



A SUMMARY OF THE COMMERCIAL DRIVERS OF ENHANCEMENTS TO THE NORTH TRANSPENNINE RAIL CORRIDOR FOR FREIGHT

Context

Following pressure from shippers, port groups and rail hauliers an assessment has for the past eighteen months been being carried out into the infrastructure changes that will require to be carried out to allow freight to share the North Transpennine 'Diggle' rail route (Manchester-Stalybridge-Huddersfield/the east/northeast) following its planned upgrade for enhanced passenger services. This work is being led by Network Rail.

Due to the half-hourly repeating pattern that has evolved for the passenger timetable (i.e. several passenger trains on the first half of the hour and the same number on the next half hour) it follows that once a path* for freight is found on one half hour it will also be viable on the next. In assessing forward demand the freight sector has proposed that in fact only one of these paths is occupied by a freight train with the other being used effectively as a performance buffer for all users.

The Transpennine Route Upgrade proposals for this route are based on a level of passenger services as predicted by franchised providers over the medium to long term. For freight there is a desire to ensure that paths once created through infrastructure enhancement, will in fact be used.

Finally, there is a need, once there is a gauge-cleared route, to keep it open throughout the main part of the working week - Monday morning until Saturday evening (shorthand 24/6) - with route closures only at periods of the weekend if necessary. This access philosophy is already followed on the WCML and allows for hauliers to be guaranteed transit. Currently the North Transpennine route is closed one week in six on midweek nights. Such a restriction would highly likely prevent any tangible transfer of traffic. By way of easing the maintenance task Rail Freight Group has asked Network Rail to design the infrastructure so that, for example, a single line can be used in both directions for such traffic whilst routine maintenance takes place in sections of the adjacent line. This would be adequate overnight for the freight traffic and the overnight York-Manchester Airport trains.

**Note : paths are quoted as 'in each direction' by convention. 24 paths a day thus means 48 trains over a route. With limited passenger trains at night there are of course additional paths for freight.*

Resource utilisation and customer needs mean that restricting freight to nights (as suggested by a commentator some months ago) is a non-starter. As two examples of the issues facing freight shippers - rail resources need to be used around the clock to have any hope of making money and most intermodal ships to/from Europe make their sea passages at night, the land-transit being by day. Paths for freight are the golden asset for this Transpennine route going forward.

Capability and Capacity

Capacity is the ability of a railway, taking account of speeds, junctions, headways between trains, stopping patterns etc. to robustly deliver a set level of train service.

Capability, in the railfreight context, refers to the ability of the route to handle, for example, hi-cube container/intermodal traffic or heavy axle-weight bulks traffic. Effectively it is the match between the physical characteristics of the route and the physical characteristics of the trains that are to traverse it.

North Transpennine's recent history

Fifty years ago, in 1967, the Diggle route was reduced in capacity by a half, with a four-track railway reduced to, mainly, two tracks. For many years after this only one fast passenger train and one or two stopping passenger trains an hour traversed the route. There was space for freight traffic and indeed considerable quantities of coal traversed the route in the 1980s. Over the years since then the frequency of passenger traffic has risen significantly, effectively squeezing out space capacity.

Until the advent of bio-mass traffic and the growth in interest in intermodal transit, and looking holistically across the North's economy, this growth in passenger frequency was the right policy though one could argue that fewer, longer, passenger trains would provide the same number of seats/hour across the route whilst leaving freight paths.

Today only a few paths in each direction *per day* for freight exist. Importantly, these have Firm Rights until 2026 and use paths now sought for enhanced levels of passenger traffic. A solution with properly thought through infrastructure provision which allows for the growth of freight as well as passenger traffic will *also* allow for a high performing mixed traffic railway.

Freight Traffic Trends

Over the last decade the country has seen significant growth in intermodal traffic, last years' increase being 6%, and there is no sign of this abating. Projections are relentlessly upwards for this traffic. Very significant investments have been made by major ports at Liverpool, in the Humber and in the north-east for the handling and

transfer to rail of containers brought in by sea. 80%+ of these containers are 'hi-cube' (9'3" or 9'6" high) and those with insulated walls for chilled products have widths of 2550-2600mm (international conventions on container dimensions are this odd mix of imperial and metric). These sizes cannot be accommodated on the UK railway without creation of higher/wider loading gauge – without such clearance the top corners of the containers foul the bridges/tunnels.

The North Transpennine route has never been cleared for these sized containers although they now form the majority of the projected traffic. No other routes across the north are clear for such traffic either – see Figure 2 below. Low-floor/small wheel wagons have been mooted but these have significant disadvantages in that part of the train length is used for wagon equipment (brake cylinders/bogies outside container 'wells') or track-damaging and high-maintenance small wheeled bogies.

On the relatively short hauls of future flows on this route (compared, say, with Felixstowe to Manchester), it is essential that the total train length is available for container loading. 'The profit is in the last box' is a valid comment as railfreight hauliers will always seek to run intermodal business at a profit.

Rail Freight Group, at DfT request, asked a wide spectrum of railfreight stakeholders with interests in this route for their traffic projections over the next twenty-thirty years and also for other relevant comments from them. Eleven* companies gave written submissions, totally forty-seven impressively open and well considered pages of information and commentary. These, seen by the submitters as 'commercial in confidence' given their openness on their commercial strategy, were lodged with DfT's economic evaluators in April. The opportunity was also taken, with the submitters' permission, to correlate the submissions against the GB Freight Model. This work was completed in April and found a high level of correlation between the computer model and the trade's submissions. Figure 1 shows the predicted use of 1.3 paths/hour in each direction 24/6 by 2033.

By not showing origin/destination' but just the transpennine route it is possible to summarise the types and levels of traffic that are being predicted to route this way without breaking the confidences implicit in the submissions. The scale of the ambition of the companys' responses is impressive and is covered below. It is notable that almost universally the respondents have made the point that they have made very significant private sector investments in rail facilities and/or equipment at their risk. Many have expressed a frustration at the countless conferences and reports that have stressed the need for high quality high capacity railfreight transit across the Pennines and see the current Transpennine Route Upgrade as a once in a lifetime opportunity to actually achieve this output.

*The companies that have submitted responses are Port of Tyne, P D Ports (Teesport), ABP, Peel Ports (Liverpool), A V Dawson (steel and general products), EMR (scrap steel), Drax Power Ltd, Freightliner, DB Cargo, GB Railfreight, LHOFT (Liverpool Humber Optimisation of Freight Transit, with members including P&O Ferries, StenaLine, Nestle, Kraft, Unipart, Unilever, Hull University)

Main themes are as follows with estimates of totals per day per direction by 2028 in brackets (with double-counting removed) reveals a total 25-30 paths per day being predicted by the key freight stakeholders. This correlates very well with the MDS Transmodal GB Freight Model output of 1.3 paths per hour per direction (Figure 1).

Those traffics requiring gauge clearance are asterisked.

Biomass traffic Liverpool to Drax
Non-ferrous higher value scrap metal in 8' shipping containers
Ferrous steel
Processed slab steel in 8' shipping containers
Automotive steel coil
Intermodal containers (vast bulk at 9'3" or 9'6" height)*
Swapbodies at 2550 or 2600mm width*
Gypsum rock and other aggregates
Spoil
Household Waste in 8' containers
Network Rail Infrastructure Services
Other (automotive, bulk, forest products)

Plus an aspiration from several respondents for Piggyback (not achievable under W10/W12 but maybe under NPR?)

A few details summarised from responses:

Domestic intermodal traffic ('swap-bodies'), now growing strongly on Midlands to Scotland routes and with opportunity between Cheshire/Merseyside inland hubs and the northeast, requires, as shown above, gauge clearance. These largely over-night flows are tightly timed and normally operate as part of a just-in-time distribution chain, particularly where food is conveyed.

Flows of containers are expected on axes such as Liverpool to Teesside and Liverpool to Yorkshire and Humberside inland and port terminals. Traffic imported via east coast ports for the rail served road-rail terminals in the Manchester/Liverpool

area are also projected to travel by rail. Port groups report that Brexit concerns over the customs handling of lorry traffic via Dover are already causing significant genuine inquiries of re-routing of traffic in containers via the northern ports.

Added to this container/intermodal traffic is bulks. The most note-worthy of these flows across the north currently is that of bio-mass which is imported via the north-east, the Humber and Liverpool and again major investments at all three ports-of-entry have been made to load bio-mass to rail. Eight to ten trains a day are expected to travel from Liverpool to Drax once paths are created. Currently a highly resource-inefficient/convoluted-route flow taking eight hours to traverse the 100 miles from port to customer caps the daily flow slightly lower than this. Provision of paths for this traffic via the North Transpennine route, along with some already identified and costed interventions in the northwest, would be transformational.

Bulk traffics across this axis of the north Pennines include aggregates from the Arcow and Rylstone quarries in North Yorkshire to Manchester terminals and scrap/steel for Liverpool docks. Compressed household waste from Manchester terminals to disposal sites in Humberside has long been routed via the North Transpennine route where possible using the few paths still in existence. More recently long-distance Knowsley (Liverpool) to Wilton (Teesside) waste traffic is also moved.

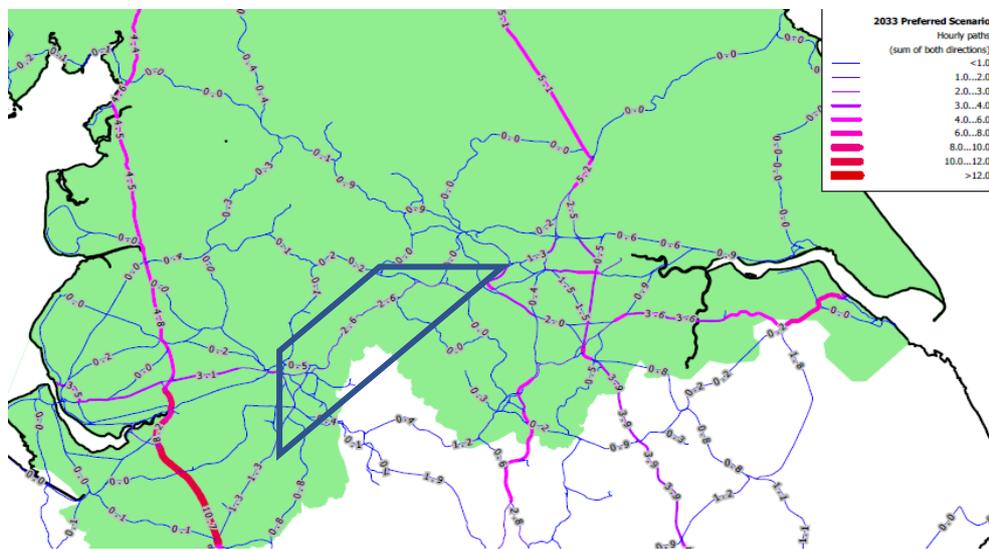


Figure 1 : Paths per hour PER ROUTE predicted as required by 2033 using the GB Freight Model. North Transpennine route highlighted showing 2.6 paths an hour (i.e. 1.3 paths an hour in each direction) required.

Source: MDS for 2016 TfN Freight Strategy now undergoing further update.

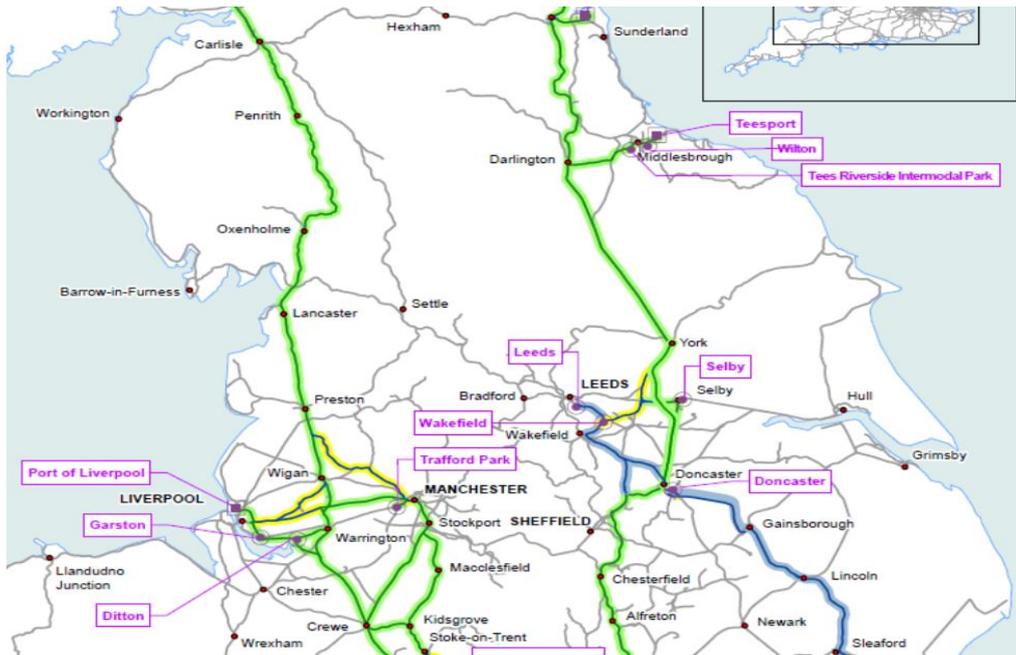


Figure 2 : Blue and Green show hi-cube box clearance. Note the lack of any east-west routes. Ports and inland terminals also shown.

Source: Network Rail

Summary

The North Transpennine Route is a classic case of constrained demand. It has neither the capacity nor the capability for freight today. The majority of the freight trains predicted to run once the route is cleared, will be intermodal (needing gauge clearance) and biomass/other bulks (needing just clear paths).

Were gauge not to be provided the intermodal traffic would not be able to pass. A complete traffic group of deep-sea and swap-body intermodal freight would remain constrained off rail across the north in spite of many years' worth of national/regional policy announcements as to transformational changes being needed for such traffics and the need to encourage modal shift from road.

Providing paths only, without gauge, will provide a routing for bulk traffics. These are likely to be dominated by a single product – biomass – and to provide nothing like the transformational change opportunity that presents itself from adding to this bulk baseload the currently 100%-by-road maritime container and domestic swap-body market.

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Relevant links overleaf:

<http://www.transportforthenorth.com/wp-content/uploads/TfN-Freight-and-Logistics-Report.pdf>

<http://www.transportforthenorth.com/wp-content/uploads/Peer-review-of-modelling-for-the-Northern-Freight-and-Logistics-Strategy.pdf>

<https://cdn.networkrail.co.uk/wp-content/uploads/2017/04/Freight-Network-Study-April-2017.pdf>

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/552492/rail-freight-strategy.pdf