RAIL FREIGHT FORECASTING

TO 2030

by

MDS Transmodal

1. Freight Forecasting

- Port forecasts prepared for Interim Ports Policy (July 2007) to 2030

- Road freight forecasts (from GBFM) now incorporated in 'WEBTAG' process by DfT to 2030

- Rail freight only published by DfT to 2015
  - But all forecasts now internally consistent (using GBFM)
  - Long term infrastructure projects require long run projections

- GBFM is a calibrated model based on evidence of actual road/rail market shares

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2. GB Freight forecasts, 2006 – 2030

		2006	2015	2030	% change per annum ’06 – 30
Rail	Total tonnes (million)	123.7	130.3	197.8	*+2.0%*
	Of which not coal	72.3	94.7	156.7	*+3.3%*
	Of which coal	51.4	35.7	41.1	*-0.9%*
	Tonne km (billion)	23.5	31	50.4	*+3.2%*
	Trains (thousand)	409	434	634	*+1.8%*
	Indices for tonne km:	100	132	215	*+3.2%*
Road	Total tonnes (million)	1,720	1,812	1,968	*+0.6%*
	Total km (billion)	162.9	181	212.2	*+1.1%*
	Indices for tonne km:	100	111.1	130.3	*+1.1%*
Rail plus road	Total tonnes (million)	1,848	1,942	2,166	*+0.7%*
	Tonne km (billion)	186.4	212	262.6	*+1.4%*
	Indices for tonne km	100	113.7	140.9	*+1.4%*
Ports	Total tonnes (million)	575	625	761	*1.2%*
of which:	Lolo containers (m tonnes)	52	79	122	*3.6%*
	Roro (m tonnes)	100*	131	195	*2.8%*
	Bulk liquids (m tonnes)	249	267	282	*0.5%*
	Other dry cargo** (m tonnes)	174	148	162	*(0.3%)*

* including Eurotunnel
** including minor ports
Unitised cargo weights as reported in Maritime Statistics

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3. Rail Freight Forecasting: Rail White Paper July 2007

- Forecast only to 2014/15
- Replicated FRUS projections (March ’07 produced mid 2005)
- ‘bottom-up’ 26% tonnage growth ’04/04’ – ’14/15’
- ‘top-down’ 28% tonnage growth ’04/05’ – ’14/15’
- ‘top-down’ based on GB Freight Model, as are DfT port forecasts and (anticipated) road forecasts (webtag)
  - *GBFM is a calibrated model based on evidence of actual rail market shares*

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4. Importance of long term forecasts

- Rail White Paper states

  "As with passenger growth, it is not possible to forecast with confidence the amount of freight moved by rail over 30 years"

  (para 9.21)

- But investment in other modes based on much longer time frame:
  - private sector acquisition of ports based on 30 year time horizon
  - public sector invests in highways on same timescale

- Given planning and financing timescales, essential rail industry also takes a long run view
  - how else can rail industry command the confidence of the distribution industry as it invests in railside sites?

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5. Forecasts to 2015 & 2030: relationship with planning policy

- Following forecasts to 2015 and 2030 are consistent with FRUS (exc. Coal), interim ports white paper <u>and</u> 2007 Energy White Paper
  - also take account of <u>active</u> plans by developers to build 9m m^2 of warehouses on rail linked distribution parks
  - these represent 30% of likely warehouse construction to 2030, cautious given emerging planning policies stressing importance of rail connectivity

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6. Other key drivers: coal and containers.

2007 Energy White Paper

Terrawat hours from coal

		index
2000:	112	*90*
2005:	125	*100*
2015:	75	*60*
2020:	71	*57*

Interim ports policy 2007

Deep sea containers

Millions TEU

		index
2000:	4.2	*74*
2005:	5.7	*100*
2015:	9.6	*168*
2030:	16.0	*281*

7. Rail Freight Forecasts to 2015 and 2030

- Rail freight forecasts
  - <u>excluding</u> growth in domestic traffic with new sheds

	2006	2015	2030
Tonnes (millions)*	123.7	123.6	168.1
Tonne km (billions)	23.5	26.6	36.6
Trains ('000s)	409	407	526

* Including infrastructure, sourced from NR data.

  - impact of Energy White Paper on coal to reduce tonnes by 15.7m (-2.5 billion tonne kms.)

Assumes <u>existing</u> tonnes/train by commodity AND routing

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8. Rail Freight Forecasts to 2015 and 2030

- Rail Freight Forecasts
  - including growth in domestic traffic with new sheds
  - consistent with 13 - 14% rail modal share to rail linked distribution site

	2006	2015	2030
Tonnes (millions)*	123.7	130.3	197.8
Tonne km (billions)	23.5	31.0	50.4
Trains (‘000s)	409	434	634
% tonne km by rail	12.6	15.0	20.7

* Includes infrastructure, sourced from NR data

Assumes existing tonnes/train by commodity AND routing

9. Cargo categories

m tonnes

	2006	2015	2030	*% p.a. growth*
Intermodal/wagon load				
Domestic	2.2	8.9	31.9	
to/from Port	12.8	25.0	55.9	
	15.0	33.9	87.8	*7.6%*
Bulk/semi bulk				
Metals	11.0	11.5	13.1	*0.7%*
Ore	6.5	6.1	5.5	*(0.7%)*
Construction	21.4	23.8	30.3	*1.5%*
Auto	0.3	0.5	0.5	*2.0%*
Petro/chemicals	8.1	8.5	9.3	*0.6%*
Waste	2.0	2.1	2.0	-
Infrastructure	8.2	8.2	8.2	-
Exc coal	72.5	94.6	156.7	*3.3%*
Coal	51.4	35.7	41.1	*(0.9%)*
Total	**123.9**	**130.3**	**197.8**	***2.0%***

10. Cargo category: Domestic intermodal

m tonnes

Origins

	2006	**2015**	**2030**
E. Midlands	0.6	0.8	3.1
E. of England	-	2.0	10.1
Greater London	-	0.2	0.6
North East	-	0.2	0.7
North West	0.3	0.7	2.3
Scotland	0.8	2.4	5.9
South East	-	1.0	3.0
South West	-	0.6	2.3
Wales	-	0.2	0.8
West Midlands	-	0.4	1.4
Yorks & Humber	0.2	0.4	1.5
Continent	-	-	-
Total	**2.2**	**8.9**	**31.9**

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11. Cargo category: Domestic intermodal

m tonnes

Destinations

	2006	2015	2030
E. Midlands	0.4	0.8	2.4
E. of England	-	0.8	3.4
Greater London	0.2	0.3	0.3
North East	-	0.1	0.3
North West	0.3	1.4	8.1
Scotland	1.0	3.5	9.6
South East	-	0.6	2.0
South West	-	0.5	1.3
Wales	-	0.1	0.6
West Midlands	-	0.4	1.6
Yorks & Humber	0.1	0.4	2.1
Continent	-	-	-
Total	**2.2**	**8.9**	**31.9**

12. Cargo category: Port intermodal

Origins

m tonnes

	2006	2015	2030
E. Midlands	0.1	0.2	1.7
E. of England	3.6	7.4	17.5
Greater London	0.2	0.3	0.5
North East	0.4	0.5	0.9
North West	2.1	3.2	6.4
Scotland	0.7	0.9	1.2
South East	2.1	3.7	8.0
South West	-	0.9	2.4
Wales	0.2	0.6	1.0
West Midlands	1.1	1.2	2.4
Yorks & Humber	1.3	2.1	4.1
Continent	0.9	4.1	9.9
Total	**12.8**	**25.0**	**55.9**

13. Cargo category: Port intermodal

Destinations

m tonnes

	2006	2015	2030
E. Midlands	0.4	1.6	6.7
E. of England	3.1	6.9	17.4
Greater London	0.4	0.5	0.6
North East	0.2	0.5	0.6
North West	2.5	4.2	7.4
Scotland	0.3	0.6	1.5
South East	2.0	3.2	7.2
South West	0.1	0.9	1.9
Wales	0.4	0.8	1.1
West Midlands	1.7	2.3	4.6
Yorks & Humber	1.3	2.9	5.3
Continent	0.3	0.8	1.6
Total	**12.8**	**25.0**	**55.9**

14. Cargo category: Metals

m tonnes

Origins

	2006	**2015**	**2030**
E. Midlands	0.19	0.18	0.17
E. of England	0.06	0.06	0.06
Greater London	0.07	0.07	0.07
North East	2.12	2.45	3.61
North West	-	-	-
Scotland	0.06	0.06	0.06
South East	0.06	0.07	0.09
South West	0.14	0.13	0.13
Wales	5.49	5.42	5.23
West Midlands	0.25	0.26	0.29
Yorks & Humber	2.52	2.72	3.35
Continent	0.04	0.04	0.04
Total	**11.00**	**11.46**	**13.08**

15. Cargo category: Metals

Destinations

m tonnes

	2006	2015	2030
E. Midlands	0.42	0.36	0.36
E. of England	-	-	-
Greater London	-	-	-
North East	1.77	3.34	3.34
North West	0.50	0.58	0.58
Scotland	0.33	0.30	0.30
South East	0.11	0.10	0.10
South West	0.05	0.05	0.05
Wales	4.61	4.56	4.46
West Midlands	1.68	1.70	1.71
Yorks & Humber	1.10	1.24	1.76
Continent	0.42	0.42	0.42
Total	**11.00**	**11.46**	**13.08**

16. Cargo category: Construction

m tonnes

Origins

	2006	2015	2030
E. Midlands	10.1	11.1	14.1
E. of England	0.5	0.6	0.7
Greater London	0.9	1.4	2.2
North East	0.1	0.1	0.1
North West	0.5	0.5	0.5
Scotland	0.5	0.5	0.5
South East	0.8	1.1	2.2
South West	6.0	6.2	6.7
Wales	0.3	0.3	0.3
West Midlands	0.1	0.1	0.1
Yorks & Humber	1.7	1.9	2.9
Continent	-	-	-
Total	**21.4**	**23.8**	**30.3**

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17. Cargo category: Construction

Destinations

m tonnes

	2006	2015	2030
E. Midlands	1.2	1.7	3.3
E. of England	32	3.4	4.5
Greater London	4.6	5.3	7.2
North East	0.7	0.8	0.9
North West	3.1	3.3	3.4
Scotland	0.4	0.4	0.4
South East	3.9	4.1	4.3
South West	1.1	1.3	1.9
Wales	0.1	0.1	0.1
West Midlands	0.5	0.5	0.7
Yorks & Humber	2.6	2.8	3.7
Continent	-	-	-
Total	**21.4**	**23.8**	**30.3**

18. Cargo category: Auto

m tonnes

Origins

	2006	**2015**	**2030**
E. Midlands	-	-	-
E. of England	-	-	-
Greater London	0.11	0.13	0.15
North East	-	-	-
North West	0.02	0.02	0.02
Scotland	-	-	-
South East	0.07	0.09	0.12
South West	0.03	0.03	0.03
Wales	0.02	0.02	0.02
West Midlands	0.04	0.12	0.16
Yorks & Humber	0.02	0.02	0.02
Continent	0.02	0.02	0.02
Total	**0.34**	**0.46**	**0.55**

19. Cargo category: Auto

m tonnes

Destinations

	2006	2015	2030
E. Midlands	0.02	0.02	0.02
E. of England	0.06	0.07	0.08
Greater London	0.02	0.04	0.07
North East	-	-	-
North West	0.07	0.08	0.09
Scotland	0.06	0.07	0.08
South East	0.05	0.11	0.13
South West	0.01	0.02	0.03
Wales	0.03	0.03	0.03
West Midlands	-	-	-
Yorks & Humber	0.01	0.01	0.01
Continent	-	-	-
Total	**0.34**	**0.46**	**0.55**

20. Cargo category: petroleum/chemicals

m tonnes

Origins

	2006	2015	2030
E. Midlands	0.1	0.1	0.1
E. of England	0.3	0.4	0.4
Greater London	-	-	-
North East	0.2	0.2	0.3
North West	0.1	0.1	0.1
Scotland	0.5	0.6	0.6
South East	0.2	0.2	0.3
South West	-	-	-
Wales	0.7	0.8	0.8
West Midlands	-	-	-
Yorks & Humber	5.8	6.2	6.7
Continent	-	-	-
Total	**8.1**	**8.5**	**9.3**

21. Cargo category: petroleum/chemicals

m tonnes

Destinations

	2006	2015	2030
E. Midlands	0.6	0.7	0.7
E. of England	0.2	0.2	0.2
Greater London	-	-	-
North East	2.3	2.4	2.7
North West	0.6	0.6	0.6
Scotland	0.3	0.3	0.3
South East	0.8	0.8	0.9
South West	0.9	0.9	1.0
Wales	0.2	0.2	0.2
West Midlands	2.1	2.2	2.4
Yorks & Humber	0.1	0.2	0.2
Continent	-	-	-
Total	**8.1**	**8.5**	**9.3**

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22. Other cargoes

Waste

- Subject to radical change as consequence of legislative changes discouraging landfill
- Assuming continuing at approx 2m tonnes per annum but important opportunities through recycling/waste to energy

Infrastructure

- Assume continuing at approx 8.2m tonnes per annum

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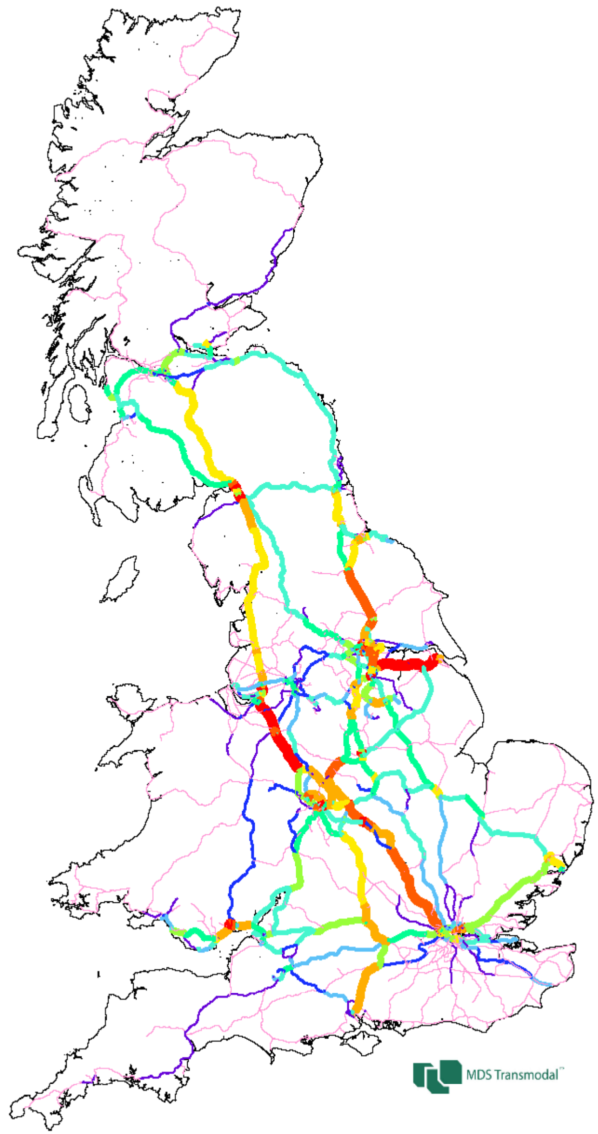
23. Rail freight trains assigned (2006)

- Daily Freight trains
- Sum of both directions

pink line	<4
purple line	4...8
blue line	8...12
light blue line	12...16
turquoise line	16...24
green line	24...32
light green line	32...40
yellow line	40...48
orange line	48...60
dark orange line	60...72
red line	>72



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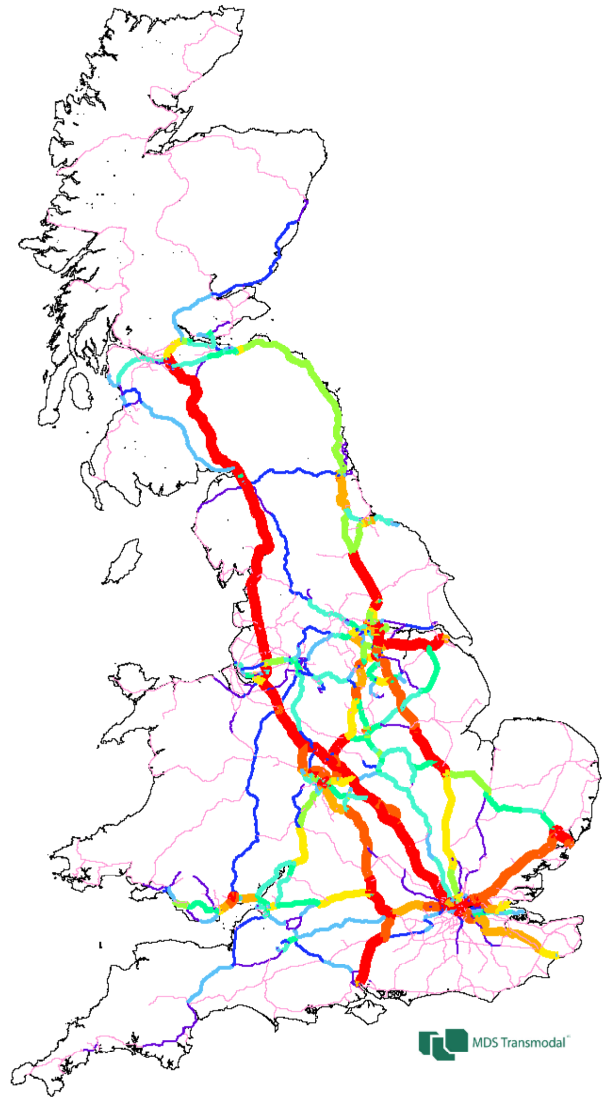
24. Rail freight trains assigned (2015)

- Daily Freight trains
- Sum of both directions

	<4
	4...8
	8...12
	12...16
	16...24
	24...32
	32...40
	40...48
	48...60
	60...72
	>72



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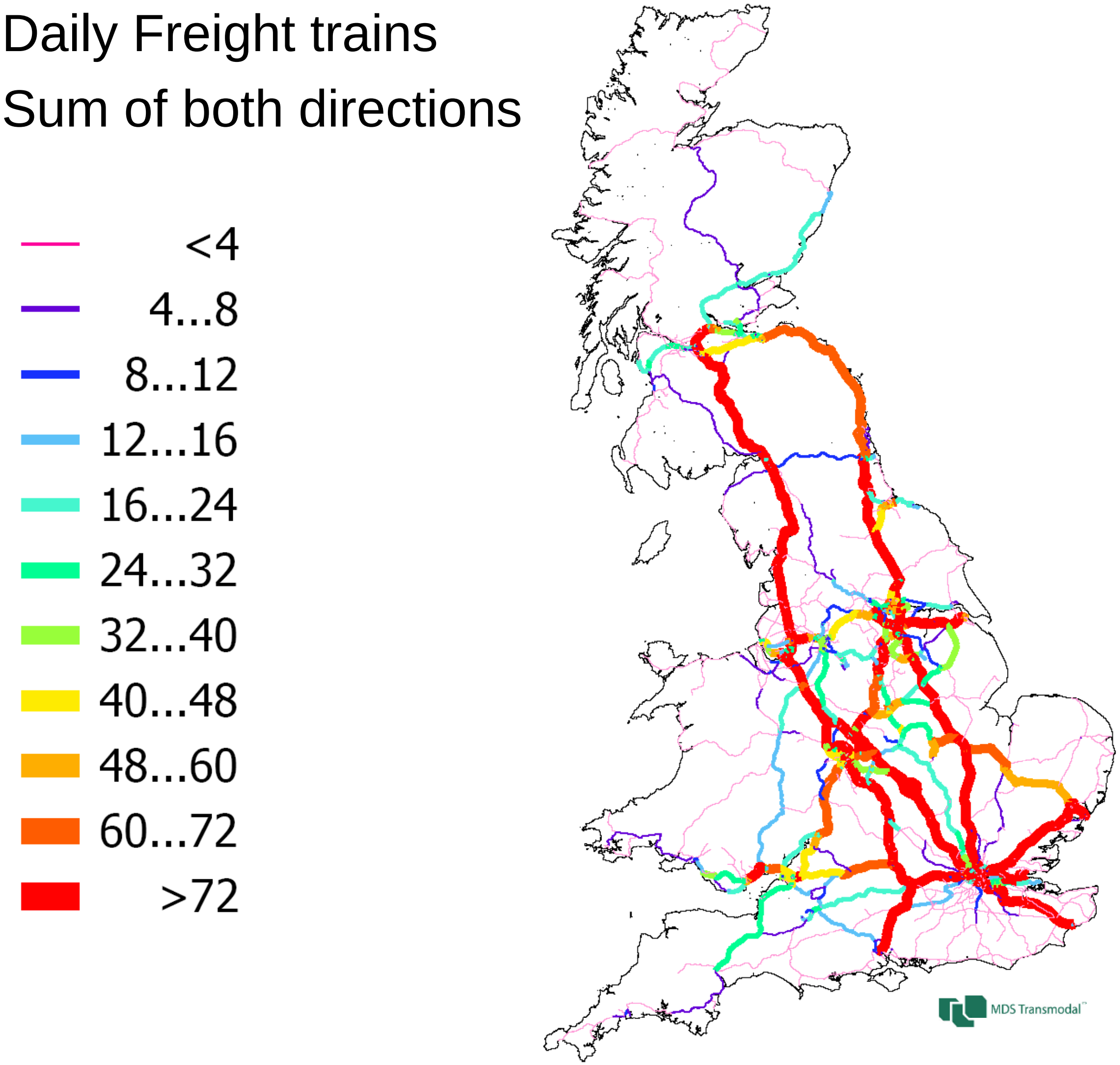
25. Rail freight trains assigned (2030)

- Daily Freight trains
- Sum of both directions



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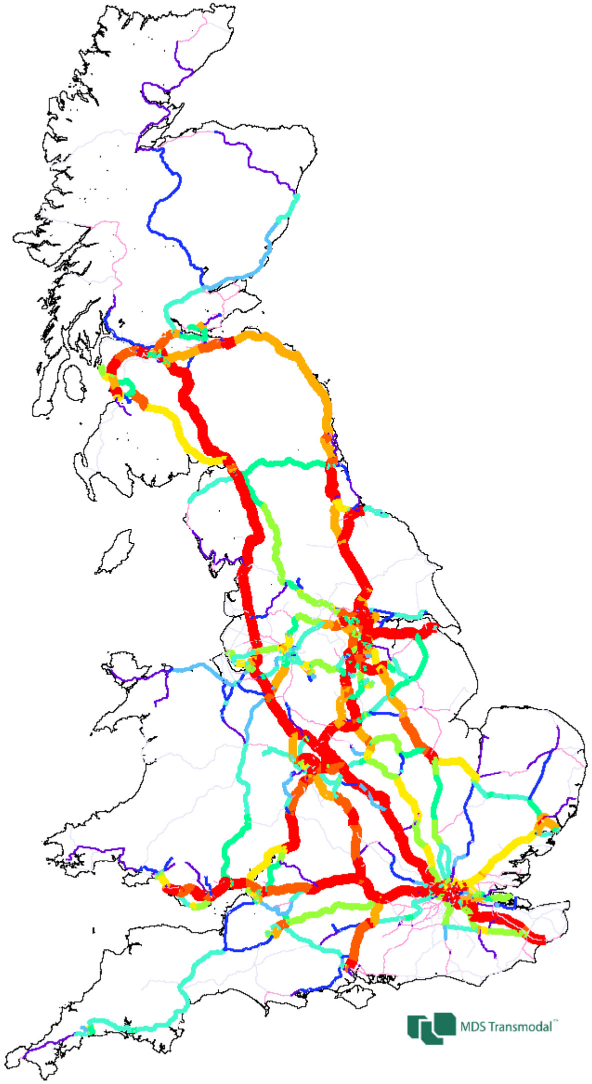
26. Supply of freight paths (2005)

- Daily Freight paths
- Sum of both directions

(pink line)	<4
(purple line)	4…8
(blue line)	8…12
(light blue line)	12…16
(turquoise line)	16…24
(green line)	24…32
(light green line)	32…40
(yellow line)	40…48
(orange line)	48…60
(dark orange line)	60…72
(red line)	>72



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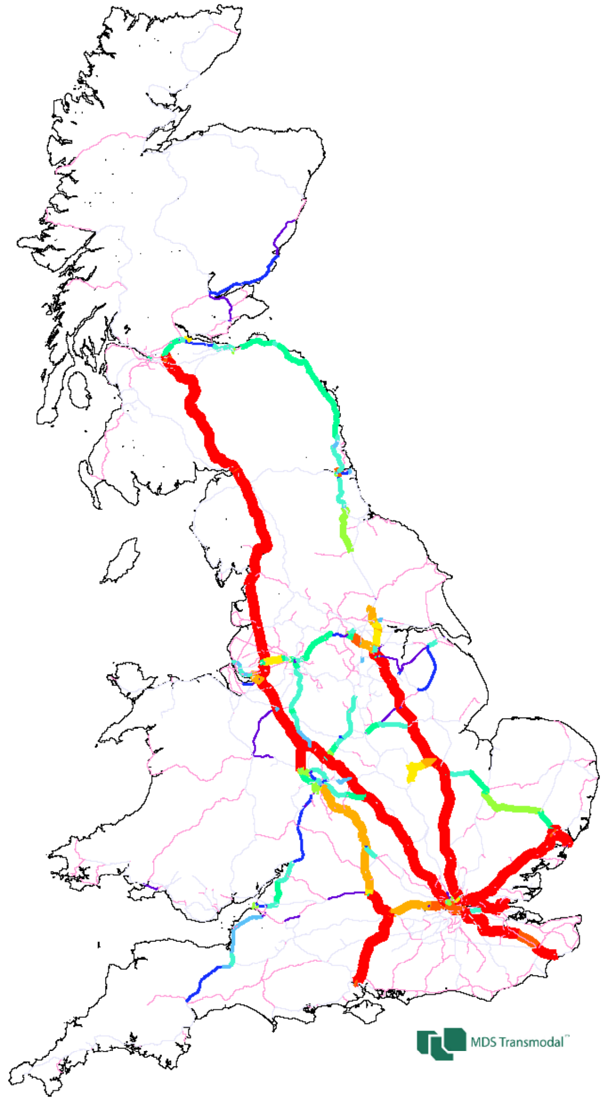
27. Capacity supply & demand (2030) (80% path utilisation)

- Excess 2030 demand
- Daily Freight paths
- Sum of both directions

<4
4...8
8...12
12...16
16...24
24...32
32...40
40...48
48...60
60...72
>72



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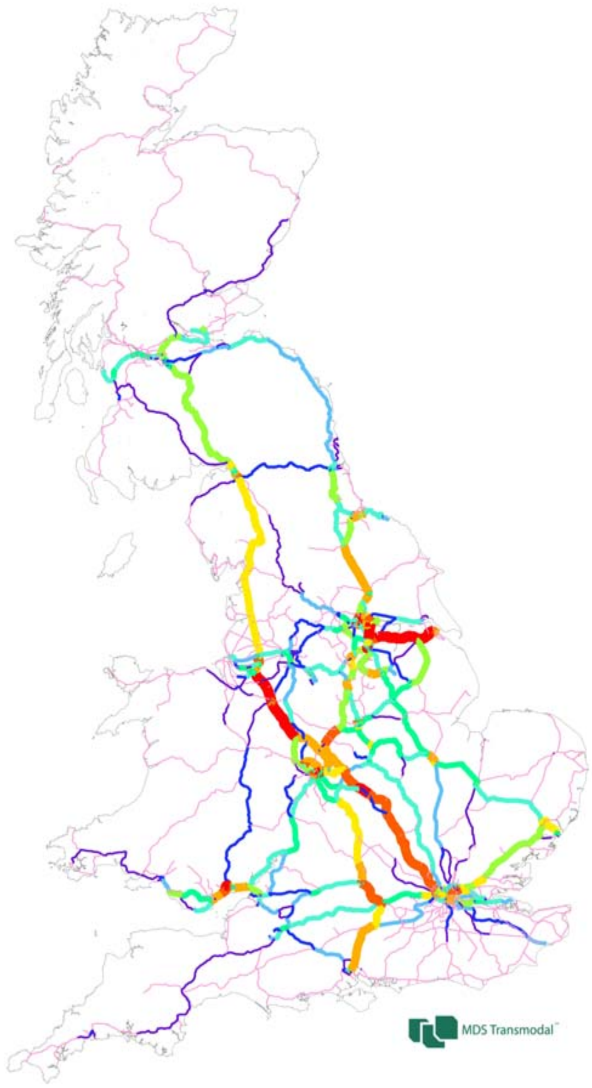
28. Additional bulk/semi bulk trains 2006-2030



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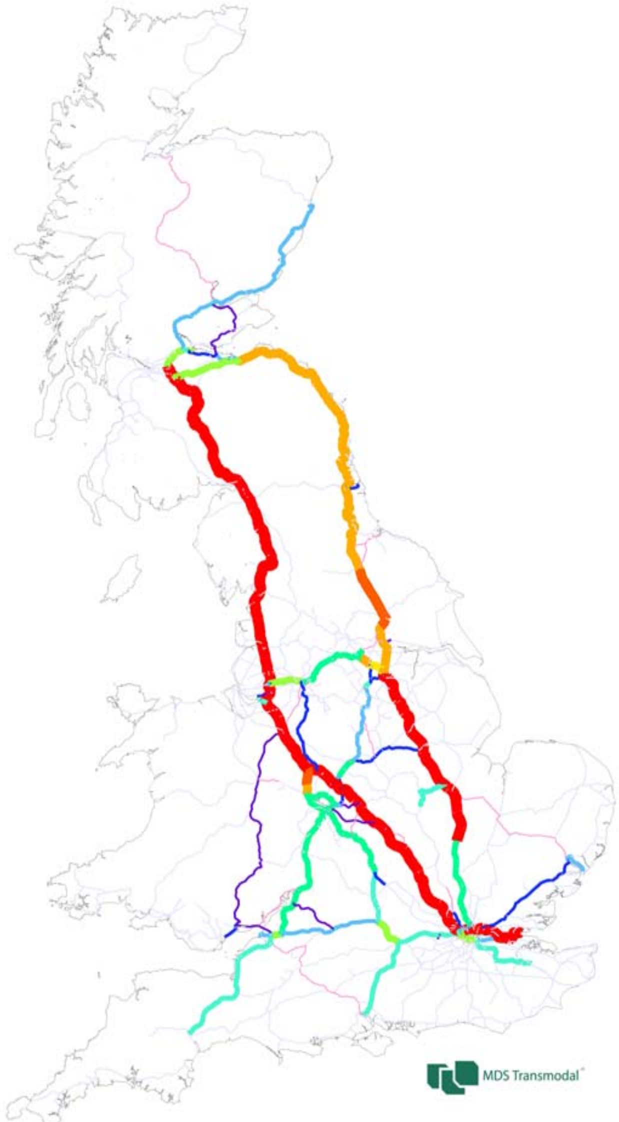
29. Additional port intermodal 2006-2030



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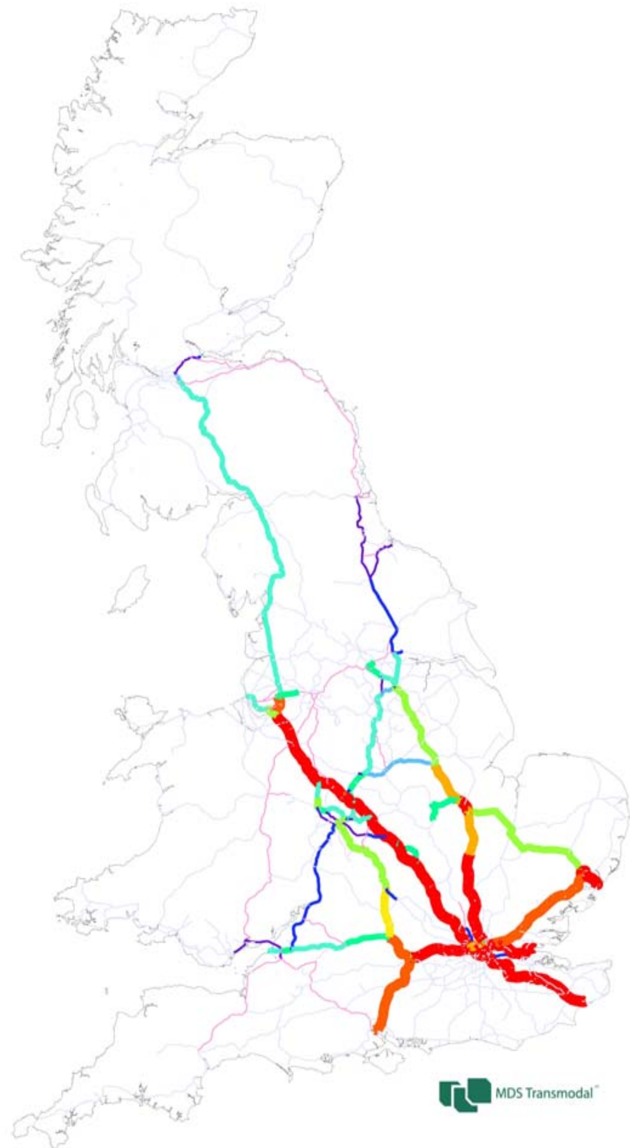
30. Additional domestic intermodal 2006-2030



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31. Implications for network development

Analysis suggests extra capacity required

- With South East Ports
  - Southampton – Nuneaton – Felixstowe arc
- On Southern end WCML
  - Is the Midland Main Line an alternative?
- Around London
- And in the North West
  - Between Weaver Jn and Warrington

  (to make best use of Trent Valley 4 tracking)

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32. Issues for continuing review

- Review of the forecasts by market players – purpose of TODAY!
  - Including how to deal with uncertainty in energy markets

- Future cost structures
  - Fuel prices
  - Road haulage driver costs

- The relationship between land use and rail freight forecasts
  - the economic need for warehousing
  - the environmental benefits of being on rail connected sites

To provide basis for arguments for

- reservation of rail freight capacity
- Infrastructure development
- Planning consents for rail linked sites