Rail Freight Forecasting and the Long-term Growth Target

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RFG Autumn Meeting

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History of Rail Freight Forecasting

- *SRA Freight Strategy, May 2021*
  - First genuine attempt post-privatisation at forecasting rail freight demand using econometric modelling
- Forecasts periodically updated by MDS Transmodal
  - 2008 for RFG and FTA
  - 2011 for RFG and RFOA
- Since 2013 for Network Rail – long-term planning and periodic review inputs produced by MDS Transmodal
  - 2013
  - 2017
  - 2021
  - 2023 (informed the 75% growth target)
  - 2025 (re-adjusted to align with growth target)
  - 2026 (completed but not yet signed-off)
- *Transport 2010: The 10 Year Plan*
  - Published in 2000
  - Rail freight growth targets are not new!



Appendix B

Demand Modelling

In order to inform the developing SRA Freight Strategy, and to understand the potential for growth of rail freight, the SRA has utilised two demand forecasting models.

MDS Transmodal – GB Freight Model

MDS Transmodal were commissioned to further develop their STEMM model to enable the modelling of a range of scenarios and to provide input into the Government's 10 Year Plan. The STEMM model, originally developed to consider Channel Tunnel traffic, has evolved into an open access model of the UK freight industry. It was further developed for the SRA to enable consideration of additional cost and policy options.

- a significant increase in **rail freight's** share of the freight market by 2010. We believe it ought to be possible to increase market share to 10% by 2010 from 7% now - an 80% increase in rail freight - provided the rail freight companies can deliver improvements in performance and efficiency.

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Long-term Rail Freight Growth Target

- *The Plan for Rail* (2021) committed the Government to setting a long-term rail freight growth target
- GBRTT tasked with developing options for the target
  - Call for evidence from industry
  - Commissioned long-term forecasts from MDS Transmodal – range of scenarios reflecting pro-rail and pro-road assumptions
  - *Scenario 2*, a TAG compliant scenario broadly reflecting business-as-usual, produced a growth rate of 78% in terms of freight moved by 2050
- December 2023 – Growth target set at 75% in terms of freight moved by 2050
- Re-adjusted forecasts in 2025 to align with the growth target
- Railways Bill, if enacted:
  - Place a duty on the Secretary of State to set and keep under review a long-term growth target for the rail freight sector
  - Interim target of 40% by 2040 recently set by Secretary of State



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75% Growth Target Demand Forecasts

	Million tonne-km			% Growth	
	2023/24	2040/41	2050/51	to 2040/41	to 2050/51
Intermodal	6,719	11,111	15,185	65%	126%
Construction materials	4,775	7,591	9,865	59%	107%
Biomass	898	898	898	0%	0%
Coal for electricity generation	36	0	0	-100%	-100%
Petroleum products	787	315	0	-60%	-100%
Other coal and iron ore	149	149	90	0%	-40%
Postal / Light logistics	88	216	216	145%	145%
Automotive	71	71	71	0%	0%
Chemicals	0	0	0	0%	0%
Domestic Waste	268	268	268	0%	0%
Returning empty bulk containers	65	65	65	0%	0%
General Merchandise	75	75	75	0%	0%
Industrial Minerals	340	340	340	0%	0%
Metals	998	998	998	0%	0%
Nuclear	15	15	15	0%	0%
Network Rail engineering	1,428	1,428	1,428	0%	0%
Other	120	120	120	0%	0%
TOTAL	**16,832**	**23,660**	**29,634**	**41%**	**76%**

- Key forecasting tool – GB Freight Model, with bespoke techniques for particular sectors
- Assumed real terms increases in drivers wages, HGV costs and diesel, alongside small increase in road journey times (broadly pro-rail)
- Track access charges
  - ORR's regulated changes to 2028/29
  - No real terms changes after 2028/29
- Assumed no changes in asset utilisation, train productivity and mean speeds
- Average growth rate of 2.0% per annum to 2040/41 and 2.1% per annum to 2050/51 on a compound basis
- Intermodal and construction of the main growth commodities
- Did not consider:
  - Scrap metals related to Port Talbot and (potentially) Scunthorpe electric arc furnaces
  - Sustainable aviation fuels
  - Hydrogen and CO_2 from carbon capture
  - High speed intermodal

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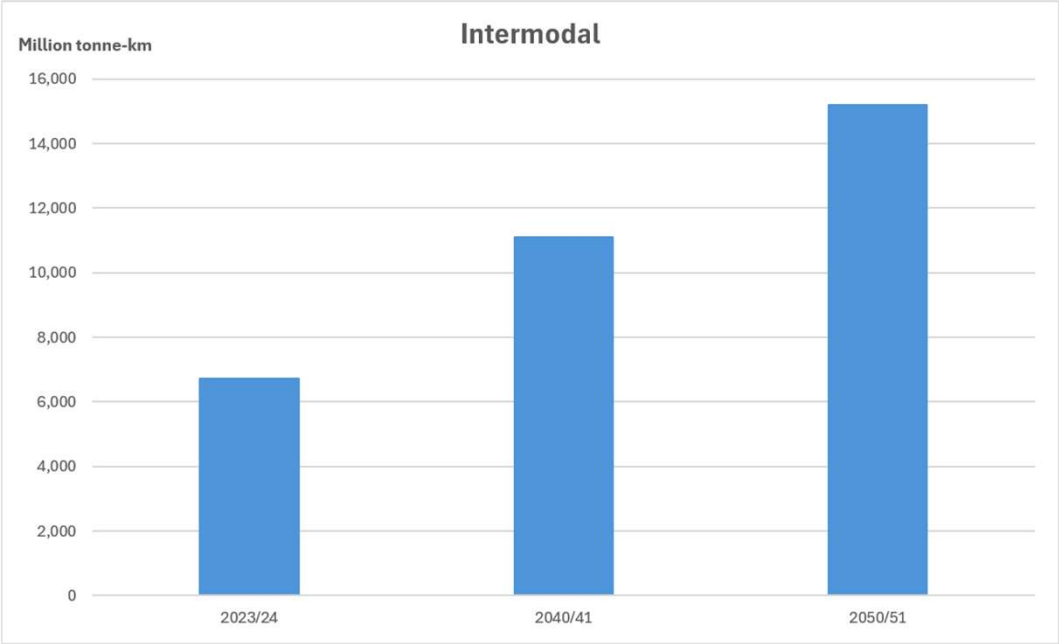
75% Growth Target Demand Forecasts – Intermodal



The key economic drivers for intermodal are:

- Growth in both deep-sea unitised trade (+74% by 2050/51) and European unitised trade (+53% by 2050/51)
- Domestic non-bulk traffic growth (30% by 2050/51)
- Enhancement of Trans-Pennine routes – gauge clearance from Teesport, Humber etc..
- Rail-served warehousing increases from 2.9 million sqm in 2023/24 to 9.4 million sqm by 2050/51
    - Expansion and additional sites such as DIRFT and East Midlands Gateway

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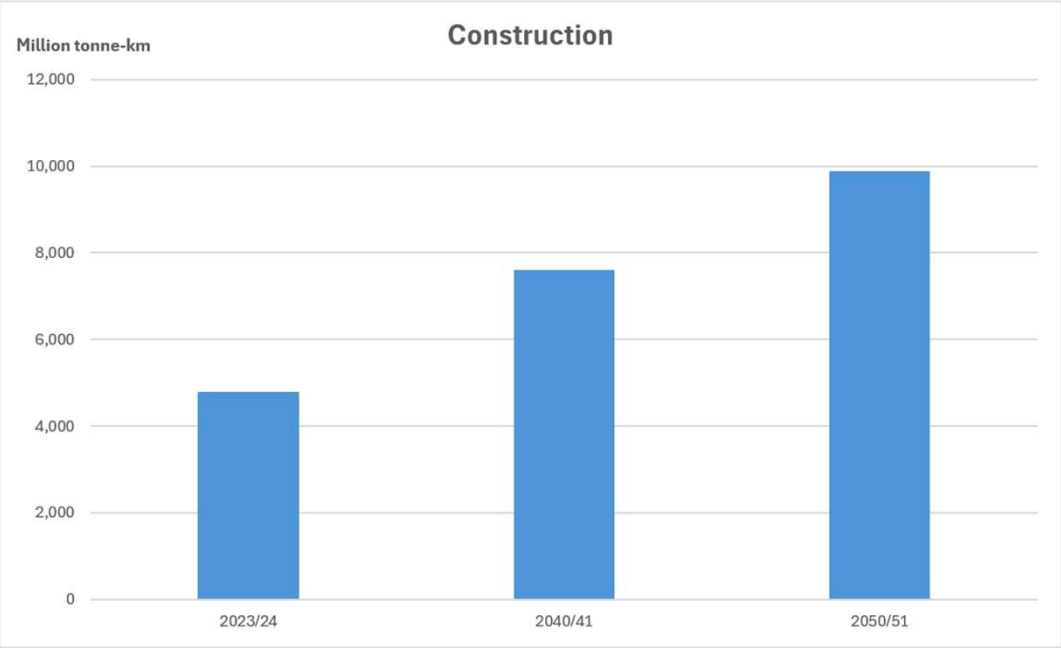
75% Growth Target Demand Forecasts – Construction



- Forecasts are based on Minerals Products Association (MPA) forecasts to 2035
  - Trends for each sector continue linearly from 2035 to 2040/41 and 2050/51
  - Includes housing and 'mega projects' e.g. Sizewell C
- Except where new quarries are planned, the forecast growth in crushed rock was principally allocated to existing sites of production (quarries)
- Increase in sea dredged sand/gravel as land-won resources declines. Assumed each region uses its own ports, except:
  - East Midlands (sourced from Immingham)
  - West Midlands (sourced from Avonmouth)

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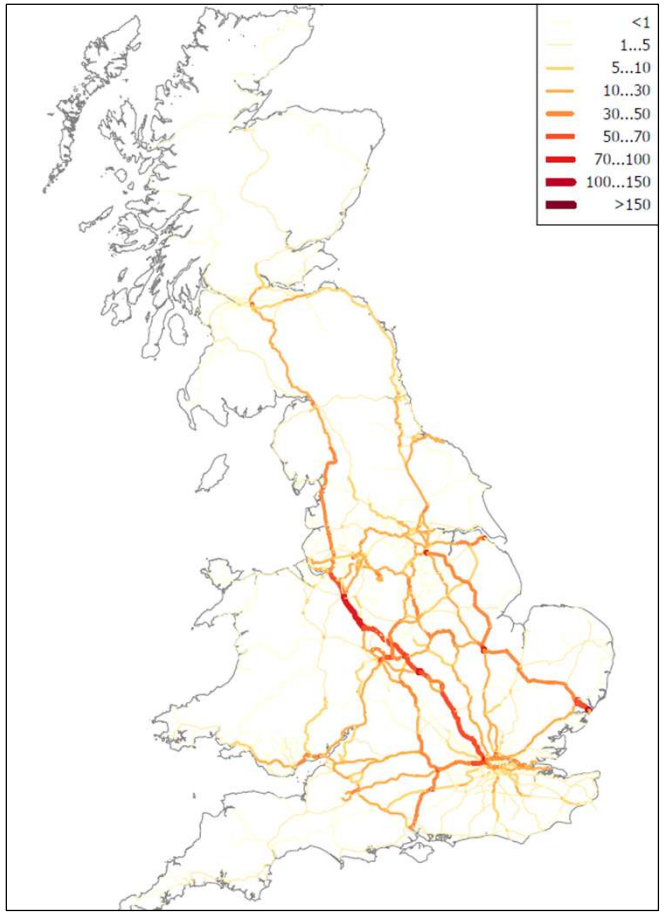
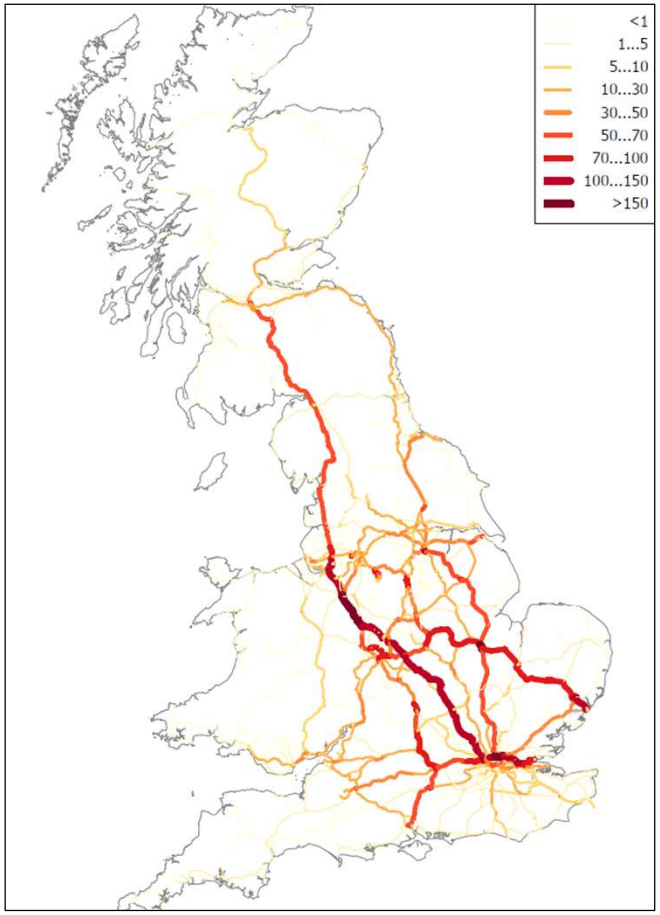
75% Growth Target Demand Forecasts

Forecasting included estimating numbers of trains each day and assigning to routes

- Based on existing behaviour for current traffics
- For new traffics, assignment based on shortest route (based on expected loading gauge clearances)



Base-year 2023/24



Future-year 2050/51

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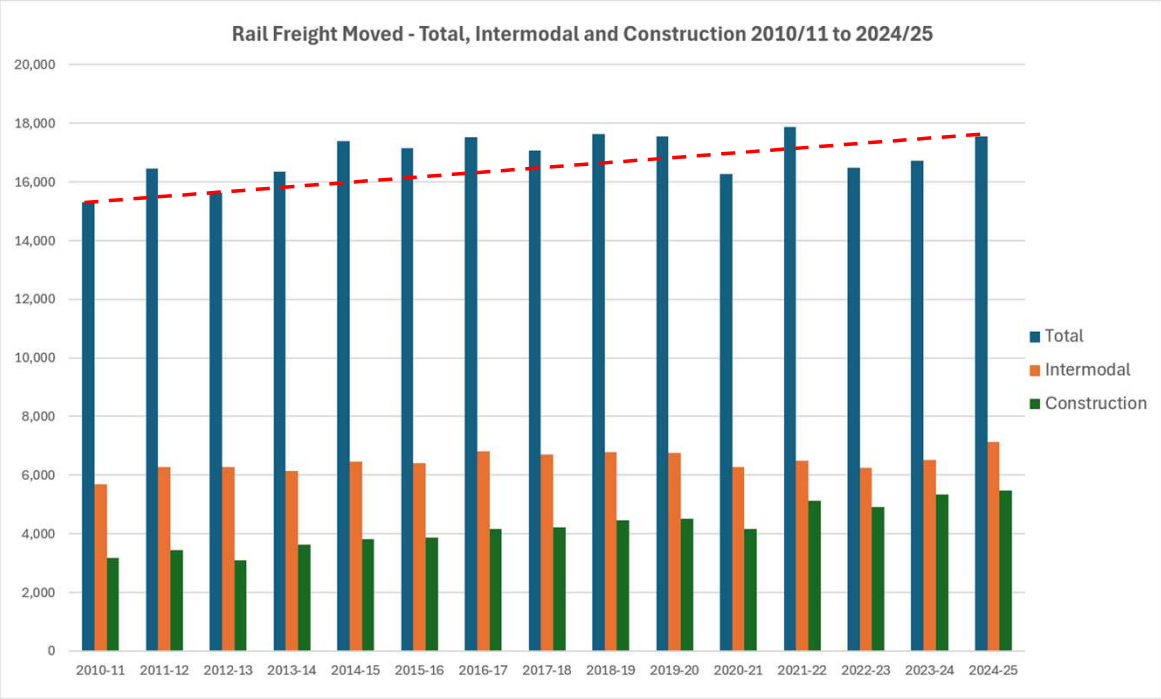
75% Growth Target Forecasts – Historical Context

	Million tonne-km			*Forecasts*	
	2010-11	2024-25	CAGR	*CAGR to 2040/41*	*CAGR to 2050/51*
Total	**15,310**	**17,555**	**1.0%**	***2.0%***	***2.1%***
of which:					
Intermodal	5,676	7,128	1.6%	*3.0%*	*3.1%*
Construction	3,188	5,481	3.9%	*2.8%*	*2.7%*

Excluding coal
Source (historic): ORR



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How Will the Growth Target be Acheived?

- It's the infrastructure, stupid! (with apologies to former US President Bill Clinton)
  - Investment to fix flat junctions, ETCS fitment, longer passing loops, gauge enhancement etc… – job done?
- Enhancements to both capability and capacity of the track infrastructure will be part of the solution, e.g.
  - Trans-Pennine upgrade – hopefully deliver the capability capacity to operate intermodal trains east-west (suppressed demand)
  - Ely North Junction and East-West Rail – more capacity for Felixstowe and London Gateway
  - HS2 to Crewe – Colwich bottleneck
  - Insert '*your scheme*' here!
  - Network Rail and subsequently GBR – but where will the funding come from?
- Other issues and factors will come into play, some outside the control of the rail freight sector
  - General state of the economy, policies covering house building and infrastructure, Heathrow 3rd runway, EU re-set
  - Continued development of rail-served warehousing (SRFIs)
  - Need for other new rail terminal facilities – smaller scale RFIs, aggregates terminals near urban centres
  - Track access charges under GBR – reform and simplify structure, lower rates overall, discounts targeted at shorter-distance flows
  - Reform of the freight grants schemes
  - Timetable development and better freight path utilisation – GBR an opportunity to rationalise passenger timetable?
  - Asset utilisation and productivity – wagons and terminals

Rail-served Warehousing

- Expanding existing facilities and developing new sites will be a key driver of future intermodal growth
- Product of investment from the private sector – has a choice of where to invest its capital, both domestically and overseas
- Investor confidence therefore important
  - One of the rationale behind the long-term growth target
- Dependent on gaining planning consent
  - DCO process has overall been positive, delivered new and expanded sites e.g. East Midlands Gateway, DIRFT III
  - Revised NPSNN and updated NPPF, and Government backing for private sector led infrastructure investment
  - Still a time consuming process, and can be affected by issues beyond the railway's and investor's control e.g. Hinckley
- Gaps in the network – need for new schemes to come forward:
  - North West – ILP North + at least one other facility
  - North East
  - Yorkshire-Humber
  - South West – Bristol/Avonmouth



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Rail-served Warehousing

- Has the pace of delivery slowed?
  - Northampton Gateway DCO in 2019
  - West Midlands Interchange DCO in May 2020
- Hinckley RFI refused consent in 2025
- Against background of large growth in warehouse floor space nationally
- Are good schemes being frustrated by network capacity issues?
  - Hinckley – road
  - North West – rail

Large-scale Warehousing England and Wales 2018 to 2026

	000s sqm				
	Q3 2018	Q3 2020	Q3 2022	Q3 2024	Q2 2026
Total England and Wales	**47,524**	**49,544**	**52,942**	**57,907**	**60,451**
of which:					
East Midlands	9,022	9,689	11,023	12,417	12,889
North West	8,150	8,381	8,443	8,846	9,096
West Midlands	7,279	7,440	7,863	8,677	9,173
Yorkshire and The Humber	6,629	6,863	7,232	7,765	8,440
East	4,744	5,213	5,944	6,428	6,601
South East	3,736	3,917	4,113	4,581	4,843
South West	2,724	2,933	2,944	3,376	3,536
North East	1,703	1,664	1,945	2,308	2,345
London	1,992	1,857	1,860	1,905	1,912
Wales	1,545	1,586	1,576	1,606	1,615

Source: VOA
In units . 9,000 sqm (~100,000 sqft)

Freight Train Productivity and Asset Utilisation – Key Statistics

Train Productivity by Commodity Group 2025

	Avg Speed (km/h)	Avg Train Length (m)	Avg Wagons Per Train	Avg Gross Less Tare Tonnes per Train
Domestic Intermodal	56	560	14	428
Maritime Intermodal	48	611	29	471
Construction	40	313	22	1,506
Biomass	44	459	24	1,586
Waste	37	410	21	686
Industrial Minerals	38	227	15	908
Metals	39	368	23	1,322

Wagon Utilisation – Intermodal and Construction Feb-Mar 2026

	Avg Terminal Dwell (hrs)	Avg Journey Time (hrs)	% Time Operating on Network
Intermodal	7.8	6.4	45%
Construction	12.7	3.8	23%

Freight Path Utilisation 2025

	Avg Path Utilisation
Class 4	47.5%
Class 6	32.5%

- Is there scope for improvement?
- High speed intermodal – game changer for Anglo-Scottish flows
  - Overnight into Central Belt for next day e-commerce
  - Additional paths

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Thank You

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