

Appendix 34 Road to Rail Freight modal shift calculations

ROAD FREIGHT TO RAIL FREIGHT MODAL SHIFT

This note sets out the assumptions used to calculate the HGV mileage reduction associated with the rail freight terminal at the proposed Northampton Gateway SRFI. This is based on a modal shift of container movements from HGV to rail. It is based on the maximum operation of 16 trains per day, as per the long-term rail movements forecast. It does not consider any modal shift associated with the Rapid Rail Freight operations.

The calculations use an average ratio of 1.4 HGV trips per container (from TN2).

The assumptions regarding the origins/destinations of the containers that would undergo a modal shift from HGV to rail is provided below.

10 trains (Ports)

Deep-sea: 7.2 trains @ 55 containers per train (x2 for two-way) = 792 containers = 1109 HGVs
Direct to warehouses: 2.8 trains @ 52 containers per train (one-way) = 146 containers = 204 HGVs
Total = 938 containers = **1313 HGVs**

The 1313 HGV journeys are split between the Felixstowe, London Gateway and Southampton ports on a pro-rata assessment of current overall container tonnage into and out of each of these ports:

- Felixstowe (2,640,000 tonnes) = 53.9% = 708 HGVs
- London Gateway (1,170,000 tonnes) = 23.9% = 314 HGVs
- Southampton (1088,000 tonnes) = 22.2% = 291 HGVs

6 trains (~4 Scotland, 1 Wales, 1 Leeds)

Domestic: 3.6 trains @ 40 containers per train (x2 for two-way) = 288 containers = 403 HGVs
European: 1.2 trains @ 40 containers per train (x2 for two-way) = 96 containers = 135 HGVs
Direct to warehouses: 1.2 trains @ 52 containers per train (one-way) = 62 containers = 87 HGVs
Total = 446 containers = **625 HGVs**

It is assumed that the 3.6 Domestic trains are associated with Scotland (403 HGVs), the 1.2 European trains are associated with Leeds (135 HGVs), and the remaining 1.2 Direct warehouse served trains are associated with Cardiff (87 HGVs).

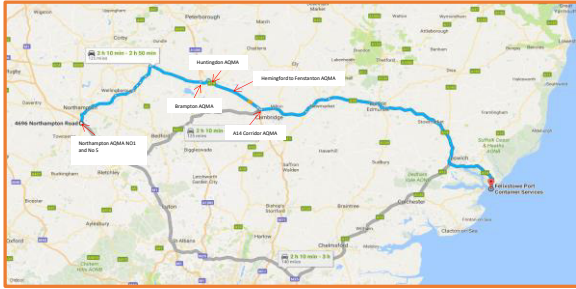
The HGV route allocated to each of these origin/destinations is shown on the figures over the page.

Overall this equates to a HGV mileage saving of 324,999 miles per day, or an annual HGV mileage saving of around 93 million miles (assuming a 5.5 day working week, 52 weeks per year operation for the rail terminal).

The DfT MSRS methodology to monetise the mileage saving has been followed.

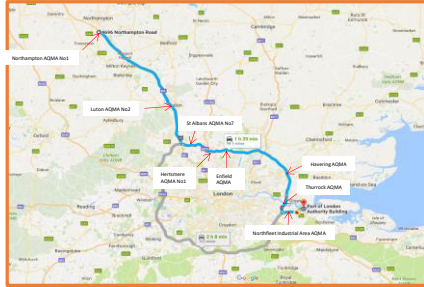
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/410553/MSRS_Guide_2015_16.pdf

Based on the MSRS methodology an environmental benefit of £0.54 per mile or approx. £50.47 million per year would be provided.



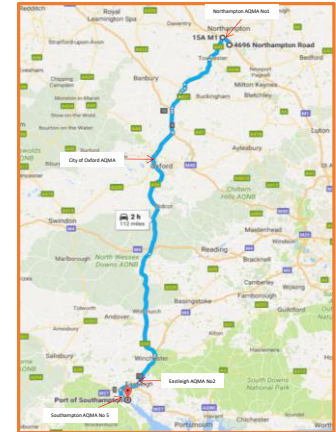
Felkistowe Port

Road type	Mileage	MSB Value	Route Value
Motorway Standard	0	£0.12	£0.00
Motorways High Value	0	£0.89	£0.00
A Roads	124	£0.82	£101.68
Other	1	£2.35	£2.35
Total	125		£104.03



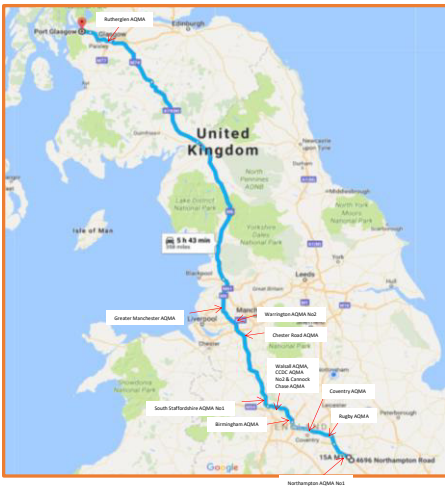
London Port

Road type	Mileage	MSB Value	Route Value
Motorway Standard	42	£0.12	£5.04
Motorways High Value	40	£0.89	£35.60
A Roads	12	£0.82	£9.84
Other	0	£2.35	£0.00
Total	94		£50.48



Southampton Port

Road type	Mileage	MSB Value	Route Value
Motorway Standard	0	£0.12	£0.00
Motorways High Value	2	£0.89	£1.78
A Roads	107	£0.82	£87.74
Other	3	£2.35	£7.05
Total	112		£96.57

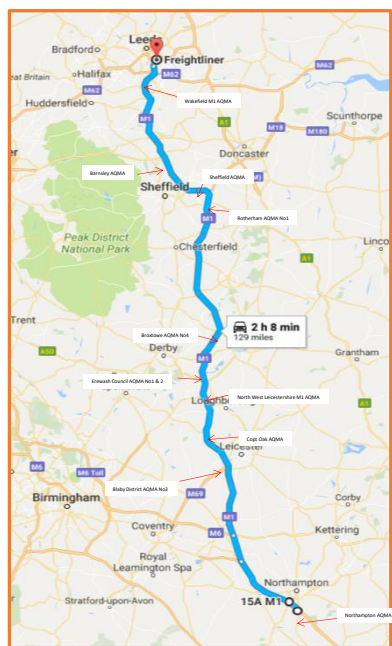


Cardiff

Road type	Mileage	MSB Value	Route Value
Motorway Standard	72	£0.12	£8.64
Motorways High Value	2	£0.89	£1.78
A Roads	72	£0.82	£59.04
Other	0	£2.35	£0.00
Total	146		£69.46

Glasgow

Road type	Mileage	MSB Value	Route Value
Motorway Standard	251	£0.12	£30.12
Motorways High Value	53	£0.89	£47.17
A Roads	54	£0.82	£44.28
Other		£2.35	£0.00
Total	358		£121.57



Leeds

Road type	Mileage	MSB Value	Route Value
Motorway Standard	112	£0.12	£13.44
Motorways High Value	15	£0.89	£13.35
A Roads	2	£0.82	£1.64
Other		£2.35	£0.00
Total	129		£28.43

Train origin/destination	Mileage	Total HGVs per day	% Split	Weighted Daily Mileage	Monetised saving per HGV (in £)	Total saving per day (in £)
Felixstowe	125	708	36.53%	88,500	£104.03	£73,653
London	94	314	16.20%	29,516	£50.48	£15,851
Southampton	112	291	15.02%	32,592	£96.57	£28,102
Glasgow	358	403	20.79%	144,274	£121.57	£48,993
Leeds	129	135	6.97%	17,415	£28.43	£3,838
Cardiff	146	87	4.49%	12,702	£69.46	£6,043
Total	964	1,938	100%	324,999	£470.54	£176,480

Daily HGVs	1938
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Average mileage	168
Average monetised saving per mile	£0.54

Total daily mileage reduction	324,999
Total weekly mileage reduction	1,787,495
Total annual mileage reduction	92,949,714
Total annual monetised saving	£50,473,168