GREENGAUGE21

Northern Rail:

Stepping Stones

to a rebalanced Britain

Prepared for: Campaign for Better Transport

Greengauge 21

January 2015

Front cover image credit:
Stepping Stones on the River Wharfe, Bolton Abbey, North Yorkshire
John Jarvis

Introduction

The Campaign for Better Transport asked Greengauge 21 to set out the case for improving the Northern franchise, the Invitation to Tender (ITT) for which is expected imminently.

This report provides evidence behind the summary report *Rail in the North – Stepping Stones to a rebalanced Britain* jointly published by the Campaign for Better Transport and Greengauge 21 on November 19th 2014. It also takes account of the Chancellor of the Exchequer's Autumn Statement announced subsequently, in December, in which he said that the Government "will tender for new franchises for Northern Rail and the Trans-Pennine Express – replacing the ancient and unpopular Pacer carriages with new and modern trains."

Beyond this commitment the ITT will need to set the tone for service improvement and reject the 'minimum cost' approach to Northern Rail taken in the past.

The ITT comes at an exciting time. Government has endorsed the long term strategy for the North's railways contained in the One North proposition of July 2014 that seeks to transform connectivity in the North to help 'rebalance Britain'. This signifies a strategic direction centred on growth in the North's economy – and in rail travel.

The aim of this report is to define the *'stepping stones'* needed between now and the 2020s – when major new rail investment comes on stream – steps that should form an integral part of the new Northern franchise.

The report covers a critical set of issues:

- Why the Northern franchise matters to both the North's and the nation's economy
- Why devolution matters
- Why the picture on Northern franchise subsidy is misleading
- Why appraisal needs to reflect the big picture on economic growth
- Why the Northern franchise needs to be funded to address growth in demand
- What can be achieved by modernising the rolling stock used by Northern
- How a modernised Northern franchise will support the development of an inter-city network for the North
- Why it is time for a better fares system across the North.

1. Why the Northern franchise matters to both the North's and the nation's economy

Almost 25% of the country's population live in the North but the North accounts for less than 20% of the nation's GVA. Successive governments have set a priority of addressing the North-South imbalance that underlies these statistics.[1] In 2012, GVA *per capita* of the best performing Northern region was 15% below the UK average and less than half the *per capita* GVA in London, as shown in Table 1.

In the 15 years prior to 2012, although GVA *per capita* of the North East and North West regions improved slightly relative to the UK average, both noticeably failed to keep pace with London, which is now 75% higher than the UK average. Moreover, in Yorkshire and Humber GVA *per capita* has declined relative to the UK and to London and the South East.

Table 1: Overall position on GVA *per capita*, by region

	GVA/capita (£ pa, current prices)	GVA per capita relative to UK (UK average =100)	
Region	**2012**	**1997**	**2012**
North East	16,091	73.1	75.6
North West	18,438	85.5	86.6
Yorkshire and Humber	17,556	85.2	82.4
London	37,232	164.6	174.8
South East	23,221	109.7	109.0
UK Average	21,295	100	100

Source: ONS, *Regional Gross Value Added (Income Approach), December 2013*, table 1.1

There is a general consensus that enhancing connectivity within and between the North's city regions as well as to London and international gateways should be an integral part of any strategy to accelerate the North's economic growth[2].

Rail is the means of transport that is growing strongest and will have a key role to play in improving the economy of the North. The Northern and Trans-Pennine franchises provide commuter services directly into almost every town and city above 50,000 in population in the North.

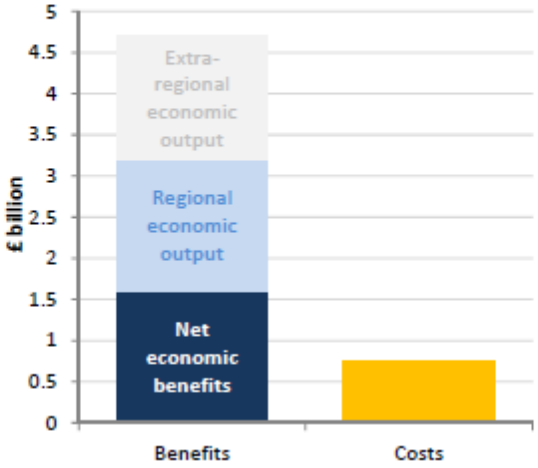
[1] The then Deputy Prime Minister established the Northern Way in 2004 and the current Prime Minister's first policy speech on entering office in 2010 focussed on transforming the economy and rebalancing Britain

[2] Eddington Transport Study (2006); the Economic Case for Transport in the North, the Northern Way (2011); Transport and the Economy, House of Commons Transport Committee (2011); One North - A Proposition for an Interconnected North (2014).

The Northern franchise is significant in scale nationally: it operates the largest number of passenger services in terms of both trains per day and train-kms per day of any operating company in the country. Northern and TransPennine Express (TPE) carry more passengers than the whole of the intercity network. [3]

Northern and TPE help support employment, particularly in city centres, decongest roads and expand the labour market pool that both public and private employers can draw upon. Echoing work by *Oxera* for the Rail Delivery Group on the network as a whole [4], it has been estimated that the Northern franchise generates over £4 of economic benefits per pound of support from the taxpayer.[5] This research also estimates that Northern supports 20,600 jobs, of which about a third are directly employed by the train operating company or Network Rail.

Figure 1: Economic value and government-backed costs of the rail network in the North of England



Data are per annum for 2011/12

Source: PTEG (July 2014). *The Economic Value of Rail in the North of England, Table 7*

The cities of the North are especially integral to the region's economic contribution: research commissioned by HS2 Ltd and DfT suggests that almost two-thirds of gross value added (GVA) is created by the five city regions in the North (Liverpool, Manchester, Sheffield, Leeds and Newcastle).[6] Almost 75% of jobs in the knowledge-intensive sector - the fastest growing sector in the UK economy – are in cities and, of these, 40%

[3] Case for Rail in the North, PTEG 2014
[4] What is the contribution of rail to the UK economy, Oxera for the Rail Delivery Group 2014
[5] Economic Value of Rail in the North, PTEG 2014
[6] Transport Constraints and Opportunities in the North of England, Steer Davies Gleave, for HS2 Ltd, October 2014

are in city centres which are increasingly becoming the most productive part of the economy, supported by rail transport accessibility and affected by the number of potential workers businesses can hire.[7]

In the past the view was taken that the Northern franchise should be managed on a minimum net cost basis. But rail demand has grown way above expectations; its services are amongst the busiest in the country and the cities Northern serves are at the core of the North's economic hopes. As of now, the best way ahead is to provide services that will support growth in the wider economy rather than seek to reduce subsidy levels since this risks defeating the aim of rebalancing the national economy.

A recent example of the policy of seeking to reduce subsidy to Northern is the imposition of off-peak fares restrictions that now uniquely in the North mean that cheap rail travel in the evenings is typically ruled out – an approach that will drive away demand and reduce the wider value of the rail network.

With the start of the Northern franchise extension in September 2014, the franchisee was required to declare the evening as a peak period, meaning that cheap tickets would no longer be valid at that time. In addition to outbound travel from city centres, this restriction covers travel ***into*** city centres in the evenings where trains are less crowded. The aim is to try to generate more revenue. However, since commuters already either use PTE season tickets or 'anytime' return fares they are in general unaffected by this change, meaning that the main impact is on price-sensitive evening leisure travel. The fares increases involved are not trivial (as much as +50% to +75%), so the likely net effect is that the volume of leisure traffic by rail will decline and fares revenue will fall rather than rise.

An unchanging legacy of 'lowest cost franchise provision' would now hold back the development of the North's economies, particularly of its major cities. Overall demand for Northern services increased by two-thirds between 2002 and 2012 and significant overcrowding is experienced on many trains, especially on the routes to the North West of Leeds and on the Bolton/Liverpool–Manchester corridors.

[7] Fast track to growth – transport priorities for stronger cities, Centre for Cities 2014

2. Why devolution matters

The next Northern franchise needs to be specified to address and support travel markets that have been growing strongly.

There are three primary reasons for this:

(i) government is already making substantial infrastructure investment through the Northern Hub and a route electrification programme so a better train service is needed to generate the benefits these schemes were designed to deliver. In particular, this means having well-specified service enhancements that meet local market needs and a large enough, good quality, rolling stock fleet so that services are attractive and do not immediately suffer from overcrowding

(ii) the Northern Franchise has had an ongoing programme of cost cutting going back nearly 40 years, including use of lighter weight diesel trains (Pacers), de-staffing of stations, and removal of station buildings, and it has not experienced the general renewal and upgrade programmes of the south (passenger information systems, station renewals, air conditioned trains, extra capacity)

(iii) growth has been strong on rail corridors into the city centres where new jobs in the knowledge based industries are concentrated. Unless investment is made to expand services and the quality of services in these corridors, the economic growth ambitions of the cities concerned – and of Government – will be frustrated. The travel to work area of the North's cities is expanding, but current frequencies and service patterns don't reflect this (for example, from Burnley and Blackburn to Manchester). Services need to be recast to increase accessibility beyond Combined Authority/PTE boundaries while maintaining services within them.

In summary, the new franchise needs to be planned to anticipate and help build growing city region economies and the broader transport strategy now being shaped by One North. This can be better achieved from the North rather than Westminster.

Northern Hub and electrification

The centres of many major Northern cities, notably Liverpool, Manchester and Leeds, have benefited from major regeneration initiatives which have led to a marked growth in retail and leisure opportunities and in city

centre employment. It is now recognised that the city centre stations will need major works (most notably in the case of Leeds) because otherwise they will suffer serious over-crowding. The risk is a rail network that is not matching the standards expected in today's modern European cities.

The Northern Hub programme was initiated in the North (by the Northern Way – the amalgam of the three northern Regional Development Agencies since disbanded) and was expressly designed to improve medium-distance connections to and across Manchester, to Manchester Airport (the North's leading international gateway) while providing capacity for local services in Manchester, Liverpool and Leeds. Significant beneficiaries are places to the North and West of Manchester and, as a result of acceleration of the Leeds-Manchester route via Standedge and better links via the Calder Valley, towns and cities in Yorkshire and the North-East. On the other hand, despite inclusion in the original Northern Hub Strategy, improvement of the Hope Valley route to Sheffield has not been yet given priority.

The level of electrification of the UK rail network has long lagged behind other European railways and this is particularly marked in the North. Currently just 13% of the Northern fleet are electric trains, the rest being diesel multiple units. This puts the franchise under strain. Diesels are more costly to operate (exacerbated by the problem of multiple train types of varying ages), have high carbon emission impacts, offer poor quality and often overcrowded peak period travel, and also worsen local air quality.

Network Rail and DfT have already taken some welcome steps to address the electrification deficit by electrifying the Manchester – Preston – Blackpool, the Liverpool – Preston and the Liverpool – Manchester via Chat Moss routes. Electrification of the Midland Main Line (MML) and North Transpennine (NTP) has also been authorised. Electrification of other routes is being contemplated, including in Yorkshire and the North East.

Resources for these programmes are not unlimited, and important decisions need to be taken on priorities and sequencing. This might include the need for new diesels or hybrid power vehicles. It is likely as well to entail major rebuilds at the larger stations simply to accommodate increases in passenger throughput. Decisions on these matters are best taken with strong local input.

Devolution is essential, not a 'nice to have'

Rail improvements need to be fully integrated into regional and local plans. This point has been recognised in strategic terms by Sir David Higgins in his recent report 'Rebalancing Britain'.[8] It is arguably as important to the stepping stone period between now and 2025 as it is to later on when major new infrastructure including HS2 will come on stream – because of the need to integrate with economic development plans and get ready for the arrival of HS2 in the North.

The formation of Rail North shows that the main local authorities, city regions and Combined Authorities can successfully set aside political and geographic differences and work together and take responsibility for planning at a regional, not just a city-regional, level. This is a hugely important step, unprecedented in the almost half century since Barbara Castle first created the PTEs to be champions of local public transport in regional cities. The advent of Rail North and One North (and, underway now, Transport for the North) shows that local partners can successfully set aside their differences and form a broader compact to rise to this challenge and provide a clear set of realistic priorities. This trend should be encouraged as it helps make the essential connection between decisions on rail and strategic highways and other policy areas such as fostering successful economic clusters, housing and land-use planning.

Rail provision is now, in many EU states, a partnership between regional and national authorities and the UK is increasingly unusual in retaining such a large proportion of rail responsibility, including service specification for the North, at the centre. The trend of regional partners working under the Rail North umbrella should be encouraged as it is one of the *stepping stones* to the formation of an entity able to take full responsibility for specification and financing of public transport provision, as Transport for London and Transport Scotland very successfully do in their respective areas.

Such an approach would also help with planning progressive, small-scale improvements such as better journey times between the East Midlands and Yorkshire and the North West. The range of projects needed to do this, including line speed increases and improvements at junctions are quite hard to get off the ground from the centre and the approach of regional organisations helping to keep Network Rail's focus on them over

[8] Rebalancing Britain: from HS2 towards a national transport strategy, Sir David Higgins, October 2014

a period of years and introducing a degree of 'competitive tension' is likely to be more productive.

As a step towards this, DfT has indicated that the Northern franchise would be managed by a team based in the North rather than in London, who will therefore be in a position to interact more closely with stakeholders than is the case today. This is most welcome.

Community Rail Partnerships

Community Rail Partnerships (CRPs) play a particularly important role in the Northern franchise by promoting rural and less heavily used services and providing a very direct way for the community to get involved in building a better railway. The new franchise should be set up to encourage more partnerships to form and bidders should be asked to propose a ring-fenced fund to help support the CRPs by reinstating the network of paid-for co-ordinators that was built up when CRPs were first created.

Community Rail Partnerships on Northern, as elsewhere, have proved to be a hugely successful way of both boosting patronage on branch lines and of increasing community involvement in the development of rail services. That has helped secure their future and has created a valuable means for individuals and communities to get more involved in improvement. Analysis by the Association of Community Rail Partnerships shows that passenger journeys on CRP lines increased by 60% from 2006/07 to 2013/14, double the growth of regional networks as a whole in the same period. The Partnerships, historically, have been seeded by small amounts of funding from central Government but have leveraged other support from regional and local stakeholders. Today, they are sponsored by a mix of public and private supporters including Owner Groups, ROSCOs, DfT and ATOC although funding has inevitably been highly restricted during the recession.

The Northern franchise includes about half of the CRPs nationally, including:

- Whitby
- Penistone
- Bridlington/Beverley
- Settle and Carlisle
- Hope Valley
- Furness/Cumbrian Coast

- Preston - Colne

Continuing CRPs will help sustain these benefits and the DfT should consider asking bidders to propose a modest level of funding within the franchise (e.g. £1m per annum total) to support the Partnership idea in future, in particular to support marketing and community engagement initiatives. To help facilitate this, the new franchise might be encouraged to devolve management to an even greater extent than today so that there are perhaps 8 or 10 local managers who would be responsible for groups of rural services and would be based and visible locally.

There are also options to go further which the next franchisee could explore, including adding more lines into the scheme but also, perhaps more crucially, pushing to apply more suitable technical standards particularly on isolated routes where no freight trains operate and the only rail traffic is lighter weight diesel units. This could bring down costs without any impact on safety, users or staff.

3. Why the picture on Northern franchise subsidy is misleading

The belief that Northern Rail is the most heavily subsidised franchise is based on shaky economics. The allocation of track costs between differing train operators has been shown in recent economic work to disadvantage the local train operator across the Northern rail network.[9] This means that the Northern Rail franchise is actually cross-subsidising other train operations, including those in the South.

Analyses by both the Office of Rail Regulation (ORR) and DfT have tried to identify the total subsidy received by each train operating company, taking into account the large sums paid directly to Network Rail by DfT and Transport Scotland as 'Network Grant'. The most recent analysis, based on the 2012/13 year, suggested that Northern benefited from support of 34p per passenger-mile (including Network Grant), whereas the national average was 7p and that for Arriva Trains Wales was 29p and for Scotrail 25p[10]. Northern, not surprisingly given its wide geographical coverage, typically comes out of these studies as one of the highest cost franchises.

But these top-down studies give a misleading picture of Northern's infrastructure costs because they focus on high level cost allocation rather than cost causation. The problems arise because both network grant and the Fixed Track Access Charges (FTACs) are essentially simply spread across train operating companies (TOCs) using train-kms, rather than being built up on the basis of relative cost causation per train.

The high level measure takes no account of important factors such as:

- The length of trains (Northern's train typically being 2-4 cars long) whereas intercity train lengths vary between 4 and 11 cars, most towards the upper end of this range.
- The quality of access provided (fast, heavy trains are effectively charged the same as light trains)[11],
- The attractiveness of the track slots provided: in Manchester, for example, priority has been given to slotting the Pendolino service through to Piccadilly leading to a number of changes being made to timetables locally (including a reduction in 'cross Manchester'

[9] A heavy load to bear? Towards a fairer allocation of rail industry costs for regional rail. PTEG 2014
[10] Based on Row 178 of ORR 2012/13 spreadsheet
[11] Note that heavier trains ***are*** charged more in respect of Variable Charges, but these form only 5% of the total charge including Network Grant.

services). Yet the Northern and the West Coast train are effectively charged the same rate per train-mile.

The result is that, in these analyses, something of the order of 75% of Network Rail's total costs are simply spread across the national network in proportion to train-mileage and no attempt is made (other than through variable access charges) to assess cost causation.

A further significant issue is that there is reason to believe, based on research by PTEG, that there is a mismatch between charges and the amounts actually being spent on the regional networks. In 2012/13, PTEG estimate that although the Regional Railways TOCs paid about 30% of Network Rail's total Fixed Access Charges, in reality only 20% of capital investment (enhancements) can be identified as having been spent in these areas. Although some mismatch might be expected in any given area or TOC (because access charges are intended to represent a long term level of cost), it is surprising that there is such a mismatch nationally. At that level, some TOCs would be expected to see investment levels below charges and others above. PTEG's work suggests that, all told, Regional Railways TOCs are being allocated – through a combination of Network Grant and Fixed Access charges - costs that are some £500m higher than they would be based on a system that reflected actual capital expenditure. If this amount was reallocated to other TOCs, the headline subsidy for Northern, in 2012/13 per passenger-km, would fall by almost a third, from 34p to 24p (while some others would rise). Other types of TOC are being allocated too little cost: subsidy levels are closer between Inter-City, London South East and Regional networks than the current ORR analysis suggests.

The review of the Northern franchise commissioned when it was let in 2006, showed that the franchise was very efficient in terms of the way its staff and train fleet were used.[12] Its relatively high subsidy is simply a direct consequence of the large geographic area it serves, the complex nature of its network (with no single 'hub' network to operate) and the fact that, with shorter trains, its revenue per train is lower than the national average. Given also that the higher earning intercity network in the North (TPE) was separated out when the franchise was created a decade ago, it should also not be a surprise that Northern's subsidy is substantial.

[12] Northern Review, Steer Davies Gleave for Strategic Rail Authority/Department for Transport, 2006

4. Why appraisal needs to reflect the big picture on economic growth

Relationships between economic density and productivity are well established. Research in recent years into effective density[13] demonstrates that productivity gains can be made by bringing firms closer together in time terms i.e. by connectivity improvements. This happens through enhanced agglomeration opportunities (incorporating access to broader labour markets) and access to more productive jobs.

Transport costs can have a significant impact on labour markets by promoting the relocation of jobs to more accessible, higher productivity areas, by widening labour search areas, and by encouraging more people into work through reduced commuting costs. These effects can have a positive impact on taxation revenues and total economic output which is not yet fully quantified in conventional economic appraisal.

The current approach to appraisal does not acknowledge the wider Government policy agenda of national rebalancing. While some attempts have been made to assess GVA/employment impacts of major transport investment, there is a need now to recognise that the *stepping stone* developments and investments that are needed for the Northern franchise, when added together, will bring an appreciable contribution to wider strategic economic aims, particularly rebalancing of the economy. It is the gains that will flow from realising strategic goals as much as the incremental savings of time by rail passengers that need to be reflected in DfT's appraisals of franchise value.

Policies, such as those on GVA, skills, employment, sustainability and regeneration are heavily inter-connected. The appraisal approach needs to acknowledge that actions funded by DfT also help support objectives held by other Government Departments.

A significant body of evidence now exists on what these broader impacts are, particularly in relation to employment growth, labour productivity and the effect of each of these on incomes and GVA. This has recently been extended in a policy review for Government by leading academic

[13] For example, see Melo PC, Graham DJ, Brage-Ardao R, 2013, The productivity of transport infrastructure investment: A meta-analysis of empirical evidence, REGIONAL SCIENCE AND URBAN ECONOMICS, Vol: 43, Pages: 695-706,

authorities.[14] This work suggests that enhancing techniques in this area of appraisal will be particularly challenging.

In the meantime, it is important to be clear that the work done for the Northern Way and the Northern Hub project indicates that capacity improvements can be justified using the Department's current guidance. Enhancements of this type help increase the labour market pool available to employers in the Northern city centres in the following ways:

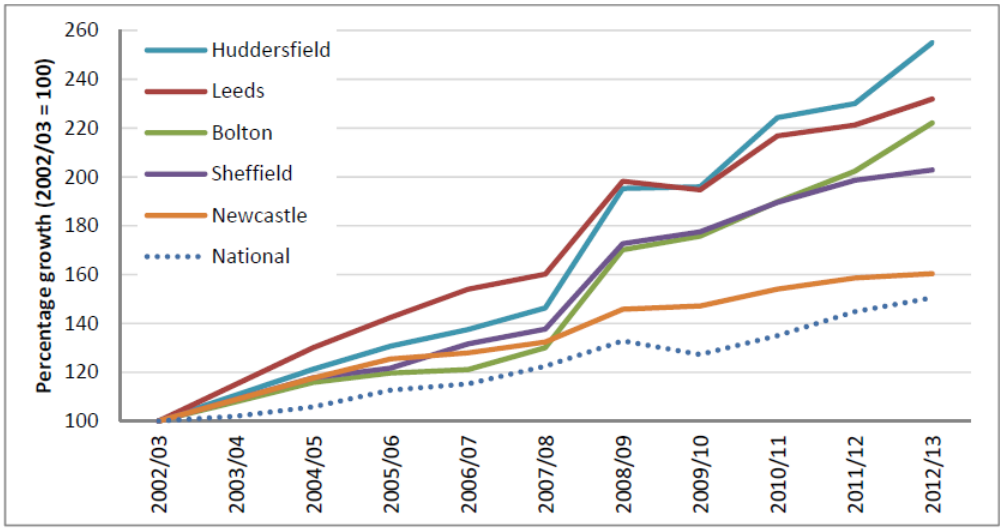
- Capacity to reduce peak period overcrowding constraints on specific trains and at stations can support the densification of jobs and residences in city centres areas, reducing the car parking requirements for both domestic and employment development
- Improved connectivity via new linkages and/or reduced journey times can extend labour markets and open up access to job opportunities
- Modern rolling stock can offer a better alternative and journey reliability to car commuters also reducing road congestion
- More attractive fares such as 'early bird' commuter fares can make access to remoter job opportunities more affordable.

[14] By Professors Venables Laird and Overman for DfT, published December 18th 2014 at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/386126/TIEP_Report.pdf

5. Why the Northern franchise needs to be funded to address growth in demand

The northern cities have seen significant increases in rail demand over the past decade and this is forecast to continue. For example, analysis by PTEG (see chart below) shows that, in the decade to 2012/13, the total number of passengers increased by 150% into Leeds and Huddersfield, almost doubled into Bolton and Sheffield, and increased by 60% into Newcastle compared with national growth of around 50%.

Figure 2: Rail passenger growth into key Northern stations



Source: PTEG (July 2014). The Economic Value of Rail in the North of England, Figure 1.

Greater Manchester

Peak volumes into Manchester increased by 30% in the eight years between 2001/02 and 2009/10[15]. The consequence has been significant crowding.

Currently, almost a quarter of trains coming into Manchester in the morning 'high peak' hour (0800 to 0900) are overcrowded, with over 40% of trains on the Bolton route (i.e. Preston – Manchester) falling into this category. The problem of developing an appropriate service plan that reflects the route's role as a key national intercity route (Manchester to/from Scotland), a regional express route (Blackpool – Preston – Manchester Airport) as well as an important commuter route, serving Salford as well as Manchester, is particularly acute.

[15] TfGM 2012 Rail Strategy

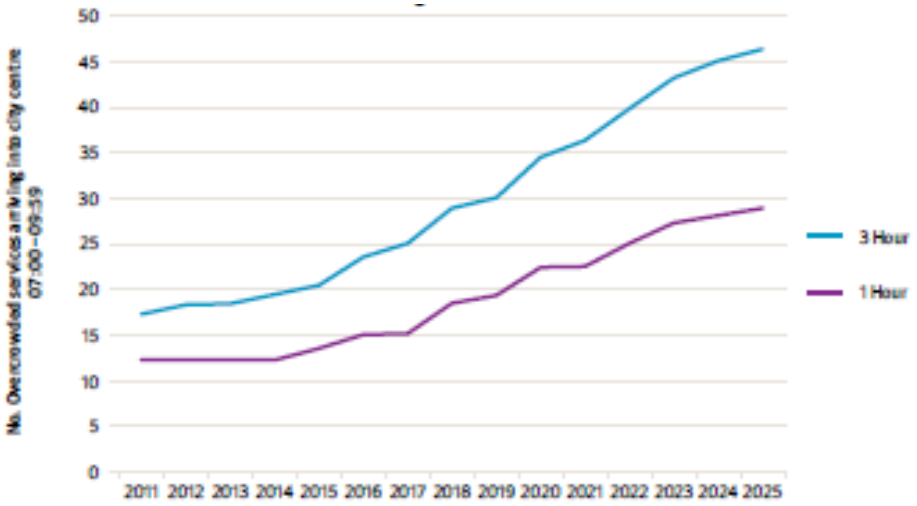
The North West electrification programme, which will introduce four car electric units to replace 2, 3 and 4 car diesels, will immediately reduce overcrowding by half, demonstrating the importance of electrification in helping to address crowding.

Research done for Transport for Greater Manchester (TfGM) as part of the development of the 2012 Rail Strategy suggests that, in Manchester, total population would increase by 5.6% between 2010 and 2020 and total employment a little faster, at 6.7%. Total commuting into Greater Manchester by all modes is expected to rise by 6.4%, with an increasing proportion coming from outside the Greater Manchester City Region reflecting the relatively high growth of above average income jobs in Manchester and Salford. TfGM has translated these into detailed forecasts by rail route. Between 2014 and 2019, annual demand on all routes is expected to grow by at least 2.5% pa and in 2020 onwards at rates that vary between 1.5 and 2.7% per annum. In other words, the rate of growth in rail commuting is expected to be about 50% faster than total employment growth reflecting people's preference for rail travel over car use, which is increasingly affected by congestion and higher land values in the city centre pushing up the cost and accessibility of car parking.

The net effect is that even a small increase in employment levels translates into a significant impact on rail demand. Without action, crowding on services in the Manchester area is consequently expected to increase (see Figure 3 below)[16].

[16] Overcrowding is measured after making allowance for some standing passengers, in line with allowances set out in franchise agreements. Typically this means that a train is defined as crowded once its load factor (i.e. passengers to seats) is around 110%.

Figure 3: Overcrowding Profile in Greater Manchester – 1 & 3 Hour AM Peak



Source: Transport for Greater Manchester and Greater Manchester Combined Authority. *Greater Manchester Rail Policy 2012-2024, page 38.*

In particular, this means the **average** load factors in the peak hour on the following routes in 2024 would be:

	%
Bolton	118
Stalybridge	110
Wigan via Atherton	99
Liverpool via Warrington	98
Stockport	96
Marple via Hyde	91

Not all routes will be this crowded, however, with the line via Styal expected to see a load factor of 55% and the Hadfield/Glossop route 58%. The option of taking routes such as these out of the national network and incorporating them into Metrolink is a possible best long term strategy here – another example of where local decision-making is needed to get best value from franchise support. But in general, these forecasts show why the case for the Northern Hub project was so compelling, relieving pressure on many of these routes.

Tram train

Some Northern routes might be converted over time to tram-train operation and the current project to do this with the route North of Meadowhall in Sheffield is the best known example. The advantage is that many more places can be brought onto the public transport network as light rail stations can be sited closer together and then connected directly into city centres as a supplement to traditional railway stations which are often on the edge or corners of those centres (such as in Sheffield, Leeds, Manchester and Preston). Tram-trains also offer rapid acceleration meaning that they can free up capacity on heavy rail main lines.

Tram-train schemes need to be planned in close co-operation with the economic development plans for each city region and it is natural therefore that local authorities, PTEs and Combined Authorities should be in the lead in developing the schemes. One important feature of the new franchise might therefore be to promote tram-train and bidders might be asked to propose a sum of ring-fenced funding within the franchise that could be used to support scheme development. Such funding could help pay for the TOC's own resources and technical support as required.

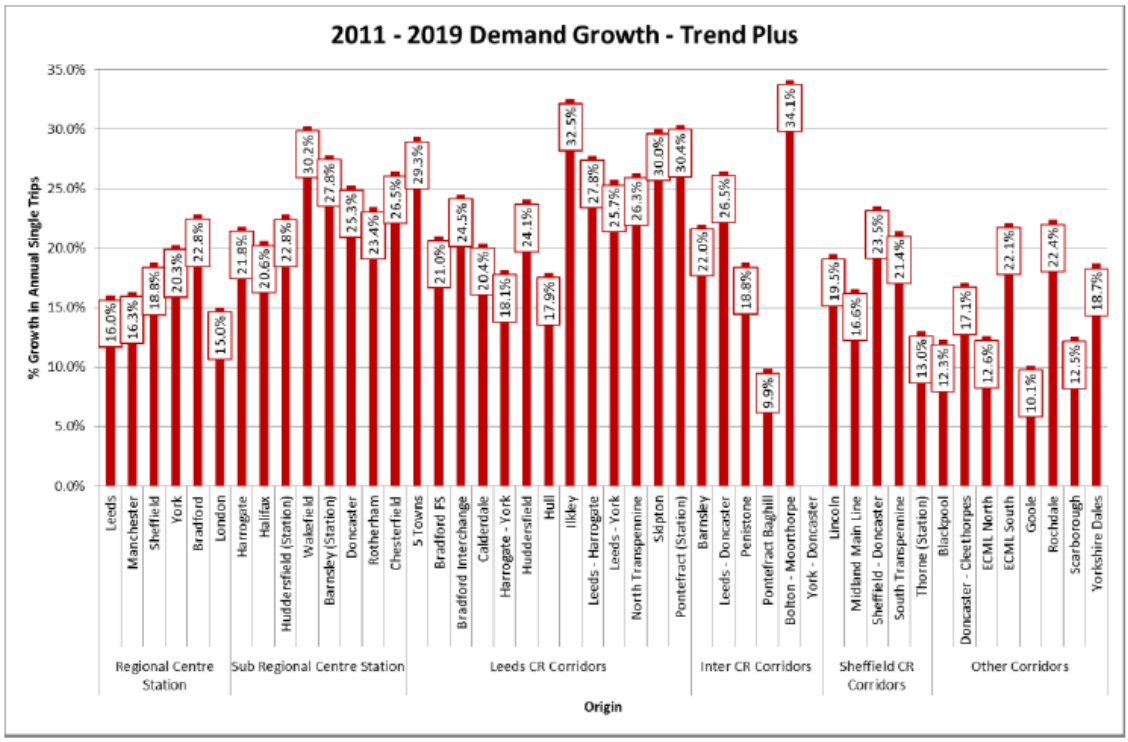
South and West Yorkshire

The Yorkshire Rail Network Study (YRNS) built on the Northern Way's Manchester Hub Study and the Northern Hub Strategy by identifying a conditional output statement for Yorkshire.[17] Led by the West and South Yorkshire PTEs and Leeds City Region, the study identified the potential benefits of releasing capacity could be substantial – up to £10.5bn to £12.5bn.

The YRNS forecasts of peak demand growth for a range of corridors in Yorkshire are shown below, based on the 'Trend Plus' case which assumes that overall growth would continue but, conservatively, at a slower rate than historic growth over the previous 15 years and broadly in line with Network Rail's contemporaneous Northern Route Utilisation Strategy assumptions.

[17] Yorkshire Rail Network Study, Metro, SYPTE and Leeds City Region 2012

Figure 4: 2011 to 2019 Trend Plus Demand Growth - Yorkshire Rail Network Strategy Corridors



Source: Steer Davies Gleave for Metro, South Yorkshire Passenger Transport Executive and Leeds City Region (March 2012). *Yorkshire Rail Network Study Conditional Output Statement, Figure 4.7.*

YRNS work anticipated growth of about 2.4% per annum over the eight years from 2011 to 2019, but as high as 4% pa on some routes and identified 10 conditional outputs for the rail network in Yorkshire covering connectivity and capacity growth amongst other issues. YRNS reinforced the evidence base for the emerging industry plans leading to the Government's 2012 High Level Output Statement for the 2014-2019 Control Period and helped to stimulate the process towards plans for the 2019-2024 period with the conditional outputs now being taken forward by Network Rail with the key regional stakeholders.

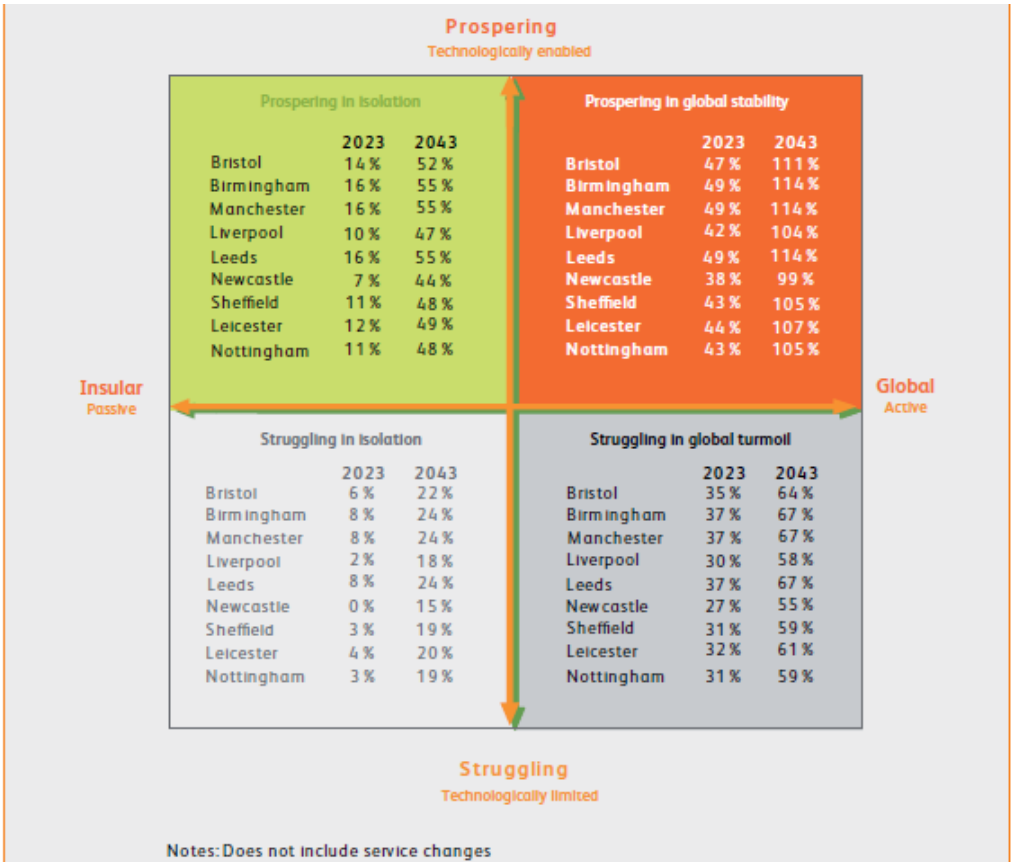
Network Rail's view of the regional market

As part of its ongoing Route Utilisation Strategy programme, Network Rail has studied the market for regional travel across the country, including the North, in consultation with TOCs, PTEs and others. It published its conclusions in October 2013, providing broad-based support for the trends illustrated above.

Network Rail based its work on the scenario approach it has used before, creating four strategic options for the development of passenger demand.

The resulting forecasts for 2022/23 and 2042/43 are shown below. In the highest growth scenario, peak demand across northern cities doubles by 2043, corresponding to an annual growth rate of over 3.5%. And even in the middle scenarios, growth of between 45% and almost 70% is expected across northern cities.

Figure 5 Regional demand growth into regional centres in England by 2022/23 and 2042/43



Source: Network Rail (October 2013*). Long Term Planning Process: Regional Urban Market Study*

It is evident that demand for rail is set to grow significantly across the North. The Chancellor's Autumn Statement indicates that subject to business case development the new Northern and Trans-Pennine franchises will deliver at least a 20% increase in capacity (around 160 new vehicles) to reduce overcrowding. The evidence presented here about demand and the experience of introducing extra capacity in the past in the North (which we discuss in the next chapter) suggests that demand growth will rapidly eat up such a capacity increase. The question of further timely additions to rolling stock capacity in support of northern economic growth needs to be addressed.

6. What can be achieved by modernising the rolling stock used by Northern

Most of the existing Northern fleet of about 800 vehicles need to be refurbished or replaced, retro-fitting traction equipment or diesel engines that offer reduced carbon emissions. As DfT's consultation document about the franchise points out, most (87%) of the trains are diesel and the average age is above 24 years, with few under 20 years old.[18] The most common type is the Pacer railbus which does not comply with European standards for accessible trains and, under domestic law, requires adaptation or replacement by 2020 at the latest. Northern also operates a large fleet of Sprinters and these do not meet accessibility standards either. Only some of the fleet has customer information systems.

The combination of rolling stock age and quality is a peculiarly northern issue which along with the capacity challenge already described impacts on public satisfaction and the credibility of rail's role in supporting the growth of the North's cities and expanding labour markets.

Rebalancing Britain needs to start now, but there is a risk of a continuing 'us and them' approach, south and north despite the very welcome statement (foreshadowing the Chancellor of the Exchequer's Autumn Statement) by the Prime Minister on November 7th:

> *"In terms of Northern Rail I understand the concerns about the franchise. We all want to see Pacers go, and bidders for the Northern franchise will be required to propose plans for the removal of Pacers when they submit their bids in 2015. Those trains are going; there will be a progressive upgrade of trains right across the system."*

The Prime Minister, however, also added to his announcement that these improvements will come at a cost *"everyone has to share"* and that *"Northern Rail is the most heavily subsidised train company"*. That sounds ominously like an expectation that fares will have to rise in real terms to pay for Pacer replacement. And the Autumn Statement only went so far as confirming that the invitation to tender for the franchise would *encourage* bidders, subject to business case development, to replace the outdated Pacer trains with modern, better quality trains, and bring all the trains that remain up to modern standards.

[18] Stakeholder Consultation – TransPennine Express Rail Franchise and Northern Rail Franchise, Department for Transport and Rail North 2014

An approach of "improvements coming at a price to be paid by the passenger" has not been applied elsewhere. When a major part of the South's train fleet came due for replacement 15 years ago (the southern region Mark I fleet), the total costs were far higher than those needed to replace the Pacers and led to a major re-electrification programme too. Yet there was no thought given at that time to asking southern commuters to pay higher fares for the new air conditioned trains provided. Nor has there been any indication that fares should rise in Wales to help pay for electrification and the removal of Pacers on that network.

In fact, as with the rest of the network, continued and accelerated passenger volume growth will increase franchise revenues (and lower subsidy levels). There is clear evidence of this effect in the North already. When the new Class 185s were introduced on TransPennine Express (TPE) services in 2006 they added around a third to capacity but by as early as 2008 TPE began lobbying DfT for extra carriages due to passenger take up of the extra capacity resulting in overcrowding. A Passenger Focus survey[19] identified high levels of passenger satisfaction with the investment in new modern and reliable trains, but concerns on overcrowding appeared as quickly as May 2007.

The Autumn Statement's encouragement of Pacer replacement and more extensive modernisation of the Northern fleet does not yet go far enough. Although the new approach to franchising allows bids to be won on the basis of improving quality, DfT still needs to make clear that it has set aside enough financial resources to fund Pacer replacement which will inevitably add to the cost of service provision.

There is also an argument that it may be sensible to retain *some* Pacers. They remain reasonably economical vehicles so could be used for occasional strengthening and trialling expansion of services, noting that much of Northern still has the same limited Sunday services (or, on some routes, none at all) that date from rounds of British Rail cost cutting in the 1980s and 90s, and of course Sunday demand is now much stronger than before the start of Sunday opening of shops in 1994. It is also relevant that contrary to popular perception, a route to upgrade Pacers to meet accessibility standards by 2019 *has* been mapped out meaning that *some* of the trains could potentially be kept after this date.

[19] The Pennine Class 185 experience. What do passengers think? Passenger Focus 2007

As Transport Minister Claire Perry told a conference on November 5th in Birmingham, franchise bidders in the North will need to be thinking about how they can procure new diesel multiple units that are compliant with the EU standards on emissions in order to improve air quality. The past presumption that progressive route electrification will obviate the need for substantial numbers of new diesels as well has evidently been discarded.

The Northern franchise will most likely start with a small fleet of cascaded electric trains for the Northwest scheme but this fleet will need to grow as further routes are electrified. The franchise should be let with resources for refurbishment of cascaded electrics and existing diesels to ensure that the passenger experience is up to date and, ideally, matches the level provided by the Class 185 units used by Transpennine. Experience with both Class 313s and HSTs has shown that older trains can be brought up to a high standard of passenger experience. The work that is being done on the Class 319s prior to transfer to Northern will hopefully demonstrate this as well.

The rolling stock plan for the new franchise therefore needs to address the pressing current and future needs for additional capacity, refurbishment options and the approach to Pacers.

7. How a modernised Northern franchise will support the development of an inter-city network for the North

The opportunity also exists now to develop a clear 'regional InterCity' network of services for the North that could be marketed as a frequent and high quality option for journeys between key cities, with quality connections to intercity services to London and elsewhere. Key elements of this are already there through today's TransPennine Express (TPE) and CrossCountry networks. But to these should be added:

- the Calder Valley route to better link Blackpool, Preston, Blackburn and Rochdale with Halifax, Bradford, Leeds, York and Scarborough
- the Northern end of the Midland Main Line to offer faster links from Nottingham to Sheffield, Leeds and Manchester, and
- existing, but not widely appreciated, fast electric services between Birmingham and Liverpool/Manchester.

This would generate extra revenue and build on the success that the current TPE franchise has had in growing volumes by using modern trains and marketing approaches. Development and promotion of a clear 'Express Network for the North', as called for in Rail North's Long Term Rail Strategy, would help convince the market that rail was a good option for interurban travel right across the North rather than just on a few corridors.

Better links from the East Midlands

The East Midlands area needs to be considered as part of the process of developing service plans for both Northern and Transpennine as there is strong interaction between them at Sheffield as well as opportunities to provide better links between Leicester, Derby, Nottingham, and South and West Yorkshire and also the North West.

At present, the best Nottingham-Leeds journey time is 105 minutes (with one change) or 120 minutes on a direct train; and the best Nottingham - Manchester time is 109 minutes. There is an opportunity to achieve faster services from the East Midlands to the North and West. This could include better services to Yorkshire (via Erewash) and Manchester (via Dore).

An important component would be to raise line speeds on the Erewash valley route and the line between Meadowhall and Leeds step by step. Much of the route was built to fast mainline standards by the Midland Railway and the track could be re-laid to achieve 90mph or better line speeds using modern diesels and then (assuming an extension of the electrification programme) with modern electric stock. If Nottingham-Leeds could be accelerated by 20 minutes, then the service could also be operated with one less train-set, reducing operating costs.

8. Why it is time for a better fares system across the North

The current fares system in the North is a hodgepodge of different policies and approaches, which leads to considerable variation and is not widely understood. The opportunity exists to develop a clearer fares structure. Through their franchise agreements, Northern, TPE and East Midlands should be required to work together to create an integrated structure that could be applied to all journeys across the North and, over time, implemented using a smartcard approach as in London and is being introduced by PTEs/Combined Authorities in the North.

This requires some change from the current approach, in which each TOC is deemed to be a potential competitor and so is treated separately within the fares setting arrangements in the Ticketing and Settlement Agreement process. The TOCs serving the Northern area should be required to work together and develop a more coherent overall fares structure.

Fares structure

As with the rest of the network, fares are in principle distance-related but a number of factors since the pure mileage system was abandoned in the early 1960s have significantly distorted the picture. For example, non-PTE fares east of the Pennines were historically higher than on the west as a result of East Coast electrification in the late 1980s and fares regulation has maintained this differential in the years since.

The new franchise is a good opportunity to recast the fares structure in the North (in principle, all fares set by Northern and TransPennine) with the following objectives:

- Make them simpler. The experience of the zonal structure in London is that this increases patronage and customer satisfaction
- Introduce greater consistency across the North. Journeys of similar lengths should have similar fares, removing any concerns that one part of the North is benefitting at the expense of another
- Create a clear and demonstrably fair basis for market segmentation (*e.g.* workday peak, off-peak, advance purchase, railcards, group size, social discounts)
- Work to create a series of readily understandable and marketable price points. A big limitation of today's price structure is that most flexible fares are quoted to the nearest 10p and don't lend themselves to marketing based on easily understood price points

Zonal fares

The opportunity of a zonal fares system, to radically simplify the offer to passengers, should seriously be considered as part of this. It can be done, and the existence of historical boundaries (across PTE areas and between different franchises) cannot be used as a reason not to make the changes needed. After all, a simple zonal structure already exists, across national boundaries (Denmark and Southern Sweden).

Zonal fares across boundaries: the Denmark/South Sweden example

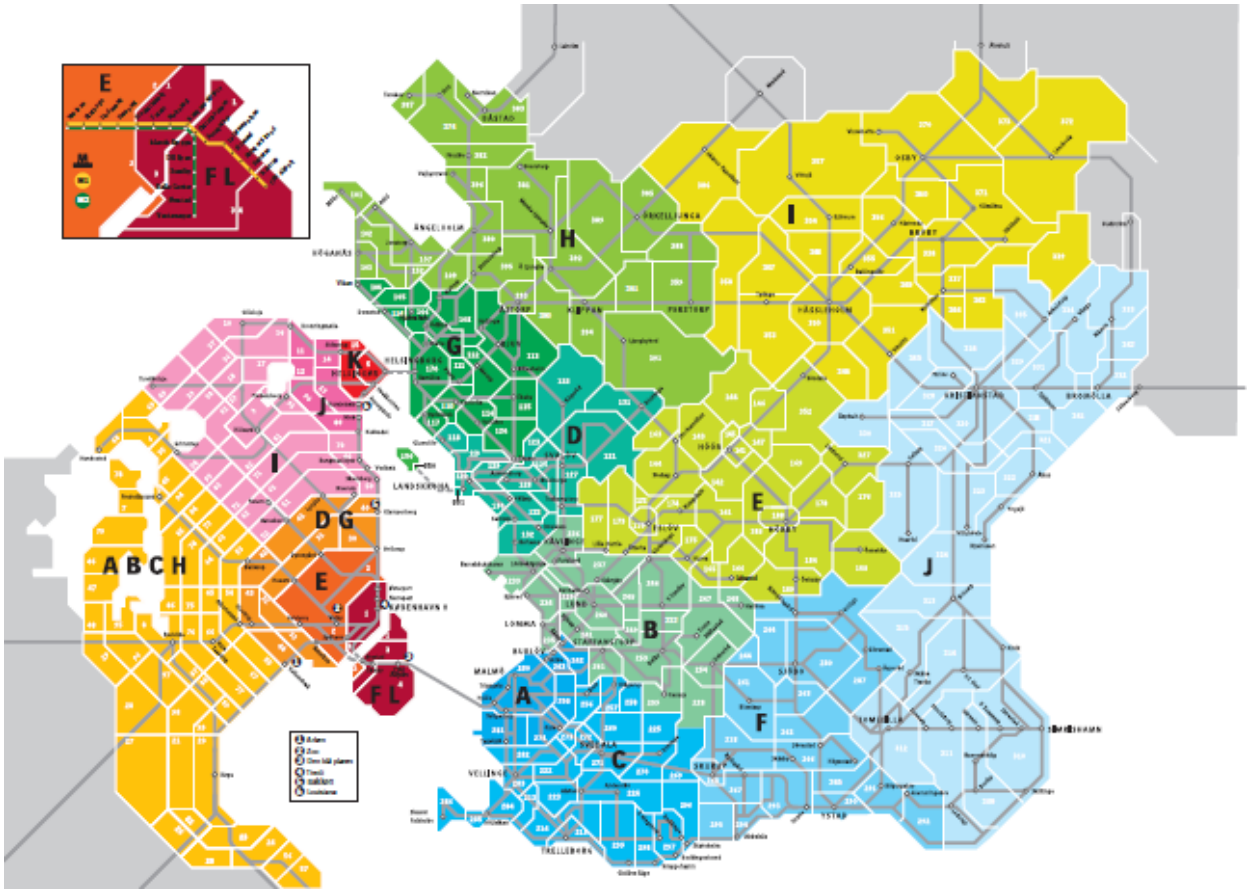
A useful starting point for the debate on fares is provided by the arrangements put in place in Sweden and Denmark when the bridge between Copenhagen and Malmo was opened in 2003, with a purpose built airport station at Kastrup, Denmark. The bridge linked the rail networks of Skane (Southern Sweden) with that of the Greater Copenhagen area and offers a train every 20 minutes throughout the day and at weekends as well. With direct services to a range of destinations in both countries, the network is in many ways similar to today's TPE network.

The Malmo-Copenhagen region is one of the fastest growing in Europe and, increasingly, the labour markets in the two countries are merging together (despite differences in language and currency). Copenhagen's Airport, Kastrup, is now the main airport for Southern Sweden and offers direct services to over 30 major centres outside Europe. The transport network has been explicitly designed to help promote economic development and is still being developed by further capacity improvements in Sweden. The opening in 2012 of a new 'shortcut' for the Oresund trains from the Bridge to a new station under Malmo Central station, with an intermediate station at Triangeln on the South side of the city centre, effectively provides a 'Crossrail' type service for the city.

Denmark and Sweden already had their own zonal tariff system (with all of central Copenhagen falling in one zone) and fares levels: in Sweden each county sets the fares for rail services in its territory. But to provide through fares a higher order zone was created for through journeys across the Bridge (and also the ferry crossing between Helsingor and Helsingborg). In this system, Skane is split into about a dozen high level zones and the Copenhagen region into about five, so that only a limited number of Oresund fares are needed (rather than one from every 'small' Swedish zone to every 'small' Danish zone).

It should be noted that one of the reason that the UK's system contains so many fares is that, in effect, journeys from any UK station to any other are separately priced: this higher level aggregation therefore severely reduces the number of fares that are needed.

Figure 6: Fares structure in Skane and the Copenhagen region



Source: www.skanetrafiken.se-

The result is a very simple table of fares, which can be easily understood and marketed. This also offers a uniform system of discounts, for commuters, younger people and senior citizens that is common to both countries.

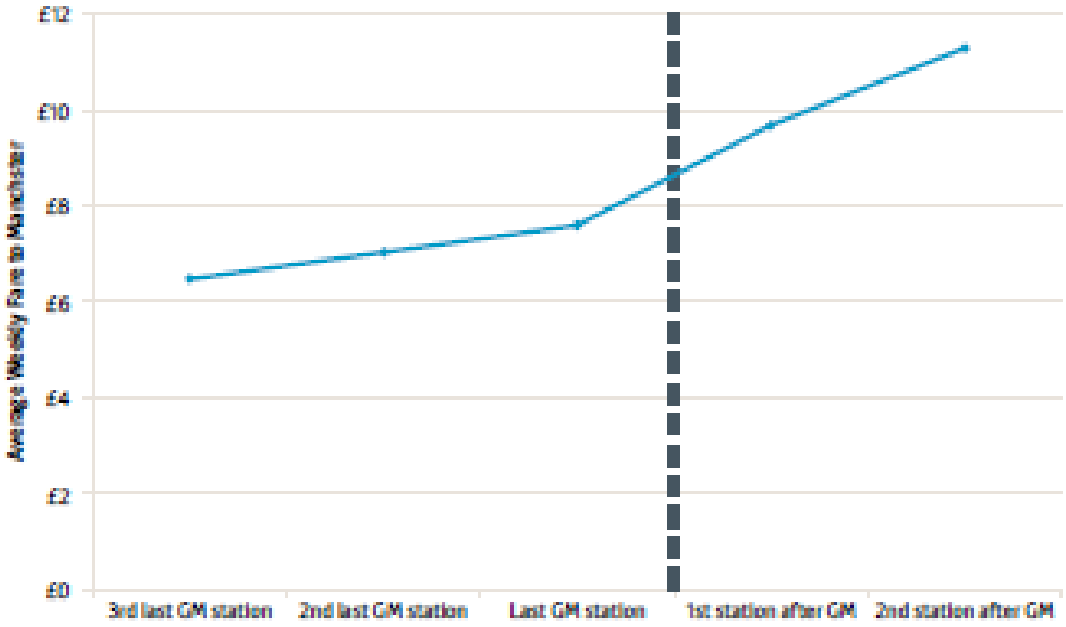
Why are fares across the North so confusing?

In PTE areas fares generally continue to reflect the pricing policies of PTEs prior to them ceasing to be co-signatories of the Northern franchise in 2005 including in particular promotion of intermodal tickets intended to promote urban mobility. Specific regulated fares caps have been retained and cover Northern services in each PTE area. The effect very largely preserves the PTE/non-PTE split that applied in the past. The formula

keeps average fares within each PTE area to an RPI plus x formula, with x set by DfT.

Analysis, for example, by TfGM and GMCA in 2012 identifies a differential at the Greater Manchester boundary stations (see below). This and factors such as the availability of car parking at TfGM stations will have an influence over travel choices.

Figure 7: Differential in rail fares at the Greater Manchester boundary



Source: Transport for Greater Manchester and Greater Manchester Combined Authority. *Greater Manchester Rail Policy 2012-2024, page 53.*

Work by TfGM has also compared rail fares with those of the two largest bus operators in Greater Manchester.[20] It found that rail is cheaper than bus for shorter distance journeys (up to 7km) and in some cases over the entirety of the distances examined.

Analysis for the 2006 review of the Northern franchise found a similar picture East of the Pennines as well, with bus and rail fares to Harrogate closely tracking each other but inner suburban bus fares in Leeds higher than similar rail fares. The review also compared day-rover fares, which effectively limit single fares in West Yorkshire and found evidence that fares increase measurably beyond the boundary (for example Harrogate, just outside West Yorkshire, as contrasted with Halifax within it).

[20] Transport for Greater Manchester and Greater Manchester Combined Authority. *Greater Manchester Rail Policy 2012-2024, page 52.*

In summary, there is evidence that non-PTE rail fares in the North are proportionately higher than PTE-fares and some bus fares within PTE areas are higher than rail fares. It should be recognised that in rationalising and simplifying this situation, some fares will go up, as well as others going down. The key point is to create a simple, attractive and demonstrably fair system that attracts rather than deters rail use.

Another significant point is that rail's market share into cities in the North is typically only around 20-25%. This is very different from London where travel to the centre has market shares of 90% for tube and rail combined. This means that the car/rail mode choice of individuals is a much more significant issue in the North - including on a daily and weekly basis - and peak fares increases will not necessarily generate significant revenue uplifts.

Are Northern Fares too low?

It is widely believed by policymakers that rail fares in the North, particularly for the Northern franchise in PTE areas, are low compared with around London.

We compared a range of fares for journeys into Leeds, Manchester and Sheffield with those into London and found that fares in the North are generally lower per mile than in the south east. However, if regional differences in income levels are taken into account, a different picture emerges.

Using ONS data for income in 2013 by location of employment for each major city and area of the country, a comparison between regions is possible. On this basis average earnings were:

Average of Leeds, Manchester and Sheffield[21]	£25.2k
London	£40.0k
Difference	+58%

Taking a rough average of current fares per mile, fares into Leeds are about 30% higher than equivalents into London, those in Manchester about 20% and those into Sheffield about 7% once income differences are taken into account.

[21] This is data for the city centres only, rather than earnings from jobs in surrounding cities e.g. Salford.

Once allowance is made for income levels, fares in the North are not on average cheaper than around London.

9. Conclusion

The exciting vision for the railway of twenty years' time must not distract from the need to include in the new Northern franchise important *stepping stones* towards that goal. Another 'minimum cost' franchise would jeopardise the future for which Government, HS2 Ltd, One North, Rail North and now Transport for the North are all planning. The need to devolve planning, modernise rolling stock, improve stations, and reform fares and start the transformation of customer experience are all pressing.

Table 4: The Stepping Stones to a rail network ready to realise the benefits that flow from HS2 and the One North Strategy

What	Who	When
Franchise-wide strategy for passenger information provision, including better information screens	Future Northern franchisee	2016
New fares system, offering simplicity, removing barriers to travel	DfT, working with Rail North	2016
Introduction of new DfT appraisal guidance that expressly builds in consequences for economic growth of transformational schemes	DfT	2017
Recast of suburban services North and West of Manchester and Harrogate line in Leeds to provide more seats with longer and more frequent trains	Network Rail, Rail North and Northern franchisee	2017
Launch of a new InterCity network for the North and Midlands, incorporating TPE plus routes from CrossCountry and East Midlands	DfT and Rail North	2018
Reallocation of track access charges to reflect Northern's actual costs	ORR and NR	April 2019
Regional smartcard system progressively introduced	Future Northern franchisee	From May 2019
Pacers to be replaced and any remaining Class 150/1s to be completely renovated	Future Northern franchisee; ROSCOs	December 2019
Region-wide upgrade of stations and station facilities	NR and future Northern franchisee, including TPE	By 2020
Completion of TPE and MML electrifications, including potential introduction of new fleet for TPE	NR, DfT and Rail North	2020

Greengauge 21 is a not-for-profit company limited by guarantee, with a wide aim of helping to shape tomorrow's railway. The company was founded by Jim Steer, one of the UK's leading transport sector specialists. Initially conceived as a means to promote a debate on the case for high-speed rail in Britain, it has established a broad research base to foster and guide high-speed rail planning. Its remit now extends into all aspects of the national rail system and its wider benefits.