementation timescales for the options it proposes.



Headline Strategic Question:

How do we accommodate future rail freight requirements in the London area in a context of increasing passenger and freight demand?

This strategy also recognises that providing the capacity needed for long-term freight growth around London will require accommodation with the need for increased passenger services on the routes where that capacity must be shared, particularly with the London Overground. Although at the time of writing there remains substantial uncertainty as to the rate of recovery in passenger demand following the Covid-19 crisis, the likelihood is that growth has been checked rather than reversed and will eventually return. When considering a 20-30-year planning horizon, the need for the railway around London to provide increased passenger capacity compared with today is not expected to have changed. The **LRFS** is therefore intended to be not just a freight strategy, but a holistic plan to address the long-term capacity challenge on the London orbital routes, with an emphasis on the need for collective solutions to the collective constraints faced by both freight and passenger operations. Many of the options identified in this report are proposed on the basis of their shared benefits to freight and passenger services around London, where their purpose is to improve the overall functioning of the orbital routes for all those who use them. Considering the needs of both freight and passenger rail users is crucial to this study's ability to integrate with the rest of Network Rail and TfL's Rail Strategy for London, as work progresses on further workstreams.

FUNDING STRATEGY

It is important to be clear that this strategy proposes **options** for the railway's funders, with a timescale for potential implementation of up to thirty years, not a government policy or a set of committed projects. Although the **LRFS** sets out a vision, developed in collaboration with the industry, for how long-term freight growth in the London area might be accommodated, it represents only a first step. Progressing the options it presents will be primarily contingent on the availability of funding and the industry's ability to produce a sufficiently compelling business case to justify the investment required.

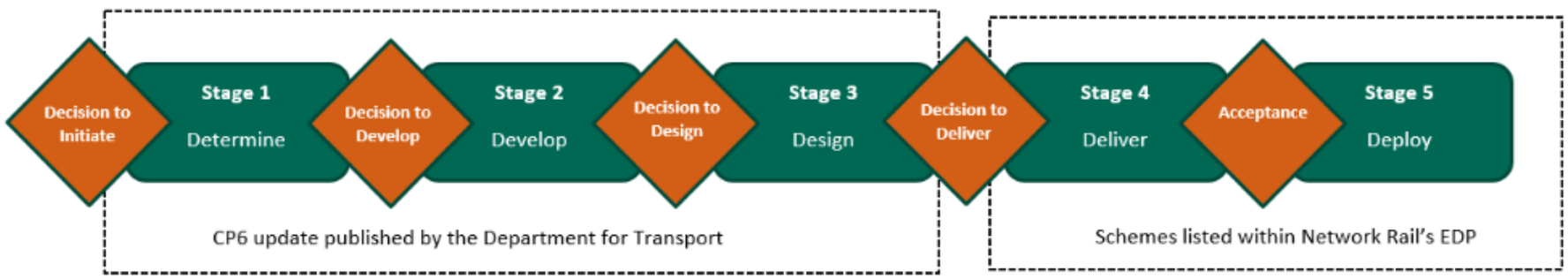
The primary source of funding for enhancements to the national rail network is the Department for Transport's Rail Network Enhancements Pipeline (RNEP). This functions on the basis of a series of investment decisions that are made at the successive levels of maturity for any enhancement project or programme (see diagram below). Any release of funding is always dependent on the quality of the business case submitted at each of these stages and no scheme is considered committed until it has successfully secured a Decision to Deliver.

Network Rail's intention is to put forward the majority of the options proposed by the **LRFS** to be developed initially as a portfolio, with a single overarching business case in support of them all. A request for a Decision to Initiate, which would allow this portfolio to enter the Rail Network Enhancements Pipeline (RNEP), will be submitted to the Department for Transport. Network Rail's Regions will then lead the production of a Strategic Outline Business Case (SOBC) for the full portfolio of options, which in turn will be used to seek a Decision to Develop. Establishing a portfolio-level business case will demonstrate the interdependency of the range of options presented in this report and enable funder endorsement for the overall strategic rationale underpinning them. The purpose of this will be to prevent duplication of work in the early stages and misalignments that would be risks should the various elements of this strategy be developed from the outset independently of one another. This approach reflects the fact that freight enhancements are by nature rarely discrete standalone schemes. Realising the benefits of freight investment typically requires a corridor approach, with a series of complimentary interventions to resolve capacity and capability constraints throughout.

However, the proposals of the **LRFS** represent a diversified portfolio, with options ranging in scale and expected delivery timescales. Work beyond the Decision to Develop point is therefore expected to be undertaken on a more discrete basis for individual schemes or packages of schemes and will not necessarily follow immediately on from the completion of a portfolio SOBC. All schemes would continue to have the overarching support of the SOBC to retain awareness of their collective benefits, but would also be able to focus on their own specific benefits (including in many cases significant passenger benefits), through production of their own business cases as and when they progress to the subsequent stages of the RNEP. Elements of the portfolio will be brought forward for more detailed development as funding availability and future demand growth dictate, with the aim of a gradual process of delivery over the next thirty years.

Production of a portfolio SOBC itself will require a comparatively small funding allocation and will enable the collective strategic case and high-level benefits identification to be 'banked', ensuring the momentum generated by the **LRFS** as a strategic study is not lost and supporting future development work as and when it becomes appropriate to undertake it, without necessitating an immediate commitment to that work. This is an advantage of the proposed approach, given the more constrained enhancements funding environment the industry is likely to be faced with for the foreseeable future, following the Covid-19 pandemic.

In the meantime, Network Rail will also focus on progressing the recommendations of the **LRFS** that do not depend on RNEP funding, in particular the 'London Rail Freight Land Review' and 'Target 26' workstreams (see 'Future terminal capacity for London', p.23).



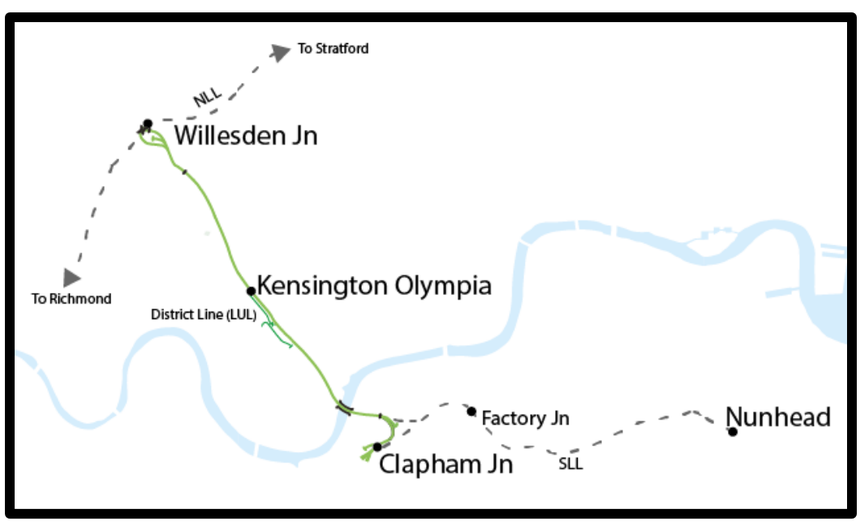
For more information on the RNEP, see https://www.gov.uk/government/publications/rail-network-enhancements-pipeline

GEOGRAPHIC SCOPE

The geographic scope of the study is focused on the London orbital routes which represent the core network for freight movements within and across London:

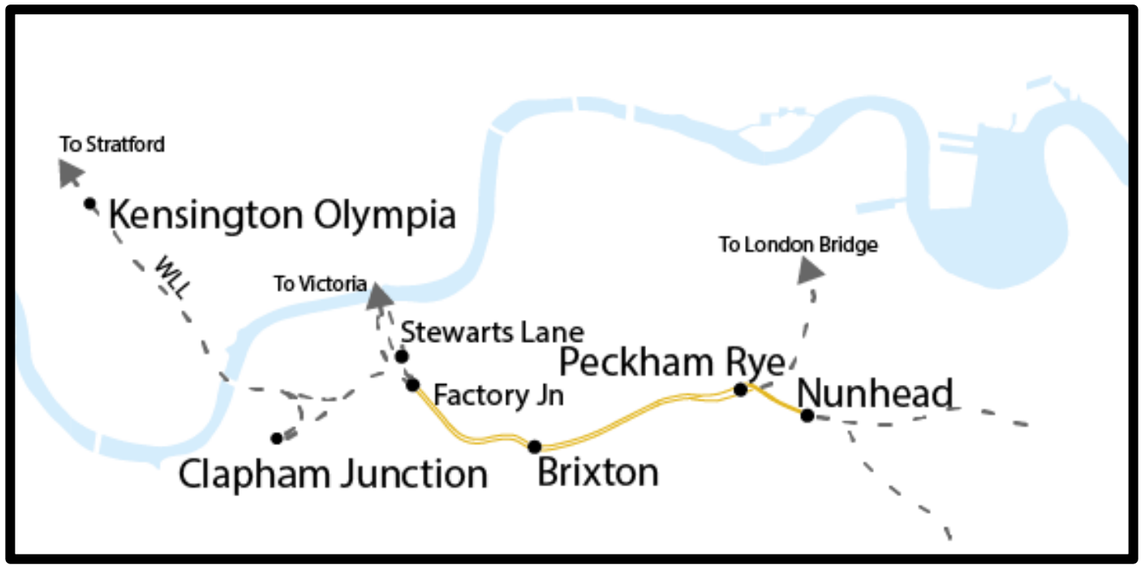
- The Gospel Oak – Barking Line (GOB)
- The North London Line (NLL)
- The West London Line (WLL)
- The South London Line (SLL)

The Gospel Oak – Barking Line (GOB)

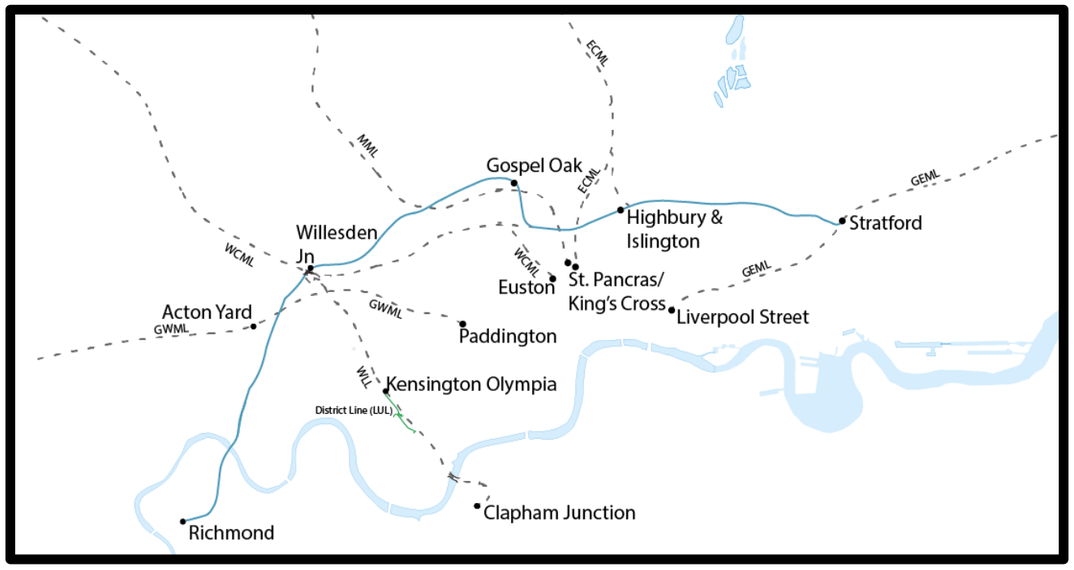


The West London Line (WLL)

The South London Line (SLL)



The North London Line (NLL)

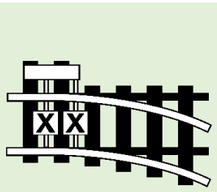
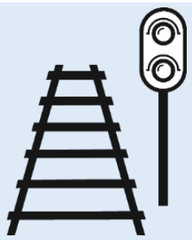
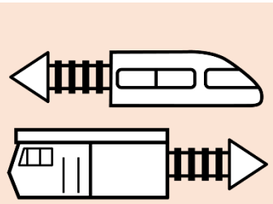
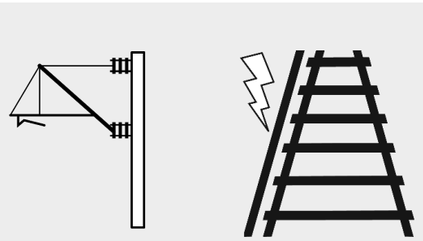
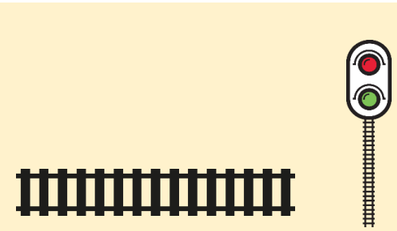


THE CAPACITY CHALLENGE

The following section outlines the capacity gaps that restrict the extent of both freight and passenger services that can be operated on the orbital routes, both currently and in future. These are driven by a range of features of the railway infrastructure itself and the make-up of the traffic mix using it. In addition to issues around pure network capacity (i.e. the number and frequency of trains a route can accommodate), examples of insufficient network capability (the attributes of the infrastructure that determine the type of trains that can operate) are also presented.

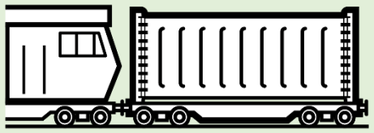
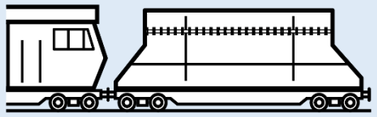
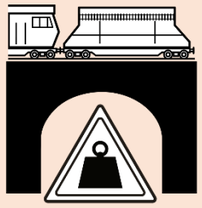
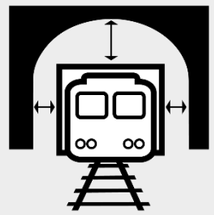
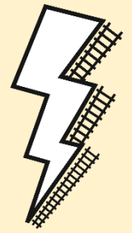
NETWORK CAPACITY

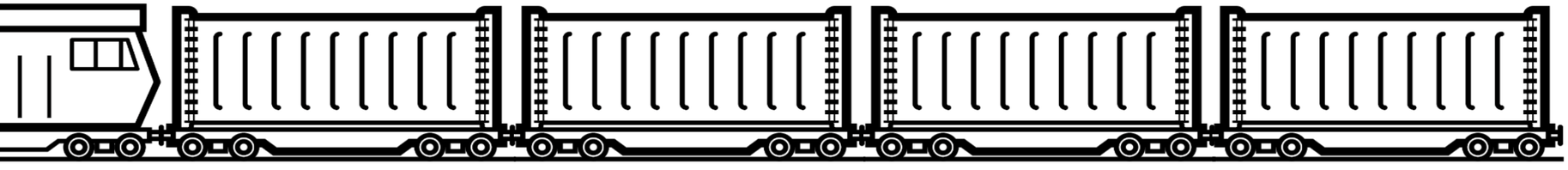
There are a range of factors that contribute to the London orbital routes in particular being characterised by high capacity utilisation, with little or no room to spare for any more slots in the timetable for much of a typical day. These include:

Flat junctions	Line of route capacity	Traffic mix	West London Line AC/DC changeover	Regulating Points
				
This issue affects each of the orbital lines, where passenger services predominantly run the length of the route but freight trains often need to join and depart at intermediate points, introducing conflicting moves that must be separated in the timetable and thus consuming capacity.	The straightforward maximum number of trains per hour that can run, which is determined by how closely consecutive trains can safely follow one another in the same direction on the same line. The current signalling capability of the North London Line, Gospel Oak-Barking Line and West London Line is not sufficient to accommodate the future traffic levels modelled by this study.	Simpler railways with uniform usage are able to much more easily standardise their throughput of trains into a consistent recurring pattern, utilising capacity to the fullest efficiency. On routes used by trains of varying lengths, calling patterns, routeings and traction capabilities, this is not possible.	London Overground trains and any electric freight operating on the West London Line perform the switch between the third rail 750-volt Direct Current (DC) system and the 25-thousand-volt Alternating Current (AC) Overhead Line Equipment (OLE) system whilst moving, but must slow down when passing through the changeover, incurring a time penalty. GTR trains stop entirely in order to raise or retract their pantograph. This practice, by slowing or stopping traffic mid-route, restricts capacity on the West London Line and is a widely recognised constraint.	The ability to hold trains at key locations on the network to await an onward path is key to freight capacity, because of the regular need to thread through multiple different passenger services and timetable structures. London is in places well-served in the regard, with the layout of the railway offering natural opportunities for the regulation of freight trains around the interface of some major routes and ‘nodal’ yards such as Acton and Wembley also playing a valuable role in the management of traffic. However, there are also gaps or limitations to provision elsewhere around the orbital routes, notably at the eastern end of the North London Line and on the South London Line.

NETWORK CAPABILITY

Whilst the network's finite capacity to accommodate train paths in the timetable is the most obvious limit to growth, there are also varying limits to the weights, lengths, sizes and traction types of train that it is capable of allowing to operate over it. These issues are often a challenge for freight especially. It is important that any strategy for growth seeks to address these along with enhancing overall route capacity. Freight stakeholders recognise the significantly constrained nature of the railway in London – the urban environment restricts opportunities to unlock additional route capacity through constructing new infrastructure. There is a consequent need to achieve as much as possible with the city's existing network, before considering major capacity enhancements. Incremental improvements to the capability of the network are key to this, because they can contribute to the ability to move more goods by running bigger, longer, better-performing trains. This enables some growth in volumes to be achieved in advance of the requirement for larger schemes, which typically take years to develop, design and deliver.

Maximum lengths	Trailing weight	Heavy Axle Weight restrictions	Loading gauge	Electrification
				
Although the orbital routes are cleared for the industry target length of 775m as standard for intermodal traffic, not all regulating points offer sufficient standage for the longest trains, reducing pathing opportunities.	There are a number of locations around London where the industry goal of 2600t for construction materials trains is not permitted when hauled by a class 66, the most common freight locomotive in service currently.	Axle loadings above a line's published capability (generally 22.8t per axle on freight routes in London) are usually permitted to operate under derogation, but can be subject to speed restrictions at some locations due to the strength of underline structures. These restrictions, by forcing heavier freight trains to slow down significantly below the normal line speed, are a constraint to capacity, especially on busy routes like those around London.	Freight trains, especially in the intermodal sector, are also constrained physically by the structures they must pass through, such as tunnels, platforms and lineside equipment. Loading gauge standards define what profile of train can be accommodated on a given route and on routes where clearances are insufficient, containerised traffic in particular can be prevented from running or forced to use more specialised wagons.	Although a significant minority of freight in London is currently electrically hauled (primarily North London Line/West Coast Main Line intermodal flows) there is huge scope for this proportion to be increased. Across London at present there are several route sections and branches to terminals used by freight that do not provide electric traction capability.



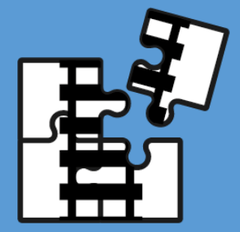
ACCOMMODATING LONG-TERM GROWTH

This study has identified a theoretical timetable structure to accommodate as much as possible of the **LRFS** 'Indicative Train Service Specification' for the 2040s. This is not intended to prescribe the actual timetable that will be in place in the 2040s, but to serve as an indicator of the maximum achievable capacity on the London orbital routes should the full scope of this strategy be implemented, whilst also reflecting the limits to capacity that cannot reasonably be expected to be lifted within the next thirty years. The core interventions proposed by this study each directly support this timetable solution, thereby forming an interdependent package of recommended interventions to be considered to help achieve long-term capacity growth.

This is in turn supported by a range of additional options that are also key to this overall strategy. These have been identified through stakeholder engagement, capturing the input of a wide range of industry expertise. These further proposals complement the core interventions to enhance capacity, in some cases directly and in others by improving the wider capability of freight routes around London.

CORE INTERVENTIONS

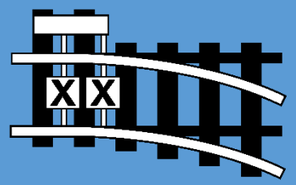
There were five enhancements to the London orbital routes identified as necessary to facilitate the level of capacity reflected in the recommended timetable solution described above. Four of these are put forward as options for funders by this strategy and the fifth is a recommended requirement that will need to be realised separately.



CAMDEN ROAD PLATFORM 3

This proposal would reinstate a third track and platform on the northern side of Camden Road station, utilising part of the former 4-track formation through the station.

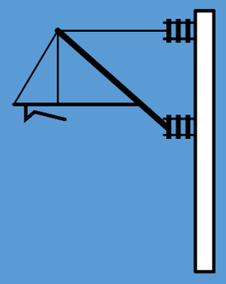
The additional capacity provided would facilitate much greater flexibility in pathing options for trains on this busy central section of the NLL, opening up new options for future service provision and bolstering performance resilience. Reinstatement of a third platform would enable platform 2 to be used as a central turnback, with platform 3 becoming the eastbound line for through London Overground services and the majority of freight. Transport for London modelling suggests that the eastern end of the NLL, from Canonbury to Stratford, will see some of the strongest long-term demand growth on the Overground network. A turnback platform will allow this to be addressed with peak capacity boosting Stratford-Camden Road services and there would also be the option to operate these through the off-peak, which could offer a means of providing additional passenger capacity where it is most needed. The availability of an additional platform would also aid performance recovery during perturbation on the orbital routes.



KENSAL GREEN JUNCTION IMPROVEMENT

Kensal Green Junction, just to the northeast of Willesden Junction High Level station on the North London Line, is a key location for the functioning of the orbital routes. It connects the North London Line to the West Coast Main Line and Wembley Yard, a vital link for cross-London intermodal flows. Westbound freight trains must cross over the flat junction to access the City lines towards the West Coast Main Line, a conflicting move with any eastbound London Overground or freight services from Willesden Junction High Level. Ensuring these moves can take place as quickly and as smoothly as possible is essential to the efficient use of capacity on the North London Line.

The proposed enhancement would upgrade the junction, moving it slightly to the east and realigning the layout, to facilitate faster crossing speeds. Currently trains from the City lines (in the eastbound direction) are limited to 10 mph over Kensal Green Junction, while trains towards the City lines (in the westbound direction) are limited to 15 mph. This scheme would increase speeds through the junction so that trains can safely cross it a minimum of 3 minutes after a conflicting movement – they currently have to wait at least 4 minutes. Although this is a relatively minor scheme, it could have a significant positive impact on both capacity and performance in the area.



WEST LONDON LINE AC/DC CHANGEOVER – SHEPHERD'S BUSH

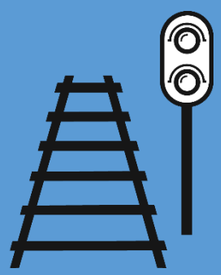
Extending the Overhead Line Equipment south to Shepherd's Bush would enable passenger trains to change traction source whilst making their scheduled station stop. A slight extension to dwell times at Shepherd's Bush may be required, but the elimination of the need to slow down or, especially, to stop, as is the case for GTR trains, at North Pole Junction would release a significant amount of capacity.

Recent work carried out on behalf of Transport for London calculated that the relocation of the changeover to the Shepherd's Bush could provide an indicative net saving of 7 minutes per hour, which is equivalent to an additional path and some additional time for timetable flexibility. The **LRFS** capacity analysis concluded that this intervention could potentially release up to two additional timetable paths an hour in each direction. Moreover, the analysis advised that eliminating the need for GTR services to stop to change traction at North Pole Junction would be of significant performance benefit even today.

CLAPHAM JUNCTION PLATFORM 0

The longstanding proposal for the creation of additional bay platform capacity at the northern end of Clapham Junction station, for the use of London Overground West London Line services, is supported by this strategy. The scheme would reinstate the disused former platform 1 to create a newly designated 'Platform 0', adjacent to the present platforms 1 and 2. This intervention has been recognised as key to long-term growth on the West London Line by several previous pieces of work for both Network Rail and Transport for London, which have consistently concluded that additional platform capacity at Clapham Junction is needed, if TfL's aspiration to increase the WLL Overground service to 6 trains per hour is to be met. Capacity analysis for the **LRFS** has reaffirmed that the desire to operate this level of service throughout the day cannot be achieved with a single bay platform.

Although this scheme would clearly be of direct benefit to the London Overground passenger service, the positive impact it would have on the capacity and performance of the WLL overall means that it is also very much in the interest of freight that Platform 0 be delivered. Without a new bay platform, the main alternative means to increase Overground train frequencies involves the use of platform 17 at the far end of the station, where freight and GTR trains pass through towards the BML. This is a sub-optimal solution for both freight and passenger operations.

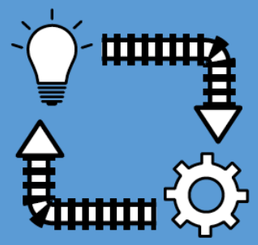


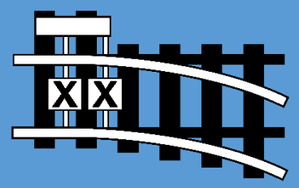
NLL, GOB AND WLL HEADWAY REDUCTIONS

Signalling enhancements to facilitate consistent 3-minute headways on the three orbital lines where these are not currently feasible will be necessary, if growth akin to the timetable solution identified by the capacity analysis for this study is to be realised. It is not the role of the **LRFS** to specify the nature of these upgrades, however it is expected that the required headway reductions are most likely to be achieved in a more manageable and cost-effective way through the deployment of European Train Control System (ETCS) digital signalling. For more information on the Digital Railway Long-term deployment plan, see https://www.networkrail.co.uk/running-the-railway/railway-upgrade-plan/digital-railway/digital-railway-strategy/digital-railway-long-term-deployment-plan/

ADDITIONAL OPTIONS

The following proposals supplement the core interventions in the previous section, ensuring that the **LRFS** presents a broad range of options to address the range of rail freight needs in London over the long term, as well as tackling capacity at key locations.

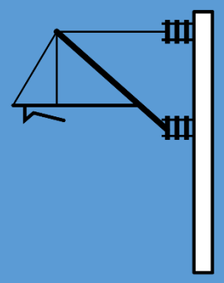




HARLESDEN JUNCTION DOUBLING

At present, several Goods lines from the direction of Wembley Yard converge into a single lead through Harlesden Junction, the connection to the City lines, from which the North London Line is accessed. This represents a bottleneck where trains are unable to pass in each direction simultaneously. Conceptual design work for the **LRFS** has identified that the bridge span immediately above the junction, which the two West Coast Main Line Slow lines also pass under, formerly accommodated four tracks in total.

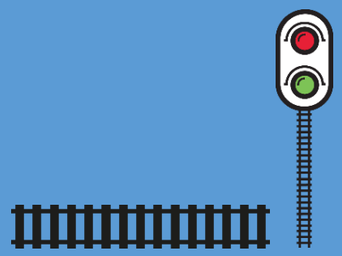
Because the City lines extend for a relatively short distance between Harlesden Junction and Kensal Green Junction, a speed increase at Harlesden Junction is necessary in order to align with the uplifted speeds proposed for Kensal Green Junction (see Core Interventions). Upgrading Harlesden Junction is therefore required in order to realise the benefits of the core intervention at Kensal Green Junction. Doubling the junction would further ease the flow of freight trains through this critical connection between the West Coast Main Line and the orbital routes.



WEST LONDON LINE AC/DC CHANGEOVER – KENSINGTON OLYMPIA

Although moving the changeover to Shepherd's Bush would eliminate the need for passenger trains to slow down or stop at North Pole Junction, electrically hauled freight trains will still need to switch power supply modes whilst moving, wherever the AC/DC interface is located. Due to the substantial incline facing trains running northward on the WLL, which increases in severity towards the Willesden end of the route, it would be preferable for the changeover to be made as far south as possible. This would enable freight trains to slow down to switch traction before reaching the worst of the gradient, giving them a much better chance of regaining line speed once drawing power from the OLE.

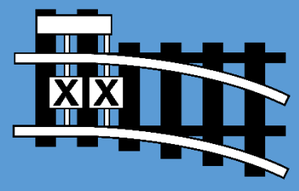
Although Kensington Olympia is less than a mile to the south of Shepherd's Bush, the intervening route section is almost entirely level, with the incline commencing just before Shepherd's Bush station and continuing to rise sharply along the rest of the WLL. The capacity and performance benefits of relocating the changeover are therefore likely to be greater if the overhead wires are extended to Kensington Olympia, removing the risk to traffic flow that would remain if freight trains were forced to switch whilst running uphill. This would prepare the West London Line for the transition to electric freight that will be necessary as part of the decarbonisation of the railway over the next thirty years. Resolving the current traction changeover issues for freight as well as passenger trains would support this transition by encouraging freight operators to invest in electric locomotives to run on the orbital routes, in the confidence that this constraint has been addressed.



STRATFORD REGULATING POINT EXTENSION

Capacity analysis for this study emphasised in its conclusions that the key to making the timetable work is the ability to hold trains in strategic locations in order to match capacity between the orbital lines and the radial routes in and out of London (see p.12). It therefore noted that holding capacity at Stratford for the longest freight trains (up to 775m) is essential, recommending that consideration is given to lengthening the Up Channelsea Loop at Lea Junction in particular.

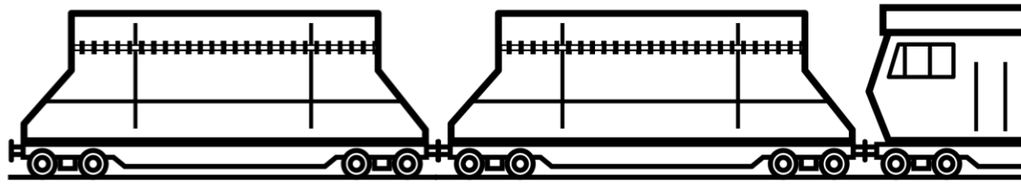
The purpose of this scheme would be to provide a regulating point offering 775m standage for freight trains passing through Stratford towards the NLL, fully segregated from other traffic. This would be achieved by extending the existing Up Channelsea Loop to the North-West, so that it can accommodate a 775m train clear of Stratford Central Junction. This option offers combined capacity and train lengthening benefits, as the ability to regulate the longest trains at key interface points on the network increases the chances of finding them a compliant path through successive timetable structures as they pass from route to route.

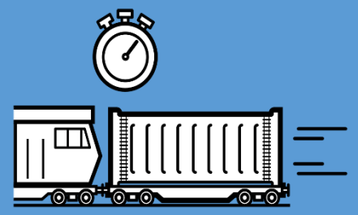


NUNHEAD JUNCTION IMPROVEMENT

Rail freight stakeholders have consistently highlighted Nunhead as a priority location for improving the flow of freight around the London orbital routes. The junction to the immediate east of the station is a flat crossing where two lines of route and multiple passenger and freight services groups converge into the South London Line, creating a pinch point for capacity. Freight train drivers, when consulted for input into this strategy, flagged the route eastbound from Peckham Rye through Nunhead and towards Lewisham as a challenging section on which to keep heavier trains moving. This is primarily a consequence of the relatively slow permissible speed of 25mph over Nunhead Junction when routed towards Lewisham, which follows a steadily rising gradient from Peckham Rye.

The option proposed by this strategy is for changes to the track alignment in order to increase the speed of the turnout towards Lewisham, as far as can be achieved without affecting the speed of the main route towards Catford. This option would primarily benefit the performance of eastbound freight flowing from the South London Line towards the North Kent lines, one of the key rail freight corridors in the South East, enabling freight trains to run at faster and more consistent speeds towards Lewisham. This would most likely increase right time presentation at the critical flat junction at Lewisham, as well as assisting the flow of passenger and freight trains to the Catford Loop by ensuring preceding Lewisham-bound traffic can clear Nunhead Junction as quickly as possible. Addressing the existing constraints to freight traffic through Nunhead, which by their nature most affect the heavier bulk traffic that characterises the North Kent corridor, would also support industry aspirations to maximise the payloads that trains can haul.



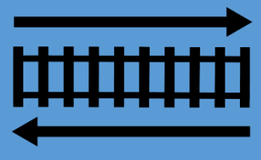


LONGHEDGE JUNCTION SPEED INCREASES

There is an opportunity to enhance Longhedge Junction, a key location for freight passing through the Battersea area, to enable higher speeds and provide faster transit between the South London Line and West London Line or Clapham Junction (for the Brighton Main Line or Windsor lines). This would benefit the numerous freight flows through this important part of the network, where two orbital routes connect to each other and to radial routes in and out of London to the south and south-west. London Overground SLL services running to and from Clapham Junction would also benefit from an increase to the existing 25mph line speed through Longhedge Junction.

GOSPEL OAK SPEED INCREASES

This proposal would see the current 20mph line speeds through Gospel Oak increased, through an upgrade to the junction immediately to the west of the station. Improving the flow of traffic through this critical flat junction, where the North London Line and Gospel Oak-Barking Line meet, would be of benefit for the wider operations and performance of these orbital routes. Freight trains in particular, which run non-stop through Gospel Oak, using all available routes, would see a notable uplift to how quickly they are able to pass through the area. This would not only contribute to achieving the fast end-to-end cross-London paths that are a priority for freight but would also reduce the time trains would occupy the junction, increasing performance resilience at Gospel Oak, the impact of which would drive improvement right across the North London Line and Gospel Oak-Barking Line.



EAST COAST MAIN LINE SOUTH BI-DIRECTIONAL CAPABILITY

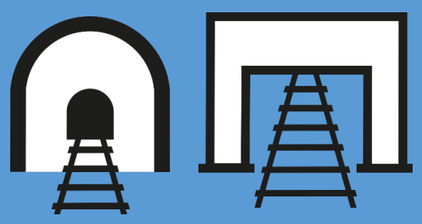
The southern end of the East Coast Main Line, from Kings Cross to Stoke Tunnel (about five miles south of Grantham), is due to be the first part of a national main line to be fully converted to European Train Control System (ETCS) digital signalling. ETCS, because it does not rely on fixed lineside equipment facing one way or another, is bi-directional by nature. This presents an opportunity for freight to make use of a new routeing at the southern end of the East Coast Main Line, which current signalling and track layout do not permit.

This strategy therefore proposes installing new track layout features that would facilitate this routeing for freight trains, enabling them to take advantage of the bi-directional capability brought about through ETCS deployment. The main expected change would be the creation of a facing crossover at Bowes Park, to enable southbound freight trains to run onto the Down Enfield Viaduct in the up direction, before continuing onwards to the terminal at Ferme Park or accessing the Gospel Oak-Barking Line at Harringay.

HEAVY AXLE WEIGHT RESTRICTIONS

In consultation with train drivers for the Freight Operating Companies and Network Rail structural engineers, this study has identified a list of Heavy Axle Weight restrictions on routes used by freight in London, which are known to negatively impact the movement of heavier trains around the network. The resulting proposal, as part of the **LRFS**, is for packages of works to enable the removal of these restrictions to be progressed. A general package of cross-London interventions, targeting structures across a variety of routes, has been outlined for development. In addition, a large stretch of the Gospel Oak-Barking Line, where Heavy Axle Weight traffic is subject to a blanket 20mph speed restriction, should be the focus of a dedicated package of works to facilitate the removal of that restriction and to strengthen the route so that it is capable of accommodating future rail freight growth.

Although these proposed packages of works should address the structures currently known to cause speed restrictions that negatively impact freight operations in London, maintaining the infrastructure to a level that can safely accommodate Heavy Axle Weight loads is an ongoing challenge for Network Rail. There are no permanent fixes when dealing with structures that have been bearing railway traffic since the nineteenth century. Ongoing maintenance funding to prevent the need for HAW speed restrictions to be imposed in the first place is just as critical as interventions to remove existing ones.

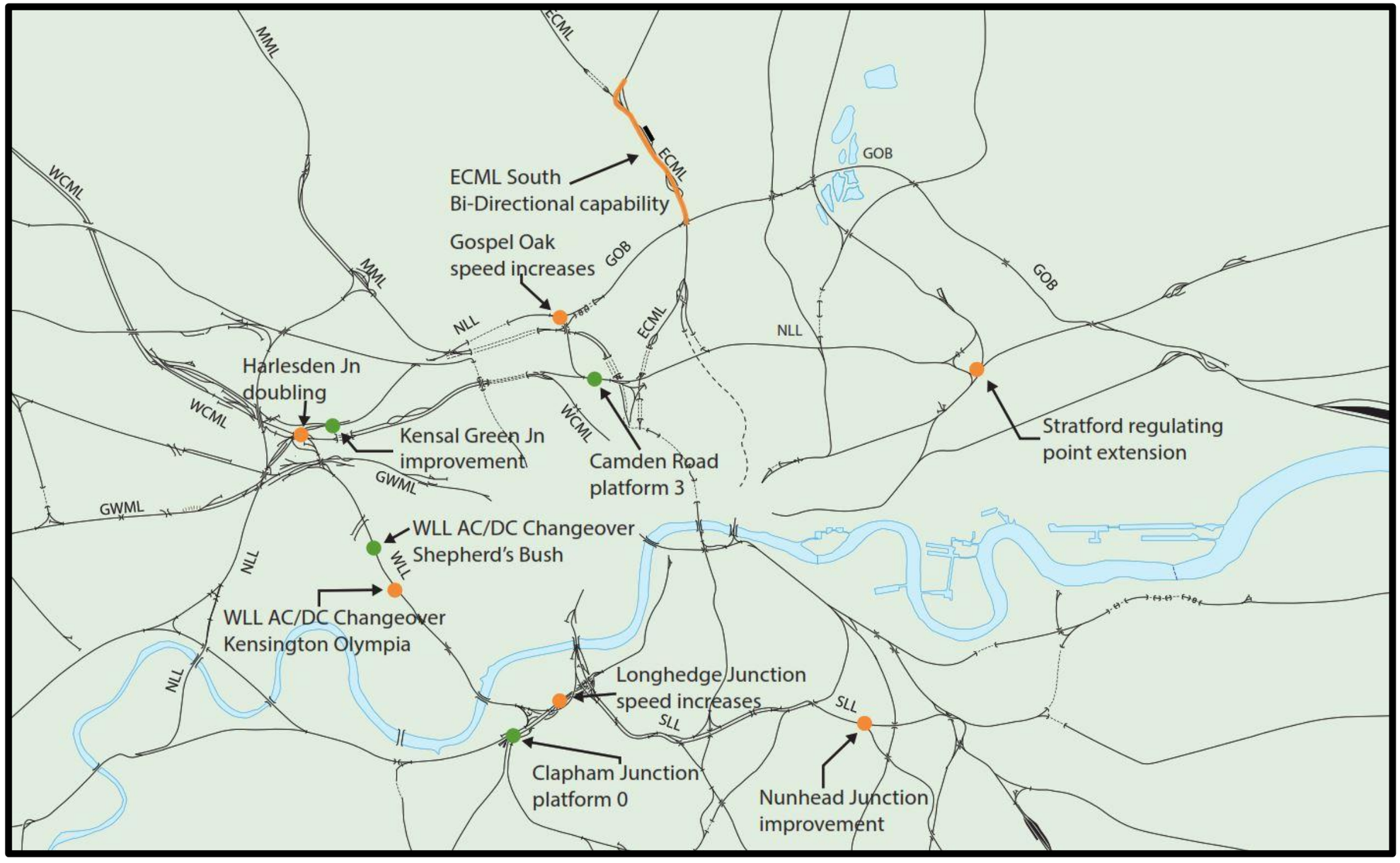


GAUGE ENHANCEMENTS

The portfolio of options developed from this strategy needs to include a cross-London programme of gauge clearance, to address existing gaps and open up new market opportunities for rail freight in the long-term future. Priorities in this area include:

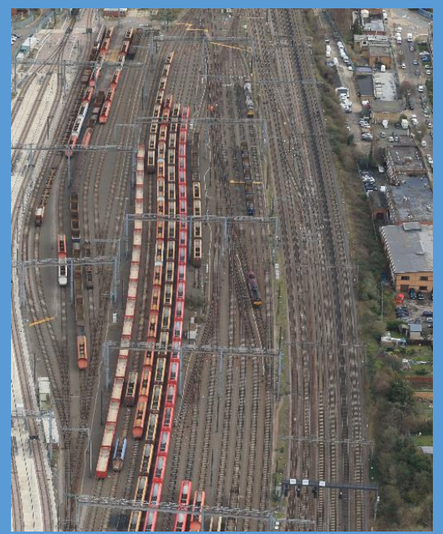
- Formal publication of W10 clearance on the North London Line from Kensal Green Junction to Acton Wells Junction. This section is currently only published as W9 but has been used for diversions of W10 traffic in the recent past
- Further work to understand what would be required to achieve W12 clearance on the North London Line and Gospel Oak-Barking Line. This stands to enable rail freight to take advantage of emerging opportunities in the short-sea market from the Essex Thameside ports and is a priority for stakeholders.
- Continued development work towards gauge enhancement of the Channel Tunnel classic routes, which run through south and west London to Wembley. The ultimate aim is to progress a programme of clearance works to achieve full W12, but opportunities to deliver incremental improvements by clearing for wagon and box combinations above what is possible today, but short of W12, are also being actively considered.

MAP SHOWING THE CORE INTERVENTIONS (GREEN) AND THE ADDITIONAL OPTIONS (ORANGE)



YARDS & TERMINALS

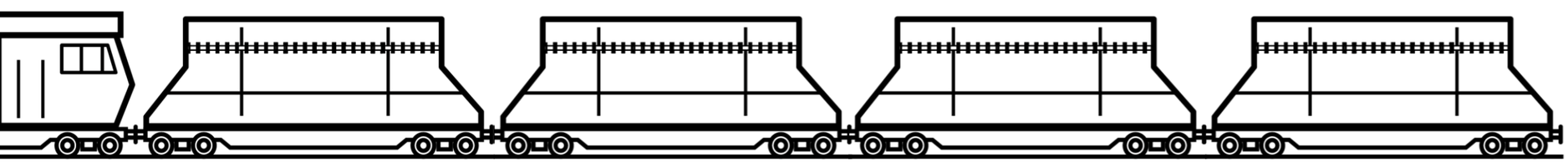
Whilst there is a need to develop the rail network for future freight growth, doing so can only be effective if there are sufficient number and standard of yards and terminals for goods to be moved between. Currently, provision of these facilities around London is very much a mixed picture, with good quality nodal yards at certain locations and a wide array of construction railheads, but gaps elsewhere. Improvements in this area will require continued collaboration across the rail sector, but are also dependent on a favourable planning environment.



YARDS

Freight yards are important staging points for trains moving around the network and are a major asset to effective rail freight operations. Yards that meet modern standards of capability (e.g. 775m standage and W12 loading gauge if used primarily for intermodal traffic, the ability to split and combine construction trains, facilities for crew changes, refuelling etc.) and whose location is of strategic value for the regulation of traffic flows are especially prized. The industry's established aim is to further develop a network of these nodal yards right across the country. The current scheme to enhance Ripple Lane Yard, in Barking, to nodal standard is a prime example of this in action.

Key gaps in provision identified by this study are, in the London area, the lack of nodal standard yards besides Acton and Wembley, especially south of the Thames, and a general need for further capacity for the laying over of wagons between circuits, in order to support continued growth in the construction sector. The enhanced regulating capability offered by a nodal yard can be especially valuable at points of route interface, where holding points for freight trains are most needed. For example, the West London Line, which is a critical artery for freight around London, on which multiple routes converge at either end, would benefit from improvements to freight regulating capability at either its northern or southern end. Although the construction of entirely new yards is a challenging proposition in an urban environment, opportunities to develop additional or improved regulating points, including smaller facilities, should be pursued around route interface locations where they can benefit the pathing of freight trains around the network.



TERMINALS

The trajectory of growth in the rail freight sector, market forecasting, the long-term public policy environment and industry stakeholder ambitions all suggest there will be a need for additional freight terminals serving London in the future.

Construction

London benefits from having numerous construction sector railheads, some located remarkably close to the city centre, a major advantage in providing proximity to major building sites. However, these face ongoing challenges, principally the safeguarding of existing sites in a context where large parcels of land possess huge potential redevelopment value and where development in general results in greater instances of housing alongside industrial activity, with the attendant issues that can emerge. It will continue to be essential for London's growth and regeneration efforts to have strategically located construction materials handling railheads spread across the city. The provision of suitable such terminals in sufficient number will be critical to the extent to which rail is able to meet future demand from the market.

Network Rail's Freight and Property teams work closely with the wider industry and local stakeholders to support the redevelopment of existing rail terminals in London, in order to optimise tenure on what are often constrained sites, and to identify and progress opportunities for new railheads to be established. Network Rail also maintains a reserve of strategic freight sites, in order to preserve potentially valuable locations for future rail freight use.

Intermodal

Rail-connected intermodal terminals are a rarity in London, despite it being the largest population centre in the country. Britain's major deep-sea ports (Felixstowe, Southampton and London Gateway) are all situated on the south-east of the island at relatively short distances from the capital, but in general, the goods imported through them are rarely supplied directly into London, because supply chains tend to operate on the basis of moving containers first to National Distribution Centres (NDCs) in the centre of England. Rail currently also lacks a significant share of the NDC to Regional Distribution Centre (RDC) leg, owing to the lack of rail-connected RDCs nationally, including in London and the South East. As a result, supply to the London consumer goods market is heavily dominated by road transport at present.

Rail-connected terminals are a key enabler for delivering growth in intermodal traffic and without a substantial increase in the current number (and total area) of rail-connected warehousing sites across Great Britain, significant growth will not be delivered. Recent years have seen positive developments nationally, with new sites opening and proposed developments receiving approvals. This trend will need to be replicated in the South East, although solutions tailored to London's own circumstances and economic geography are likely to be required, the expectation being that the larger distribution hubs will continue to be situated around central England, with smaller modal transfer sites envisaged for the capital. Terminal developments also need to be supported by development of the rail network, especially gauge clearance, if rail freight is to play a greater role in serving the London consumer good market.

Future terminal capacity for London

The **LRFS** proposes the development of a cross-London programme of works to realise a consistent operational standard for construction sector terminals, with a minimum of accommodating 20 wagon trains and a target of 26 wagons. This strategy also proposes a comprehensive review of railway-adjacent land across the London area, with a view to the identification and safeguarding of any remaining sites with potential to be of value for future freight use.

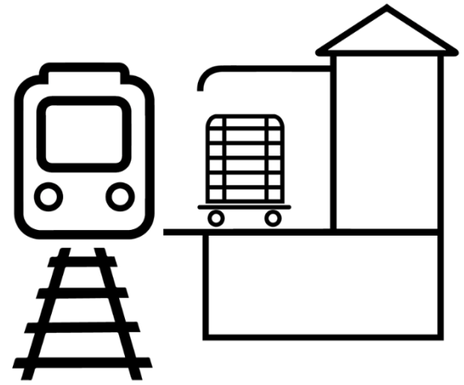
THE FUTURE OF THE RAIL FREIGHT MARKET

In addition to continuing to grow existing market sectors, rail freight will need to be increasingly responsive to new opportunities and find ways to move different types of goods on the rail network. Two future trends the industry expects to see emerging in the London area over the coming years are a new rail market in high-speed light logistics and new models of operating for intermodal freight.

In a wider context of urban repopulation and the growth of same-day delivery and convenience grocery retail formats, combined with the air quality and congestion impacts of fuelling these by road distribution, promoters believe there is an opportunity for the development of a rail haul offer for consignments of parcels and consumer goods directly into urban centres, for onward distribution by zero-carbon delivery vehicles. Under such a scenario, lighter weight, higher speed (which on some routes would make pathing them amongst passenger trains easier), shuttle frequency freight services could link established national distribution facilities directly into urban logistics hubs developed on the railway estate, or potentially exploit out of hours opportunities at major passenger termini.

In 2021, Orion, the high-speed logistics business created by Rail Operations Group (ROG), plans to operate a trial between London Gateway and platforms 9 and 10 of London Liverpool Street, using converted former passenger units with 'tri-modal' traction capability that offers flexibility to run right across the network in future. ROG have recently reported the launch of the first Orion unit and the cementing of customer discussions into firm business plans due to commence in 2021 and beyond. Accommodating this promising new market on the rail network will require access to viable points of delivery within city centres and suitable timetable paths for trains to operate in. The Orion trails will provide a useful indication of the feasibility of using passenger stations for this purpose, as well as valuable learning to drive the optimisation of future operations and capacity allocation.

The intermodal sector across the GB freight market is expected to experience substantial changes over the coming decades. Freight in general is expected by stakeholders to see a trend of further containerisation and a shift away from the 'Ro-Ro' (Roll on/Roll off) lorry-hauled model towards a greater proportion of 'Lo-Lo' (Load on/Load off) becoming the norm, all of which should favour rail freight compared with its road competition. Although development of rail-connected distribution centres and the expansion of the domestic intermodal market are priorities for the future, additional possibilities include the introduction of modular wagon types and the operation of shorter, faster trains to deliver smaller box types to more centrally located urban terminals. As with the high-speed light logistics market, realising new opportunities in this area will require technological innovation, provision of suitable terminal locations and network capacity in which to operate.



CONCLUSION

Accommodating London's rail freight requirements over the next thirty years demands a multi-faceted approach that will alleviate constraints, increase capacity, improve capability and facilitate growth. This strategy aims to set out a high-level approach for this to be achieved, by presenting options for network enhancement schemes to the railway's funders and highlighting the importance of the ongoing development of rail freight terminals and new markets.

Capacity analysis for this study concluded that substantial levels of growth, as specified by both freight and passenger stakeholders, can be accommodated on the London orbital lines by the 2040s, but this is dependent on a series of investments to provide enhanced infrastructure that would enable increased services to operate. This includes a set of core interventions – major schemes to unlock additional capacity that could be developed and delivered gradually over the next twenty to thirty years. These could be supplemented by a range of additional options to deliver incremental boosts to capacity, performance and capability on the routes used by freight around London.

Future growth will also be dependent on the ability of the rail network infrastructure to withstand increasing traffic levels, particularly in the case of the heavier bulk freight flows. Network Rail faces an ongoing challenge in maintaining the track and underline structures over which freight operates. The impact on the planning and funding of maintenance and renewals activity that delivery of the schemes proposed by this study would have will need to be considered during the course of their development.

In addition to the improvement of the rail network itself, freight in London will continue to require strategically located yards and terminals. The extent to which opportunities to improve existing facilities and provide new ones for the use of freight trains are grasped will have a major impact on the sector's capacity for growth over the long-term future.

There are a number of clear opportunities for new-to-rail freight markets to take off in the next few years and there are likely to be many as yet unforeseen trends that will emerge over the next three decades. The network in the London area will need to be responsive to new sources of demand for the mode shift benefits of rail use to spread even further through the logistics sector.