JACOBS™ Consultancy

Research Project on Reviewing the Franchise Map

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Final Report

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1 INTRODUCTION AND REMIT

1.1 Study objectives

The aim of the study is to review the geography of railway franchises managed by the Department and make recommendations on whether there are opportunities to improve service provision and/or reduce net industry costs by undertaking selective consolidation or other changes.

The requirements for the study were defined in the brief as:

- Quantify the benefits and disbenefits of potential franchise remapping options and form a view as to the existence of a case for change;
- Account should be taken where possible of the impact of expected industry projects and changes including Thameslink, IEP, Crossrail etc;
- Account should be taken of emerging findings from other areas of the McNulty review including possible pilot schemes for vertical alignment. In particular the work should consider how franchise re-mapping might optimise alignments with infrastructure provision following proposals to improve integration between TOCs and infrastructure management;
- Where more than one potential answer exists these should be assessed and the pros and cons of each considered;
- Note should be made of implementation timescales and potential issues, but should not be a barrier to suggesting an otherwise beneficial change; and
- Highlight any issues that were unable to be addressed in time for the report due to constraints of time or information provision that could be the subject of further work.

1.2 Study process

The study has included the following components:

- Review of the 15 existing franchises managed by the Department, including a review of route analysis material provided by DfT, and analysis of passenger databases. Key physical characteristics have been identified for each TOC, including an assessment of their passenger base. The physical overlaps between franchise train services are identified. The extent to which existing franchise geography fits with passenger journeys and the extent to which passenger flows are served by more than one TOC are also examined. Details are provided in Appendix A, with a summary provided in Chapter 2.

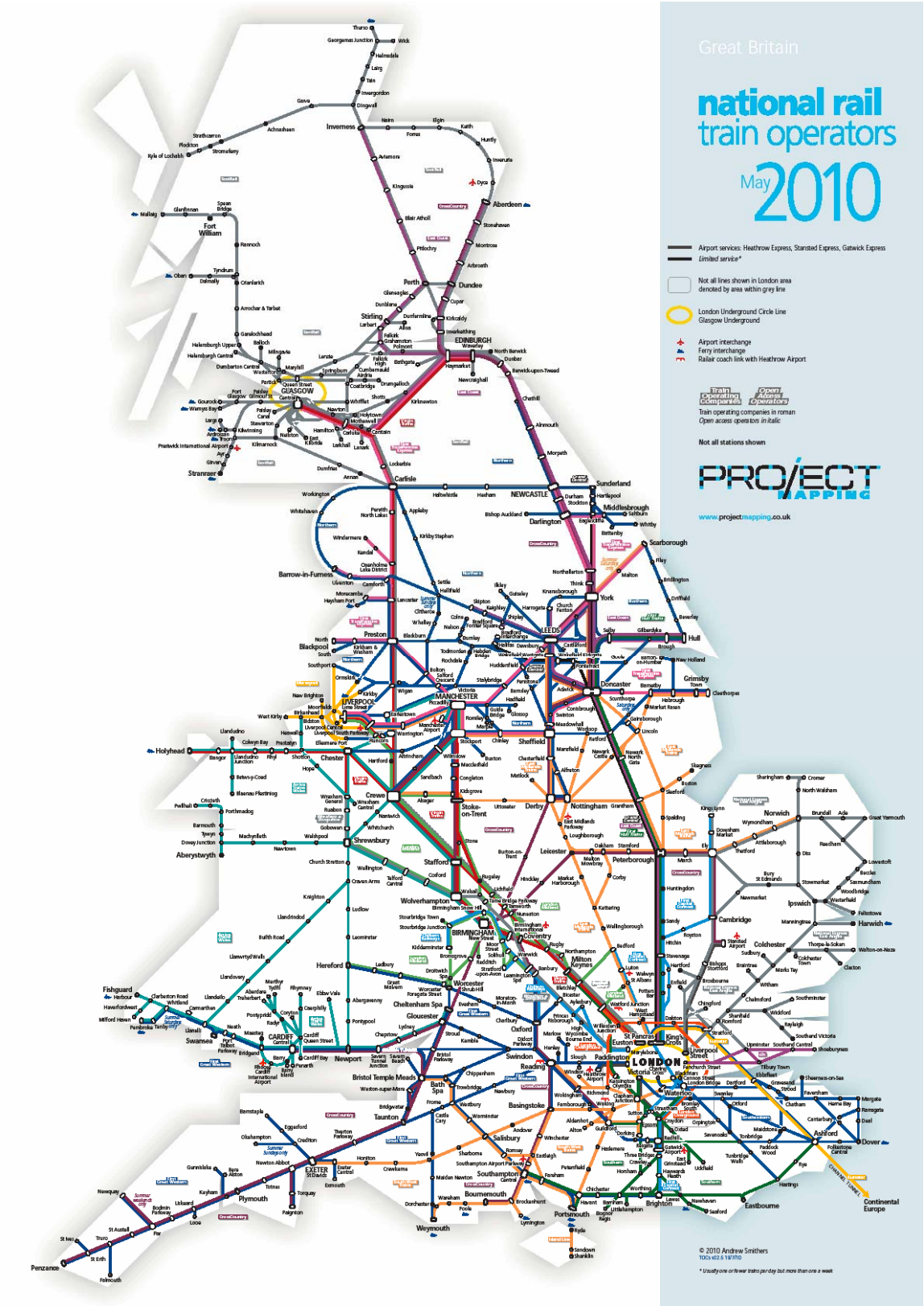
- Validation and research of the work undertaken so far. This work has looked at the impact of past franchise mergers (in particular from First Great Western), and also includes some feedback from TOC representatives and from past Long Form Reports. It has also drawn upon other technical advisor work on the benefits from improving inter-urban services in Northern England (which could be best unlocked through franchise combination of TPE and Northern) and a subsequent assessment of pros and cons of different franchise models in the north. Some of the issues arising from this review are discussed in Chapter 3.

- Based on our assessment of existing TOC characteristics and interfaces in terms of passengers, routes, services and resources, potential remapping options have been identified for each of the DfT managed TOCs. This long list of potential options was reviewed at a workshop with DfT and VfM teams, and distilled into a shortlist of around 5 or 6 main options where improvements could be expected, with a number of sub-options. A summary of the full (long) list of the possible franchise mapping options, and the derivation of a shortlist for more detailed appraisal, is provided in Chapter 4.

- We have examined the shortlisted possible future mapping changes – extrapolating effects from past examples as well as looking at the possible structural improvements and changes in the possible future TOC specifications. This has involved detailed consideration of passenger market implications, and potential industry cost efficiencies. Our analysis is described in Chapters 5 and 6.

2 OVERVIEW OF THE EXISTING FRANCHISE MAP

2.1 TOC Franchise Map



Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

The map showing the existing franchises illustrates a significant amount of overlap and interface that currently exists between TOCs on many of the main line routes, and at key terminals in the larger centres.

2.2 The Existing TOCs

2.2.1 Summary

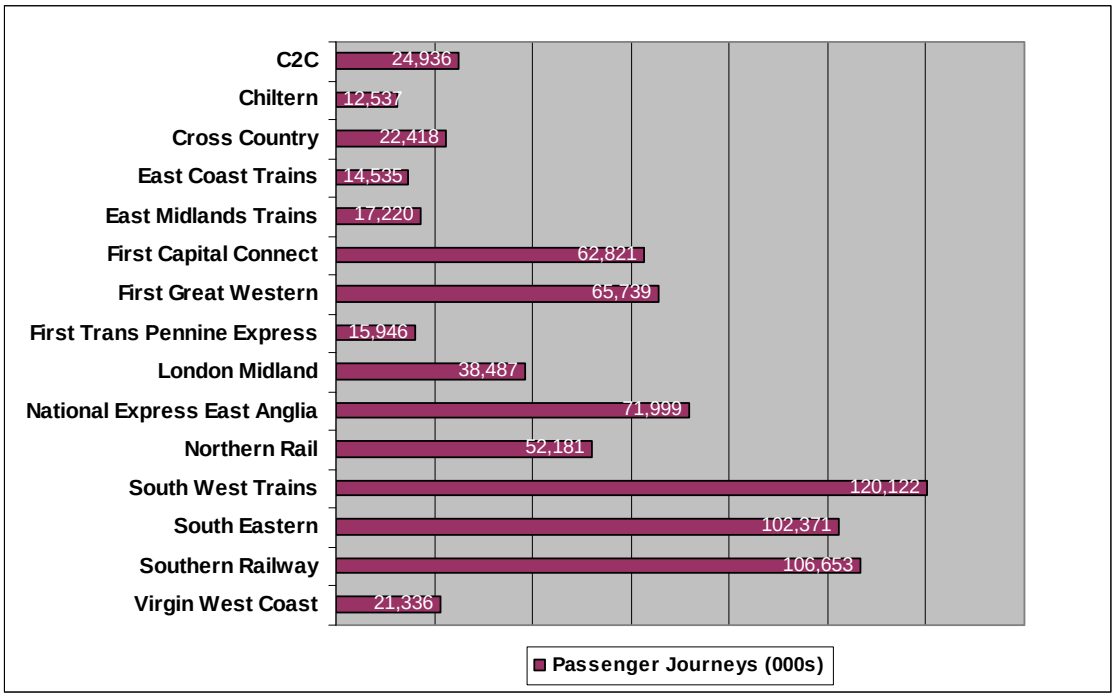
We use the TOC two letter codes shown in the table below as abbreviations throughout this report. The relative scale of the existing TOCs may be illustrated by a comparison in terms of passenger journeys and the train miles they operate:

TOC	Code	Passenger Journeys (000s)	Timetabled Train Miles (000s)
C2C	CC	24,936	4,025
Chiltern	CH	12,537	5,988
Cross Country	XC	22,418	20,063
East Coast Trains	EC	14,535	12,475
East Midlands Trains	EM	17,220	13,506
First Capital Connect	FC	62,821	15,100
First Great Western	GW	65,739	26,613
First Trans Pennine Express	TP	15,946	10,600
London Midland	LM	38,487	15,388
National Express East Anglia	LE	71,999	20,350
Northern Rail	NT	52,181	28,056
South West Trains	SW	120,122	24,688
South Eastern	SE	102,371	20,981
Southern Railway	SN	106,653	23,325
Virgin West Coast	VT	21,336	22,219

Sources: DfT and ORR National Rail Trends 2009-10

In terms of train miles operated there is a large range in TOC size, with a majority of the TOCs (8 TOCs) operating over 20 million train miles annually, with the other seven TOCs ranging between 4 million and 15 million annual train miles.

Comparing the TOCs in terms of passenger journeys carried also illustrates a large range in quantum, with a quite different ranking order in terms of size. The three London commuter TOCs south of the river handle a significantly higher quantum of passengers than the other TOCs. The high speed "intercity" TOCs carry many of their passengers over significantly longer distances and typically with much higher average revenue yields.



2.2.2 TOC details

Details of the current TOCs can be found in Appendix A. Our detailed review of existing franchise composition includes an assessment of where material physical overlap exists between franchises in terms of route network and major station nodes. It also quantifies the extent of multi TOC interface experienced by passengers, measured in terms of the proportion of the TOCs' passenger journey base that is travelling on flows where the train service is jointly provided with other TOC(s) (occuring either because passengers are changing trains currently run by separate TOCs, or are travelling on a flow where the timetabled services are provided by more than one TOC). In addition, we have considered other interface issues in terms of the physical facts including stations, rolling stock and depots.

The details provided for each individual TOC include:

- Routes / stations served;
- Physical facts, including passenger volumes, fleet details, fleet and traincrew depots;
- Geographical overlaps with other TOCs;
- Key passenger flows shared with other TOCs;
- Operational interfaces and resources;
- Summary of franchise mapping options which might be considered.

2.3 Fit with existing Network Rail geographic structure

2.3.1 Strategic Routes

Network Rail has divided the infrastructure network into 17 **Strategic Routes** for route planning and development purposes. On ten of these routes there is a dominant TOC that accounts for over 80% of output (measured in tonne miles).

NR Strategic Route Name	Largest TOC	Largest TOC % of SR Tonne Miles	# Other TOCs with >5% of their Tonne Miles within SR
Kent	Southeastern	99%	0
Sussex	Southern	83%	2
Wessex	SWT	92%	0
East Anglia	NXEA	94%	0
North London Line	LOROL	98%	0
Thameside	c2c	98%	0
East Coast & North East	East Coast	64%	4
Cross-Pennine,Yorks & Humber and North West	Northern	49%	4
London and East Midlands	EMT	63%	2
London and West	FGW	95%	0
West of England	FGW	64%	1
Wales	ATW	62%	1
West Midlands & Chiltern	London Midland	31%	4
West Coast	Virgin West Coast	73%	5
Merseyside	MerseyRail	100%	0
Scotland East	ScotRail	81%	0
Scotland West	ScotRail	84%	0

It should be noted that on the “East Coast & North East” route, although EC has nearly two-thirds, FC and XC also have significant tonnage. On the “West Coast” route, VT dominate with nearly three quarters, although LM is significant with 16% of the tonnage. The West and East coast main lines are multi-user: there are five and six operators with significant tonnage operated on these strategic routes respectively.

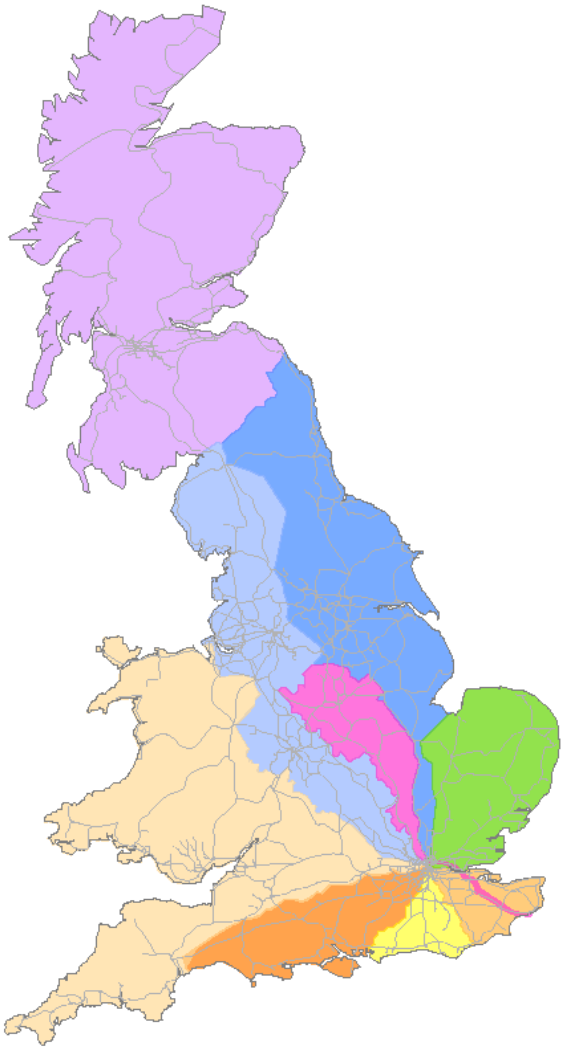
On two strategic routes there is no dominant TOC with any majority of tonne miles:

- On “Cross-Pennine, Yorks & Humber and North West”, the Northern TOC (NT) has less than half, with TPE over one quarter of the tonnage and three other TOCs also with some significant tonnage; and
- On “West Midlands & Chiltern”, LM TOC has less than a third of the tonnage, with XC, VT, and CH also with over 20% each.

SR	SR NAME	TPE	NXEA	Northern	FGW	FCC	AXC	London Midland	LOROL	EMT	ScotRail	East Coast	MerseyRail	Virgin West Coast	ATW	Chiltern	c2c	Southeastern	Southern	SWT	Total
A	Kent	-	-	-	-	10	-	-	0	-	-	-	-	0	-	-	-	8,180	113	0	8,304
B	Sussex	-	-	-	25	1,409	-	-	53	0	-	-	-	0	-	-	-	67	7,957	113	9,624
C	Wessex	-	-	-	385	-	333	-	0	-	-	-	-	-	-	-	-	-	225	11,216	12,160
D	East Anglia	-	8,083	-	-	227	156	-	-	110	-	-	-	-	-	0	11	0	-	-	8,587
E	North London Line	-	0	-	0	-	-	0	316	0	0	-	-	0	-	1	4	0	0	-	322
F	Thameside	-	0	-	-	-	-	-	0	-	-	-	-	-	-	-	1,695	26	-	-	1,721
G	East Coast & North East	393	0	419	-	2,664	1,534	-	0	199	139	9,481	-	1	-	-	-	-	-	-	14,830
H	X-Pennine,Yorks & Humber & NW	2,015	-	3,737	-	-	526	40	-	353	1	168	10	502	207	-	-	-	-	-	7,560
I	London and East Midlands	-	-	44	-	1,744	788	-	0	4,443	-	-	-	8	-	-	-	1	0	-	7,027
J	London and West	-	-	-	7,011	-	337	-	-	-	-	-	-	1	0	1	-	-	0	3	7,353
K	West of England	-	-	-	3,011	-	1,629	10	-	-	-	-	-	-	7	-	-	-	-	58	4,715
L	Wales	-	-	-	952	-	142	-	-	-	-	-	-	202	2,148	0	-	-	-	-	3,444
M	West Midlands & Chiltern	-	-	-	135	-	1,624	1,925	-	-	13	-	-	1,208	133	1,186	-	-	-	-	6,224
N	West Coast	453	0	157	0	-	480	3,006	227	14	550	9	-	13,939	78	1	-	-	157	0	19,072
O	Merseyside	-	-	-	-	-	-	-	-	-	-	-	853	-	0	-	-	-	-	-	853
P	Scotland East	36	-	-	-	-	153	-	-	-	3,220	508	-	80	-	-	-	-	-	-	3,997
Q	Scotland West	21	-	5	-	-	40	-	-	-	2,758	135	-	318	-	-	-	-	-	-	3,277
Total		2,919	8,083	4,362	11,520	6,054	7,744	4,980	597	5,119	6,681	10,300	863	16,259	2,573	1,189	1,709	8,274	8,452	11,390	119,069

2.3.2 Operating Routes

In terms of service delivery of the operational infrastructure network, NR is structured into nine **Operating Routes** as shown on the following map:



Map Source: Network Rail

OR NAME	Largest TOC	Largest TOC % of SR Tonne Miles	# Other TOCs with >5% of their Tonne Miles within SR
East Anglia	NXEA	75%	3
Kent	Southeastern	88%	2
LNE	East Coast	51%	5
LNW	Virgin West Coast	52%	9
Midland and Continental	EMT	61%	2
Scotland	ScotRail	67%	4
Sussex	Southern	86%	2
Western	FGW	72%	2
Wessex	SWT	90%	1

Each of the nine NR Operating Routes has a dominant TOC customer in terms of tonne miles operated over it (shown in the table above and highlighted green in the table below). In some cases there is a very good fit with no other significant TOC involvement. In most cases though, the activity of the Operating Route delivers a large proportion of a number of TOCs tonne miles. This may represent a small proportion of tonne miles for the Operating Route, but represent a large proportion of tonne miles for the particular TOC (highlighted yellow in the table below).

Operating Route	TPE	NXEA	Northern	FGW	FCC	AXC	London Midland	LOROL	EMT	ScotRail	East Coast	MerseyRail	Virgin West Coast	ATW	Chiltern	c2c	Southeastern	Southern	SWT	Total
East Anglia	.	8,079	.	0	403	154	0	308	108	0	.	.	0	.	1	1,709	27	0	0	10,789
Kent	.	.	.	.	367	.	.	6	0	.	.	.	0	.	.	.	8,143	763	1	9,279
LNE	1,405	4	2,291	0	2,488	1,744	0	0	596	22	8,974	.	1	.	0	.	0	.	.	17,524
LNW	1,344	0	2,029	50	.	1,906	4,778	235	146	477	2	863	15,108	813	1,139	.	0	159	0	29,051
Midland & Contintl	.	0	37	0	1,822	868	1	1	4,269	.	.	.	18	.	0	.	17	0	.	7,033
Scotland	170	.	5	.	.	465	.	.	.	6,181	1,324	.	1,130	.	.	.	.	.	.	9,276
Sussex	.	.	.	76	948	.	201	39	.	.	.	.	0	.	49	.	.	7,209	70	8,417
Western	.	.	.	10,921	.	2,205	201	4	.	.	.	.	2	1,760	.	.	.	0	78	15,221
Wessex	.	0	.	473	26	402	.	4	.	.	.	.	.	.	0	.	13	321	11,241	12,479
Total	2,919	8,083	4,362	11,520	6,054	7,744	4,980	597	5,119	6,681	10,300	863	16,259	2,573	1,189	1,709	8,274	8,452	11,390	119,069

The role of the NR Operating Routes for the TOCs may be summarised as follows:

- **East Anglia** – hosts almost the entire tonne miles of LE and CC TOCs. LE is dominant, and this is the most important Operating Route for LOROL in tonne miles.
- **Kent** – handles almost the entire tonne miles for SE which is dominant, and a small but significant tonnage for ST.
- **LNE** – carries the vast majority of EC tonne miles, but EC only has just over half of the tonne miles within LNE. This operating route is also the most important in terms of tonne miles for FC, NT and for TP. It also has a significant role for XC.
- **LNW** - handles almost the entire tonne miles for VT, which is dominant, and for LM and for CH. It also has a significant role for TP, NT, and XC.
- **Midland & Continental** - carries the vast majority of EM tonne miles. EM is dominant, but the Operating Route is also important for FC.
- **Scotland** handles almost the entire tonne miles for Scotrail which is dominant, and a small proportion but significant tonne miles for EC and VT.
- **Sussex -** carries the vast majority of ST tonne miles, which dominates. It also smaller but significant quantum of tonne miles for FC.
- **Western -** carries the vast majority of GW tonne miles, which dominates. It also plays a significant role for XC and Arriva Trains Wales.
- **Wessex -** handles almost the entire tonne miles for SW which is dominant, and a relatively small tonnage for XC and GW.

3 REVIEWING THE FRANCHISE MAP

3.1 Introduction

As shown in Chapter 2, the existing TOCs represent a very large range in size. In terms of passengers handled this ranges from Chiltern at 13 million passengers per annum to SWT at 120 million. Annual train miles output ranges from 4 million on C2C to 28 million on Northern.

Some existing TOC geography fits well with the passenger travel market and NR structure on some routes: including C2C, Chiltern, Great Western, Greater Anglia, South West Trains and South Eastern. On the other hand, there is a particularly poor fit between NR territory and TOC geography within LNE and LNW Operating Routes, and improving alignment could be beneficial and particularly important were options involving closer vertical integration to be pursued in the future.

On the other hand, there is a significant quantum of passenger and TOC interfaces / overlap existing on many routes. Particular examples include London Midland, Virgin Trains, CrossCountry, East Coast, East Midlands Trains, Trans-Pennine, Northern Rail, First Capital Connect and Southern.

3.2 Issues to consider

Our assessment of potential franchise mapping change options is based on a quantification of the benefits and disbenefits associated with the changes. Our approach has been to carry out a review of the present relevant train service groupings establishing the passenger flows carried, and identify the resources involved and their interdependencies. Our assessment criteria cover **passenger, operational and franchising** impacts.

3.2.1 Passenger impacts

We have reviewed ways in which a franchise service structure may influence passenger service quality using available case studies, together with our industry experience. Key issues are discussed below.

(a) Passenger interchange between services

Where there are good matches between market segments and passenger journey characteristics there may be merit in bringing the service under a new single TOC management. For example, where a major role of a local service is as a feeder service on longer distance flows there may be insufficient incentive from the revenue earned on the local leg for the connection to be optimised from a passenger or wider industry incentive. If the interchange is within a single TOC, there are greater opportunities, for example, to optimise the interchange time and provide improved guarantees for passengers that they will be able to get to their destination with minimal inconvenience.

There are also potential passenger benefits associated with opportunities for providing new through services (reducing the need for passengers to interchange at all) which are most readily arranged by interworking services of a single TOC. Such detailed timetable optimisation is beyond the scope of this study, but the potential for service enhancement adds to the prospective passenger benefit associated with reducing the volume of passenger interchange between different TOCs.

(b) Overlapping services

A significant issue in terms of TOC mapping is the extent to which a TOC's geography overlaps with other TOCs. On routes where all of the services are provided by a single operator (particularly where the track infrastructure is congested), there can be significant benefits for passengers. This issue has been considered in previous franchise mapping exercises – for example in the development of the Greater Anglia and Greater Western TOCs. In addition, as discussed below, reduced overlap between TOCs can lead to improved operational efficiencies and cost savings.

Particular passenger benefits can occur in terms of:

- Flexibility to address demand, and ability of a single TOC to define overall service specification for specific markets – this helps to avoid crowding impacts caused by train load mismatch on TOC overlap sections (e.g. previous mismatch on the Brighton Main Line between Southern and Gatwick Express services), and provides improved alignment of the service specification with the passenger markets.

- Physical interface reduction between TOCs – gives the TOC greater ability to plan services in a manner which optimises infrastructure capacity utilisation while meeting passenger market requirements. The ability of the TOCs to optimise the service planning process helps to facilitate the aspiration of the DfT to offer a "lighter touch" in specifying service requirements.

- Ability to invest in infrastructure enhancement – where services on a route are provided by a single TOC, the benefits of any station or track enhancements are focussed on that TOC.

An example of the type of passenger benefits that can occur through reduced TOC overlap are illustrated by the case study of Northern Rail and Transpennine Express[1] which was reviewed in detail as part of a DfT study. This considered NT and TP as a single set of services, and identified a series of service changes (involving some reassignment between NT and TP) with an estimated passenger revenue benefit of c.£5m potentially attributable to options requiring modification to both TOCs together.

A contradictory passenger benefit can occur where competitive pressure between services provided by different operators in parallel for a group of passenger flows can lead to higher frequencies being offered as well as lower fares. While some flows clearly can obtain better generalised journey times in such situations (past competition on Colchester and Ipswich to London flows is an example of this), it is not clear what impact this has on overall industry Value for Money:

- The improved services represent over-supply with excess train mileage operated increasing subsidy or reducing premia payments overall with no overall VfM case.
- The improved services on competed flows may be provided partly at the expense of other flows operated in the area where competition is less.
- In general (other than in very price-sensitive passenger markets), the effect of lower fares is likely to reduce the overall level of passenger revenue earned by the industry. Furthermore, competitive fares can comprise both positive and negative impacts for the passenger; lower fares are offset by restrictions to use of a particular TOC's services and a more confusing ticket offer and station environment.

[1] "North of England Franchise Review", Draft Report, October 2009, Steer Davies Gleave

Because of the uncertainty surrounding the VfM impacts of competition, we have not included any consideration of these effects in our analysis.

(c) Station interfaces

Additional interface complexity for passengers occurs where the Station Facilities Owner (SFO) is different from the train service operator being used. This complexity is likely to be associated with the ability to obtain information about the journey they are making, and potentially the most appropriate ticket to be used. In addition, the train operator is less able to ensure that station maintenance and provision of facilities are of the appropriate standard for the market that they are serving and may be less incentivised to enhance facilities when as SFO it has only a share of the passenger revenue and therefore any benefits to justify the investment.

(d) Market focus

While the main drivers associated with interchange and overlapping services tend to point towards larger TOCs, there are some perceived benefits of smaller TOCs which may be lost if TOCs are merged together to an excessive extent. These issues relate to the TOC's alignment with passenger markets, and specialist market focus, which may be undermined for larger TOCs, particularly if the market segments / journey characteristics served by the larger TOC are very disparate.

We consider that many of these potential disadvantages of a larger TOC can be minimised if the merged TOC is organised into separate 'divisions' or 'business units' for separate markets. This can, if appropriate, be actively required as part of the franchise agreement, especially if separate financial results and service quality output results for the business units are required to be submitted to DfT. Of course, such a move might to some degree erode the potential HQ cost savings which would be associated with the merger, nevertheless the scope to ensure separate accountability for divisions of a larger TOC does in effect place a maximum cap on the possible disbenefit associated with any loss of market focus – equal to assessed HQ cost savings for the merger.

A further possible issue to address is whether smaller TOCs are able to offer higher service reliability as a result of their focus. However, we are not aware of any evidence of this: rather, we believe that the evidence points to a higher ability to achieve good performance when the TOC is the sole operator on the most congested sections of route and where the route system used is relatively self-contained. (e.g. Chiltern and C2C).

(e) Measuring the impacts

We consider it important to place appropriate emphasis on the needs of the passenger in this review. We have identified industry research and undertaken original analysis of passenger flow data using the rail industry MOIRA model to provide a methodology for quantifying the potential passenger impacts from the remapping options. For each of the various TOC mapping options considered, we have assessed:

- The reduction in the number of rail passenger journeys and passenger miles on flows involving interchange between one TOC and another;
- The reduction in the number of rail passenger journeys and passenger miles on flows where parallel overlapping services are provided by more than one TOC;
- The reduction in passenger journeys on flows where the SFO of the passenger's origin station is not the service provider being used by the passenger.

These measures have been used as a basis for comparing the relative merits of various competing options as discussed in Chapter 5 of this report. In carrying out our appraisal of the potential financial impacts associated with the preferred options, we have also ascribed possible revenue impacts associated with these various measures, as described in Chapter 6.

3.2.2 Operational and cost efficiency impacts

As part of our assessment of specific Franchise Mapping options, we have reviewed the existing operational arrangements for the TOCs involved in order to identify potential operational efficiency improvements that can be facilitated by changes to franchise geography for the option under test. This has involved a high level review of existing train service and resource specification, and has covered:

- Shared routes, potential for avoidance of duplication of overlapping of train mileage, and optimising use of scarce line capacity;
- Rolling stock capability and efficiency of utilisation;
- Access to train maintenance depot facilities (with potential empty mileage implications);
- Train crew efficiency and trading;
- Interface and trading complexity with Network Rail and other operators;
- Compatibility with declared investment plans and further service development.

(a) Optimisation of service provision

While this review has identified specific opportunities, such as improved rolling stock utilisation through combining fleets and particular areas where improved choice of depot locations can reduce the level of empty stock movements, it has not been possible within the scope of this study to carry out detailed optimisation of train service provision and fleet / crew diagramming. Instead, we have used results from our high level review to form a qualitative assessment of 'goodness of fit' for potential franchise mapping options, and have made use of available evidence of the potential drivers of cost efficiency savings.

This available evidence includes the case study of Northern Rail and Transpennine Express[1] which identified both revenue benefits (see above) and operating cost savings associated with the various identified service changes. In addition to the estimated annual passenger revenue benefit of £5m, this found operating cost savings of slightly over £15m/year, also attributable to options requiring modification to both NT and TP TOCs together. As with the passenger revenue benefits, these savings are essentially associated with routes where parallel / overlap running occurs – implying that TOC remapping where overlaps are reduced could potentially generate service provision cost saving efficiencies.

Further evidence can be found in some econometric analysis of TOC costs carried out by the Institute for Transport Studies at the University of Leeds on behalf of ORR[2]. This looked specifically at a number of examples of TOC remapping, including the merging of Great Western, Great Western Link and Wessex into the single Greater Western TOC. The study found a significant (inverse) relationship between TOC operating costs (excluding Network Rail infrastructure charges) and train service density (train km divided by route km). This again implies that consolidation of TOCs within well-defined geographies and reduced overlapping between TOCs is expected to be beneficial in terms of TOC costs.

[2] "Econometric Evidence on Train Operating Company Size", 14 Jan 2010, Wheat & Smith

The reduction of service overlaps is therefore regarded as a key driver of potential cost savings, and has been an important consideration in prioritising franchise mapping options for further consideration.

(b) HQ and refranchising costs

Other cost savings associated with a reduction in the total number of TOCs are associated with HQ activities costs associated with refranchising. These include:

- Elimination of staff costs (Directors + Support);
- Elimination of reporting costs;
- Saving in office accommodation costs;
- Reduction in contracting costs;
- DfT efficiency in terms of franchise management / monitoring costs;
- Franchise letting transaction costs (TOC bidding / DfT costs).

These cost effects are broadly proportional to the reduction in the number of TOCs (so are not very significant when prioritising competing TOC merger options). Detailed estimates of these costs have been developed for our appraisal of the preferred option, and in general equate to around £2m/year per TOC removed. This is in line with the £6m/year saving said to have been generated by the National Express 'London Lines' grouping of three separate TOC HQs, but slightly lower reflecting general reductions / efficiencies in HQ costs over time.

(c) Possible disbenefits

There are a number of potential cost increases associated with remapping TOCs. Many of these are associated with the one-off costs of the remapping exercise itself, although there are also risks of ongoing cost increases e.g. due to pay harmonisation. Specific examples of costs increases considered in our analysis include:

- Redundancy costs for displaced staff;
- Need to address pension fund arrangements for transferring staff, to ensure they are fully funded;
- Where splits of existing TOCs are envisaged, there will be costs associated with disentanglement from the existing franchise and migration to the new structure;
- Alignment of staff pay (e.g. unions require all staff move to highest level);
- Timing and phasing fit with replacement of franchises (i.e. cost of existing franchise adjustment, requiring extension or cutting short).

3.2.3 Wider industry impacts

Wider industry impacts have been assessed qualitatively in our review of remapping options. The precise Value for Money of these impacts is dependent on the conclusions and recommendations of other parallel VfM workstreams. Examples include:

- Compatibility with stakeholder/ political support / franchise aspirations;
- Compatibility with Network Rail regional structure, facilitating vertical management alignment.
- Alignment between TOCs and major project geography, including potential diversion routes

One issue working against the general implied trend towards fewer larger TOCs is the issue of whether small "entry level" TOCs should be retained to encourage a wider

range of competition for TOCs. However, while it is clearly important to ensure that the franchise competitions are as wide as possible, it is not clear that the retention of small TOCs is the best way of achieving this. Indeed, it could be argued that incumbent train operating groups have a stronger advantage with small TOCs because of their ability to reduce some of the fixed costs through shared resources with other TOCs in the group. For example the Serco/ Nedrailways in partnership became a new entrant by winning one of the largest franchises, i.e. Northern Trains.

3.3 Assessment measures for impacts of TOC mapping

As a result of the various considerations outlined above, we have developed a set of measures which has been used as a basis of our appraisal of TOC mapping options. The measures are outlined in the table below.

Benefit type	Suggested measure	Assessment method
Passenger Benefit		
Fit with market	Opportunities for through service / improved interchange	Analysis of interchange flows brought within-TOC, and assumed potential benefits from improved interchange and connections
Coherency of passenger interface / station maintenance capability	Match between station SFO and train service operator	Analysis of TOC passenger board/alight stations vs SFO, and potential value of station facility provision
Flexibility to address demand	Crowding impacts / train load mismatch on overlap sections	Measure of passenger volumes on flows currently shared between parallel TOC services, merging into single TOC service. Value based on case study example of Northern / Transpennine service rationalisation opportunities.
Improved alignment with passenger markets	Able to address overall market comprehensively	
	Matches in market segments / journey characteristics	
Interface reduction between TOC's	Reduced TOC parallel running / overlap	
Fit with "lighter touch" aspiration	Ability of TOC to define overall service specification for specific markets	
Ability to invest	Extent to which the benefits of TOC station / route investment are focussed on own TOC	
Maintenance of on-track competition	*(Negative)* Reduced TOC parallel running / overlap	Assessment based on current level of competition (e.g. from extent of current ticket choice)
Decreases alignment with passenger markets	*(Negative)* Loss of market specialism / focus	Qualitative assessment of scale, with maximum disbenefit equal to assessed HQ cost savings, reflecting ability to organise the merged TOC into separate 'divisions' for separate markets
	(Negative) Mismatches in market segments / journey characteristics	

Benefit type	Suggested measure	Assessment method
Financial benefit		
Economies of scale / service density – operational	Fleet rationalisation (small fleets)	Operational assessment / average fleet costs
	Reduced fleet maintenance costs (e.g. better access to depots)	Potential train service rationalisation based on passenger volumes on flows currently shared between parallel TOC services, merging into single TOC service. Possible value based on Northern / Transpennine case study. Also benchmark against Leeds ITS result on attributed service density effect for Greater Western.
	Economies of service density (train km / route km) – e.g. from (staff / fleet diagram rationalisation)	
	Ability to optimise rolling stock deployment / procurement / cascades	
Economies of scale – HQ	Elimination of staff costs: directors + support	Estimated staff / HQ cost savings, less allowance for potential redundancy costs.
	Elimination of reporting costs	
	Saving in office accommodation costs	
	(Negative) Redundancy costs for displaced staff	
Fewer contracts	Reduction in contracting costs	Estimated HQ costs for contracting (+ lawyers / consultants)
Reduction in DfT Management	DfT franchise management / monitoring costs	Estimated costs
Reduction in refranchising costs	TOC bidding / DfT costs	Estimated industry costs
	(Negative) Disentanglement from existing franchise (data) / migration costs	Mainly relates to options involving splitting existing TOCs – estimated cost from experience
Avoidance of pension issues	*(Negative)* Need to change pension fund arrangements	Based on review with DfT pensions advisor
Avoidance of pay inflation	*(Negative)* Unions require all staff move to highest level	Assumed risk (e.g. 50%?), factored by current mismatch between merged TOCs
Fit with franchise end dates	*(Negative)* Cost of adjustment (extension / cutting short)	Assumed higher franchise costs as percentage over required adjustment period
Compatibility with wider Industry Issues		
Interface reduction: TOC's with NR / NR Regions / DfT / Stakeholders	Alignment with NR Regions	Value to be determined based on outputs from Vertical Integration study
	Alignment with local Govt / PTEs (ability to reflect stakeholder aspirations)	
Coherent approach to Major Projects	Alignment between TOCs and major project geography, including potential diversion routes	
Maintenance of "entry level" TOC	*(Negative)* Reduction in number of "entry level" TOCs	Assumed minimal industry cost

4 OPTION IDENTIFICATION AND SHORTLISTING

4.1 Long list of options developed in Part 1 of the study

In identifying potential options for TOC / service group remapping and merger, we looked at scope for creating greater TOC cohesion in a geographical area, scope to reduce interfaces and overlaps (e.g. where synergy or economy of scale benefits might exist), and locations where TOCs served adjacent geographic markets with similar characteristics. We also considered (in general terms) whether there might be future service development opportunities, e.g. for through service provision that might be constrained by existing TOC boundaries.

A long list of 21 options has been identified through our detailed TOC reviews (Appendix A), to be taken forward for further consideration.

Option	Description
CC1	Merge CC into LE TOC as a route business unit
XC1	Merge XC with EM
XC2	Merge XC with EC
XC3	Merge XC with TP
EM1	Merge EM with EC
EM2	Extract Norwich-Liverpool services from EM, either transfer all into TP, or split western section to TP, and the eastern section to LE.
FC0	Create dedicated Thameslink services operator and retain residual FC non Thameslink services within this TOC
FC1	As FC0 and merge all with SN
FC2	As FC0 and merge all with SN and SE
FC3	As FC0 except transfer out residual “Outer” Kings Cross HL and Moorgate services to EC. Residual “Inners” stay in Thameslink franchise.
FC4	As FC3 except transfer out residual “Inners” to either EC, GA or TfL
FC5	As FC4 (i.e. transfer out all residual Kings Cross and Moorgate services) and merge FC Thameslink services into SN
GW1	Extract North Downs services from GW and transfer to SW or to SN
TP1	Merge TP into NT
TP2	Transfer TP WCML services to VT, and merge remainder into NT
LM1	Merge LM with VT
LM2	As LM1 but transfer out Snow Hill suburban / diesel routes to Chiltern
NT1	Split NT and merge into EC and VT
SN1	Merge SN with SE
SN2	Merge SN with FC and SE
SN3	Merge SN with SE and SW

4.2 Development of option shortlist for more detailed appraisal

At the study workshop held on 16th December, the findings of the initial review of TOCs were discussed and priorities for a shortlist of schemes for more detailed appraisal were agreed from the 21 potential options identified in the Part 1 work. The workshop discussion with VfM client team and DfT franchising experts identified clear priorities for the shortlist and appraisal process.

We have separated these into options focussed on services geographically in the south and north of the country as shown in the following tables.

4.2.1 London and the South East

Options are focussed on the merger of c2c with NXEA and those involving the composition of the future Thameslink operator.

(a) Potential for TOC consolidation within Anglia & Essex Thameside:

The existing C2C franchise was established as a separate TOC in the previous round of franchising because it is geographically self contained in network terms and because there was major change to be implemented including rolling stock replacement with an entire new fleet of trains and associated route and depot upgrade. The new rolling stock and route performance has been consistently excellent for a considerable time now and the challenge for the TOC is largely maintaining the existing high quality of service. The TOC is very similar in characteristics to much of the London suburban services of the adjacent Greater Anglia TOC. The C2C franchise is also within NR's Anglia Operating Route network.

Given the development of the Stratford area and C2C's relative weakness of poor connectivity into the London Underground network, there may be scope for service development from the C2C routes to Stratford and London Liverpool Street that would deliver good value for money.

For these reasons the workshop considered that merging C2C with Greater Anglia should be selected for further consideration in Part 2 of the study.

(b) Potential for further consolidation of TOCs on Brighton Main Line:

The absorption of Gatwick Express into the Brighton main line services of southern has enabled some increase in peak capacity. The Thameslink programme implementation will create even more service interface between Thameslink through services and Southern in the Croydon area and south on the mainline to Brighton. The huge scale of this interface means that it is this route of all where Part 1 analysis suggests that there may be most scope to improve VfM from consolidation into a single TOC.

As the Thameslink demand builds up with Great Northern services through to Gatwick and the South Coast, it is quite possible that it would be advantageous to review the mix and origin and destination of services on each route. Putting all Southern and Thameslink services into a single TOC could facilitate service development and marketing (e.g. rail links to Gatwick) in a more cohesive way. The workshop therefore selected the merger of Southern and Thameslink services into a unified TOC for appraisal in Part 2.

(c) Consideration of mapping FCC non-Thameslink GN services

Although FCC's Great Northern routes will include through Thameslink service provision to south of the river, there are planned to be a significant quantum of "residual" FCC train services that will terminate at Kings Cross High Level station or Moorgate. These services could remain with the Thameslink TOC, although given the potential size of a combined Southern and Thameslink TOC together with interfaces on the East Coast main line, it may be worth considering mapping the non-Thameslink services elsewhere. For example the Cambridge and Peterborough trains into Kings Cross High Level might fit with East Coast TOC. It was agreed that Part 2 should also appraise these options to identify the best FCC / Thameslink mapping solution.

(d) Potential for consolidation of TOCs on the East Coast:

In addition to interface on the southern end of the East Coast Main line with Intercity East Coast and FCC operating south of Peterborough, there is also significant multi TOC activity on the East Coast Main line north of Doncaster to Newcastle, primarily East Coast, CrossCountry, and Transpennine TOCs.

(e) Shortlist of London and the South East options selected

Option	Description
CC1	Merge CC into LE TOC as a route business unit
FC0	Create dedicated Thameslink services operator and retain residual FC non Thameslink services within this TOC
FC1	As FC0 and merge all with SN
FC2	As FC0 except transfer out residual "Outer" Kings Cross HL services to EC. Residual "Inners" stay in Thameslink franchise.
FC3	As FC2 except transfer out residual "Inners" to either EC, GA or TfL
FC4	As FC3 (i.e. transfer out all residual Kings Cross and Moorgate services) and merge FC Thameslink services into SN

4.2.2 Midlands and the North of England

In the north the options are focussed on Northern Rail, Transpennine and CrossCountry franchises. There are also options to enlarge the East Coast and West Coast franchises, through merging with some of these northern routes, or (further south) with East Midlands / London Midland respectively.

(a) Potential remapping choices for the Northern Trains Franchise:

One issue arising from consideration of the underlying PTE geography and Network Rail operating route, is the division of Northern Rail back into its north west and north east constituents in order to provide potentially a better focus on respective markets (e.g. Manchester and Leeds suburban networks) and specific PTEs. The NW and NE constituent service groups of Northern remain relatively discrete, and we understand should be relatively straightforward to re-divide apart. This could provide a better alignment with NR's LNE and LNW operating routes. Such a split could improvement alignment to PTEs, and may be beneficial were there to be greater future devolvement to PTE's once more.

An alternative approach for Northern and TPE, would see a merger so as to create a "Scotrail-style" franchise for the north of England. These issues were identified for further appraisal in Part 2.

(b) Potential for consolidation on the South Transpennine corridor:

TPE's South Transpennine route from South Humberside to Manchester, shares a significant part of its route with East Midlands Trains including the core section through the Hope Valley between Sheffield and Manchester Piccadilly. There appears to be potential to significantly reduce interfaces and potentially achieve synergy and efficiency improvement from merging the South Transpennine and Norwich – Liverpool service groups. EMT is a relatively small TOC and could absorb this TPE service group. Alternatively the services could become part of Northern or Cross-country TOCs. The workshop participants agreed therefore that this corridor should be included in further appraisal in Part 2 of the study.

(c) Potential for consolidation of TOCs on the West Coast main line:

Transpennine's North West service group covers routes that beyond Manchester are entirely separate from the remainder of Transpennine's network. These services operate over the West Coast main line and feeder routes, including Blackpool and Bolton, and long distance Anglo –Scottish services north from Manchester. The authorised North West Electrification could enable through service development at the margin. For example Virgin see scope for route extension to serve Bolton and Blackpool. There is also significant interface in the North West with Northern Trains' services. Therefore it was agreed that Part 2 should consider remapping these Transpennine NW services.

The London Midland TOC operates over much of the southern half of the Intercity West Coast TOCs network into London Euston on the main lines. The London Midland routes provide semi fast services that together with Intercity West Coast provide the train service between intermediate cities on the West Coast Main Line.

In contrast the London Midland diesel routes have minimal interface with West Coast, instead there is overlap with Chiltern on the Snow Hill suburban routes. Those LM service groups may be best placed with Chiltern TOC.

(d) Shortlist of Midlands and North of England options selected

Option	Description
XC1	Merge XC with EM
XC2	Merge XC with EC
XC3	Merge XC with TP
EM1	Merge EM into EC
TP1	Merge TP into NT
LM1	Merge LM with VT
LM2	As LM1 but transfer out Snow Hill suburban / diesel routes to Chiltern
NT1	Split NT and merge into EC and VT

5 PHYSICAL ASSESSMENT OF OPTIONS

5.1 Merge C2C with Greater Anglia

5.1.1 Operational Interfaces and Resources

The C2C franchise has no physical interfaces with any other TOCs in normal day to day operations. Links with the route into Liverpool Street are provided in both directions such that departures from Liverpool Street can access the GE route via the Gas Factory Curve at Bow as can departures from Liverpool Street access C2C via the Forest Gate Jn to Barking route.

Operationally all routes are within NR's East Anglia route which makes for a good fit. Adjacent AC electrified networks also mean that there would be opportunities for the optimisation of rolling stock deployment by route. For example, the class 357 fleet is of a relatively high quality, particularly when compared with the more basically equipped classes 317 and 321 employed on LE routes. Some or all of the class 357 fleet might better be employed on longer distance LE routes supplementing the class 360 units on, for example, services to Clacton, Ipswich and possibly Norwich in the peaks.

The class 357 units are maintained at East Ham. Approximately half the fleet is diagrammed to be stabled overnight at East Ham which facilitates ease of maintenance on individual units as required. The remainder of the fleet is stabled at Shoeburyness.

5.1.2 Merger with Greater Anglia

The existing franchise is due to expire in December 2012. The amalgamation of CC with the neighbouring LE TOC could help to ensure that cost efficiency and synergy benefits are optimised. It is notable that these two TOCs have been operated by the same franchise operator for some time (formally Prism and now National Express). To some degree this may have been possible in the current franchise with the franchisee also being responsible for LE.

Amalgamation would also facilitate optimisation of services into Liverpool Street during engineering works and ease future development of through services between Liverpool Street, Stratford and Barking and key Essex Thameside stations such as Basildon, Chafford Hundred and Southend – for example using Liverpool Street in preference to Fenchurch Street at weekends.

The combined operation would amount to some 24.3 million train miles (reducing upon the transfer of Shenfield line services to Crossrail), carrying 96.9 million passenger journeys. This would represent an organisation operating train miles of a similar magnitude to South West Trains and with a level of passenger journeys similar to South Eastern.

5.1.3 Passenger Impacts

The table below shows the impacts of the potential merger on inter-TOC passenger flows, with separate details provided for 'shared' flows (served by parallel / overlapping services) and interchanging flows. The numbers show the number of passengers who would be shared / interchanging between the two TOCs in the base scenario, but for whom these movements are completely contained within one TOC in the merged scenario.

	Reduction in shared flows		Reduction in interchanging flows	
(millions)	Journeys	Passenger Miles	Journeys	Passenger Miles
C2C+GA	2.56	89.7	0.42	7.4

The figures show relatively small number of passenger journeys affected by the proposed change – i.e. relatively little passenger interface between the two TOCs. The bulk of the 'shared' flows actually relate to journeys between Southend Stations and London Stations – i.e. travelling on separate routes, but competing to some extent.

5.1.4 Potential Cost Savings

- Removal of one management team;
- Reduced back office support;
- Reduction in costs to DfT of re-franchising

5.1.5 Preferred option

This option forms part of our recommended strategy for more detailed consideration. The main benefits of the proposed merger relate to savings in HQ and franchising costs. There are also some potential benefits in terms of fleet reallocation and greater use of the better-connected Liverpool Street terminus in some instances. C2C is probably too small to function as an efficient stand-alone TOC, and has effectively been managed as part of a larger organisation for many years now.

5.2 Thameslink Options

5.2.1 Introduction

(a) Current services

First Capital connect (FC) is currently composed of two independent operations without physical connection. It comprises the former Thameslink (TLK) network connecting Bedford, Luton and St Albans with Brighton and the Wimbledon Loop via St Pancras, Farringdon and Blackfriars. Recently, on completion of Key Output 0 of the Thameslink project and with the removal of the terminal platforms at Blackfriars, the former South Eastern services between Sevenoaks and Blackfriars have been added to the FCC franchise and extended through to Kentish Town where turnback facilities have been provided. The second part of the FC network comprises the former Great Northern (GN) section of WAGN which can be broken down into outer and inner suburban. The former comprise the routes from Peterborough, Kings Lynn and Cambridge to Kings Cross. The latter comprise the routes from Letchworth, Hertford North and Welwyn Garden City to Moorgate.

(b) Future proposed services

(i) Thameslink

The following table shows the proposed final pattern for all services operating through the core Thameslink section from Kings Cross to Blackfriars. Off peak there will be a total of 18tph of which 10tph will come from the MML and 8tph from the GN routes. In the peaks the frequency will increase to 24tph with all the additional trains operating from the MML. New Thameslink destinations south of the river will be Caterham, Horsham, Maidstone East, Tunbridge Wells, East Grinstead and Ashford.

Service Groups	7100/7110	7100/6560	7100	7100/6560	7170	7130	7160	7130	7100	7100	7100
Operational	All Day	All Day	All Day	All Day	All Day	All Day	All Day	All Day	Peak Only	Peak Only	Peak Only
Formation	12 cars	8 cars	8 cars	8 cars	12 cars	8 cars	12 cars	8 cars	12 cars	12 cars	12 cars
Stock	New	New	New	New	New	New	New	New	New	New	New
Frequency	4tph	2tph	2tph	2tph	2tph	2tph	2tph	2tph	2tph	2tph	2tph
From	Bedford	Luton	St Albans	St Albans	Peterborough	Welwyn GC	Cambridge	Welwyn GC	Bedford	Bedford	Luton
To	Brighton	Sevenoaks	Caterham	Bellingham	Horsham	Caterham	Three Bridges	Maidstone E	Tunbridge W	E Grinstead	Ashford
Stopping Pattern	Semi-Fast	Stopping	Stopping	Stopping	Semi-Fast	Stopping	Semi-Fast	Stopping	Semi-Fast	Semi-Fast	Stopping

The outer suburban services operating from the GN will not represent the entire quantum of trains operating today and there will be additional "residual" services operating into Kings Cross terminus. These are shown in the following table:

(ii) Residual GN Outer

Service Groups	7160	7150	7160	7170
Operational	All Day	All Day	All Day	Peak Only
Formation	4/8 cars	12 cars	4/8 cars	12 cars
Stock	365	IEP	IEP	365
Frequency	2tph	1tph	1tph	2tph
From	Cambridge	Kings Lynn	Cambridge	Peterborough
To	Kings Cross	Kings Cross	Kings Cross	Kings Cross
Stopping Pattern	Stopping	Fast	Fast	Fast
			From	
			Kings Lynn	
			Peak Only	

(iii) Residual GN Inner

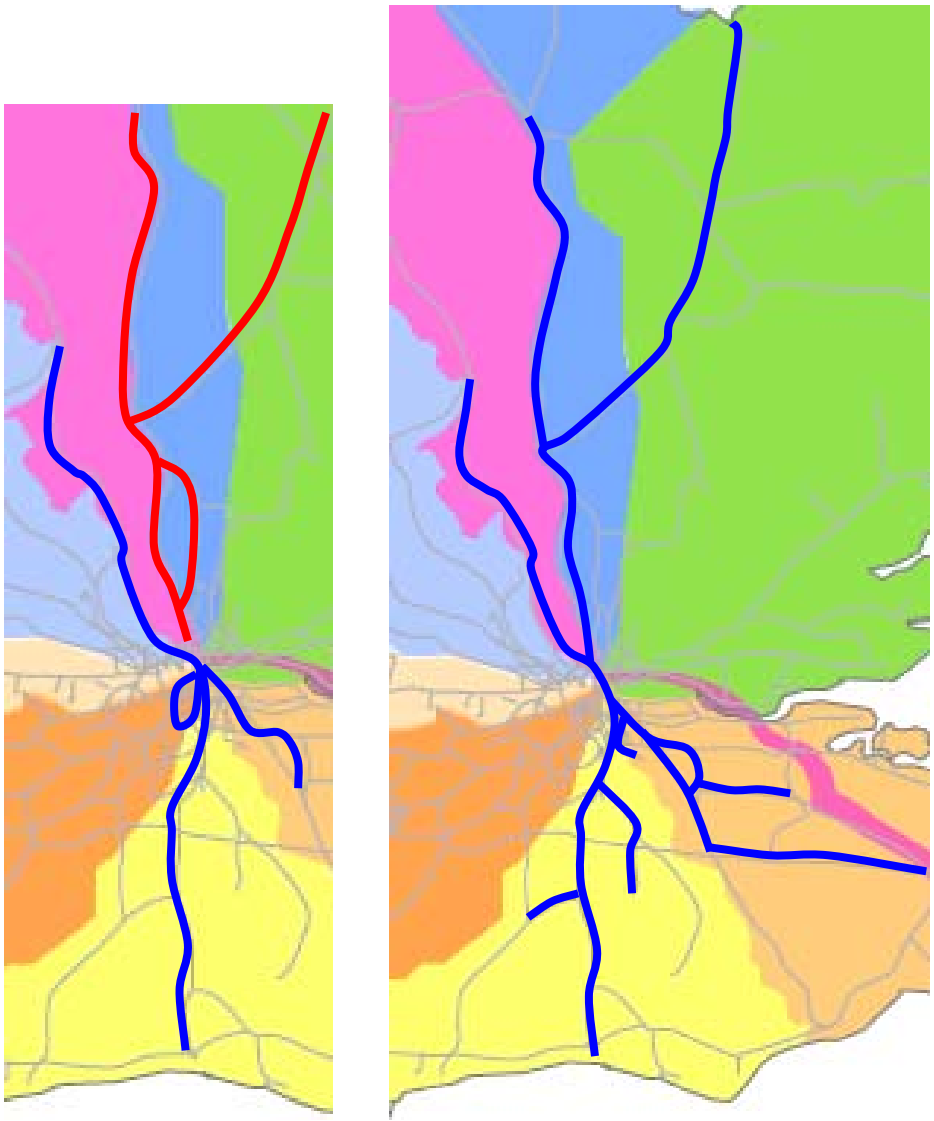
The following table shows the "residual" GN inner suburban services that will not be operating through the Thameslink core and will therefore continue to run into Moorgate:

Service Groups	7140	7140	7130	7140	7140
Operational	All Day	All Day	All Day	All Day	Peak Only
Formation	3/6 cars	3/6 cars	3/6 cars	3/6 cars	6 cars
Stock	313	313	313	313	313
Frequency	2tph	2tph	2tph	2tph	2-4tph
From	Hertford North	Letchworth	Welwyn GC	Gordon Hill	Hertford North
To	Moorgate	Moorgate	Moorgate	Moorgate	Moorgate
Stopping Pattern	Stopping	Stopping	Stopping	Stopping	Stopping
		via Hertford			

(c) Fit With Network Rail Routes

There is a poor fit with the Network Rail routes as shown in the following maps showing current and future networks. Current Thameslink services are shown in blue and operate across four NR routes. Current GN services (shown in red) operate primarily on the East Coast Route but services to the east of Royston to Cambridge and Kings Lynn operate on to the East Anglia Route. The fit with Network Rail's routes is slightly worsened with the future enlargement of the Thameslink operational area to further destinations in the SE route such as Maidstone East, Tunbridge Wells and Ashford.

Current **Future**



Map Source: Network Rail

(d) Franchise mapping options

We have examined a number of options for the future composition of the franchise(es) that will contain the full package of future Thameslink services. All options assume that the services operating over the core Thameslink route between St Pancras and Blackfriars will be provided by the same operator.

Some consideration was given to the possibility of including options with more than one operator in the core. Such options were, however, quickly discounted on the grounds of the considerable complexity involved in managing each of the individual groups of services in order to deliver the combined very high frequency service of up to 24tph through the core. Also, as the service specification involves through trains running between both the Midland Main Line and GN and NR's South Central and South Eastern routes then there is no obvious split of services.

5.2.2 Thameslink and Southern services

(a) Train Services

The new Thameslink service specification will see the absorption of a number of existing Southern services into Thameslink. These will comprise:

- The current 2tph from Horsham to London Bridge extended to Peterborough;
- The current 2tph from Caterham to London Bridge extended to St Albans;
- The current 2tph from Caterham to Victoria diverted to London Bridge and extended to Welwyn Garden City;
- The current 2tph peak only from East Grinstead to London Bridge extended to Bedford; and
- An additional 2tph from Three Bridges to London Bridge and Cambridge.

This will result in a significant increase in the level of overlap between Southern and Thameslink services, particularly over the Brighton main line where Thameslink is already operating at 4tph. This is a complex route where high frequency services from both London Bridge and Victoria converge at Windmill Bridge Jn for the 5/6 track section through to South Croydon (the section also including East Croydon station). Routes then again divide at the following locations:

- South Croydon for East Grinstead / Uckfield;
- Purley for Caterham / Tattenham Corner / Redhill;
- Three Bridges for Horsham; and
- Wivelsfield for Eastbourne

With the exception of a mile long section around Haywards Heath, the Brighton Main Line reduces to two tracks to the south of Balcombe Tunnel Jn (beyond Three Bridges). This creates particular timetabling constraints as the 2-track sections also include the four stations at Balcombe, Wivelsfield, Burgess Hill and Hassocks, each with varying stopping patterns.

All Southern London services occupy paths on parts of the Brighton Main Line and therefore the overall timetable package is highly dependant on optimisation of service patterns and path allocation on this route. Increasing from the current four Thameslink services per hour to 12tph off peak and 14tph peak will make this task considerable more complex with the risk that each of the two operators will endeavour to optimise its own timetables at the expense of the other. The current Thameslink service pattern has been developed and fine tuned over a number of years whereas the new package is likely to be implemented at a single timetable change and it is critical that the Thameslink trains are allocated paths which enable correct presentation at Blackfriars. A merged Thameslink and Southern TOC would facilitate this.

(b) Rolling Stock

The current FCC fleets are very much dedicated to specific routes for both operational and technical reasons. The Moorgate branch requires dual voltage trains as the section south of Drayton Park is provided with 3rd rail electrification only and the tunnel sections are constructed to a smaller than normal loading gauge with platforms able to accommodate 6 cars only and their extension is extremely difficult and expensive owing to their tube-style construction. The class 313 is therefore the only train type able to operate over this route.

The GN outer routes are currently operated primarily by the 40-strong class 365 fleet with some peak trains operated by the supporting class 317 and 321 fleets. The GN fleet is maintained in-house by FCC at its Hornsey depot which is conveniently located to the north of Finsbury Park on the GN route. 86 class 319 units are operated on the Thameslink route – originally built specifically for the route with dual voltage capability and end doors for the constrained central tunnel section. These units have now been joined by the 23 class 377s also with dual voltage capability. These additional units have been required for the operation of the Sevenoaks services and to enable strengthening of all peak services to 8 cars and some to 12 cars as platforms are extended.

A contract for around 1,200 next-generation 8 and 12-car trains (NXEMU) was announced by the DfT in November 2008 (approximate value £2bn). These will replace the existing class 317, 319, 321 and 377 units on Thameslink services which will then be available for cascade elsewhere across the network. The class 365s will continue to be required on certain residual GN outer suburban services operating into Kings Cross. The current assumption is that a derivative of IEP will operate the principal Kings Lynn / Cambridge – Kings Cross fast services.

The following table shows the resources anticipated to be in use on Thameslink and residual GN services:

Class	Number	Cars	Std Seats	Route	Services
313	44	3	231	GN Inner	Moorgate - Welwyn GC / Hertford N / Letchworth
365	40	4	245	GN Outer	Kings Cross - Cambridge / Peterborough
NXEMU	?	8		TLK	Luton ./ St Albans / Welwyn GC / Cambridge - Sevenoaks / Caterham / Maidstone E
NXEMU	?	12		TLK	Bedford / Luton / Peterborough - Brighton / Tunbridge W / E Grinstead / Ashford / Horsham
IEP	?	?		GN Outer	Kings Lynn / Cambridge - Kings Cross

The class 313 fleet will continue to be required to operate all services to Moorgate as today. The NXEMU fleets will be maintained at Hornsey and a new depot at Three Bridges.

The new build trains for Thameslink will be designed specifically for those services and will therefore not normally interwork with other fleets. This stock is envisaged to be maintained at Hornsey and a new depot at Three Bridges. It is possible that there could opportunities for Southern in reducing costs and / or making use of enhanced facilities at the latter depot.

(c) Traincrew

Avoidance of the costs of establishing separate traincrew depots for expanded Thameslink services will be a potential benefit from the combination of Thameslink and Southern. Thameslink currently only have a single traincrew depot located south of the river at Brighton. Southern, however, have traincrew depots at all the future terminating points of Thameslink services with the exception of East Grinstead.

Both operators currently have traincrew depots at Brighton – potential economies therefore exist in terms of combination of mess facilities, streamlining of management and supervision and in improved diagramming arrangements across both operators' services.

There is currently some disparity between the rates of pay between Thameslink and Southern with the former having a salary some £2,000 higher. Other terms and conditions would appear to be broadly comparable particularly that a 35 hour 4-day standard week is worked and Sunday duties are outside the working week.

(d) Addition of South Eastern

Existing Thameslink services operate over a small part of the South Eastern network from London Bridge to Sevenoaks via Swanley. In the future, Thameslink services will extend throughout the day further over the South Eastern network from Swanley to Maidstone East. They will also operate peak only from Sevenoaks to Tonbridge, Tunbridge Wells and Ashford. At the same time all residual peak South Eastern services over the Catford Loop will transfer to Thameslink, thereby removing some interfaces with South Eastern.

Whilst these additional routes will result in a net increase in interfaces with South Eastern they will remain relatively minor in nature and not of strategic importance in the same way as the interfaces are with Southern.

South Eastern, whilst currently the smaller of the three operators south of the river, has train miles in excess of those operated by Greater Anglia. The combined size of the Thameslink and Southern operation would be considerable with train miles approaching some 33 million pa and be the largest operator. Adding South Eastern would increase the combined train miles to over 53 million, almost twice the size of the next largest operator.

(e) Passenger Impacts

There is huge passenger interaction between Thameslink and Southern services as shown in the table below. This includes substantial traffic on parallel flows (especially between Brighton and London), but also significant interchanging traffic – e.g. changing at East Croydon to provide choice between Victoria and London Bridge / Thameslink routes. The passenger interaction between Thameslink and South Eastern is also significant, but nowhere near as large.

	Reduction in shared flows		Reduction in interchanging flows	
(millions)	Journeys	Passenger Miles	Journeys	Passenger Miles
FCC+SN	40.67	705.1	34.77	645.7
FCC+SE	19.64	206.9	Negligible	32.7

5.2.3 Preferred option

The passenger interfaces and service overlaps between Thameslink and Southern services between London and Brighton are too large to ignore. The potential synergy, and ongoing ability to ensure that the optimal service pattern is operated through the Thameslink tunnel also offer substantial benefits. Although merging the two would create a relatively very large TOC, the Thameslink / Southern merger option does form part of our recommended package.

5.2.4 Thameslink Great Northern services

(a) Train services

As described in Section 5.2.1 above, the outer services into Kings Cross will consist of 4tph from the Cambridge line and a peak only 2tph from Peterborough. The residual Cambridge services will share the route throughout with the Thameslink services of 2tph to Three Bridges and the section south of Welwyn Garden City with 4tph to Caterham / Maidstone East. South of Welwyn Garden City on the main line there will also be 2tph 'inner' services operating to Moorgate. A further 6tph 'inner' services operate off-peak from the Hertford loop to Moorgate, with an additional 2-4tph during the peak.

These residual GN services could potentially be separated from Thameslink and incorporated within either East Coast, Greater Anglia or a mix of both TOCs. Sub-options would also exist for some residual services to remain with Thameslink and others to migrate towards other operators.

(b) Rolling Stock

The 2tph peak Outer services from Peterborough and the 2tph semi-fast from Cambridge are planned to be operated by the existing class 365 fleet. Current strategy is for the fast Kings Lynn / Cambridge trains to be operated by IEP thereby improving pathing over the Fast Lines and reducing journey times. The class 365s are currently maintained at Hornsey depot which is also the location of one of the two future Thameslink depots. It would clearly make sense to maintain this maintenance at Hornsey as, with the exception of the East Coast depot at Bounds Green, no alternative conveniently located facilities exist. Maintenance arrangements for IEP are currently unknown, but if introduced on the Cambridge line would most logically be also at Hornsey.

The inner services to Moorgate will continue to be operated by class 313 units which, again are currently maintained at Hornsey. As with the class 365s, there are no obvious alternative conveniently located maintenance facilities.

(c) Traincrew

The residual services are currently crewed by FCC depots at Peterborough, Cambridge, Hitchin and Kings Cross and which are optimally located for existing service patterns. Keeping all services within one combined Thameslink operator will avoid the costs involved in the creation of new depots for separate operators. It will also maintain work content such that productivity will not be adversely affected.

(d) Fit with Thameslink services

Keeping this group of services within the enlarged Thameslink operation clearly has operational merit in terms of the avoidance of introducing new train operator interfaces between Kings Lynn and Kings Cross.

The Peterborough route services run fast between Biggleswade and Kings Cross and therefore there are key interfaces with other services operating over the Fast Lines, i.e. East Coast and Fast Cambridge / Kings Lynn, both operating to Kings Cross. Whilst these services have less in common with Thameslink than the Cambridge line there are interfaces with Thameslink south of Hitchin and in the uses of scarce terminal capacity at Kings Cross station.

The Hertford North line will be served only by Moorgate services and not by Thameslink. There will, however be interfaces south of Alexandra Palace with services on the Welwyn Garden City route operated both by Thameslink (4tph to Caterham / Maidstone East) and the residual operation (2tph to Moorgate). Whilst the Hertford route could theoretically be separated, south of Alexandra Palace services from both routes need to be co-ordinated in order to optimise service patterns at the intermediate stations to Finsbury Park and in evenly spreading intervals (particularly in the peaks) on the Moorgate branch.

(e) Fit with East Coast

East Coast is currently focussed on the delivery of high speed inter city services from Kings Cross. The peak services between Kings Cross and Peterborough would be a logical addition to this group of services although the all-day 2tph semi fast services will transfer to Thameslink. The class 365s employed could continue to be maintained under contract by Thameslink at Hornsey and in order to maintain diagram efficiency this would ideally be on the basis of a shared fleet rather than its division by painted number. Whilst maintenance could theoretically transfer to Bounds Green, this would require a split in the current fleet.

The peak Peterborough services logically require traincrew based at Peterborough whereas East Coast does not have traincrew based there. Thameslink will require the bulk of the drivers for its services and whilst the depot could be split, the complement required for East Coast would be very small and would probably entail a worsenment in productivity given that the work will be peak only and a higher level of spare cover would be required. In the event of transfer of the services to East Coast then a traded arrangement with Thameslink is likely to be the most cost-effective option.

Transferring the Cambridge services to East Coast would increase interfaces across the route as Thameslink will also be operating 2tph from Cambridge. This is likely to complicate the planning of co-ordinated timetables on this capacity constrained route. The level of work at the Cambridge traincrew depot would likely to result in the existing FCC depot needing to be split into East Coast and Thameslink depots. Potential synergies exist at Kings Cross for the amalgamation of the East Coast and FCC driver depots although there is some disparity in the relative rates of pay and terms and conditions. This would depend on the inner services also being operated by East Coast.

The inner services have nothing in common with those of East Coast in terms of the markets served, rolling stock types, or indeed lines used. As mentioned previously there are some potential synergies in the combination of traincrew depots at Kings Cross although the rate of pay differential along with route and traction knowledge issues is likely to lead to the East Coast / Inner work being maintained in separate links of drivers.

(f) Fit with Greater Anglia

Greater Anglia is currently a major player at Cambridge and operates a 2tph service to Liverpool St. With the transfer of a proportion of the existing FC traincrew depot to GA then GA would be able to operate the residual GN services to Kings Cross. GA would be a new operator into Kings Cross and would be sharing the route with Thameslink. The result would be an overall increase in the level of interface between TOCs.

Whilst it would be possible to programme the inter-working of rolling stock between the GA and GN routes in order to cycle stock around GA's maintenance depot at Ilford, there is currently insufficient capacity at Ilford. Capacity, will however, become available when the Liverpool St to Shenfield route is transferred to Crossrail and the fleet of trains for that route is no longer maintained at Ilford.

Whilst the inner services have no interface with other GA routes, the type of services operated is similar to those on the Liverpool St to Shenfield route. The key problem for GA would be that of train maintenance as there are no natural cycling opportunities to Ilford depot. Maintenance effectively would need to continue to be provided under contract by Thameslink at Hornsey.

(g) Passenger Impacts

The options of transferring the GN inner and GN outer services to EC and GA are considered against the base scenario where all GN residual services are retained within the Thameslink / FCC franchise. Transfer to either EC or GA would represent a fairly significant increase in passenger interfaces – with transfer of the GN outers implying a substantial increased overlap in service provision (especially for flows on the London – Cambridge route).

	Reduction in shared flows		Reduction in interchanging flows	
(millions)	Journeys	Passenger Miles	Journeys	Passenger Miles
GN Inners + EC	-3.25	-25.3	-7.31	-44.9
GN Inners + GA	-2.33	-10.9	-5.99	-28.7
GN Inners + FCC	Base	Base	Base	Base
GN Outers + EC	-10.27	-426.6	-1.26	-78.4
GN Outers + FCC	Base	Base	Base	Base

5.2.5 Preferred option

Transfer of the GN residual services away from FCC would generate contractual complexity for fleet maintenance, and significant additional passenger interface / overlap. The recommended package of remapping retains these services within the Thameslink (FCC) franchise.

5.3 Cross Country, East Coast and East Midlands Trains

5.3.1 The CrossCountry franchise

Cross Country operates over a large geographical area stretching from Penzance and Bournemouth in the south to Edinburgh and Aberdeen in the north and to Stansted Airport in the east. Birmingham New Street is the hub of the network and is served by all services. XC services share routes with other operators on all route sections other than the sections between Birmingham and Leicester and Derby where it is the sole passenger operator.

Recent timetable changes have seen XC eliminated from the WCML other than for services operating over the Birmingham to Manchester axis. The May 2011 timetable change will see the extension of XC services from Edinburgh to Glasgow via Carstairs as replacements for almost all existing EC services operating over that route.

In terms of NR routes, XC operates over seven of the nine and in particular over London North Eastern, Midland and Continental, London North Western and Western.

Rolling stock comprises the principal fleet of class 220/1 Voyager units supplemented by a small number of HST sets along with a class 170 fleet used on the former regional routes between Birmingham and Cardiff and Stansted Airport.

5.3.2 Potential synergies between CrossCountry and East Midlands Trains

The centre of the Cross country network is in Birmingham and the centre of EMT in Derby. A Cross Country service of 4tph connects Birmingham and Derby. The two operators jointly provide services between Derby and Sheffield (2tph each). Both operators have fleets of HSTs and similar classes 220, 221 and 222. The following table shows the combined fleet of inter city, regional and inter-regional trains:

Class	Number	Operator	Current Usage
HST 2+8	11	EMT	St Pancras – Nottingham, Sheffield
HST 2+8	5	XC	North East – South West services
Class 220 4 car	34	XC	All XC Routes except Birmingham – Stansted / Nottingham – Cardiff
Class 221 4 car	1	XC	All XC Routes except Birmingham – Stansted / Nottingham – Cardiff
Class 221 5 car	22	XC	All XC Routes except Birmingham – Stansted / Nottingham – Cardiff
Class 222 7 car	6	EMT	St Pancras – Nottingham, Sheffield, Corby
Class 222 5 car	17	EMT	St Pancras – Nottingham, Sheffield, Corby
Class 222 4 car	4	EMT	St Pancras – Nottingham, Sheffield, Corby
Class 170 2 car	13	XC	Birmingham – Stansted / Nottingham – Cardiff
Class 170 3 car	16	XC	Birmingham – Stansted / Nottingham – Cardiff
Class 158 2 car	14	EMT	Norwich – Liverpool, Nottingham – Skegness
Class 156 2 car	11	EMT	East Midlands and Lincolnshire locals
Class 153 1 car	17	EMT	East Midlands and Lincolnshire locals

Combination of the HST and class 22X fleets are likely to present the greatest opportunity for efficiencies in terms of:

- Improved HST overall fleet availability or a reduction in the number of vehicles needing to be leased;
- Consolidation of maintenance at fewer locations; and
- Improved diagramming flexibility of varying length class 22X formations according to demand; and
- Reductions in levels of overcrowding

We understand that currently EMT diagram 9 out of 11 sets (81.8%) and Cross Country 4 out of 5 (80.0%). In addition to the spare complete sets, each operator leases further spare power cars and trailer vehicles. EMT has a total of 26 power cars and Cross Country 10. EMT therefore has a further 4 spare power cars. EMT also has an additional 6 spare trailer vehicles.

In terms of whole sets, the combined availability target would reduce to a relatively low 81.3% for the same fleet size. Alternatively, by increasing the availability target to 86.7% then a complete set could be saved. Other options are likely to be available involving a reduction in the number of spare power cars and vehicles leased. For example, the required power car availability for EMT and East Coast is currently 69.2% and 80.0% respectively which would reduce to 72.2% for a combined fleet. By increasing availability to 76.5% then the combined fleet of power cars could be reduced by two.

HST fleet maintenance is currently centred at Craigentinny for Cross Country and Neville Hill for EMT. Two of the current four Cross Country diagrams are scheduled to start and finish at Leeds and this would facilitate the re-allocation of maintenance from Craigentinny to a dedicated EMT/XC facility at Neville Hill.

The EMT class 222 fleet is used on a variety of inter city services on the MML and the diagrammed work sees the fleet naturally stabled overnight mostly at Derby Etches Park where the fleet is maintained. The Cross Country fleet of class 220/1 units is based for maintenance at the dedicated Bombardier depot at Central Rivers near Burton-on-Trent. These two depots are very closely located geographically and therefore options might exist for the consolidation of maintenance at a single location for the combined class 220/221/221 fleets. Our understanding of programmed diagram availability targets is that there is unlikely to be scope for any further increases in productivity through the combination of the individual fleets.

A combined XC and EMT would become the largest operator in terms of train mileage operated, amounting to some 33.6 million pa.

5.3.3 Potential synergies between CrossCountry and East Coast

Following re-structuring of service groups between Cross Country and West Coast, Cross Country operations to the North and Scotland are now concentrated on the ECML. This means that there is interface between Cross Country and East Coast along a considerable length of the ECML between Doncaster, York, Newcastle and Edinburgh. North of Doncaster, each operator provides 2tph to Newcastle and 1tph onwards to Edinburgh. The spread of services across the clockface between the two operators is not good and there are many cases of two trains being closely spaced followed by a long gap.

If Cross Country and East Coast were to be merged then a considerable amount of interface along the ECML would be removed and a single operator would be better incentivised to endeavour to improve the spread of services along the route.

The following table shows the combined rolling stock fleets currently employed by East Coast and Cross Country:

Class	Number	Operator	Current Usage
Mk4 2+9	30	EC	Kings Cross – Leeds, Newcastle, Edinburgh, Glasgow
HST 2+9	13	EC	Kings Cross – Bradford, Skipton, Hull, Inverness, Aberdeen
HST 2+8	5	XC	North East – South West services
Class 220 4 car	34	XC	All XC Routes except Birmingham – Stansted / Nottingham – Cardiff
Class 221 4 car	1	XC	All XC Routes except Birmingham – Stansted / Nottingham – Cardiff
Class 221 5 car	22	XC	All XC Routes except Birmingham – Stansted / Nottingham – Cardiff
Class 170 2 car	13	XC	Birmingham – Stansted / Nottingham – Cardiff
Class 170 3 car	16	XC	Birmingham – Stansted / Nottingham – Cardiff

As can be seen, both Cross Country and East Coast operate fleets of HSTs and which are both maintained at East Coast's depot at Craigentinny.

Combination of the two HST fleets is likely to present the greatest opportunity for efficiencies in terms of:

- Improved overall fleet availability or a reduction in the number of vehicles needing to be leased;
- Consolidation of maintenance at fewer locations; and
- Improved diagramming flexibility of 8 and 9 car sets according to demand

We understand that currently Cross Country diagram 4 out of 5 sets (80.0%) and East Coast 11 out of 13 (84.6%). In addition to the spare complete sets, East Coast leases further spare power cars and trailer vehicles. East Coast has a total of 30 power cars and Cross Country 10. Between the two operators there are therefore a further 4 spare power cars. East Coast also has an additional 5 spare trailer vehicles.

In terms of whole sets, the combined availability target would reduce to 83.3% for the same fleet size. Alternatively, by increasing the availability target to 88.2% then a complete set could be saved. Other options are likely to be available involving a reduction in the number of spare power cars and vehicles leased. For example, the required power car availability for Cross Country and East Coast is currently 80.0% and 73.3% respectively which would reduce to 75.0% for a combined fleet. By increasing availability to 76.9% then the fleet of power cars could be reduced by one.

A combined East Coast and Cross Country would be a large operation having annual train miles of 32.5 million.

5.3.4 Potential synergies between East Midlands Trains and East Coast

(a) Train Services and Operational Interfaces

Annual train miles are currently 12.5 and 13.5 million respectively for East Coast and East Midlands respectively. When combined, train miles would become some 26 million, almost identical to Greater Western.

EMT consists of three distinct networks, i.e. the inter city services operating over the Midland Main Line, regional services in the East Midlands and Lincolnshire and the inter-regional Norwich to Liverpool route. The core EC routes are from Kings Cross to Leeds and Edinburgh via the ECML with a number of ancillary destinations such as Bradford, Skipton, Aberdeen and Inverness also being served by the extension of core services. A peak only additional service is also provided to and from Hull.

Whilst the majority of EMT services fall within NR's Midlands and Continental Route, those operating into Lincolnshire penetrate sizeable parts of the LNE Region. The Norwich to Liverpool service, however, also requires access to the Anglia and LNW Routes. All EC services are limited to NR's LNE and Scotland routes.

In the East Midlands and Lincolnshire particular areas of interface include the sections between:

- Derby and Sheffield shared with XC (and NT north of Chesterfield);
- Barnetby to Grimsby / Cleethorpes shared with TP (and NT beyond Habrough); and
- Leicester to Norwich shared with XC and LE.

A particularly difficult service in terms of interface is the EMT cross country route from Norwich to Liverpool which other than the Grantham to Nottingham section operates over route sections shared with a large number of operators: LE, XC, EC, TP, NT, AW and WC. This was particularly highlighted in a previous report which suggested splitting it at Nottingham with the route to the west transferred to either TP or enlarged NT TOC.

The creation of a combined EM and EC would provide an operator that addresses the key markets to the East Midlands and Lincolnshire and that is able to optimise connectional opportunities between the two routes by means of the east Midlands and Lincolnshire regional networks.

The regional services have a good deal of interface with both the MML services operated by EM and the ECML services operated by EC, providing a number of key connections. For example EM services from Lincoln connect with EC at Newark and those from Boston and Skegness at Grantham. The same services also provide connections with the MML at Nottingham from a number of intermediate stations.

A number of connections are relatively poor currently, for example those at Peterborough from Boston and Skegness and those at Newark Northgate from Lincoln and Grimsby. The merger of EMT and East Coast would serve to promote the better development of a number of such key connections.

EM services along the “Joint Line” between Peterborough and Doncaster feed in and out of the ECML at both ends. This is also a key diversionary route for the ECML during engineering works. Both EM and EC employ HST sets and potential synergies exist in terms of maintenance arrangements and operational deployment.

5.3.5 Rolling Stock

The following table shows the combined rolling stock fleets currently employed by East Coast and EMT:

Class	Number	Operator	Current Usage
Mk4 2+9	30	EC	Kings Cross – Leeds, Newcastle, Edinburgh, Glasgow
HST 2+9	13	EC	Kings Cross – Bradford, Skipton, Hull, Inverness, Aberdeen
HST 2+8	11	EMT	St Pancras – Nottingham, Sheffield
Class 222 7 car	6	EMT	St Pancras – Nottingham, Sheffield, Corby
Class 222 5 car	17	EMT	St Pancras – Nottingham, Sheffield, Corby
Class 222 4 car	4	EMT	St Pancras – Nottingham, Sheffield, Corby
Class 158 2 car	14	EMT	Norwich – Liverpool, Nottingham – Skegness
Class 156 2 car	11	EMT	East Midlands and Lincolnshire locals
Class 153 1 car	17	EMT	East Midlands and Lincolnshire locals

Given that East Coast operates only inter city services and that the MML is not electrified then the opportunities for rolling stock synergies will revolve around the HST and class 222 fleets.

Combination of the two HST fleets is likely to present the greatest opportunity for efficiencies in terms of:

- Improved overall fleet availability or a reduction in the number of vehicles needing to be leased;
- Consolidation of maintenance at fewer locations; and
- Improved diagramming flexibility of 8 and 9 car sets according to demand

We understand that currently EMT diagram 9 out of 11 sets (81.8%) and East Coast 11 out of 13 (84.6%). In addition to the spare complete sets, each operator leases further spare power cars and trailer vehicles. EMT has a total of 26 power cars and East Coast 30. Both operators therefore have a further 4 spare power cars each. The two operators also jointly have an additional 11 spare trailer vehicles.

In terms of whole sets, the combined availability target would reduce to 83.3% for the same fleet size. Alternatively, by increasing the availability target to 87% then a complete set could be saved. Other options are likely to be available involving a reduction in the number of spare power cars and vehicles leased. For example, the required power car availability for EMT and East Coast is currently 69.2% and 73.3% respectively which would reduce to 71.4% for a combined fleet. By increasing availability to marginally better than East Coast's current 74% then the fleet of power cars could be reduced by two.

HST fleet maintenance is currently centred at Craigentinny for East Coast and Neville Hill for EMT. East Coast also makes use of Neville Hill as a support depot for Craigentinny. Current fleet diagramming provides a number of HST sets of both East Coast and EMT at Neville Hill and therefore there will be opportunities to inter-work the fleet and reduce the role of Craigentinny to one of support to Neville Hill.

The EMT class 222 fleet is used on a variety of inter city services on the MML and the diagrammed work sees the fleet naturally stabled overnight mostly at Derby Etches Park where the fleet is maintained. There may be some opportunities in the deployment of part of this fleet on East Coast in circumstances where demand does not warrant a full length HST or where portion working could achieve cost savings by the combination of paths between Kings Cross and for example Doncaster.

5.3.6 Passenger Impacts

	Reduction in shared flows		Reduction in interchanging flows	
(millions)	Journeys	Passenger Miles	Journeys	Passenger Miles
EMT+ XC	1.25	30.5	0.58	39.0
EC+XC	2.56	296.3	0.39	87.2
EMT+EC	0.11	7.1	0.34	54.7

The passenger flow overlaps and interfaces with EMT are relatively small for both XC and EC. On the other hand, there is significant interface between EC and XC, particularly over the ECML route north of York all the way up to Aberdeen, and with interchanges between the two TOCs for example at York, Newcastle, Edinburgh and Peterborough.

5.3.7 Potential Cost Savings

- Removal of one management team;
- Reduced back office support;
- Reduced HST fleet size;
- Reduced vehicle miles on East Coast;
- Reduced fleet maintenance costs

5.3.8 Preferred option

All of these possible combinations appear to offer some operational synergy, particularly in terms of fleet utilisation and maintenance arrangements. However, the merger of East Coast and CrossCountry offers a substantially greater impact in terms of addressing route overlap and achieving reduction of shared passenger flows. This option therefore forms part of our recommended package, and the benefits are further enhanced when a service group is added in from Transpennine as discussed below.

5.4 Options Involving Transpennine

5.4.1 Train Services

Trans Pennine is a relatively small operation with annual train miles of some 11 million conveying 16 million passenger journeys.

TP operates longer distance inter-urban services across the Pennines. Firstly the north trans-Pennine route between Liverpool / Manchester and Newcastle / Scarborough / Middlesbrough and Hull via Huddersfield, over routes largely shared with other operators. Secondly the south trans-Pennine route between Cleethorpes and Manchester via Sheffield. TP is the sole operator only on the sections between York and Seamer, Northallerton and Eaglescliffe and Doncaster and Barnetby.

TP also operate a group of services on the West Coast that do not transit the Pennines, operating between Manchester and Blackpool, Barrow, Windermere, Glasgow and Edinburgh. TP are the sole operator of the Windermere branch, otherwise these services operate over routes shared with other operators.

On the north trans-Pennine route hourly services operate from each of Newcastle, Middlesbrough and Scarborough to form 3tph between York and Leeds. At Leeds a fourth hourly service from Hull combines to make a service frequency of 4tph from Leeds to Manchester Piccadilly via Dewsbury, Huddersfield and Stalybridge. The Newcastle and Middlesbrough services run through to Manchester Airport, the Scarborough service to Liverpool Lime Street. Trans Pennine provides services in conjunction with other operators on most route sections as shown in the following table:

Route Section	Trans Pennine	East Coast	Cross Country	Northern	EMT
Newcastle – Northallerton	1tph	2tph	2tph		
Northallerton - York	2tph	2tph	2tph		
York - Leeds	3tph		1tph		
Leeds - Huddersfield	4tph			2tph	
Huddersfield – Manchester Piccadilly	4tph			1tph	
Manchester Piccadilly – Liverpool Lime St	1tph			1tph	1tph

On the south trans-Pennine route, TP provides an hourly service between Cleethorpes and Manchester Airport via Scunthorpe, Doncaster and Sheffield. TP provides services in conjunction with other operators on most route sections as shown in the following table:

Route Section	Trans Pennine	Cross Country	Northern	EMT
Cleethorpes – Habrough	1tph		½ tph	
Habrough – Scunthorpe	1tph			
Scunthorpe – Doncaster	1tph		1tph	
Doncaster – Sheffield	1tph	1tph	2tph	
Sheffield – Manchester	1tph		1tph	1tph

Between Manchester Airport and Preston via Bolton TP operates 2tph. One of these trains is then extended to Blackpool North each hour and the other to either Barrow, Windermere, Glasgow or Edinburgh via Lancaster. Again, TP provides services in conjunction with other operators as shown in the following table:

Route Section	Trans Pennine	Cross Country	Northern	West Coast
Manchester – Bolton	2tph		4tph	
Bolton – Preston	2tph		2tph	
Preston – Blackpool N	1tph		3tph	
Preston - Lancaster	1tph			2tph

North of Lancaster TP services operate less frequently than hourly and other operators are dominant.

TP services operate predominantly within NR's LNE and LNW regions. There are a small number of services operating into the Scotland Region.

5.4.2 Absorption within Northern

(a) Service integration

The tables above show that TP provides services in conjunction with a number of other operators. One of the most significant of which is, unsurprisingly Northern. Where routes are jointly served, Northern typically provide the stopping services and Trans Pennine those of a more limited stop nature. Clearly the incorporation of Trans Pennine within Northern would remove a number of operational interfaces such that the combined operator would then be the sole franchised operator between:

- Leeds and Manchester Piccadilly;
- Cleethorpes and Doncaster; and
- Manchester and Blackpool North

There would also be a reduction in the number of operators over almost every other route section over which TP operates (except WCML). A combined Northern and Trans Pennine would be a large operation having annual train miles of 38.6 million.

(b) Rolling Stock

TP operates most services with the recently built class 185 3-car units operating out of the dedicated maintenance depot at Ardwick. This fleet is supplemented by a small number of class 170s used predominantly on the TP south route.

Given that the Ardwick depot is operated by Siemens as a dedicated facility for the class 185 units there are not likely to be any immediate changes in levels of rolling stock utilisation resulting from a merger of TP and Northern.

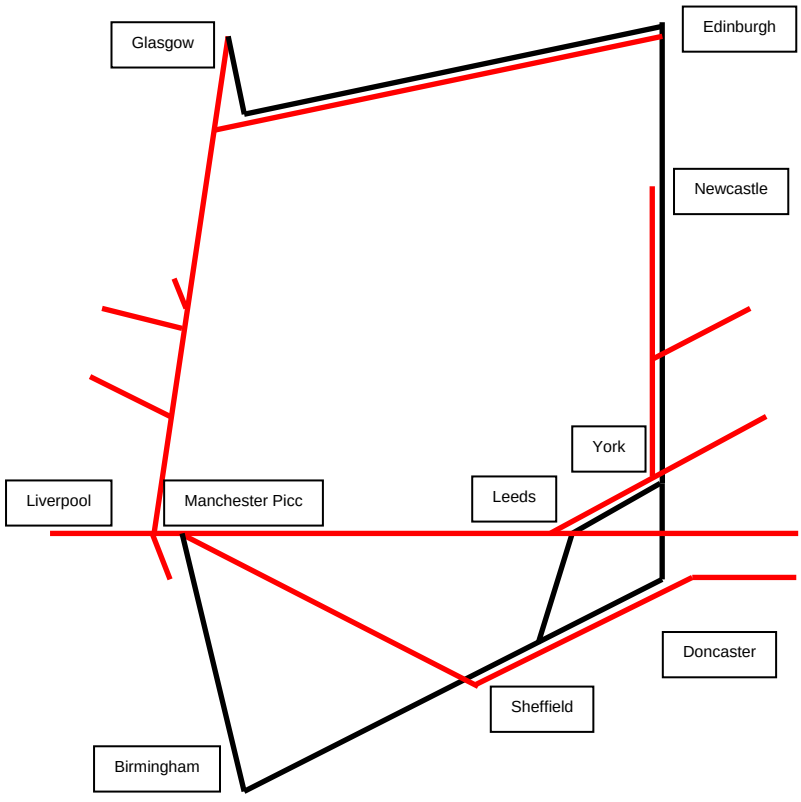
The class 185s are due to be replaced on the WCML services from Manchester Airport following commissioning of the committed extension of the electrified network and the procurement of additional electric rolling stock. The first section due to be electrified is that between Deansgate and Newton-le-Willows and the Manchester Airport to Scotland services diverted over that route. Following electrification of the Deansgate to Blackpool North via Bolton route then these services will revert to that route and the Manchester Airport to Blackpool North services will also be operated by electric rolling stock.

The class 185s displaced by the electrification will then be able to be effectively re-deployed within the enlarged Northern franchise, facilitating a cascade of rolling stock and enabling additional strengthening and / or removal of a number of pacer vehicles from service.

5.4.3 Potential synergies with CrossCountry

(a) Core proposition

The Cross Country and Transpennine networks have similar attributes. Both operators provide through services across large geographical areas of the country that provide through journey opportunities between principal towns and cities other than London. The following diagram shows the strategic fit of the two networks in the north of England – Cross Country routes are shown in black and Tranpennine in red.



The diagram shows how the merger of Cross Country and Trans Pennine would create a unified network of inter-regional services in the north of England with a common brand, standard of service and marketing effort. Where routes are currently shared such as between Sheffield and Doncaster, and Leeds and York / Newcastle then a combined operator will be incentivised to optimise the joint package of services to the benefit of the customer.

The rolling stock fleets of the two operators are shown in the following table:

Class	Number	Operator	Current Usage
Class 185 3 car	51	TP	All TP routes
HST 2+8	5	XC	North East – South West services
Class 220 4 car	34	XC	All XC Routes except Birmingham – Stansted / Nottingham – Cardiff
Class 221 4 car	1	XC	All XC Routes except Birmingham – Stansted / Nottingham – Cardiff
Class 221 5 car	22	XC	All XC Routes except Birmingham – Stansted / Nottingham – Cardiff
Class 170 2 car	9	TP	Hull – Manchester
Class 170 2 car	13	XC	Birmingham – Stansted / Nottingham – Cardiff
Class 170 3 car	16	XC	Birmingham – Stansted / Nottingham – Cardiff

Both operators have fleets of class 170 units, those of Trans Pennine being maintained at Crofton (Wakefield) and those of Cross Country at Tyseley. There are potential synergies available from the combination of these fleets leading to improved diagramming productivity potentially enabling strengthening of overcrowded services.

The class 185s are due to be replaced on the WCML services from Manchester Airport following commissioning of the committed extension of the electrified network and the procurement of additional electric rolling stock. The class 185s displaced by the electrification will then be able to be effectively re-deployed within the combined Cross Country network, facilitating a cascade of rolling stock and enabling additional strengthening of key services and potentially the development of services on routes where frequencies might ideally be improved.

A combined Cross Country and Trans Pennine would be a large operation having annual train miles of 30.7 million

(b) Further Developments of a Combined Network

There are a number of further developments of an enlarged Cross Country network that could be considered where certain services currently provide by other operators might be added to the network. These include:

- The EMT services between Norwich and Liverpool; and
- The Northern services between York and Blackpool North

The EMT Norwich to Liverpool service operates in conjunction with Trans Pennine throughout between Sheffield, Manchester and Liverpool with each operator providing half of the 2tph combined inter-regional limited stop service. Incorporation of this service would therefore serve to significantly reduce interfaces across this corridor and would remove EMT operations from NR's LNW route.

The York to Blackpool via Burnley service provides inter-regional links between key towns and cities such as Leeds to Bradford, Burnley, Preston and Blackpool. Services on this route also provide a proportion of the services between York and Leeds shared with Cross Country and Trans Pennine. Addition of this route to an enlarged Cross Country network would therefore remove almost all interfaces on this key route section.

5.4.4 Potential synergies between South Transpennine and EMT

The current Transpennine operation is characterised as being formed from three fairly separate routes:

- North Transpennine services between Liverpool / Manchester and Newcastle / Scarborough / Middlesbrough and Hull via Huddersfield;
- South Transpennine services between Cleethorpes and Manchester via Sheffield;
- West Coast services between Manchester and Blackpool, Barrow, Windermere, Glasgow and Edinburgh.

In considering the various mapping options for Transpennine, it makes sense to consider whether a possible solution might be to split these different routes between two or three other operators. For the South Transpennine services, there is a considerable amount of overlap with EMT services across the route over the sections between:

- Cleethorpes and Barnetby (with EMT Cleethorpes – Newark – Nottingham route);
- Sheffield and Manchester (with EMT Norwich – Liverpool route).

Between Sheffield and Manchester the two operators jointly provide the half-hourly fast services and this requires a high level of co-operation between the two TOCs.

(a) Operational implications (core proposition)

TP currently operate their services mostly with 3-car class 185 units maintained at its Manchester Ardwick depot and with traincrew based at Cleethorpes and Manchester. A small number of services are now operated by 2-car class 170 units which has become necessary in order to enable the release of sufficient class 185s to operate the Manchester Airport to Glasgow and Edinburgh services. In absence of rolling stock diagrams the number of class 170 diagrams operating on the route is not known but 6 unit diagrams in total are required to operate all services between Cleethorpes and Manchester Airport. If these services are diverted to Liverpool we would envisage that an additional one diagram would be required assuming that there is currently inter-working of the class 185 diagrams between routes at Manchester Airport.

If we assume that the route could be operated solely by class 185s following their cascade from the Manchester to Scotland route on electrification then with 7 diagrams a fleet of 8 units would be required. Splitting the class 185 fleet of 51 units to create a separate EMT fleet is, however, likely to impact adversely on fleet efficiency as effectively each operator will require its own spare vehicles. For example, EMT will diagram 7 units out of a fleet of 8 (87.5%) whereas for a combined fleet, an availability of at least 90% would be expected. Alternative options could be explored, particularly if the North Transpennine services are merged with CrossCountry. In this case, the new XC/TP-N TOC could operate a larger class 185 fleet (e.g. using them on Nottingham-Cardiff services), releasing class 170 units to EMT which could probably be readily exchanged (e.g. with ScotRail) for class 158 units, providing a more unified EMT fleet.

From a traincrew perspective there would be benefits in the incorporation of the south Trans-Pennine route. EMT has no traincrew depots to the west of Nottingham and this depot operates all services between Nottingham and Manchester / Liverpool. Given the need for late services arriving in Manchester / Liverpool and early departures and a lack of EMT stabling facilities and traincrew then the last two units to arrive in Manchester / Liverpool are worked back empty to Nottingham and two units returned empty in the morning. Assuming that a portion of TP's Manchester traincrew would be transferred to a create a new EMT depot in Manchester and that EMT would have access to Ardwick maintenance depot then these long distance empty train movements would be avoided.

(b) Possible network development on Manchester-Liverpool route

The half-hourly fast services between Manchester and Liverpool via Warrington Central route are, as with those between Manchester and Sheffield, operated jointly between Transpennine and EMT. Transfer of all fast services to one operator would be ideal although currently the hourly TP services are the North Transpennine services to and from Scarborough rather than from the south Transpennine route.

It would, however, be possible to exchange services such that the Cleethorpes services are extended to Liverpool and those from Scarborough diverted to Manchester Airport. The paths at Piccadilly do not exactly coincide, however, and a dwell of 10 minutes would be required in each direction in order to maintain the current paths. This could be beneficial as a performance buffer and operationally could take place at Oxford Road where overtaking facilities are provided in both directions. This possibility has not been explored in detail.

(c) Possible network development with transfer of Northern routes

There are three routes and services currently operated by Northern that either overlap with EMT routes or are within its geographical area. Firstly there is the Scunthorpe to Lincoln via Doncaster and Sheffield route. This overlaps with the TP south route earmarked for transfer to EMT as mentioned previously between Scunthorpe and Sheffield. The route between Sheffield and Gainsborough whilst currently operated solely by Northern falls within the EMT geographic area and connects other EMT routes at Sheffield, Worksop, Gainsborough and Lincoln.

The second Northern service is that recently introduced between Nottingham and Leeds. This operates in conjunction with EMT services between Nottingham and Sheffield and over the route to Leeds which is served by peak EMT London services primarily for access to Neville Hill maintenance depot. Again there is a good geographic fit with EMT.

The third route is that between Cleethorpes and Barton-on-Humber which is a route that is isolated from the rest of the Northern network other than on Saturdays when the Brigg line is open.

The Scunthorpe to Lincoln services are currently operated by class 142 pacer units. EMT does not, however, operate this type of unit and therefore there would need to be an exchange of diagrams within Northern such that vehicles of a class already operated such as 150 or 156s would be transferred with the service. EMT operates the traincrew depot at Lincoln and with the former TP depot at Cleethorpes added then crewing and overnight stabling should not be problematic.

The Nottingham to Leeds route is operated by class 158 units which are in operation at EMT. Therefore the requisite number of units could be transferred from NT to EMT without an adverse effect on the overall number of spare vehicles. EMT have a traincrew depot and train maintenance / stabling facilities at Nottingham. They also stable and maintain HSTs at Leeds Neville Hill depot. We therefore would not envisage any operational difficulties in the transfer of this service to EMT.

In the case of the Barton-on-Humber branch, traincrew are currently hired in from the existing TP depot at Cleethorpes (which we assume will be transferred to EMT). Rolling stock used is the class 153 which are already operated by EMT and therefore one unit could simply be transferred from NT to EMT with no changes in the number of spares. We assume that the associated Saturday only services between Cleethorpes and Sheffield via Brigg would also be transferred to EMT.

5.4.5 Passenger Impacts

The passenger impacts associated with the main options considered are shown below. The straightforward merger options (with either XC or NT) suggest a rather better match with NT.

The options shaded grey reflect partial options only, and cannot be compared with the (unshaded) full options. These partial options are provided for pair-wise comparison, to assess the best match in each case for the three component routes of the Transpennine TOC (North, South and West). The comparisons show:

- TP-West has greater passenger overlap with NT compared to WC, although interchange with WC is higher;
- TP-South has greater interface with EMT compared to NT (both overlap and interchange);
- TP-North has greater passenger overlap with XC compared to NT, although interchange with NT is higher. Passenger interface with EC is lower than either NT or XC.

	Reduction in shared flows		Reduction in interchanging flows	
(millions)	Journeys	Passenger Miles	Journeys	Passenger Miles
TP+XC	1.40	79.45	0.41	41.4
TP+NT	10.18	151.31	2.49	93.6
TP(W)+NT	5.97	103.34	0.79	20.9
TP(W)+WC	0.99	80.12	0.64	116.4
TP(S)+NT	0.74	9.53	0.04	1.2
TP(S)+EMT	0.68	30.29	0.07	2.9
TP(N)+NT	2.65	37.18	1.37	53.4
TP(N)+XC	1.38	78.32	0.38	38.2
TP(N)+EC	0.44	29.10	0.14	14.8
TP(N)+XC;TP(W)+NT; TP(S)+EMT	8.01	211.20	1.20	58.1
EM(Nrw-Liv)+NT+TP(S+W); EM(MML+Loc);TP(N)+XC	9.37	232.6	1.67	77.8

On the basis of these pair-wise comparisons, an option combination emerges for consideration that remaps each of TP's service groups to a different TOC:

- TP-North to CrossCountry;
- TP-South to EMT;
- TP-West Coast to Northern.

This option provides a significantly larger reduction in passenger miles on shared flows than the straightforward NT merger, although passenger interchanges are not reduced by as much. A variant on this option, whereby the EMT Norwich-Liverpool services are split from EMT, and merged together with TP-South and NT (as well as TP-West Coast) provides slightly larger reductions in passenger interface.

5.4.6 Potential Cost Savings

- Removal of one management team;
- Reduced back office support;
- Improved fleet availability / deployment;
- Reduced fleet maintenance costs
- Savings to DfT from the avoidance of re-franchising transaction costs; and
- Savings to Network Rail from the removal of a number of interfaces and management arrangements

5.4.7 Preferred option

The arguments frequently given for the retention of a "boutique" operator such as Transpennine can be summarised as:

- Local focussed management drive up levels of performance, service quality and hence customer satisfaction;
- Delivery of step-changes such as infrastructure upgrades, timetable enhancements, rolling stock replacement enabled through a closely focussed management team.

However, it can be argued that the benefits versus the costs of having a "boutique" operator diminish significantly when such an operation reaches maturity, with potential for a divisional team within a larger TOC to achieve similar results. TP can now be considered to have reached such a level of maturity now that the fleet has been replaced, the core timetable has bedded down, performance is good and high levels of passenger satisfaction are being recorded.

There is certainly a risk that wholesale transfer of TP to NT could diminish some of these focussed benefits, with the main emphasis of the TOC being on local urban flows. However, the split of TP and transfer of North and South parts to CrossCountry and to EMT respectively provides a maintained focus on inter-urban passenger traffic (as they run intercity services), while also reducing passenger volumes on shared flows. This options forms part of our recommended package for TOC remapping.

The recommendation is also affected by the consideration that there may be significant benefits in splitting the Northern franchise into East and West components (see below), which would be complicated by the inclusion of Trans-Pennine routes. While the sub-option of including the EMT Norwich-Liverpool routes as well as the TP-South route in an expanded NT franchise appears to offer slightly improved passenger interface reductions, this benefit is reversed if the NT franchise were subsequently to be split. This sub-option has not been pursued for this reason.

TP-West serves a variety of local branch lines and interfaces significantly with NT on the Manchester – Bolton – Preston – Blackpool corridor. While there are also significant interfaces with the West Coast, many of these relate to the Manchester – Scotland services which may conveniently be transferred to the West Coast franchise once a route between Manchester and the WCML is electrified. This downstream option has not been pursued in this study, as further consideration of relevant detailed service options would be required, and is beyond the scope of this study. The recommended remapping package assumes that the TP-West services will transfer to NT in the first instance.

5.5 Options Involving London Midland

5.5.1 Full merge of London Midland and West Coast

The concept of merging LM into West Coast is one which would lead to the creation of a unified operator on NR's LNW Route. On the southern part of the WCML, the two operators provide the vast majority of current services. LM generally operates over the Slow Lines and provides local services between Euston and Watford, Milton Keynes and Northampton. It also provides fast services to Northampton that share the Fast Lines with the inter city services for parts of the route. VT operates all inter city services from Euston to the Midlands, North West and Scotland, supported by LM for certain intermediate journeys. E.g. Euston to Nuneaton, Tamworth and Lichfield which are served by inter city services in the peak periods only.

LM and VT jointly provide all services between Rugby and Birmingham and the majority of those on the corridor between Coventry, Birmingham International and Wolverhampton. LM now provides all services on the important route between Birmingham and Liverpool.

Combination of the two operators would therefore remove a considerable amount of interface on the complex and congested southern part of the WCML.

A combined VT and LM would be a large operation with combined annual train miles of 37.6 million.

5.5.2 Transfer of Non-WCML Services to Chiltern

The merger of LM with VT would create a very large and complex network including a number of groups of services that are not focussed on the WCML. These are predominantly LM's diesel routes on the following corridors:

- Leamington / Stratford – Birmingham / Stourbridge / Kidderminster / Worcester
- Birmingham – Hereford
- Birmingham – Walsall / Rugeley
- Birmingham – Shrewsbury

There is considerable synergy with Chiltern's operations, particularly in the case of the routes focussed on Birmingham Snow Hill where Chiltern is a key operator. Such a merger would remove operational interfaces on this corridor and the combination of the diesel fleets into a single common pool would facilitate a number of efficiency savings.

LM diesel rolling stock is maintained at its Tyseley depot and Chiltern's fleet is maintained at Aylesbury and Wembley with some support from the small depot at Stourbridge Jn. LM's class 150 fleet is in the process of replacement by new build class 172 units which are similar to Chiltern's class 168s. Chiltern is also in the process of procuring a small class 172 fleet of its own for London area stopping services.

5.5.3 Passenger Impacts

There are substantial potential benefits in terms of reduced passenger interfaces arising from merging LM with WC. Passenger miles on shared flows are reduced slightly further by splitting off the West Midlands diesel services and merging them with the Chiltern franchise.

	Reduction in shared flows		Reduction in interchanging flows	
(millions)	Journeys	Passenger Miles	Journeys	Passenger Miles
LM+WC	4.78	204.9	1.23	119.0
LM(Elec)+WC;LM(Diesel)+Chi	4.90	211.7	0.73	103.8

5.5.4 Potential Cost Savings

- Removal of one management team;
- Reduced back office support;
- Savings to DfT from the avoidance of re-franchising transaction costs; and
- Savings to Network Rail from the removal of a number of interfaces and management arrangements

5.5.5 Preferred option

There would be significant potential to reduce interfaces by merging West Coast and London Midland operations on the West Coast main line routes. In view of the slightly larger reduction in passenger volumes on shared flows, and also of the concern that the West Midlands diesel operation would be something of a fringe operation for a combined WC+LM franchise, the second option (of splitting the diesel services and merging these with Chiltern) is preferred, and has been included in the recommended remapping package.

5.6 Potential for Northern Trains split into East and West sections

5.6.1 Operational Interfaces

The objective of this option is to establish the practicalities of splitting the existing Northern network into western and eastern parts with each being as closely aligned as possible to the geography of NR's routes.

Northern operates a dense and complex network throughout the north of England. As can be seen from the maps above there is a considerable amount of interface with other operators on a number of routes, particularly with TP. Interfaces with TP have been explored in that section and here we will concentrate on interfaces with other operators.

To the west of the Pennines interfaces exist between Manchester and Liverpool on the Warrington route which is shared with EM along with TP. The section between Liverpool South Parkway and Lime Street is also shared with LM. Local NT services between Manchester and Crewe share the route with VT, XC and AW and between Manchester and Stoke with VT. The southern approach to Manchester Piccadilly is particularly congested and shared between a number of operators. Congestion is particularly exacerbated by NT, TP and EM services crossing the station throat in order to access the Oxford Road route via platforms 13 and 14 at Piccadilly.

NT operates services along the WCML between Wigan, Preston and Carnforth and which need to be accommodated amongst the key high speed VT services along this route and with TP north of Preston.

The north and south Trans-Pennine routes are both shared with other operators, the former with TP and the latter with both TP and EM. The number of operators together with a mixed specification for both fast and stopping services coupled with long absolute block sections creates particular timetabling difficulties on the south route.

To the east of the Pennines the Sheffield area is particularly congested and the Sheffield to Chesterfield section is shared with both EM and XC. Doncaster to Leeds is a difficult route with a mix of fast and stopping services operated by EC, XC and NT.

The Leeds station area is particularly complex and the network is intensively utilised. NT is by far the dominant operator although the services need to be tailored to fit amongst significant volumes of services operated by EC, XC and TP.

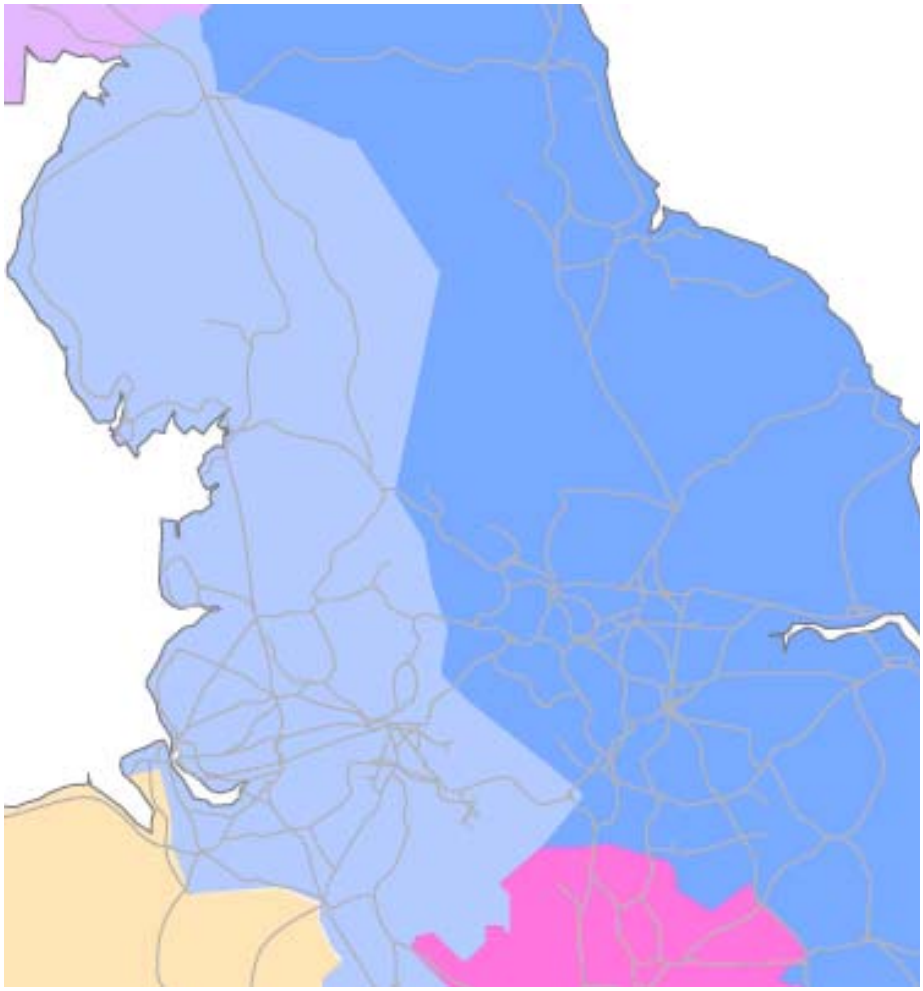
NT operates a wide range of diesel and electric rolling stock which is operationally focussed on depots at Newton Heath and Longsight to the west of the Pennines and at Neville Hill and Heaton to the east. The three Trans-Pennine routes (Copy Pit, Standedge and Hope Valley) lead to a significant amount of inter-working of rolling stock between the Manchester and Leeds centred areas.

5.6.2 Fit with Network Rail Routes

The map below shows the boundaries between Network Rail routes in the north of England. Essentially Northern operates across two NR routes: LNW and LNE with the boundary between the two being the Pennines.

Most Northern services operate within one single route, however there are five routes that cross the LNW / LNE boundary:

1. Carlisle - Newcastle (Boundary at 58 mile post between Carlisle and Wetheral);
2. Carlisle / Morecambe – Leeds at 230 mile post between Hellifield and Skipton;
3. Preston / Manchester – Leeds via Hebden Bridge at 23 mile post between Todmorden and Hebden Bridge;
4. Manchester – Leeds via Marsden at 15 mile post between Greenfield and Marsden; and
5. Manchester – Sheffield at 154 mile post between Grindleford and Dore



Source: Network Rail

5.6.3 Suggested Service Allocations

Northern Trains services that cross these route boundaries are shown in the following table. We have considered each of these cross-boundary to establish the least disruptive approach for their allocation to either a North Western (NW) or North Eastern (NE) TOC.

Cross-Boundary Route	Northern Services
1. Carlisle - Newcastle	Carlisle – Newcastle: 1tph
2. Carlisle / Morecambe - Leeds	Lancaster / Morecambe – Leeds: 5 trains per day Carlisle – Leeds: 8 trains per day
3. Preston / Manchester – Leeds via Hebden Bridge	Manchester Victoria – Leeds: 3tph Blackpool North – Leeds: 1tph
4. Manchester – Leeds via Marsden	Manchester Victoria – Huddersfield: 1tph
5. Manchester - Sheffield	Manchester Piccadilly – Sheffield: ½ tph

(a) Carlisle – Newcastle

The NR boundary is located immediately to the east of Carlisle and therefore almost all of the train miles of the Carlisle to Newcastle services are operated within the LNE Route. Passenger interfaces with other Northern services are concentrated at the Newcastle end of the route (e.g. between local Tyne & Wear stations and Metrocentre). These services are therefore allocated to the NE TOC.

Three services in each direction operate as through services to and from Glasgow central via Dumfries. These trains are operated by Scotrail north of Carlisle with the Northern rolling stock being hired. There is no reason why this arrangement could not continue.

(b) Carlisle / Morecambe – Leeds

All long distance services between Carlisle, Morecambe, Lancaster and Leeds cross the NR boundary between Hellifield and Skipton. Operationally the greatest complexity is in the Leeds / Bradford area where the route is shared with other local services. There is a relatively low level of complexity to the west of Skipton where the 4tph electric local services from Leeds and Bradford terminate. In terms of passenger interface with other Northern services, the most significant flows are also in the West Yorkshire region, with only minimal interface in Lancashire. Therefore it would appear to make most sense for this group of services to be allocated to the NE TOC.

Better alignment between services and NR routes could potentially be achieved by moving the boundary between LNE and LNW routes west to locations immediately to the east of Carnforth and Carlisle respectively. An extra boundary between the two routes would also be required between Hellifield and Clitheroe but this route is served by passenger services only on summer Sundays.

(c) Preston / Manchester – Leeds via Hebden Bridge

Three of the four trains per hour over this route operate between Manchester Victoria and Leeds via Rochdale and Halifax. 2tph then operates via Bradford Interchange and the third via Dewsbury. These services provide local services within the PTE areas together with longer distance journeys such as between Rochdale and Bradford. The fourth service per hour runs from Blackpool North to York via Preston, Burnley, Halifax and Bradford Interchange.

The boundary between the LNW and LNE Routes is situated mid-way on the route between Todmorden and Hebden Bridge and therefore the services could equally be allocated to either a NW or NE TOC, particularly in the case of the Manchester Victoria to Leeds route. Operational complexity is greatest in the Leeds / Bradford and Manchester Victoria areas.

There is some inter-working across Leeds with hourly services from Manchester running through to Selby and the Blackpool North trains run through to York. There is no similar cross-Manchester working and generally the rolling stock diagrams are self-contained. While there are passenger interfaces with other Northern services at both Manchester and Leeds, the greater volume of transferring and overlapping passengers is at the Leeds end (especially now that Oldham services have transferred to Metrolink).

For the Manchester – Leeds / Selby services we consider that operational complexity and passenger interfaces would be minimised by allocating them to the NE TOC, particularly as 1tph is routed via Dewsbury. The only interface between NE and NW would then be at Manchester Victoria station itself.

In the case of the Blackpool North to York route, the solution is less clear cut. Allocation to NE would remove interfaces in the complex Leeds / Bradford area but would create interfaces to the west of Burnley where the hourly services from Colne join the route. It would also add a third operator to the Preston to Blackpool North line along with the NW TOC and Trans Pennine. Allocation to NW would remove the operational interfaces to the west of Burnley but then create significant new ones to the east being an additional operator running into Leeds. We therefore consider that allocation to NE would offer the lowest level of interface overall.

An alternative option is to consider whether the inter-regional nature of the Blackpool North to York services is more similar in nature to those of Trans Pennine. TP already operate between Blackpool north and Preston and between Leeds and York and the addition of what is the third geographical Trans-Pennine route to its portfolio of services could be an appropriate step to make.

(d) Manchester – Leeds via Marsden

The bulk of passenger services on this route are provided by Trans-Pennine who operate 4tph of inter-regional services from Liverpool / Manchester to Leeds and Hull, Middlesbrough and Newcastle. Northern provides local services across the route although their local nature is reflected in the fact that they are split into discrete services split at and not operating across Huddersfield.

To the west of Huddersfield an hourly service runs to Manchester Victoria and to the east there are hourly services to Leeds via Dewsbury, Leeds via Halifax, Wakefield via Healey Mills and Sheffield via Penistone.

The boundary between NR's LNW and LNE Routes is located between Greenfield and Marsden and is crossed by the Manchester Victoria to Huddersfield services. Given that the principal purpose of these trains is for local travel into Manchester (with the majority of passenger interaction with other Northern Rail service being at Manchester), and that the bulk of the train mileage is on the LNW Route then it is most logical for these Manchester-Huddersfield services to be allocated to the NW TOC. All other services on the route are allocated to NE.

(e) Manchester - Sheffield

The principal passenger services on this route are provided by Trans Pennine and East Midlands Trains who operate inter-regional fast services between Liverpool / Manchester and Grimsby / Norwich. Northern provides the local service which amounts to a train every two hours (hourly in peaks) between Manchester Piccadilly and Sheffield via New Mills.

The boundary between NR's LNW and LNE routes is at Totley Tunnel between Grindleford and Dore, so that the bulk of the train mileage of these services is on NR's LNW Route. The passenger interfaces with other Northern services are fairly balanced between the Manchester and Sheffield ends, although there are slightly more at Manchester. On the whole, it is logical for these services to be allocated to the NW TOC, although consideration could be given to grouping them with the South Transpennine and/or the EMT Liverpool-Norwich services.

5.6.4 Rolling Stock Issues

DfT have supplied Northern's December 2008 rolling stock diagrams for Neville Hill and Heaton depots. Unfortunately the Newton Heath diagrams have not been able to be supplied and therefore our assessment does not cover these diagrams. Only diesel diagrams have been considered as none of the cross-border routes are electrified.

There are nine types of DMU diagrammed from Heaton and Neville Hill depots. The following table lists the number of diagrams by type. Taking the assumptions regarding the division of services between a NE and NW TOC we have also identified the number of diagrams having work content with more than one operator:

Type	No. of Diagrams	Mixed	Notes
142/0	27	2	Easily resolved
156/0	12	2	Can probably resolved by exchanging sets at Carlisle
150/1	10	2	Can probably resolved by exchanging sets at Huddersfield
153/0	14	3	Need sight of Newton Heath diagrams to assess
144/3	9	0	
144/2	12	0	
155/1	6	0	
158/7	32	2	All NE if Blackpool – York allocated to NE
158/8	7	1	All NE if Blackpool – York allocated to NE
Total	**129**	**12**	

The following table shows the resulting allocation of diagrams between NW and NE. The 7 diagrams allocated to Trans Pennine are for the Blackpool North to York service and could equally be allocated to NE:

Type	NE	NW	TP
142/0	26	1	0
156/0	7	5	0
150/1	9	1	0
153/0	8	6	0
144/3	9	0	0
144/2	12	0	0
155/1	6	0	0
158/7	28	0	4
158/8	4	0	3
Total	**109**	**13**	**7**

In terms of fleet maintenance we have assumed that Heaton and Neville Hill depots would be allocated to NE and Newton Heath to NW. There would not appear to be any problems with cycling the rolling stock for maintenance about the respective depots. There will be a need for some out-stabling of NE units at Newton Heath depot for the stock used on the Leeds to Manchester route. NW is likely to require some out-stabling at Sheffield.

5.6.5 Traincrew

We have not had sight of the Northern traincrew diagrams and therefore we have not been able to ascertain whether any particular issues would arise from the split of Northern. Given the relatively recent combination of the former NE and NW TOCs it is probably safe to say that issues such as traction and route knowledge are likely to have limited the extent to which there is inter-working between the former operational areas.

5.6.6 Passenger Impacts

Given the nature of the measures being used, it is inevitable that a straight split of a single franchise into two will increase the volumes of passengers on flows involving an interface between different TOCs' services. However, the scale of the impact is very small, as shown below.

	Reduction in shared flows		Reduction in interchanging flows	
(millions)	Journeys	Passenger Miles	Journeys	Passenger Miles
Split of NT into NT(E) and NT(W)	-1.75	-16.8	-0.30	-9.7
NT(W)+WC	0.01	1.5	0.47	38.4
NT(E)+EC	0.47	32.8	0.26	22.3

This increased interaction can be offset if the two parts of the franchise were to be merged with WC and EC, although again the impacts are very small.

5.6.7 Preferred option

There is little evidence of integration of the former NE and NW parts of Northern. Both parts are operating with the previous different staff terms and conditions (and the separate pension schemes have not been merged). It is relatively easy to disentangle the relatively small number of rolling stock diagrams having mixed work. Given the potential advantages of introducing locally-focussed TOCs aligned with Network Rail regions, PTE areas and passenger markets, it seems likely that this option would be beneficial. It is therefore included in our recommended remapping package.

The options to merge these two portions of NT with EC and WC provide relatively little benefit, and would generate potential distraction for both these TOCs from the inter-urban focus, and where other more beneficial mergers are proposed. The options of merging the heavily subsidised local services with the high speed intercity routes have therefore not been pursued.

6 VFM APPRAISAL OF PREFERRED OPTIONS

6.1 Recommended package

The emerging recommendations, based on the assessment of the shortlisted options, are as follows:

- Merge C2C into Greater Anglia.
- Merge Thameslink and Southern with retention of residual GN services.
- Split London Midland, with West Coast / West Midlands electric services merged with Inter City West Coast; and West Midlands diesel routes mapped to Chiltern.
- Split Transpennine, with TP-North services merged with CrossCountry, TP-South services merged with East Midlands Trains, and TP-West Coast services merged with Northern Rail. Potentially transfer Manchester-Scotland (WCML route) services to West Coast following north west electrification.
- The combined TP-North / CrossCountry franchise could beneficially be merged with Inter City East Coast, providing some synergy in Yorkshire and on the northern half of the ECML.
- If appropriate in the context of alignment with PTE geographies, improved market focus, and closer vertical integration with Network Rail, the expanded Northern Trains franchise can be split into separate NE and NW parts to produce separate West Yorkshire- and Greater Manchester-focussed TOCs.

The potential broad financial impact of this preferred package is considered below. It should be noted that this appraisal is not based on a detailed service review and train planning exercise to optimise service patterns and diagrams, and that further detailed study and appraisal of these options will be required as part of the franchise specification process.

6.2 Train service density

A general guiding principle in the selection of the preferred options for remapping has been to reduce instances of overlap between franchises, both in terms of service provision and passenger volumes on shared flows.

The table below presents details of the recommended remapping package in terms of the train service density (train km divided by route km). These are compared with the current constituent TOCs (shown in the shaded rows) being used to form the remapped TOCs. It can be seen that – in line with the approach followed – the train density has increased in each case. The final component of the package (splitting Northern Rail) is not shown, and will obviously have a small negative effect, but the overlap (and hence the decrease in train density) will be negligible.

The table also shows the total TOC costs (excluding Network Rail charges) for the various constituent current TOCs, and hence the implied potential 'frontier' cost reduction that might be implied using the estimated elasticity of cost to train service density as derived by ITS Leeds[2].

TOC / Option	Route Miles	Train Miles (daily)	Density	Avg Density (Trns/Day)	TOC Costs (£m/yr)	Implied Cost saving (£m/yr)
Merge C2C with Greater Anglia						
C2C	123	12281	99.5		83.8	
EA	934	60420	64.7	**68.8**	310.2	
EA+C2C	1057	72701	68.8	**68.8**		**0.0**
Merge Thameslink with Southern						
FCC	622	57408	92.3		249.9	
SN	743	58236	78.4	**84.8**	403.1	
FCC+SN	1195	115644	96.8	**96.8**		**25.8**
Split London Midland, merge with West Coast / Chiltern						
LMS	826	51485	62.3		236.4	
CHI	299	18516	61.8		93.0	
WC	1137	63776	56.1	**59.1**	503.0	
LM elect + WC	1278	103484	81.0			
LM (diesel) + CHI	557	30293	54.4	**72.9**		**51.5**
Split Transpennine, merge with CrossCountry / East Midlands / Northern						
NT	2798	83407	29.8		361.9	
EMT	1310	37199	28.4		218.0	
TPE	1334	30205	22.6		156.1	
XC	2327	56986	24.5	**26.7**	322.7	
TP(N) + XC	2596	73356	28.3			
TP(S) +EMT	1174	41352	35.2			
TP(WC)+NT	3160	93089	29.5	**30.0**		**36.2**
Merge TP-North / CrossCountry with East Coast						
TP(N) + XC	2596	73356	28.3		407.3	
EC	1131	36364	32.2	**29.4**	329.2	
TP(N)+ XC + EC	2997	109720	36.6	**36.6**		**47.4**

The 'cost saving' figures shown here should be regarded as an upper bound, for use as a comparator with more detailed figures. They incorporate all elements of cost savings including service optimisation, HQ costs and fleet rationalisation.

6.3 Passenger revenue effects

6.3.1 Appraisal assumptions

As described above (Chapter 3), we have used the MOIRA model to measure the volumes of passengers who would be affected by the various franchise remapping options, including:

- The reduction in the number of rail passenger journeys and passenger miles on flows involving interchange between one TOC and another;
- The reduction in the number of rail passenger journeys and passenger miles on flows where parallel overlapping services are provided by more than one TOC;
- The reduction in passenger journeys on flows where the SFO of the passenger's origin station is not the service provider being used by the passenger.

(a) MOIRA model assessment of timetable options

The first task was to identify which of the DfT MOIRA models held the best data to model the remapping options. The models used for each test are tabulated below. The 2010 timetables coded in the models were also updated as necessary to reflect known timetable changes arising from major projects. Detailed mapping options for Thameslink services are included in our options, and the Thameslink service has thus been recoded in our analysis to reflect broad future service levels and new routes.

Option	Description	MOIRA version
Southern England		
CC1	Merge CC into LE TOC as a route business unit	Anglia
FC0	Create dedicated Thameslink services operator and retain residual FC non Thameslink services within this TOC	Base timetables developed in Anglia and South East MOIRA versions to consider options for northern services (inners and outers) not passing through the central area and new southern routes destinations respectively
FC1	As FC0 and merge all with SN	South East
FC1a	As FC1 with merger of Maidstone and Ashford services with SE instead	South East
FC2	As FC0 except transfer out residual "Outer" Kings Cross HL services to EC. Residual "Inners" stay in Thameslink franchise.	Anglia
FC3	As FC2 except transfer out residual "Inners" to either EC, GA or TfL	Anglia
FC4	As FC3 (i.e. transfer out all residual Kings Cross and Moorgate services) and merge FC Thameslink services into SN	South East
Northern England / Midlands		
XC1	Merge XC with EM	Midlands
XC2	Merge XC with EC	Midlands
XC3	Merge XC with TP	Northern
EM1	Merge EM into EC	Midlands
TP1	Merge TP into NT	Nothern
LM1	Merge LM with VT	Midlands
LM2	As LM1 but transfer out Snow Hill suburban / diesel routes to Chiltern	Midlands
NT1	Split NT, with sub options to merge service groupings with EC, VT, EM and TP routes	Northern

(b) Passenger impact types

For each of the different impact types (interchange, service overlap and station ownership), we have derived estimates of potential passenger benefits that might be associated with a change of interface from being between separate TOCs to becoming a flow within a TOC. These benefit assumptions have been used to make a broad indicative estimate of the level of increased passenger revenue which might potentially be available from as an (indirect) consequence of the TOC mapping change:

- **Interchange between services:** Our experience of detailed timetable optimisation is that connections may be improved by several minutes if the planning of the timetables for both legs is well coordinated. We have thus modelled the scenario that where a single TOC operates both legs a 2 minute decrease in generalised journey time may be delivered through such timetable optimisation. In addition PDFH v5 indicates that, for longer distance flows, passengers greatly value a reliable connecting service – the journey is perceived as up to 20 minutes faster if the connection is guaranteed. Where a single TOC is involved such a guarantee can be more readily arranged, particularly if close working with Network Rail enables optimal sequencing of trains where late running does occur. These benefits represent maximum values which may not be wholly practical in all cases even within a single TOC, and in some cases could be possible even if the transfer is between TOCs. We have used this value as a 'high' estimate, and applied a factor of 50% to define a 'low' estimate.

- **Overlap between parallel services:** We have used the case study of potential service enhancements on Northern and Transpennine (see Chapter 3) to ascribe a possible valuation to reductions in passenger flows made on overlapping TOC services. This showed a potential passenger revenue value of around £5m / yr attributable to service optimisation between NT and TP. While these benefits would for the most part be facilitated by a unified TOC structure, it is quite possible that some of the benefits would be realisable even with two TOCs operating on the routes. We have therefore assumed a maximum benefit attributable to the TOC remapping of 50% of this value. The benefits have been assumed to be proportional to the number of passenger miles on flows which are moved from being shared between TOCs to being entirely served by a single TOC.

- **Station interfaces:** We provide analysis by TOC of the proportions of journeys starting or ending at a station where the SFO and station operator are different and this feeds into the potential VfM benefits of TOC mergers. PDFH v5 recommends that the maximum impact which passenger information aspects of the station environment may have on demand is around 11.2% for business and leisure passengers and 6.8% for commuters. The impact of a having single TOC as service operator and SFO is likely to be less than this maximum, and we have adopted the assumption that a maximum demand uplift of around 4% may be an appropriate target.

6.3.2 Potential passenger revenue impacts

The **maximum** potential passenger revenue impacts are shown in the table below. In some cases (see notes), these estimates are almost certainly over-optimistic, and so have been factored down in our overall appraisal of the possible financial impact. In all cases, we have also applied a further factor of 50% to represent a 'low' impact estimate.

	Overlap	Interchange	SFO
C2C+GA	1.0[1]	0.1	Nil
FCC+SN	7.7[2]	12.5[2]	2.6
LM(Elec)+WC;LM(Diesel)+Chi	2.3	1.5	1.9
TP(N)+XC;TP(WC)+NT; TP(S)+EMT	2.3	0.8	Small
TP(N)/XC+EC	3.5	1.3	2.2
Split NT	-0.2	-0.1	Small

Notes:

1. The 'Overlap' measure for C2C and Greater Anglia is largely attributable to the Southend – London flow, which is not a physical route overlap in the conventional sense. While this may offer some opportunities for optimisation, these are likely to be limited. We have assumed an actual maximum revenue benefit of half of this value.

2. The Thameslink (FCC+SN) figures represent the results of the standard assumptions (described above) relating to improved potential for service optimisation with reduced overlap / interchange between TOCs. However, in this case considerable effort has already been spent in optimising the proposed service following the completion of the Thameslink Project. The figure shown here should therefore probably be regarded as a long-term potential benefit arising from the ability of the TOC to re-optimise the combined Southern / Thameslink service pattern in the light of emerging market behaviour. In terms of an average medium-term figure, we have therefore halved these figures in the overall evaluation.

6.4 Operating cost effects

6.4.1 Appraisal assumptions

(a) Economies of Scale – Operational optimisation

In the absence of detailed analysis of potential options for operational optimisation, we have relied on broad guideline figures for possible cost savings. These are based on train service density effects (Section 6.1) and the Northern / Transpennine case study. The latter approach follows the same principles as the passenger revenue calculation: the study suggested a potential operating cost saving of around £15m / yr attributable to service optimisation between NT and TP. While these benefits would for the most part be facilitated by a unified TOC structure, it is quite possible that some of the benefits would be realisable even with two TOCs operating on the routes. We have therefore again assumed a maximum benefit attributable to the TOC remapping of 50% of this value, and assumed that the values are proportional to the number of passenger miles on flows which are moved from being shared between TOCs to being entirely served by a single TOC.

(b) Economies of scale – Fleet utilisation

One area where a specific operational efficiency cost saving has been defined is in the area of improved fleet utilisation where a larger fleet size permits a higher assumed fleet availability, enabling at least one unit to be released. Using the 2009/10 FGW ROSCO lease costs (from data provided by DfT), we have estimated HST lease costs at around £1m / year, giving a saving of £1m-£3m for releasing an HST set plus a spare power car and including maintenance.

(c) Economies of Scale – HQ

Directors and support staff:

- Number of directors based on the names quoted in "The Modern Railway" publication;
- Number of support staff estimated - assumed to be 1 or 2 less than the number of directors;
- Actual costs of c2c directors available from company accounts as published on "worksmart.org.uk" website. Costs of other directors calculated pro rata to number of directors;

- Support staff evaluated at average cost for company staff.

Reductions in HQ staff:

- Staff savings Estimated by department / activity and normally priced using average staff costs. Higher staff costs rates used where specific senior staff or posts with shift enhancement are involved.

Saving in office accommodation:

- Based on assumption of sq ft saved through reduction in staff priced at estimated cost per sq ft plus allowance for further efficiencies.

Redundancy costs:

- Redundancy payments of £25k are assumed for all staff displaced.

(d) Fewer Contracts

One off costs:

- Estimated saving for merged franchise needing only 1 Safety Case, Track Access, TSA (RSP agreement), Insurance policy and 1 set of many other contracts.

Ongoing costs:

- Ongoing savings for regular monitoring, reviewing and renewing only 1 set of contracts;
- Where the merging of franchises results in a reduction of station access charges between the TOC's estimated savings in the costs of calculating, agreeing, billing and processing station access charges have been included.

(e) DfT Franchise management costs

For each franchise eliminated a reduction of 2 staff from the DfT franchise management team is assumed (as suggested by DfT representative at meeting on 19.1.2011). A staff cost of £50k is assumed for each person.

(f) Reduction in refranchising costs

Industry costs for each franchise bid are assumed to be between £10m - £15m depending on the franchise size (DfT response to Reforming Rail Franchising consultation Jan 2011 para 4.6). The savings for C2C and TPE have been assumed to be between £10m - £11m; larger franchises are assumed to be £14m - £15m.

(g) Avoidance of pay inflation

Drivers' pay rates:

- The relative pay rates for drivers have been obtained from the ASLEF web site.
- Where franchises already have variable pay rates (as a result of previous franchise amalgamations) and where the merged staff are still likely to work on separate duties no assumption for pay inflation has been made.
- For Thameslink / Southern, where drivers will work over the same routes, an estimate of the financial effect of harmonising the basic pay rates has been included.
- No assessment has been included for harmonising the impacts of other pay and conditions – allowances overtime rates, leave entitlement etc.

Drivers numbers have been assumed based on the number of operations staff in the TOC. After an allowance for HQ ops staff the remainder are assumed to be drivers

(DOO) or half of them drivers (non DOO i.e. ops staff numbers includes drivers and guards). If TOC is partial DOO assumptions have been made accordingly.

(h) Fit with Franchise end dates

Where part of a proposed franchise merger does not fit with a franchise end date it is assumed that there will be a single tender negotiation with the existing franchisee to incorporate the new services. The costs of this are assumed to be £3,000k - £4,000k. This is based on a quarter of the cost for a competitive tender (£10m - £15m involving, on average, 4 bidders).

Where an existing franchise has to be split between two or more new owners the cost of the legal, operational and other work in preparing the disaggregation is assumed to be between £2m - £3m

(i) Staff pension scheme issues

While the overall rail industry pension fund is of course unaffected by franchise mapping considerations, the current arrangements whereby the overall fund is split into sections for each individual TOC does imply a requirement to make certain pension provisions where franchises are remapped.

Where there is no change to the franchise, the incoming franchisee will step into the shoes of the outgoing franchisee, becoming the Designated Employer in place of the outgoing franchisee. Employees will remain in the same section of the Railways Pension Scheme (RPS), as will the deferred pensioners and pensioners. This means that no adjustments to the pension funds are required.

Where one of more franchises merge, the new franchisee becomes the Designated Employer in place of the outgoing franchisee(s), and the RPS Scheme Rules expect a merger of the pension sections from day 1. In this case, there are a range of possible problems that may occur (e.g. different funding levels, different contribution rates, etc), for which the new franchisee becomes immediately liable.

Where a franchise is split, the RPS sections should be split in the same way, with one Designated Employer per section. This may result in multiple sections for a new franchisee initially, but these sections can be amalgamated with the consent of the Trustee. Since the Trustee is in favour of one section per franchise, this means that the same issues that need to be taken into account when franchises merge will also need to be taken into account here.

Experience suggests that changes to franchise mapping can imply a requirement for the new franchisee to make adjustments to the pension funds, with potential liabilities of say around £2m. While it can be argued that these top-up payments would probably be required in any case if there is any shortfall in the relevant pension funds, it is certainly the case that franchise remapping means that these liabilities need to be settled immediately. We understand that there are steps being taken to integrate the RPS sections to a greater extent so that movements between sections do not incur these difficulties. However, in the meantime, it is probably appropriate to make a provision of an additional £2m one-off cost associated with each TOC remapping.

6.4.2 Potential financial impacts

The tables below provide details of the estimates we have made regarding potential cost savings associated with the various franchise remapping options. Financial costs associated with splitting NT into East and West franchises have not been assessed in detail, but (given the current structure of the TOC and limited interfaces) are likely to relate almost entirely to one-off remapping costs, rather than ongoing costs.

(a) Merge C2C with Greater Anglia

Economies of scale - operational	Potential benefits arising from increased service density / reduced TOC overlap	No specific savings identified
Economies of scale - HQ	Elimination of staff costs for C2C directors + support staff	TOC Staff cost savings of £500k pa
	Reductions in staff by combining Headquarters functions and elimination of separate reporting requirements for c2c. Estimated between 5 – 10 staff	Financial benefit in lower range as both TOC's currently have same franchise owner and will already have achieved some efficiencies. TOC Staff cost savings between £200k - £400k pa
	Saving in office accommodation costs by merging headquarters	Rents, rates and service charges savings between £50k - £100k pa
	Redundancy costs for displaced staff	Once off additional redundancy cost for between 11 – 16 staff estimated as (£275k) – (£400k)
Fewer contracts	Reduction in contracting costs as only 1 Track Access, Safety Case, TSA and other contracts required for merged TOC	Once off saving in fees £40k - £65k Estimated as 1 – 2 posts saving £35 - £70k pa
Reduction in DfT Management	Savings in DfT franchise management / monitoring costs by elimination 1 franchise agreement – estimated 2 staff	DfT Staff Cost savings £100k pa
Reduction in refranchising costs	Reduced costs by eliminating one franchise bidding process (TOC bidding / DfT costs).	Industry cost savings £10,000k - £11,000k
	(Negative) Disentanglement from existing franchise (data) / migration costs.	No financial impact as this option is a complete merger of two existing franchises.
Avoidance of pension issues	*(Negative)* Need to change pension fund arrangements	Provision of £2m one-off payment.
Avoidance of pay inflation	Evidence shows that NXEA currently already has different pay rates for drivers inherited from different franchises – 2010/1 salaries £37,545 ex Anglia, £38,129 ex GE, £36,971 ex West Anglia all for 35 hrs ex Sunday. C2c drivers pay rate for 2009/10 is £38,911 for 37.5 hrs inc rostered Sundays	Risk factor for pay inflation appears low as NXEA currently operates different pay rates for the same grade. c2c drivers rates are broadly in line with current NXEA rates and staff would continue to work on separate diagrams reducing pressure for harmonisation.
Fit with franchise end dates	Existing c2c franchise has been extended to May 2013 Greater Anglia currently being re-tendered for 1 yr 6 months from Feb 2012 (end date Aug 2013)	No financial impact if combined franchise offered in 2013 on termination of existing franchises

(b) Merge Thameslink (FCC) with Southern (and retain GN residual routes)

Economies of scale - operational	Single control would facilitate operation of Southern & FCC services between London – Brighton and the introduction of new Thameslink services on former Southern Routes Separate existing Southern and Thameslink driver depots at Brighton could be merged Avoids the creation of additional Thameslink driver depots at Caterham, Horsham and Three Bridges for new Thameslink services as staff can be added to existing Southern traincrew depots. Potential service optimisation savings are substantial, based on service density measure and comparison with NT/TP case study.	Saving of 1 – 2 train planning staff and 1 – 2 posts in control equivalent to 3 – 6 staff for 24 hour cover. Staff Costs saving £185k - £370k pa Saving 1 depot manager and 1 admin post. Staff costs saving £70k Avoids one off cost of £450k - £900k for establishing 3 new driver depots and annual running costs of £75k - £150k for remote booking on facilities Service optimisation estimates range up to about £25m, but this includes other specified savings shown here, and (similar to revenue estimate) probably reflects long-term potential. A value of £5m-10m has been assumed.
Economies of scale - HQ	Elimination of staff costs for one set of directors + support staff	TOC Staff cost savings of £1.150k pa
	Reductions in staff by combining Headquarters functions and elimination of separate reporting requirements for 1 franchise. Estimated between 20 – 40 staff	Financial benefit in high range as both TOC's currently have different franchise owners and operations are closely connected. TOC Staff cost savings between £700k - £1,400k pa
	Saving in office accommodation costs by merging headquarters	Rents, rates and service charges savings between £150k - £300k pa
	Redundancy costs for displaced staff	Once off additional redundancy cost for between 39 – 64 staff estimated as (£975k) – (£1,600k)
Fewer contracts	Reduction in contracting costs as only 1 Track Access, Safety case, TSA and other contracts required for merged TOC. Also reduced costs for agreeing and invoicing station access charges between FCC & Southern	Once off saving in fees £40k - £65k Estimated as 1 – 2 posts saving £35k - £70k pa Estimated as 1 – 2 posts saving £35k - £70k
Reduction in DfT Management	Savings in DfT franchise management / monitoring costs by elimination 1 franchise agreement – estimated 2 staff	DfT Staff Cost savings £100k pa
Reduction in refranchising costs	Reduced costs by eliminating one franchise bidding process (TOC bidding and DfT costs).	Industry cost savings £14,000k - £15,000k
	(Negative) Disentanglement from existing franchise (data) / migration costs.	No financial impact for complete merger of the two existing franchises.
Avoidance of pension issues	*(Negative)* Need to change pension fund arrangements	Provision of £2m one-off payment.
Avoidance of pay inflation	Evidence shows that Thameslink drivers salary (2009/10 £39,978) is higher than Southern (2009/10 £38,785 and small number of ex Gatwick drivers £38,500) both for 35 hours excluding Sunday. Drivers work over the same routes and if based at the same depots there will be high risk of pressure for pay harmonisation. Some productivity benefits could come from flexible interchange of drivers.	Risk that harmonising pay rates for Southern drivers will be required is estimated between (£1,200k) and (£2,000k) per annum
Fit with franchise end dates	Existing Southern franchise ends in July 2015 with option to extend to July 2017 Existing First Capital Connect franchise ends in April 2015	No financial impact if combined franchise offered in 2015 on termination of existing franchises

(c) Split London Midland and merge with West Coast / Chiltern

Economies of scale - operational	Creation of unified operator for most services in southern part of WCML reducing interface costs Transferring Birmingham diesel services to Chiltern will merge diesel fleets providing opportunities for diagramming and maintenance efficiencies	Saving of 1 – 2 train planning staff and 1 – 2 posts in control equivalent to 3 – 6 staff for 24 hour cover. Staff Costs saving £185k - £370k pa Potential service optimisation savings estimated at £7.2m/yr, which gives total savings lower than the value implied from the service density analysis. Low estimate assumed £3.6m/yr.
Economies of scale – HQ	Elimination of staff costs for 6 LM directors + support staff	TOC Staff cost savings of £975k pa
	Reductions in staff by combining Headquarters functions and elimination of separate reporting requirements for 1 franchise. Estimated between 8 – 16 staff	Financial benefit in high range as both TOC's currently have different franchise owners and operations are closely connected. TOC Staff cost savings between £280k - £560k pa
	Saving in office accommodation costs by merging headquarters	Rents, rates and service charges savings between £75k - £100k pa
	Redundancy costs for displaced staff	Once off additional redundancy cost for between 23 – 31 staff estimated as (£575k) – (£775k)
Fewer contracts	Reduction in contracting costs as only 1 Track Access, Safety case, TSA and other contracts required for merged TOC. Also reduced costs for agreeing and invoicing station access charges between WC & LM	Once off saving in fees £40k - £65k Estimated as 1 – 2 posts saving £35k - £70k pa Estimated as 1 – 2 posts saving £35k - £70k
Reduction in DfT Management	Savings in DfT franchise management / monitoring costs by elimination 1 franchise agreement – estimated 2 staff	DfT Staff Cost savings £100k pa
Reduction in refranchising costs	Reduced costs by eliminating one franchise bidding process (TOC bidding and DfT costs).	Industry cost savings £12,000k - £13,000k
	(Negative) Disentanglement from existing franchise (data) / migration costs.	(£2,000k) – (£3,000k) costs to disaggregate existing LM franchise. (£3,000k) – (£4,000k) single tender costs to transfer services to existing WC franchise and (£3,000k) – (£4,000k) to transfer services to existing Chiltern franchise
Avoidance of pension issues	*(Negative)* Need to change pension fund arrangements	Provision of £2m one-off payment.

Avoidance of pay inflation	*(Negative)* Unions require all staff move to highest level London Midland ex Silverlink County driver's basic pay is £37,852 for a 35 hour week excluding Sunday West Coast driver's basic pay is £46,812 for a 35 hour week excluding Sundays London Midland ex Central driver's basic pay is £39,031 for a 35 hour week excluding Sundays Chiltern driver's basic pay is £41,962 for a 35 hour week excluding Sundays	Both existing WC and Chiltern franchises have only drivers pay rate. LM has 2 drivers pay rates inherited form previous franchises. The biggest differential is between XC and ex Silverlink County drivers (£9,000). Ex Silverlink drivers work different services and form a small proportion of total drivers so separate pay rates may be able to be maintained in the merged franchise. Chiltern drivers basic pay is around £2,000 more than ex Central drivers from LM. For this merger the driver numbers would be more equal and with the prospect of more interworking there could be pressure to harmonise pay rates estimated top cost between (£600k) – (£1,000k)
Fit with franchise end dates	West Coast is to be let in April 2012 for 14 years. Existing London Midland franchise ends in Sept 2015 Chiltern franchise ends in Dec 2021	In 2015 Negotiate with existing franchisees for West Coast and Chiltern to take on ex London Midland services

(d) Split TP and merge with XC / EM / NT

Economies of scale - operational	Service optimisation potential based on Northern case study.	Potential service optimisation savings estimated at £7.2m/yr, which gives total savings lower than the value implied from the service density analysis. Low estimate assumed £3.6m/yr.
Economies of scale - HQ	Elimination of staff costs for 6 TPE directors + support staff	TOC Staff cost savings of £950k pa
	Reductions in staff by combining Headquarters functions and elimination of separate reporting requirements for 1 franchise. Estimated between 8 – 16 staff	Financial benefit in medium range through absorption of smaller TOC controlled by a different franchise owner into a much larger TOC. TOC Staff cost savings between £280k - £560k pa
	Saving in office accommodation costs by merging headquarters	Rents, rates and service charges savings between £75k - £150k pa
	Redundancy costs for displaced staff	Once off additional redundancy cost for between 19 – 27 staff estimated as (£475k) – (£675k)
Fewer contracts	Reduction in contracting costs as only 1 Track Access, Safety case, TSA and other contracts required for merged TOC	Once off saving in fees £40k - £65k Estimated as 1 – 2 posts saving £35k - £70k pa
Reduction in DfT Management	Savings in DfT franchise management / monitoring costs by elimination 1 franchise agreement – estimated 2 staff	DfT Staff Cost savings £100k pa
Reduction in refranchising costs	Reduced costs by eliminating one franchise bidding process (TOC bidding / DfT costs).	Industry cost savings £10,000k - £11,000k
	(Negative) Disentanglement from existing franchise (data) / migration costs.	(£2,000k) – (£3,000k) costs to disaggregate existing TPE franchise. (£3,000k) – (£4,000k) single tender costs to transfer north TPE services to existing XC franchise and (£3,000k) – (£4,000k) to transfer south TPE services to existing EMT franchise
Avoidance of pension issues	*(Negative)* Need to change pension fund arrangements	Provision of £2m one-off payment.
Avoidance of pay inflation	Existing TPE driver's basic pay is £40,125 for a 35 hour week including Sundays Existing Northern west (ex FNW) driver's basic pay is £37,053 for a 35 hour week excluding Sundays Existing EMT driver's basic pay is £39,003 for a 35 hour week excluding Sundays Existing XC driver's basic pay is £48,723 for a 35 hour week excluding Sundays	TPE drivers earn slightly more than Northern and EMT but considerable less than XC drivers. Northern and EMT currently both have more than one set of driver's pay and conditions and should be able to continue with another set for ex TPE drivers. Assuming approx one third of TPE drivers transfer to XC the additional cost of harmonising their basic pay with XC drivers would be between (£950k) and (£1,300k)
Fit with franchise end dates	Existing TPE franchise ends in Dec 2012 with option for extension Existing Northern franchise ends in September 2013 Existing EMT franchise ends in April 2015 Existing Cross Country franchise ends in April 2016	Extend TPE franchise to 2013 then tender for merged franchise with Northern and negotiate with existing XC and EMT franchisees to transfer ex TPE services

(e) Merge XC / TP-N with East Coast

Economies of scale – operational	Merging these franchises would enable the combined HST fleets to be reduced by 1 unit Spare HST power cars could also be reduced by 1 if these franchises were merged	Benefits of reducing the HST fleet size by 1 set and 1 power car would be between £1,000k and £3,000k for lease and maintenance costs. Potential service optimisation savings estimated at £11m/yr, which gives total savings lower than the value implied from the service density analysis. Low estimate assumed £5.5m/yr.
Economies of scale - HQ	Elimination of staff costs for 6 directors + support staff	TOC Staff cost savings of £975k pa
	Reductions in staff by combining Headquarters functions and elimination of separate reporting requirements for 1 franchise. Estimated between 15 – 30 staff	Financial benefit in medium range as both TOC's currently have different franchise owners and operations more varied. TOC Staff cost savings between £525k - £1,050k pa
	Saving in office accommodation costs by merging headquarters	Rents, rates and service charges savings between £100k - £150k pa
	Redundancy costs for displaced staff	Once off additional redundancy cost for between 26 – 41 staff estimated as (£650k) – (£1,025k)
Fewer contracts	Reduction in contracting costs as only 1 Track Access, Safety case, TSA and other contracts required for merged TOC. Also reduced costs for agreeing and invoicing station access charges between XC & ECML	Once off saving in fees £40k - £65k Estimated as 1 – 2 posts saving £35k - £70k pa Estimated as 1 – 2 posts saving £35k - £70k
Reduction in DfT Management	Savings in DfT franchise management / monitoring costs by elimination 1 franchise agreement – estimated 2 staff	DfT Staff Cost savings £100k pa
Reduction in refranchising costs	Reduced costs by eliminating one franchise bidding process (TOC bidding and DfT costs).	Industry cost savings £14,000k - £15,000k
	(Negative) Disentanglement from existing franchise (data) / migration costs.	
Avoidance of pension issues	*(Negative)* Need to change pension fund arrangements	Provision of £2m one-off payment.
Avoidance of pay inflation	*(Negative)* Unions require all staff move to highest level . XC 2009/10 drivers basic pay is £48,723 for a 35 hour week excluding Sundays. East Coast drivers basic is £47,939 for 35 hour week including Sundays	The pay rates for XC and ECML drivers are broadly comparable so there should be no additional cost on merging the franchises
Fit with franchise end dates	East Coast Mainline franchise to be retendered in late 2012. Existing Cross country franchise ends in April 2016	ITT for 15 year East Cost Mainline franchise to be issued in late 2012 to include taking over the XC services in 2016 when the XC franchise ends

6.5 Overall appraisal

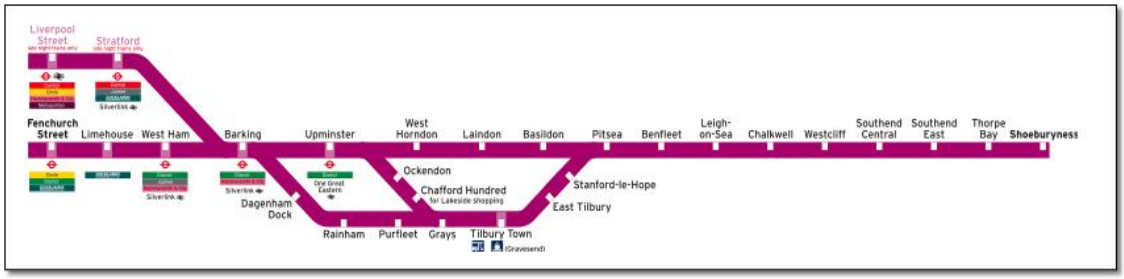
The overall potential financial effects, covering both increased passenger revenue and reduced operating costs, are shown in the table below. These are indicative figures, with the 'high estimate' representing the maximum plausible financial impact which could potentially be attributable to franchise remapping. Bearing in mind the potential for unidentified issues and costs associated with these maximum potential benefits, the 'low estimate' figures are probably more realistic. On this basis, the possible financial benefits associated with franchise remapping could be in the region of £40m / year.

£ million / year	High Estimate		Low Estimate	
	Revenue	Cost Saving	Revenue	Cost Saving
C2C+GA	0.6	1.7	0.3	1.3
FCC+SN	12.7	13.3	6.3	6.2
LM(Elec)+WC;LM(Diesel)+Chi	5.7	8.9	2.9	4.1
TP(N)+XC;TP(WC)+NT; TP(S)+EMT	3.1	8.1	1.6	3.5
TP(N)+XC+EC	7.0	17.2	3.5	8.9
NT	-0.3	-0.5	-0.5	-0.5
Total Indicative Scope of Financial Benefit Potential	28.8	48.7	14.0	23.5

APPENDIX A DETAILS OF CURRENT FRANCHISES

C2C (CC)

Franchise Map



Source: c2c Rail www.c2c-online.co.uk/destinations/stations_and_route_map

Franchise Facts

C2C (CC)	
Franchisee	National Express Group
Franchise Expires	Dec 2012 – option to May 2013
Passenger Journeys (2009/10)	24,936k
Services	• Fenchurch Street – Shoeburyness via Laindon, Ockendon and Dagenham Dock
Train Miles (2010)	4,025k
Resources	EMU: • Class 357 4 Car: 74
Vehicle Miles (2010)	21,629k
Rolling Stock Depots	East Ham
Traincrew Depots	East Ham, Shoeburyness
Franchise Overlaps	None normally, however frequent diversions to Liverpool Street during engineering work involving interface with LE
Major Schemes	None

Passenger Interfaces

The passenger base is very largely self-contained within the CC franchise. The business is dominated by commuting from the Southend Borough and the Thameside suburbs in to Central London.

Only 5% of passenger journeys and 9% of passenger miles are on flows shared with other TOCs. These shared flows are primarily with LE (79% of shared journey flows and 83% of shared flow passenger miles).

Key flows shared include the Southend – London BR flow being jointly served with LE at Southend Victoria, and various Romford – CC station flows interchanging with Greater Anglia at Upminster.

Operational Interfaces and Resources

The CC franchise has no physical interfaces with any other TOCs in normal day to day operations. As shown in the franchise route map above, a link exists between Barking and Liverpool Street which has in the past been used for regular services late at night and on weekends. In recent years use of this link has, however, been limited to engineering work diversions.

The rolling stock used is a homogenous fleet of class 357 units which are maintained at East Ham. Approximately half the fleet is diagrammed to be stabled overnight at East Ham which facilitates ease of maintenance on individual units as required. The remainder of the fleet is stabled at Shoeburyness.

Alignment with NR is good as the entire franchise network is located in the East Anglia Operating Route, although this is dominated in scale by the LE TOC. Signalling control for the complete route is by means of the Integrated Control at Upminster.

Franchise Options

Option	Description
CC0	Unchanged
CC1	Merge into LE TOC, as a route business unit

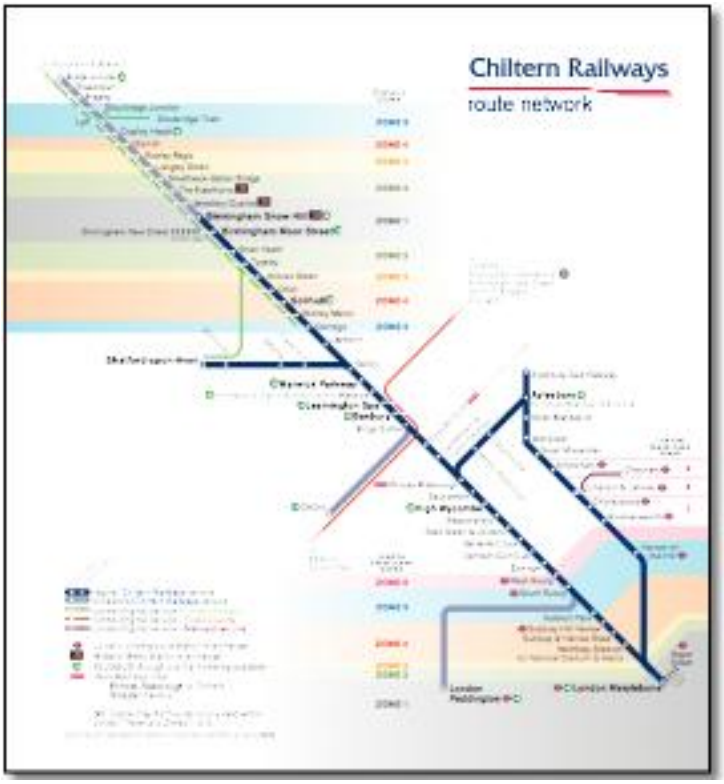
The existing franchise is due to expire in December 2012. The amalgamation of CC with the neighbouring LE TOC could help to ensure that cost efficiency and synergy benefits are optimised. It is notable that these two TOCs have been operated by the same franchise operator for some time (formally Prism and now National Express). To some degree this may have been possible in the current franchise with the franchisee also being responsible for LE.

Operationally all routes are within NR's East Anglia route which makes for a good fit. Adjacent AC electrified networks also mean that there would be opportunities for the optimisation of rolling stock deployment by route. For example, the class 357 fleet is of a relatively high quality, particularly when compared with the more basically equipped classes 317 and 321 employed on LE routes. Some or all of the class 357 fleet might better be employed on longer distance LE routes supplementing the class 360 units on, for example, services to Clacton, Ipswich and possibly Norwich in the peaks.

Amalgamation would also facilitate optimisation of services into Liverpool Street during engineering works and ease future development of through services between Liverpool Street, Stratford and Barking and key North Thameside stations such as Basildon, Chafford Hundred and Southend.

Chiltern Railways (CH)

Franchise Map



Source: Chiltern Railways http://www.chilternrailways.co.uk/routes-and-destinations/our-routes

Franchise Facts

Chiltern Railways (CH)	
Franchisee	DB Regio
Franchise Expires	Dec 2021
Passenger Journeys	12,537k
Services	• Marylebone – Aylesbury • Marylebone – Gerrards Cross, High Wycombe, Bicester, Banbury, Birmingham Snow Hill, Kidderminster • Marylebone – Stratford-on-Avon
Train Miles	5,988k
Resources	DMU: • Class 165 2 car: 28 • Class 165 3 car: 11 • Class 168 3 car: 9 • Class 168 4 car: 10
Vehicle Miles	20,281k
Rolling Stock Depots	Aylesbury, Wembley, Stourbridge
Traincrew Depots	Marylebone, Aylesbury, Banbury, Birmingham, Stourbridge Jn
Franchise Overlaps	• Banbury – Leamington: LM and XC • Leamington – Kidderminster: LM • Bearley – Stratford: LM
Major Schemes	Evergreen 3, completion in 2013

Franchise Interfaces Map

Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

CH
LM
Open Access

Passenger interfaces

The majority of the passenger market for Chiltern is outer-suburban commuting and leisure journeys into Central London. Chiltern have also developed longer distance markets from Warwickshire and the West Midlands into Marylebone. The TOC also plays a part in provision for peak commuting into Central Birmingham on the Snow Hill line. 16% of passenger journeys and 18% of passenger miles are on flows shared with other TOCs. These shared flows are primarily with LM (40%), VT (24%), and XC (20%).

Key flows shared include Birmingham – London shared primarily with VT, and Birmingham flows from stations on the route between Leamington and Kidderminster that are primarily shared with LM, and also Leamington flows shared with XC.

Operational Interfaces and Resources

The core CH franchise area comprises the routes from Marylebone to Aylesbury and Banbury which are not shared with any other franchised operators other than the section from Aynho Junction to Banbury itself. The Aylesbury route is shared with London Underground Metropolitan line services between Harrow-on-the-Hill and Amersham and the service to London provided at certain stations such as Rickmansworth and Amersham is jointly provided by the two operators.

As can be seen from the Interfaces Map above, the Aynho Jn to Banbury section is shared with XC (2tph) and GW (irregular) services. Beyond Banbury Chiltern generally operate 2tph to Birmingham and 1/2 tph to Stratford-upon-Avon over routes which are shared with 2tph XC to Leamington Spa (1tph onwards to Bordesley). Beyond Dorridge LM operates local services at 3tph, joined at Tyseley by a further 3tph from the Stratford route. Beyond Tyseley four tracks are provided and the 1tph XC services are able to run segregated from LM and CH over the main lines.

The route through Birmingham Snow Hill route sees high levels of utilisation and the terminal platforms at Moor Street are due to be re-commissioned for the December 2010 timetable change when they will be used by some CH services, thereby reducing pressure on the Moor Street to Snow Hill section.

The entire CH franchise area is within NR's London North Western Route and operational control of the majority of the core franchise area is provided by the Marylebone IECC. With the exception of the Banbury and Leamington areas, the remainder of the routes are now controlled by NR's West Midlands signalling centre at Saltley.

Franchise Options

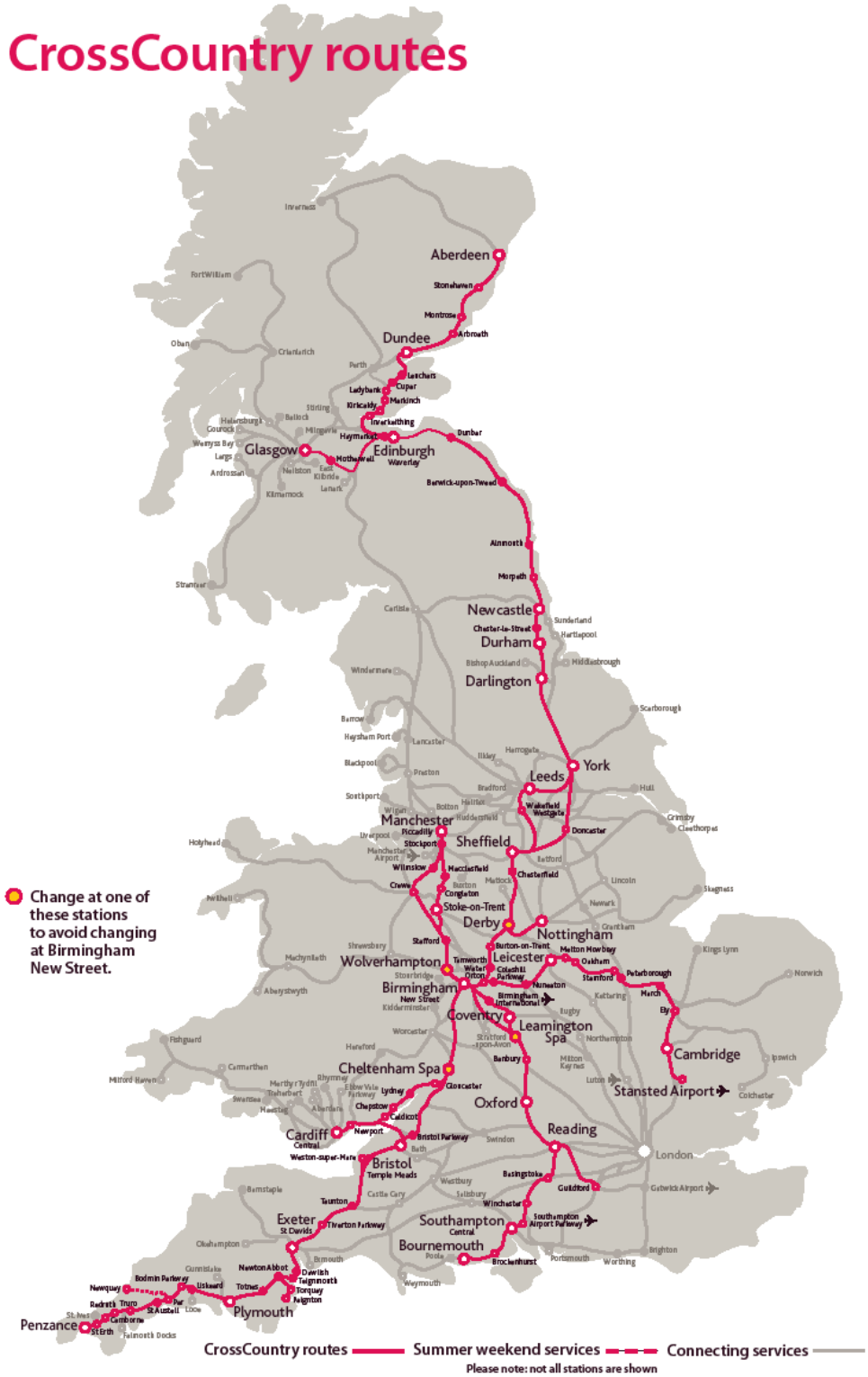
To absorb all or the Snow Hill suburban/ diesel route part of LM franchise in to the Chiltern franchise would remove the existing interfaces between Dorridge and Birmingham Snow Hill (and to Kidderminster in peak periods) and would facilitate development of an optimised service on that critical corridor, particularly in the Moor Street and Snow Hill area. Further synergies are likely from the combination of traincrew depots in the Birmingham area along with some streamlining of stabling facilities between the two operators. For example LM's major depot is at Tyseley whereas CH has developed its own separate facilities at Stourbridge Jn and at Moor Street.

The Chiltern franchise is not expected to come up for replacement until 2021 and therefore it is assumed that a Chiltern franchise will remain in place at least until then.

The potential options identified for remapping all or part of the LM franchise are considered in Section 3.9 of this report.

Cross Country (XC)

Franchise Map

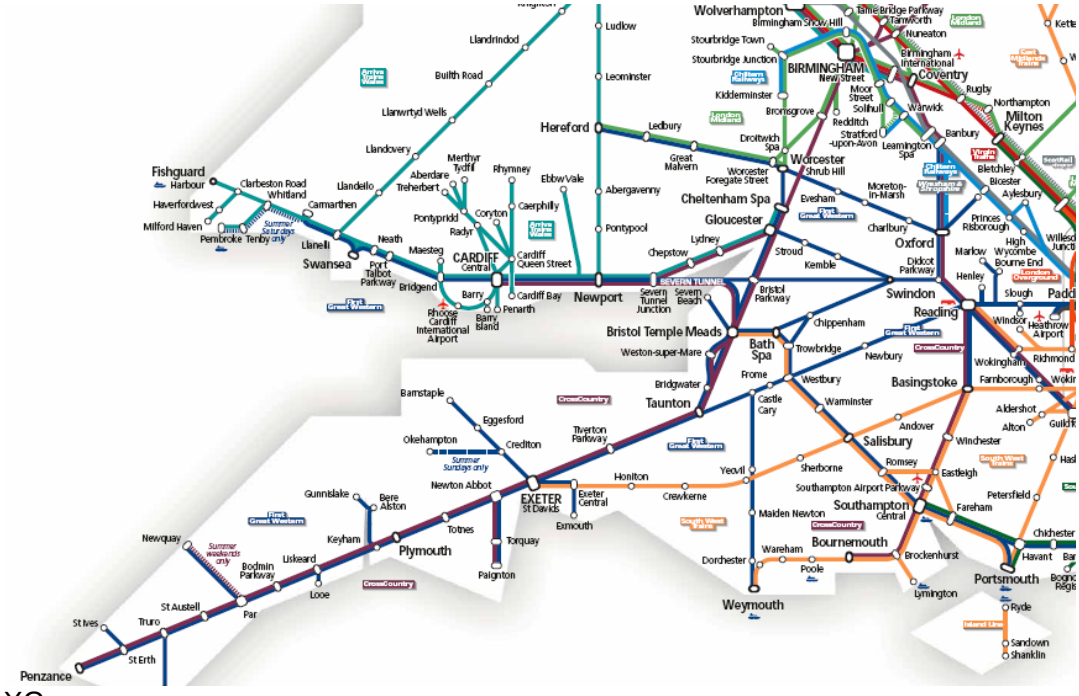


Source: Cross Country
www.crosscountrytrains.co.uk/SiteImages/Assets/3/CrossCountry_Route_Map.pdf

Franchise Facts

Cross Country (XC)	
Franchisee	Arriva
Franchise Expires	April 2016
Passenger Journeys	22,418k
Services	• Reading - Newcastle • Bournemouth – Manchester • Bristol - Manchester • Plymouth – Edinburgh • Nottingham – Cardiff • Birmingham – Stansted Penzance, Paignton, Guildford, Glasgow, Dundee and Aberdeen also served by at least one train per day through extensions of services on core routes
Train Miles	20,063k
Resources	DMU: • Class 170 2 car: 7 • Class 170 3 car: 10 • Class 220 4 car: 34 • Class 221 4 car: 1 • Class 221 5 car: 22 • HST 2+8: 11
Vehicle Miles	87,074k
Rolling Stock Depots	Central Rivers
Traincrew Depots	Penzance, Plymouth, Bristol, Bournemouth, Birmingham, Derby, Manchester, Newcastle, Edinburgh
Franchise Overlaps	XC overlaps with other franchises on all routes with the exception of Birmingham to Derby and Leicester
Major Schemes	None

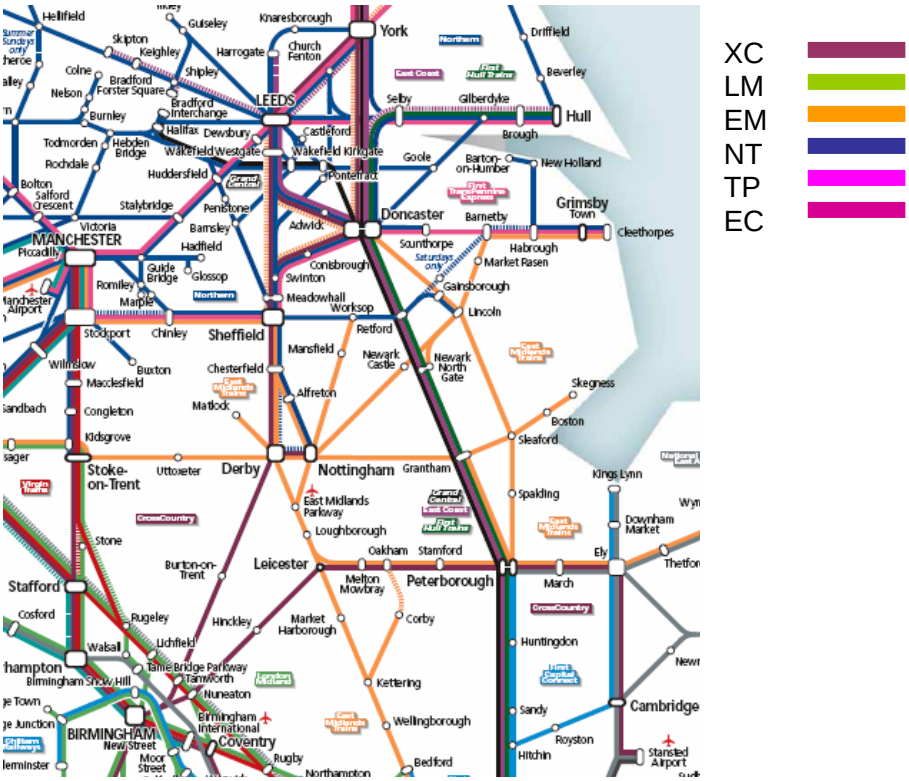
Franchise Interface Map – South and West



XC
GW
SW
AW
LM

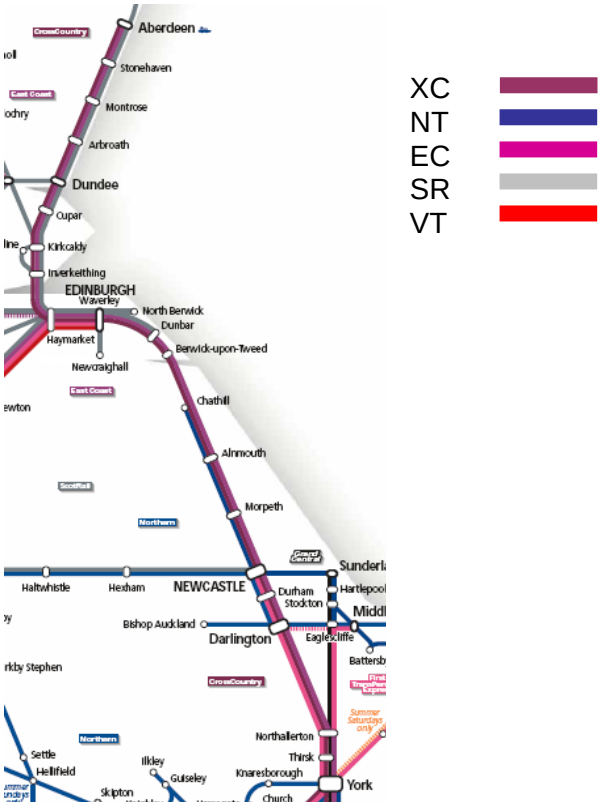
Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Franchise Interface Map – Midlands and Eastern England



Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Franchise Interface Map – North East and Scotland



Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Passenger interfaces

In addition to longer distance intercity travel to, from and crossing Birmingham, much of the TOCs passenger base are making relatively short distance journeys between adjacent cities / towns. The majority of XC passengers travel on flows shared with other TOCs. 66% of passenger journeys and 52% of passenger miles are on jointly served flows.

The shared journey flows are with a relatively wide range of TOCs including GW (20%), LM (12%), EC (11%) and EM (11%), VT (9%), and NT (9%), SW (7%) and TP (7%).

The 30 top shared journey flows include a geographically dispersed range of relatively shorter distance flows serving key urban centres:

From	To
DURHAM	NEWCASTLE
SHEFFIELD	LEEDS
LEAMINGTON SPA	BIRMINGHAM BR
ELY(CAMB)	CAMBRIDGE
YORK	LEEDS
LEEDS	SHEFFIELD
NEWCASTLE	DURHAM
WOLVERHAMPTON	BIRMINGHAM BR
STAFFORD	BIRMINGHAM BR
DARLINGTON	NEWCASTLE
TAUNTON	BRISTOL TEMPLE MEADS
COVENTRY	BIRMINGHAM BR
OXFORD	READING BR
READING BR	OXFORD
MACCLESFIELD	MANCHESTER BR
BRISTOL PARKWAY	BRISTOL TEMPLE MEADS
DUNBAR	EDINBURGH
CHESTERFIELD	SHEFFIELD
SOUTHAMPTON CENTRAL	WINCHESTER
CAMBRIDGE	STANSTED AIRPORT
DERBY	NOTTINGHAM
BASINGSTOKE	READING BR
LEEDS	YORK
NEWPORT (SOUTH WALES)	CARDIFF BR
STANSTED AIRPORT	CAMBRIDGE
STOCKPORT	MANCHESTER BR
LONG EATON	NOTTINGHAM
NEWCASTLE	YORK
NEWCASTLE	LEEDS
NOTTINGHAM	DERBY

Operational Interfaces and Resources

Cross Country operates over a vast geographical area stretching from Penzance and Bournemouth in the south to Edinburgh and Aberdeen in the north and to Stansted Airport in the east. Birmingham New Street is the hub of the network and is served by all services. As can be seen from the Overlap Maps above, XC services share routes with other operators in all cases other than the sections between Birmingham and Leicester and Derby where they are the sole passenger operator.

Principal interfaces are with GW south of Cheltenham, LM in the Birmingham area, EM in the East Midlands, EC and TP on the ECML north of Doncaster and SR in Scotland.

Rolling stock comprises the principal fleet of class 220/1 Voyager units supplemented by a small number of HST sets along with a class 170 fleet used on the former regional routes between Birmingham and Cardiff and Stansted Airport.

Recent timetable changes have seen XC eliminated from the WCML other than for services operating over the Birmingham to Manchester axis. The May 2011 timetable change will see the extension of XC services from Edinburgh to Glasgow via Carstairs as replacements for almost all existing EC services operating over that route.

In terms of NR routes, XC operates over seven of the nine and in particular over London North Eastern, Midland and Continental, London North Western and Western.

Franchise Options

Option	Description
XC0	Unchanged
XC1	Merge with EM
XC2	Merge with EC
XC3	Merge with TP

The existing franchise is due to expire in November 2013 as is the EM franchise. The EC franchise re-letting could be timed to coincide with XC re-letting, whereas the TP franchise expires in January 2012.

The rolling stock used by XC has much in common with the EM inter city fleet. i.e. both operators employ class 220/221/222 Voyager and HST sets. Geographically, there is a good deal of interface between the two operators in the Derby and Sheffield areas, the latter being the hub of the EM operation and a principal station for XC.

The ECML is now the sole XC route to Scotland and XC generally operates 2tph over it from Doncaster / York to Newcastle and 1tph onwards to Edinburgh. If XC was part of the EC franchise then a good deal of interface on the ECML would be removed thereby facilitating an improved and optimised timetable that would also promote improved operational performance, a key issue for EC currently. Both operators employ HST fleets and potential synergies exist in terms of maintenance provision and fleet deployment. There may well also be opportunities through the employment of class 220/1 sets on some more lightly loaded EC services or the combination of services by means of limited portion working.

Many TP routes and services display similar features to those of XC. i.e. high volume non-London inter-urban journeys such as Manchester to Sheffield and Manchester to Leeds. Both operators have a significant presence on the ECML north of York. Whilst the fleets are different, some optimisation in terms of train length and seating capacities might be possible to achieve.

East Coast (EC)

Franchise Map

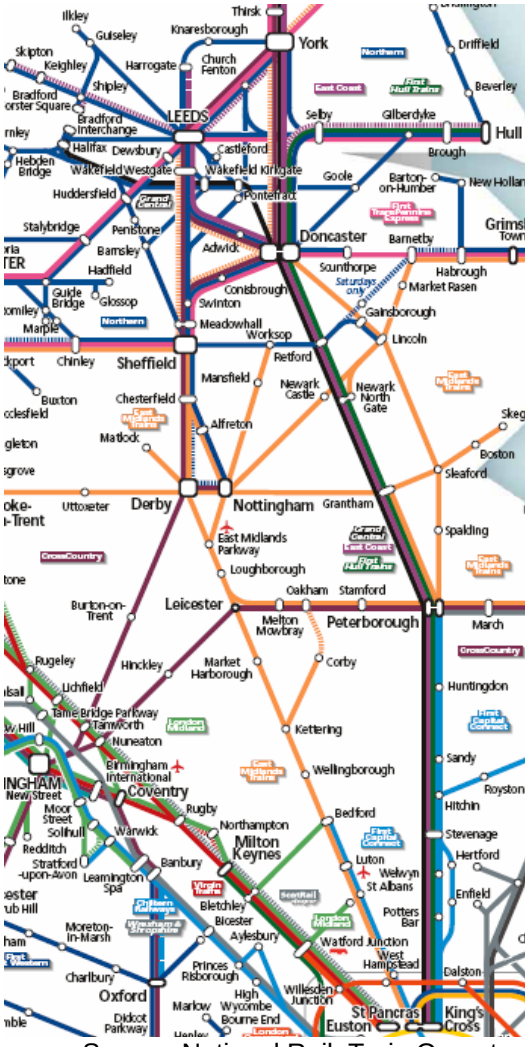
Source: East Coast www.eastcoast.co.uk/Documents/PDFs/Route%20Map_220311.pdf

Franchise Facts

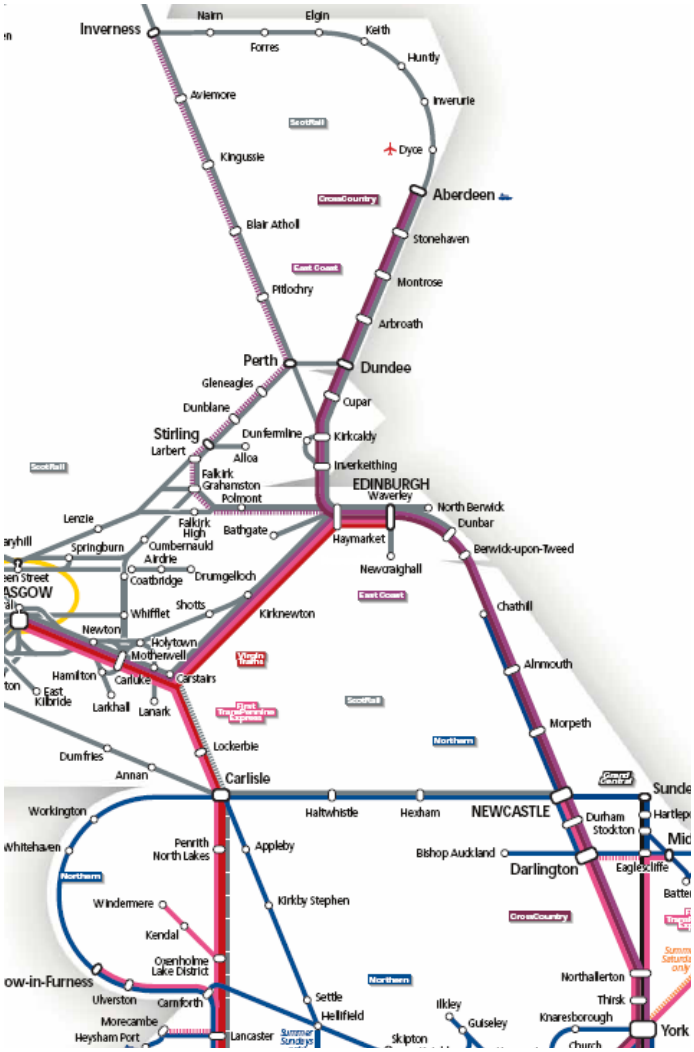
East Coast (EC)	
Franchisee	Operated by DOR
Franchise Expires	June 2012
Passenger Journeys	14,535k
Services	• Kings Cross – Leeds • Kings Cross – Newcastle, Edinburgh, Glasgow Peak only services also serve Hull, Harrogate, Bradford and Skipton. Aberdeen and Inverness also served by at least one train per day through extensions of services on core routes.
Train Miles	12,475k
Resources	Diesel: • HST 2+9:13 Electric • Mk4 2+9: 30
Vehicle Miles	37,717k
Rolling Stock Depots	Bounds Green, Neville Hill, Craigentinny
Traincrew Depots	Kings Cross, Doncaster, Leeds, Newcastle, Edinburgh
Franchise Overlaps	EC overlaps with other franchises on all routes
Major Schemes	None

Franchise Interface Maps –

London to Yorkshire and Humberside



North East and Scotland



Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

EC
TP
NT
SR
VT

Passenger Interfaces

The majority of East Coast passengers travel on flows now shared with other TOCs. 67% of passenger journeys and 47% of passenger miles are on jointly served flows These shared journey flows are with a range of TOCs principally XC (20%), FC (16%), NT (13%), and importantly “Other” (33%). This “Other” category includes the non DfT managed TOCs including open access operators and Scotrail.

The 30 top shared journey flows include some key London flows shared with open access operators and with FC in the case of Peterborough. :

From	To
PETERBOROUGH	LONDON BR
YORK	LONDON BR
LONDON BR	YORK
GRANTHAM	LONDON BR
DONCASTER	LONDON BR
LONDON BR	PETERBOROUGH
DURHAM	NEWCASTLE
STEVENAGE	LONDON BR
NEWCASTLE	EDINBURGH
EDINBURGH	NEWCASTLE
LONDON BR	DONCASTER
DARLINGTON	NEWCASTLE
DUNBAR	EDINBURGH
WAKEFIELD BR	LEEDS
DONCASTER	LEEDS
NEWCASTLE	YORK
LONDON BR	GRANTHAM
MOTHERWELL	EDINBURGH
YORK	NEWCASTLE
DONCASTER	YORK
BERWICK-UPON-TWEED	EDINBURGH
YORK	EDINBURGH
ABERDEEN	EDINBURGH
NEWCASTLE	DURHAM
GLASGOW BR	NEWCASTLE
EDINBURGH	YORK
NEWCASTLE	GLASGOW BR
HARROGATE	LONDON BR
LEEDS	WAKEFIELD BR
RETFORD	LONDON BR

Operational Interfaces and Resources

The core EC routes are from Kings Cross to Leeds and Edinburgh via the ECML. A number of ancilliary destinations such as Bradford, Skipton, Aberdeen and Inverness are also served by limited services by the extension of core services. A peak only additional service is also provided to and from Hull.

All routes operated are shared with other operators and therefore interface issues are complex in a number of areas. Interface particularly manifests itself at a number of locations where there are particular infrastructure constraints or where competition is leading to a sub-optimal use of capacity. Examples on the ECML include:

- Kings Cross platform capacity shared with FC and open access operators;
- Welwyn viaduct 2-track section and competing needs of EC and FC services;
- Hitchin flat junction and pathing of FC services to the Cambridge line;
- 2/3 track sections between Huntington and Peterborough and competing needs of EC and FC services;
- Peterborough platform capacity and competing needs of EC, FC, EM and LE services;
- Newark flat crossing and Doncaster station and the difficulties involved in pathing EM and NT services across the ECML; and
- Drem – Edinburgh section where frequent local North Berwick to Edinburgh services need to be fitted with EC services.

In terms of NR interface, all EC services are limited to the London North Eastern and Scotland routes.

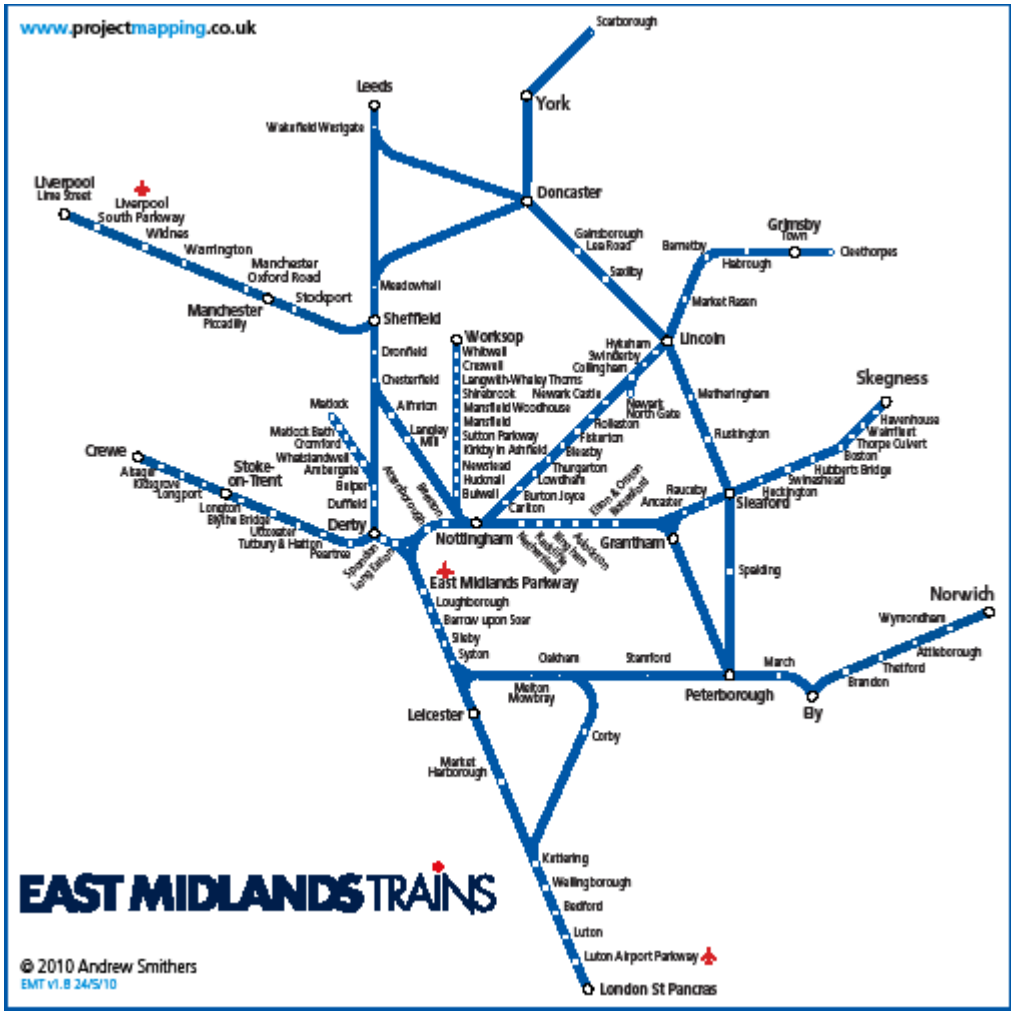
Rolling stock employed is principally the unique electric class 91 powered mark 4 sets supplemented by HSTs on services that operate off the electrified network. The need to diagram HSTs on particular services leads to some inefficiencies in turnrounds, particularly at Kings Cross where platform capacity constraints can become acute in the peaks periods.

Franchise Options

Options involving the addition of services to EC are discussed in the respective sections of the report.

East Midlands Trains (EM)

Franchise Map



Source: East Midlands Trains:
www.eastmidlandstrains.co.uk/YourDestinations/pages/ournetworkandstations.aspx

Franchise Facts

East Midlands Trains (EM)	
Franchisee	Stagecoach Group
Franchise Expires	April 2015
Passenger Journeys	17,220k
Services	• St Pancras – Corby, Nottingham, Sheffield • Norwich - Liverpool • Derby – Crewe • Nottingham – Matlock • Nottingham – Worksop • Nottingham – Skegness • Peterborough – Lincoln – Doncaster • Newark – Grimsby • Leicester – Lincoln Leeds is served in the peaks by the extension of services on the core routes
Train Miles	13,506k
Resources	DMU: • Class 153 1 car: 17 • Class 156 2 car: 11 • Class 158 2 car: 14 • Class 222 4 car: 4 • Class 222 5 car: 17 • Class 222 7 car: 6
Vehicle Miles	65,590k
Rolling Stock Depots	Derby, Nottingham
Traincrew Depots	St Pancras, Derby, Nottingham, Lincoln, Boston, Norwich
Franchise Overlaps	• St Pancras – Bedford: FC • Peterborough – Grantham: EC • Leicester – Peterborough: XC • Peterborough – Ely: XC, LE • Ely – Norwich: LE • Barnetby – Grimsby: TP, NT • Lincoln – Gainsborough: NT • Derby – Nottingham: XC • Derby – Chesterfield: XC • Chesterfield – Sheffield: XC, NT • Sheffield – Stockport: TP, NT • Stockport – Manchester: TP, NT, AW, VT • Manchester – Liverpool South: TP, NT • Liverpool South – Lime St: TP, NT, LM, VT • Stoke – Crewe: LM
Major Schemes	None

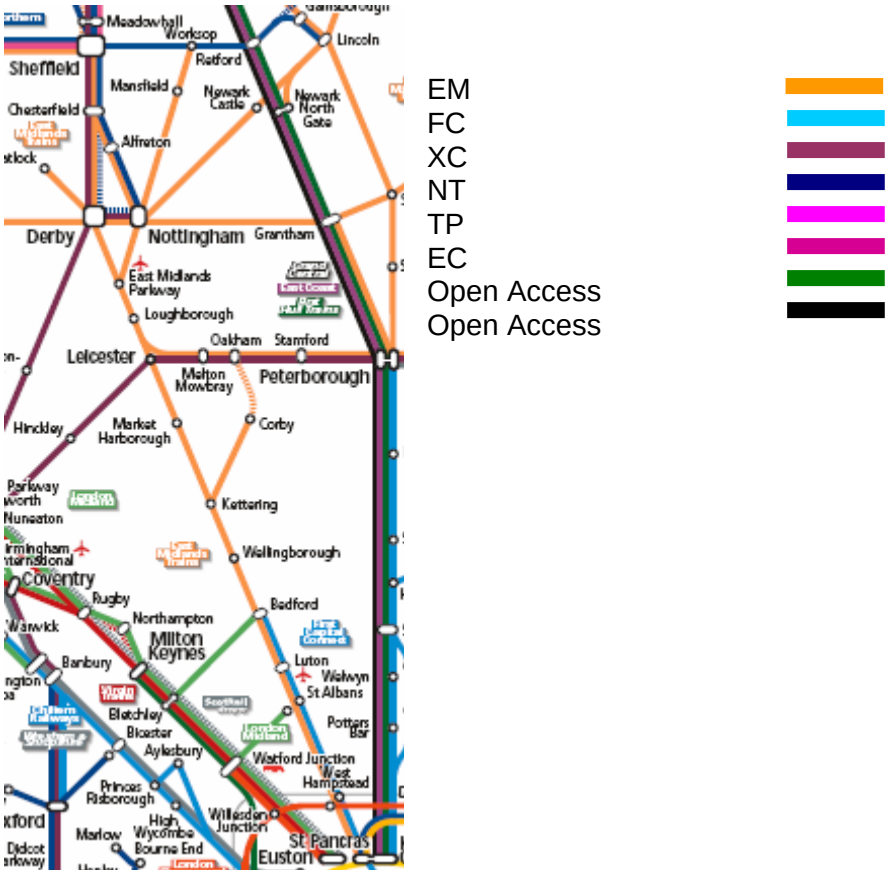
Franchise Interface Maps – South Trans Pennine

Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Franchise Interface Maps – East Midlands and Lincolnshire

Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Franchise Interface Maps – Midland Main Line



Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Passenger Interfaces

A large proportion of EMT passengers travel on flows shared with other TOCs. 40% of passenger journeys and 27% of passenger miles are on jointly served flows

These shared journey flows are with a range of TOCs principally:

- FC (26%) including Luton and Bedford flows,
- XC (22%) including Sheffield and Derby local inter-urban flows
- NT (16%), including flows north of Nottingham and
- TP (14%) including flows on the Sheffield –Liverpool route.

The 30 top shared journey flows include

From	To
BEDFORD BR	LONDON BR
LUTON	LONDON BR
LONDON BR	SHEFFIELD
LUTON AIRPORT	LONDON BR
WARRINGTON BR	MANCHESTER BR
CHESTERFIELD	SHEFFIELD
LIVERPOOL BR	MANCHESTER BR
LONDON BR	BEDFORD BR
MANCHESTER BR	LIVERPOOL BR
SHEFFIELD	MANCHESTER BR
LONDON BR	LUTON
MANCHESTER BR	SHEFFIELD
LONDON BR	LUTON AIRPORT
LONG EATON	NOTTINGHAM
WARRINGTON BR	LIVERPOOL BR
NOTTINGHAM	SHEFFIELD
BEESTON	NOTTINGHAM
SHEFFIELD	NOTTINGHAM
SHEFFIELD	CHESTERFIELD
MANCHESTER BR	WARRINGTON BR
STOCKPORT	MANCHESTER BR
SHEFFIELD	LIVERPOOL BR
LONG EATON	DERBY
WIDNES	MANCHESTER BR
THETFORD	NORWICH
WIDNES	LIVERPOOL BR
LONDON BR	LINCOLN
LINCOLN	LONDON BR
BEDFORD BR	LUTON
LUTON	BEDFORD BR

Operational Interfaces and Resources

EM consists of three distinct networks i.e. the inter city services operating over the Midland Main Line, regional services in the East Midlands and Lincolnshire, and the regional inter-urban route between Liverpool and Norwich. As can be seen by the previous Overlap Maps, EM is the sole franchised operator on a number of routes, particularly in the case of the MML between Bedford and Derby and much of the regional network.

On the MML between St Pancras and Bedford there is significant interface with FC services. Whilst this is a 4-track railway there is the need for the 4tph Bedford to Brighton services to operate over parts of the fast lines (particularly south of Radlett) to enable them to overtake the 4tph stopping services from Luton / St Albans.

In the East Midlands and Lincolnshire particular areas of interface include the sections between:

- Derby and Sheffield shared with XC (and NT north of Chesterfield);
- Barnetby to Grimsby / Cleethorpes shared with TP (and NT beyond Habrough); and
- Leicester to Norwich shared with XC and LE.

A particularly difficult service in terms of interface is the EM cross country route from Norwich to Liverpool which other than the Grantham to Nottingham section operates over routes shared with a large number of operators: LE, XC, EC, TP, NT, AW and WC. This was particularly highlighted in a previous report which suggested splitting it at Nottingham with the route to the west transferred to either TP or enlarged NT TOC.

The rolling stock employed is dedicated to the two distinct operations with class 222 Meridians and HSTs on the MML route and a mix of class 153, 156 and 158 units on the regional routes.

Whilst the majority of services fall within NR's Midlands and Continental Route, EM services also operate over London North Eastern, Anglia and London North Western. The latter NR Operating routes, however, solely relate to EM's Norwich to Liverpool services.

Franchise Options

The option to merge XC with EM is set out in the XC section of this report.

Option	Description
EM0	Unchanged
EM1	Merge with EC
EM2	Extract Norwich-Liverpool services from EM, either a) transfer the whole of the service group into TP, or alternatively b) split the through services, e.g. at Nottingham, and transfer the western section of the route to TP, and the eastern section to LE.

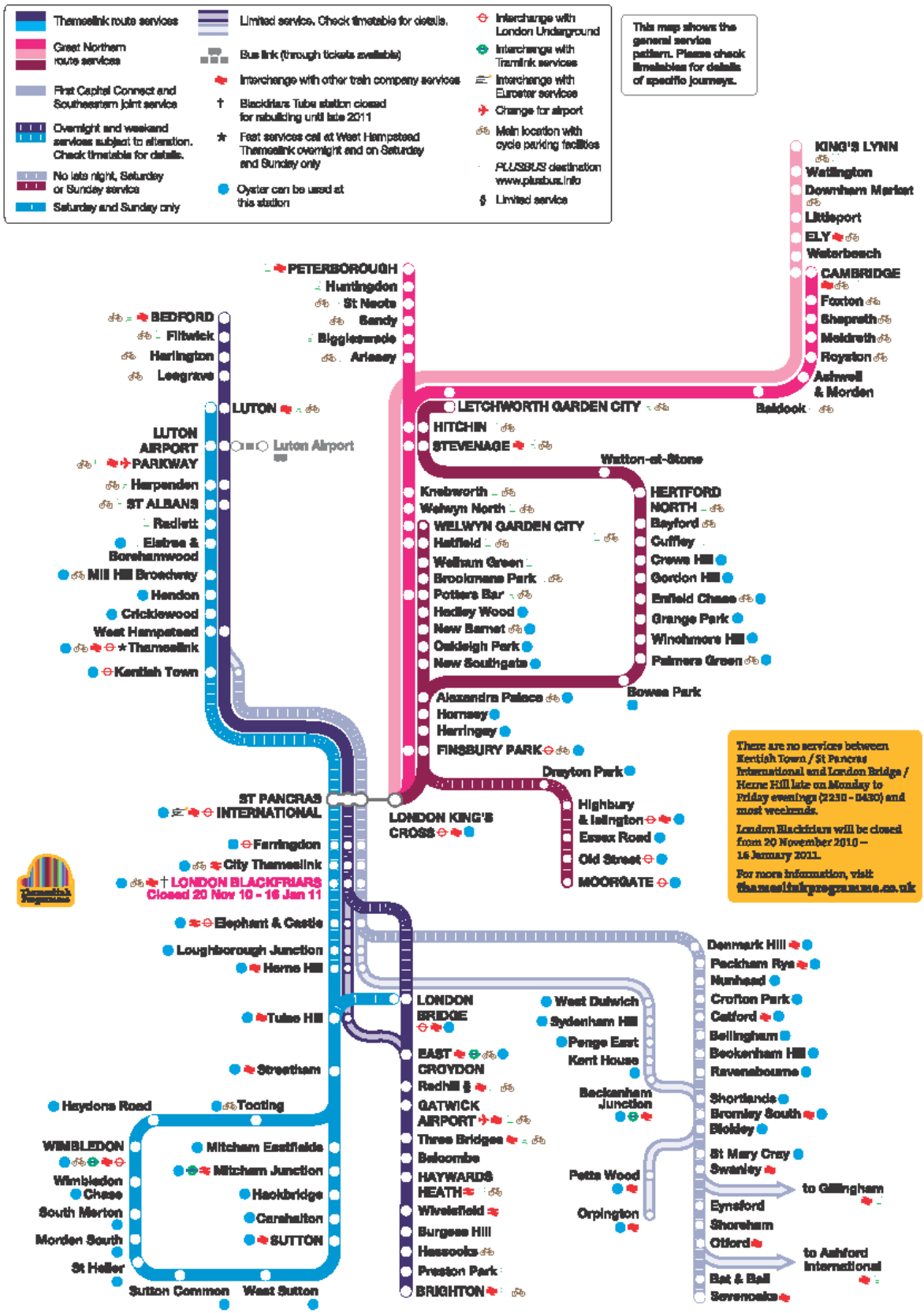
The regional services have a good deal of interface with both the MML services operated by EM and the ECML services operated by EC, providing a number of key connections. For example EM services from Lincoln connect with EC at Newark and those from Boston and Skegness at Grantham. The same services also provide connections with the MML at Nottingham from a number of intermediate stations.

EM services along the “Joint Line” between Peterborough and Doncaster feed in and out of the ECML at both ends. This is also a key diversionary route for the ECML during engineering works. Both EM and EC employ HST sets and potential synergies exist in terms of maintenance arrangements and operational deployment.

The creation of a combined EM and EC operator would provide an operator that addresses the key markets to the East Midlands and Lincolnshire and that is able to optimise connectional opportunities between the two routes by means of the east Midlands and Lincolnshire regional networks. Interface reduction / synergy potential may also exist at Leeds and at London Kings Cross/ St Pancras.

First Capital Connect (FC)

Franchise Map



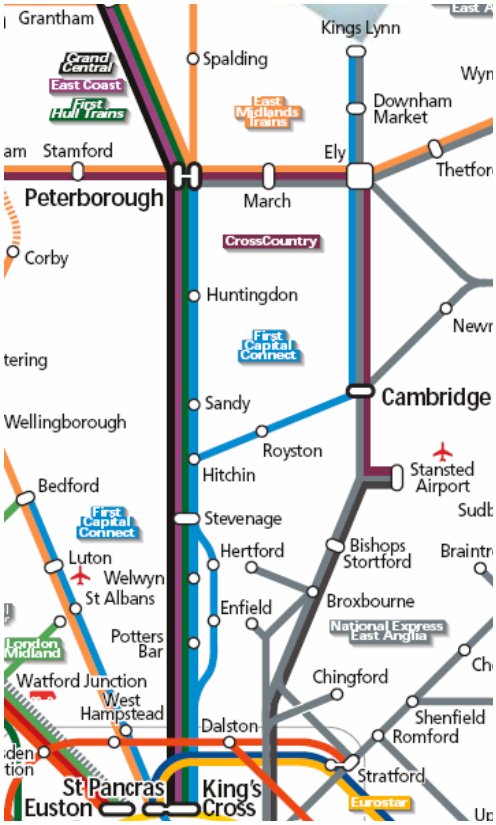
Source: First Capital Connect www.firstcapitalconnect.co.uk/static/pdf/network_route_map.pdf

Franchise Facts

First Capital Connect (FC)	
Franchisee	First Group
Franchise Expires	April 2012 or April 2015 at DfT's discretion
Passenger Journeys	62,821k
Services	Thameslink Route • Bedford – Brighton • Luton / St Albans – Sutton • Kentish Town – Sevenoaks GN Route • Kings Cross – Hitchin / Letchworth / Peterborough / Cambridge, Kings Lynn • Moorgate – Hertford North / Letchworth / Welwyn Garden City
Train Miles	15,100k
Resources	EMU: • Class 313 3 car: 41 • Class 317 4 car: 12 • Class 319 4 car: 86 • Class 321 4 car: 6 • Class 365 4 car: 40 • Class 377 4 car: 23
Vehicle Miles	94,225k
Rolling Stock Depots	Bedford, Hornsey
Traincrew Depots	Bedford, Blackfriars, Brighton, Kings Lynn, Cambridge, Hitchin, Peterborough, Kings Cross
Franchise Overlaps	• St Pancras – Bedford: EM • Kings Cross – Peterborough: EC • Cambridge – Ely: XC, LE • Ely – Kings Lynn: LE • Blackfriars - London Bridge: SE • London Bridge – Croydon: SC, LO • Croydon – Brighton: SC • Denmark Hill – Nunhead: SE • Shortlands – Sevenoaks via Swanley: SE
Major Schemes	The full Thameslink programme has now been committed to by government. A full description of the planned service changes is provided in a later section.

Franchise Interface Maps

North of London



South of London

FC	
EM	
LE	
XC	
EC	
Open Access	
Open Access	

FC	
SN	
SE	
LO	

Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Passenger Interfaces

One third of FCC passengers travel on flows shared with other TOCs. 33% of passenger journeys and 36% of passenger miles are on jointly served flows

The majority of these flows are shared with Southern, primarily on the Brighton Main Line, (52%), and also with:

- EM (17%) including Luton and Bedford flows,
- LE (12%) mainly Hertford and Enfield London BR flows, and the Kings Lynn route; and
- SE (5%), currently including Herne Hill - London

The 30 top existing shared journey flows include

From	To
BRIGHTON	LONDON BR
LUTON	LONDON BR
BEDFORD BR	LONDON BR
HERTFORD BR	LONDON BR
LUTON AIRPORT	LONDON BR
HAYWARDS HEATH	LONDON BR
ENFIELD BR	LONDON BR
GATWICK AIRPORT	LONDON BR
THREE BRIDGES	LONDON BR
LONDON BR	BRIGHTON
PETERBOROUGH	LONDON BR
LONDON BR	GATWICK AIRPORT
LONDON BR	LUTON AIRPORT
EAST CROYDON	LONDON BR
HAYWARDS HEATH	BRIGHTON
ELY(CAMB)	CAMBRIDGE
SUTTON (SURREY)	LONDON BR
TULSE HILL	LONDON BR
WEST HAMPSTEAD BR	LONDON BR
HERNE HILL	LONDON BR
LONDON BR	CROYDON BR
BRIGHTON	GATWICK AIRPORT
REDHILL	LONDON BR
BURGESS HILL	BRIGHTON
STREATHAM	LONDON BR
HASSOCKS	LONDON BR
GATWICK AIRPORT	BRIGHTON
LONDON BR	LUTON
LONDON BR	STEVENAGE
BURGESS HILL	LONDON BR

Any study of Thameslink mapping in Part 2 of this study would assess the revised passenger interface situation emerging from a revised Thameslink route network.

Operational Interfaces and Resources

The current FC network consists of two parts, firstly the former Thameslink routes between Bedford, Luton, St Albans and Brighton / Wimbledon. Key Output 0 of the Thameslink programme has seen the recent addition to the Thameslink group of the 2tph service from Sevenoaks via the Catford Loop operating through to Kentish Town.

The second part of the network comprises the former GN services of WAGN. These comprise the outer services from Kings Lynn / Cambridge and Peterborough to Kings Cross and the suburban services from Letchworth / Welwyn Garden City / Hertford North to Moorgate.

There is a considerable degree of interface between FC and other operators both to the north and south of London. On the MML FC fast services on the Bedford to Brighton route interface with those of EM. On the ECML there is interface with EC throughout from Peterborough to Kings Cross and with both LE and XC between Ely and Cambridge.

North of London FC is the sole operator only between Cambridge and Hitchin and between Stevenage and Alexandra Palace via Hertford North.

South of London FC interfaces with SN over the heavily congested route between London Bridge and Brighton. There is also peak interface on the Wimbledon Loop with SN when the service is shared between the two operators. The new FC route from Kentish Town to Sevenoaks interfaces with SE between Denmark Hill and Nunhead and between Shortlands and Sevenoaks via Swanley. Services via the Catford Loop itself are now operated entirely by FC.

Rolling stock is currently a mix of class 319 and newly built class 377 maintained in-house at Bedford and by the SN depot at Selhurst.

Future Thameslink Specification

The future specification for Thameslink will see the addition of services from the GN route to the core and the expansion of destinations to the south of the river to include Horsham, Three Bridges, Caterham, East Grinstead (peak only), Maidstone East, Tunbridge Wells and Ashford (peak only).

The planned linkages of services are as follows:

- Bedford – Brighton: 4tph
- Luton – Sevenoaks: 2tph
- St Albans – Caterham: 2tph
- St Albans – Bellingham: 2tph
- Peterborough – Horsham: 2tph
- Welwyn Garden City – Caterham: 2tph
- Cambridge – Three Bridges: 2tph
- Welwyn Garden City – Maidstone East: 2tph

In addition the following peak only services will operate:

- Bedford – Tunbridge Wells: 2tph
- Bedford – East Grinstead: 2tph
- Luton – Ashford: 2tph

This leaves a number of residual services that will need to operate into a London terminus as follows:

- Letchworth – Moorgate: 2tph
- Hertford North – Moorgate: 2tph
- Gordon Hill – Moorgate: 2tph
- Cambridge – Kings Cross: 3tph
- Kings Lynn – Kings Cross: 1tph
- Wimbledon Loop – Victoria: 4tph

In addition the following peak only services will operate:

- Hertford North – Moorgate: 2-4tph
- Peterborough – Kings Cross: 2tph

Franchise Options

There are a number of potential options for the structuring of the future Thameslink franchise identified at a Thameslink DfT workshop meeting as follows:

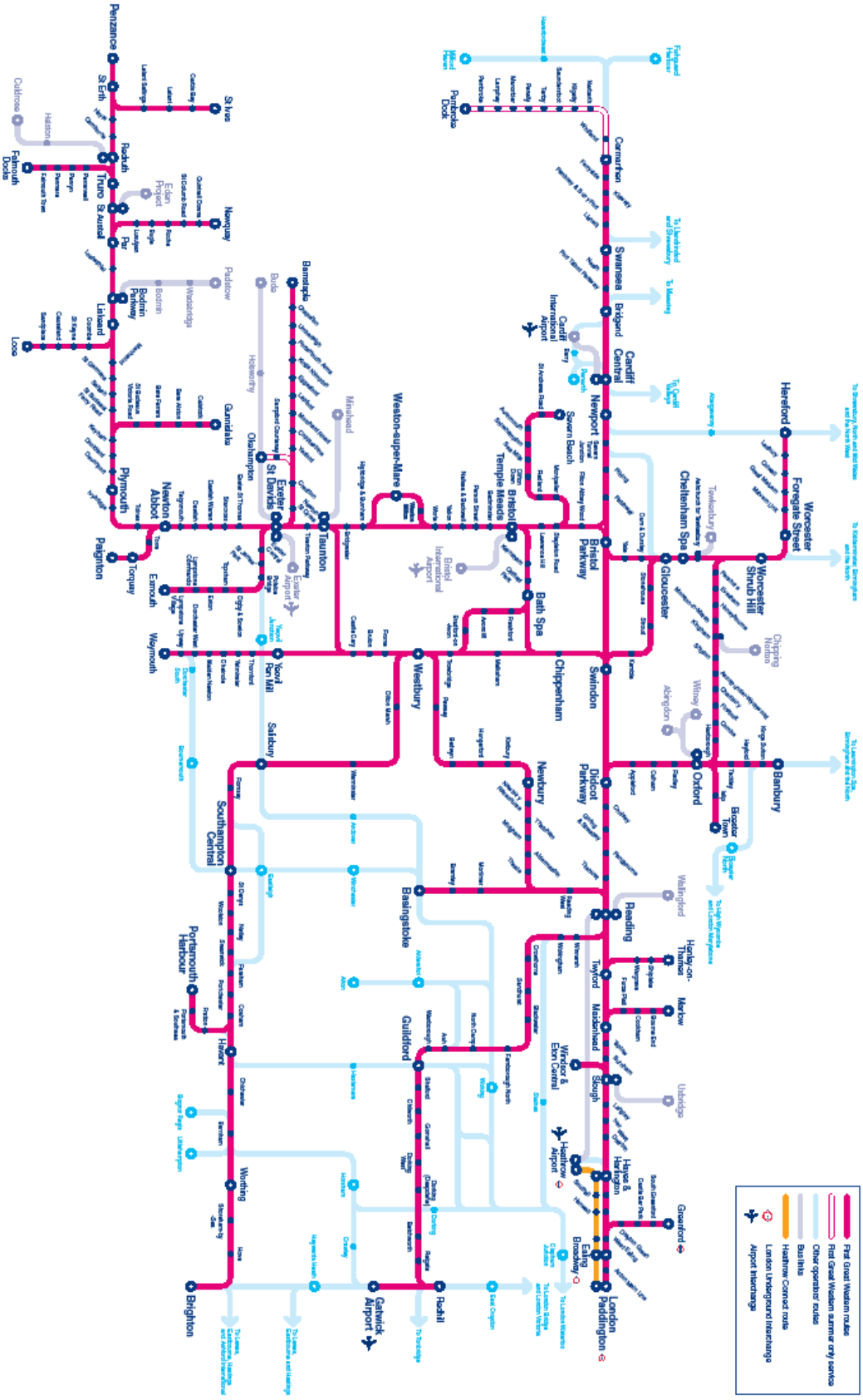
1. Assess at a high level the arguments for and against having more than one operator through the Thameslink tunnel;
2. Expanded Future Thameslink operator (FTO), along with SN and SE as three separate entities;
3. FTO separate, SN combined with SE;
4. FTO combined with SN, SE separate;
5. FTO, SC and SE all combined as one;
6. GN Kings Cross & Moorgate services combined with FTO;
7. GN Kings Cross & Moorgate services combined with EC; and
8. GN Kings Cross & Moorgate services split with outers to EC and inners to FTO (or alternatively to GA or TfL)

It may be sensible to focus down to a smaller number of options to be considered rather than setting out every combination of choice. Taking account of this together with our analysis of the services, we suggest that the options for FC could therefore be:

Option	Description
FC0	Develop into dedicated Thameslink services operator and retain residual FC non Thameslink services (i.e. 2 and 6 above.)
FC1	As FC0 and merge all with SN
FC2	As FC0 and merge all with SN and SE
FC3	As FC0 except transfer out residual “Outer” Kings Cross HL and Moorgate services to EC. Residual “Inners” stay in Thameslink franchise.
FC4	As FC3 except transfer out residual “Inners” to either EC, GA or TfL
FC5	As FC4 (i.e. transfer out all residual Kings Cross and Moorgate services) and merge FC Thameslink services into SN

First Great Western (GW)

Franchise Map



Source: First Great Western
www.firstgreatwestern.co.uk/Documents/Custom/RouteMap/fgwRouteMap.pdf

Franchise Facts

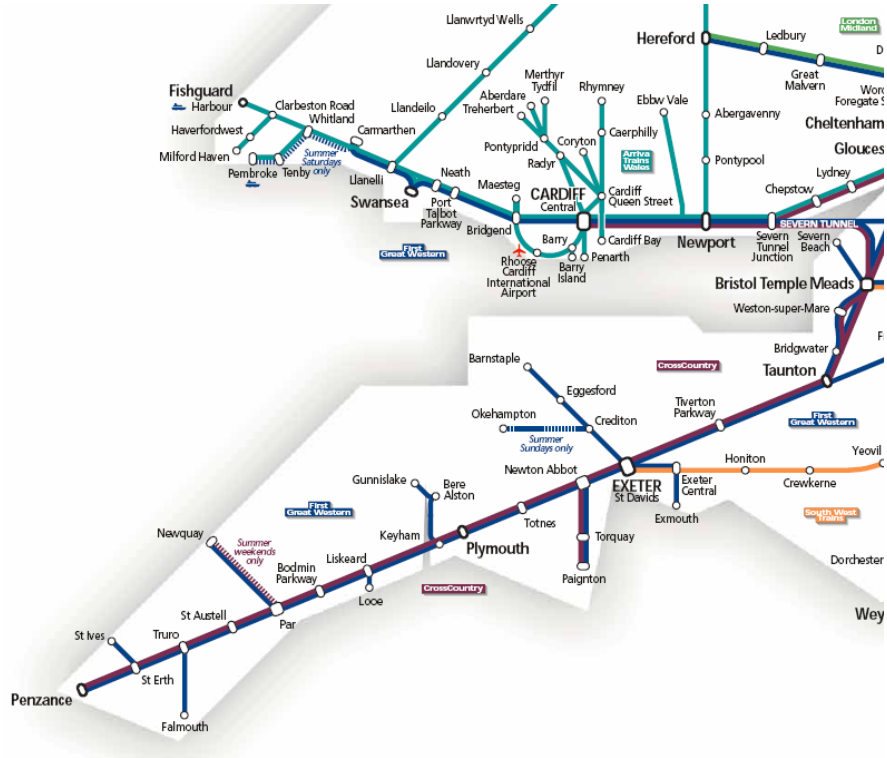
First Great Western (GW)	
Franchisee	First Group
Franchise Expires	2016 (but can hand back in March 2013)
Passenger Journeys	65,739k
Services	Inter city • Paddington – Bristol / Cardiff, Swansea / Cheltenham • Paddington – Oxford, Hereford • Paddington - Plymouth / Penzance Thames Valley • Paddington – Greenford / Heathrow / Reading / Oxford / Banbury / Newbury / Bedwyn • Slough – Windsor • Maidenhead – Marlow • Twyford – Henley • Reading – Basingstoke • Oxford – Bicester Town West of England • Cardiff – Portsmouth • Great Malvern / Cheltenham – Westbury / Weymouth • Swindon – Cheltenham • Bristol – Severn Beach • Bristol – Weston / Taunton • Exeter – Exmouth – Barnstaple / Paignton • Plymouth – Penzance / Gunnislake • Liskeard – Looe • Par – Newquay • Truro – Falmouth • St Erth – St Ives
Train Miles	25,613k
Resources	DMU • Class 142/3 2 car: 15 • Class 153 1 car: 11 • Class 150 2 car: 23 • Class 158 2 car: 5 • Class 158 3 car: 10 • Class 165 2 car: 20 • Class 165 3 car: 16 • Class 166 3 car: 21 Other diesel • HST 2+7: 19 • HST 2+8: 35 • Loco hauled sleeper 7 cars: 2
Vehicle Miles	151,861k
Rolling Stock Depots	Old Oak Common, St Phillips Marsh, Landore, Laira, Penzance
Traincrew Depots	Paddington, Reading, Oxford, Gloucester, Bristol, Westbury, Fratton, Exeter, Plymouth, Par, Penzance, Swansea
Franchise Overlaps	• Basingstoke – Banbury: XC • Bristol – Southampton: SW • Southampton – Portsmouth: SW, SC • Dorchester – Weymouth: SW • Worcester – Hereford: LM • Severn Tunnel Jn – Newport: LM • Cheltenham – Gloucester: LM, XC • Cheltenham – Penzance / Paignton: XC • St James Park – Exeter St Davids: SW
Major Schemes	Reading re-modelling. Future electrification west of Hayes. Crossrail.

Franchise Interface Maps – London and Mid West

GW
SW
XC
AW

Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Franchise Interface Maps – West of England and South Wales



Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

GW
SW
XC
AW

Passenger Interfaces

A fifth of GW passengers travel on flows shared with other TOCs. 20% of passenger journeys and 17% of passenger miles are on jointly served flows

These flows are shared with:

- XC (36%) including flows south west of Cheltenham;
- SW (31%) mainly Wokingham, Guildford, Portsmouth and Exeter routes;
- SC (9%), Gatwick and Brighton route flows; and
- "Other" (15%) mainly with ATW in South Wales

The 30 top existing shared journey flows include:

From	To
NEWPORT (SOUTH WALES)	CARDIFF BR
WOKINGHAM	READING BR
BRIDGEND	CARDIFF BR
WOKINGHAM	LONDON BR
BASINGSTOKE	READING BR
SWANSEA	CARDIFF BR
READING BR	BASINGSTOKE
READING BR	WOKINGHAM
CARDIFF BR	NEWPORT (SOUTH WALES)
READING BR	OXFORD
OXFORD	READING BR
DAWLISH	EXETER BR
LONDON BR	CHELTENHAM SPA
REIGATE	LONDON BR
TEIGNMOUTH	EXETER BR
NEWTON ABBOT	EXETER BR
NEATH	CARDIFF BR
LISKEARD	PLYMOUTH
WORCESTER BR	LONDON BR
READING BR	GATWICK AIRPORT
NEATH	SWANSEA
MORTIMER	LONDON BR
BRISTOL PARKWAY	BRISTOL TEMPLE MEADS
CARDIFF BR	SWANSEA
SOUTHAMPTON CENTRAL	PORTSMOUTH BR
ROMSEY	SOUTHAMPTON CENTRAL
GLOUCESTER	BRISTOL TEMPLE MEADS
PLYMOUTH	EXETER BR
PORTSMOUTH BR	SOUTHAMPTON CENTRAL
PAIGNTON	EXETER BR
FAREHAM	PORTSMOUTH BR

Operational Interfaces and Resources

The Greater Western franchise was created by amalgamating the former Great Western inter city operator with the Thames Valley services formerly operated by Thames and the regional services formerly operated by Wessex. This amalgamation has created a franchise with much reduced interfaces than hitherto existed. The key areas of interface now predominantly centre on those involving XC on the routes between Basingstoke and Banbury and between Cheltenham and Plymouth / Penzance. There is interface with SWT and Southern to the east of Salisbury (and limited interface with SWT between Salisbury and Bristol) and the route between Worcester and Hereford is shared with LM. The London to South Wales services have significant interfaces with AW but the Welsh franchise is outside the study scope.

With the exception of the Cardiff- South Coast route to the south of Warminster, and the North Downs services, all GW services operate within NR's Western Operating Route. The North Downs service group is physically separate from the remainder of GW's operations and is operated within NR's Wessex and Sussex Operating Routes. The services were transferred from SW to Thames (GW) in the early 1990's, because part of the growth build of a new fleet of Thames Turbo rolling stock maintained at Reading depot were surplus and could be deployed to resource the North Down's route. With the future planned progression of AC electrification of the GWML suburban services around Reading, GW diesel unit synergies may fade. Transfer out of North Downs services could remove passenger and TOC interfaces and improve alignment with NR Operating Routes.

Franchise Options

It may be worth considering options to transfer out North Downs at the replacement of the existing GW Franchise.

Option	Description
GW0	Unchanged
GW1	Extract North Downs services and transfer to SW or to SN

First Trans-Pennine Express (TP)

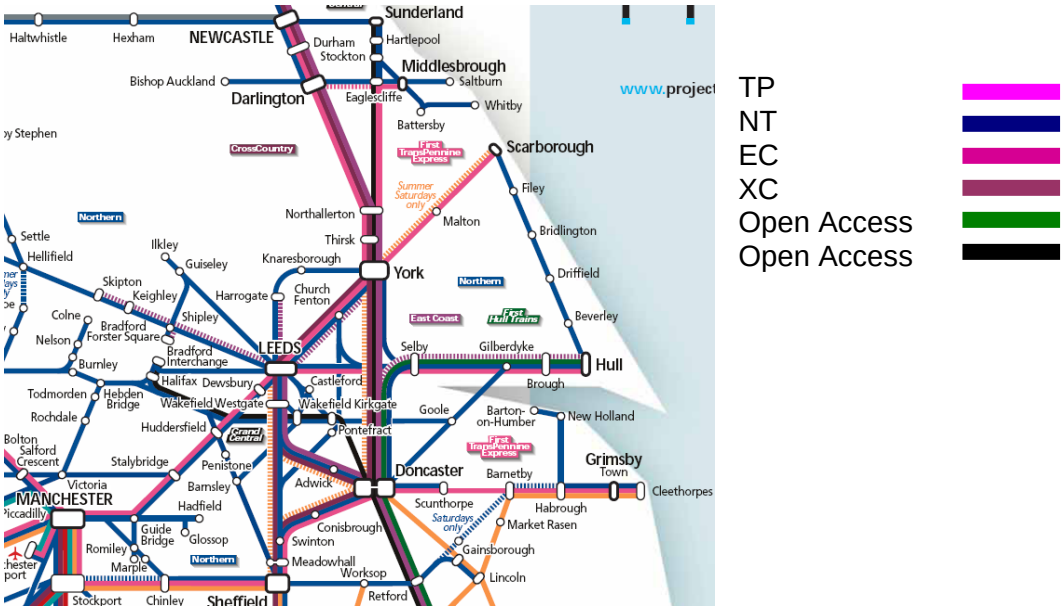
Franchise Map

Source First TransPennine Express
www.tpexpress.co.uk/MediaLibrary/Destinations/TransPennine_Express_Networkmap_Dec07.pdf

Franchise Facts

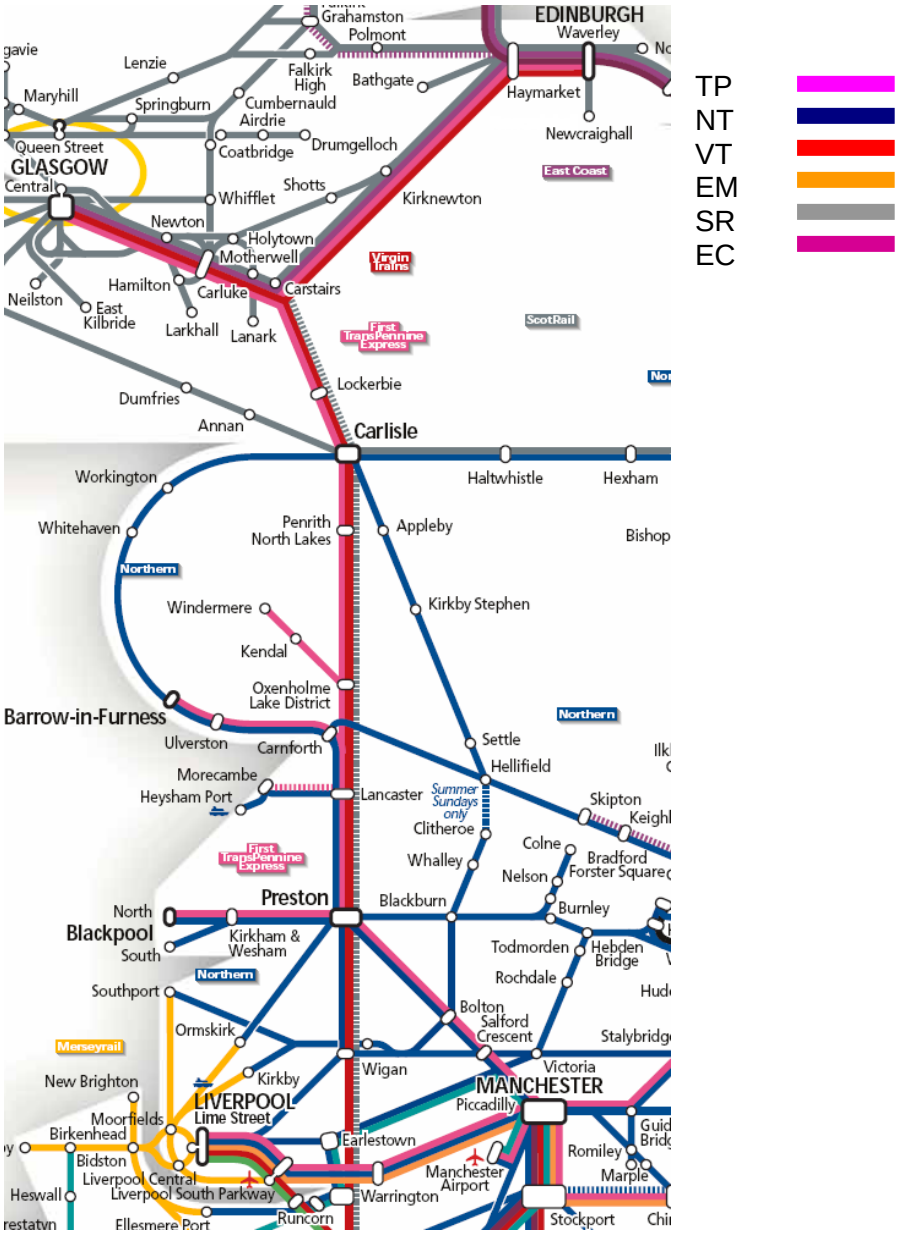
First Trans Pennine Express (TP)	
Franchisee	First Group / Keolis
Franchise Expires	June 2012
Passenger Journeys	15,946k
Services	• Newcastle / Middlesbrough / Scarborough / Hull – Manchester / Liverpool • Cleethorpes – Manchester • Manchester – Blackpool North • Manchester – Barrow / Windermere / Edinburgh / Glasgow
Train Miles	10,600k
Resources	DMU • Class 170 2 car: 9 • Class 185 3 car: 51
Vehicle Miles	31,276k
Rolling Stock Depots	Ardwick, Crofton
Traincrew Depots	Manchester, Scarborough, Cleethorpes, Newcastle, Hull, Barrow, Blackpool, Glasgow, Edinburgh
Franchise Overlaps	• Glasgow – Carstairs – Edinburgh: SR, VT • Carstairs – Carnforth: VT • Barrow – Carnforth: NT • Carnforth – Preston: VT, NT • Blackpool – Manchester: NT • Liverpool – Manchester: NT, EM • Manchester – Leeds: NT • Leeds – York: NT, XC, EC • York – Darlington: EC, XC • Darlington – Newcastle: EC, XC, NT • Leeds – Selby: NT • Selby – Hull: NT, EC • Manchester – Stockport: VT, XC, AW, EM, NT • Stockport – Sheffield: EM, NT • Sheffield – Doncaster: NT, XC • Doncaster – Scunthorpe: NT • Barnetby – Cleethorpes: NT, EM
Major Schemes	North West electrification

Franchise Interface Maps – East



Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Franchise Interface Map – West



Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Passenger Interfaces

The majority of TP passengers travel on flows shared with other TOCs. 68% of passenger journeys and 55% of passenger miles are on jointly served flows

The majority of these journey flows are shared with Northern (58%), and flows are also shared with:

- XC (13%) e.g. York –Leeds and interurban flows on ECML;
- EM (9%) mainly flows on the Sheffield – Manchester - Liverpool corridor;
- WC (9%), on WCML flows north from Manchester; and
- EC (7%) on ECML north of York

The 30 top existing shared journey flows include:

From	To
YORK	LEEDS
BOLTON	MANCHESTER BR
LEEDS	YORK
MANCHESTER AIRPORT	MANCHESTER BR
PRESTON	MANCHESTER BR
STALYBRIDGE	MANCHESTER BR
DEWSBURY	LEEDS
SHEFFIELD	MANCHESTER BR
LIVERPOOL BR	MANCHESTER BR
MANCHESTER BR	MANCHESTER AIRPORT
MANCHESTER BR	LIVERPOOL BR
WARRINGTON BR	MANCHESTER BR
DURHAM	NEWCASTLE
SELBY	LEEDS
GARFORTH	LEEDS
MANCHESTER BR	BLACKPOOL NORTH
CHORLEY	MANCHESTER BR
WARRINGTON BR	LIVERPOOL BR
MANCHESTER BR	BOLTON
MANCHESTER BR	SHEFFIELD
MANCHESTER BR	PRESTON
HEALD GREEN	MANCHESTER BR
CHORLEY	PRESTON
BIRCHWOOD	MANCHESTER BR
NEWCASTLE	MANCHESTER BR
BLACKPOOL NORTH	MANCHESTER BR
MANCHESTER BR	EDINBURGH
STOCKPORT	MANCHESTER BR
EDINBURGH	MANCHESTER BR
MANCHESTER BR	NEWCASTLE

Operational Interfaces and Resources

TP operates longer distance inter-urban services across the Pennines. Firstly the north trans-pennine route between Liverpool / Manchester and Newcastle / Scarborough / Middlesbrough and Hull via Huddersfield, over routes largely shared with other operators. Secondly the south trans-pennine route between Cleethorpes and Manchester via Sheffield. TP is the sole operator only between York and Seamer, Northallerton and Eaglescliffe and between Doncaster and Barnetby.

TP also operate a group of services on the West Coast that do not transit the Pennines, operating between Manchester and Blackpool, Barrow, Windermere, Glasgow and Edinburgh. TP are the sole operator of the Windermere branch, otherwise these services operate over routes shared with other operators.

In the case of the Trans Pennine group of services the principal interface is with NT between Liverpool, Manchester, Leeds and York and between Manchester and Sheffield. Between Liverpool, Manchester and Sheffield the route is also shared with EM and between Leeds and York with XC. On the ECML north of York TP interfaces with both EC and XC.

The second group of services interface with NT throughout the route between Manchester, Preston, Blackpool and Barrow. North of Preston there is also interface with VT, the dominant operator on the northern section of the WCML.

TP operates most services with the recently built class 185 3-car units operating out of the dedicated maintenance depot at Ardwick. This fleet is supplemented by a small number of class 170s used predominantly on the TP south route.

Franchise Options

Option	Description
TP0	Unchanged
TP1	Merge into NT
TP2	Transfer TP WCML services to VT, and merge remainder into NT

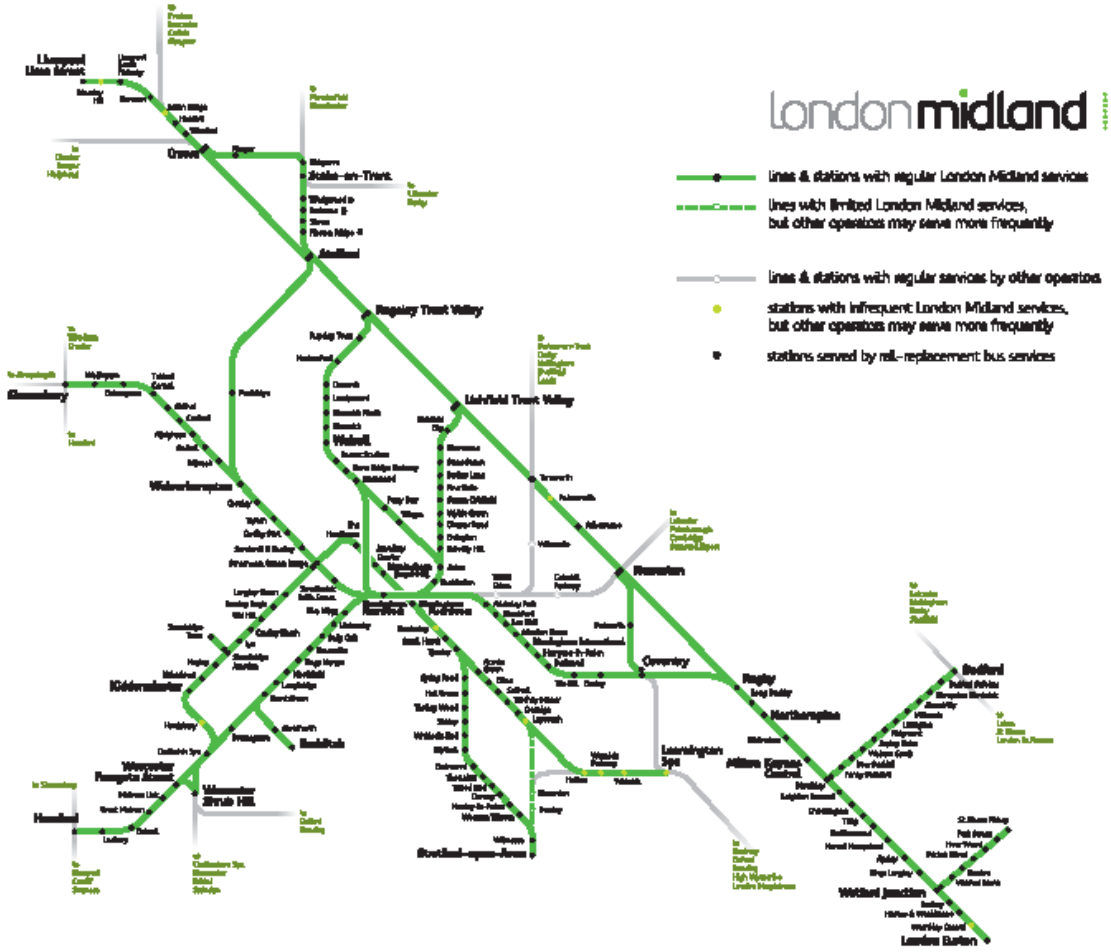
Given the large degree of operational interface with NT, an important option to consider will be its amalgamation with that operation.

The planned early electrification of the route between Manchester and the WCML at Earlestown will provide an electric route from Manchester to Scotland. We understand that a follow-on build of class 350 units is due to be procured by LM on behalf of TP for operation on these services. A third option will therefore centre on whether these services would more logically fit with the VT franchise.

Many TP services are similar in nature to those operated by XC and we will also explore options for the amalgamation of some or all services with XC. As set out in the XC section of this report, there is also the option to merge XC and TP.

London Midland (LM)

Franchise Map



Source: London Midland www.londonmidland.com/your-journey/our-route/

Franchise Facts

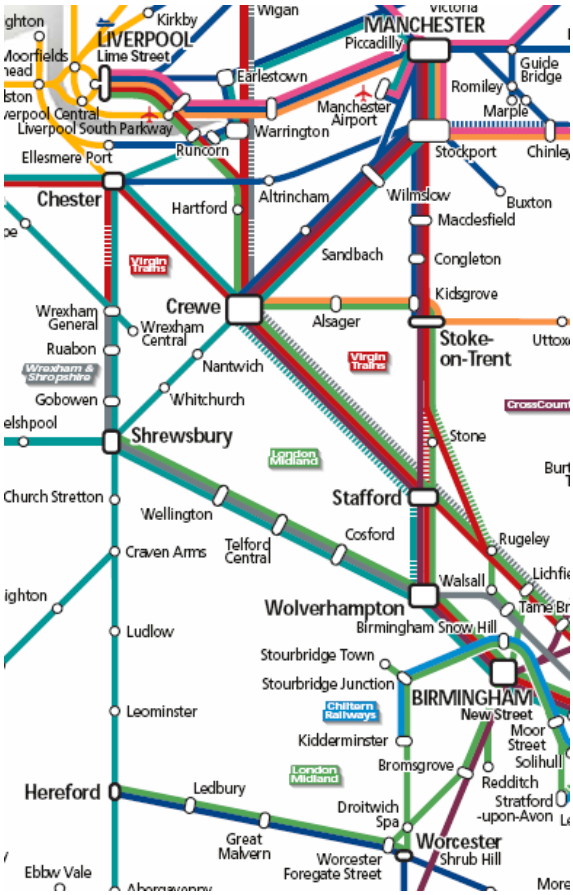
London Midland (LM)	
Franchisee	Go Ahead
Franchise Expires	Sep 2015
Passenger Journeys	38,487k
Services	WCML • Euston – Tring / Milton Keynes / Northampton / Crewe • Northampton – Birmingham • Birmingham – Liverpool • Watford Jn – St Albans • Bletchley - Bedford West Midlands • Coventry – Nuneaton • Leamington / Dorridge / Stratford / Shirley – Stourbridge / Kidderminster / Worcester / Hereford • Birmingham – Walsall / Rugeley • Birmingham – Shrewsbury • Lichfield / Four Oaks – Longbridge / Redditch
Train Miles	15,388k
Resources	DMU • Class 139 1 car: 2 • Class 153 1 car: 9 • Class 150 2 car: 12 • Class 150 3 car: 16 • Class 170 2 car: 17 • Class 170 3 car: 6 EMU • Class 321 4 car: 13 • Class 323 3 car: 26 • Class 350 4 car: 97
Vehicle Miles	62,955k
Rolling Stock Depots	Northampton, Soho, Tyseley
Traincrew Depots	Euston, Bletchley, Northampton, Birmingham New Street, Birmingham Snow Hill, Worcester, Shrewsbury, Wolverhampton, Crewe
Franchise Overlaps	Interface on many routes principally with VT on WCML, XC and CH. LM is the sole operator only on certain suburban routes in the West Midlands and Worcester areas.
Major Schemes	HS2. Replacement rolling stock on Snow Hill suburban services

Franchise Interface Maps – South

Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

LM
VT
XC
CR
Open Access

Franchise Interface Maps – North



Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

LM
VT
AW
GW
NT
EM
XC

Passenger Interfaces

Nearly one third of LM passengers travel on flows shared with other TOCs. 29% of passenger journeys and 39% of passenger miles are on jointly served flows

A large proportion these flows are shared with VT on the WCML (41% of journeys and 66% of passenger miles), and journey flows are also shared with:

- XC (23%) on inter-urban flows in the West Midlands;
- SC (9%), on the West London line to Milton Keynes; and
- CH (7%) on Snow Hill route suburban flows

The 30 top existing shared journey flows include:

From	To
MILTON KEYNES CENTRAL	LONDON BR
UNIVERSITY (BIRMINGHAM)	BIRMINGHAM BR
WOLVERHAMPTON	BIRMINGHAM BR
LONDON BR	MILTON KEYNES CENTRAL
COVENTRY	BIRMINGHAM BR
BROMSGROVE	BIRMINGHAM BR
STAFFORD	BIRMINGHAM BR
SOLIHULL	BIRMINGHAM BR
BIRMINGHAM BR	UNIVERSITY (BIRMINGHAM)
WIDNEY MANOR	BIRMINGHAM BR
DORRIDGE	BIRMINGHAM BR
BIRMINGHAM INTERNATIONAL	BIRMINGHAM BR
RUGBY	BIRMINGHAM BR
HARROW & WEALDSTONE	LONDON BR
LEIGHTON BUZZARD	MILTON KEYNES CENTRAL
SANDWELL & DUDLEY	BIRMINGHAM BR
TELFORD CENTRAL	BIRMINGHAM BR
RUNCORN	LIVERPOOL BR
GREAT MALVERN	WORCESTER BR
SMETHWICK GALTON BRIDGE	BIRMINGHAM BR
HEMEL HEMPSTEAD	WATFORD JUNCTION
BIRMINGHAM BR	LONDON BR
BIRMINGHAM BR	BIRMINGHAM INTERNATIONAL
RUGBY	COVENTRY
BIRMINGHAM BR	WOLVERHAMPTON
LICHFIELD TRENT VALLEY	LONDON BR
LONDON BR	BIRMINGHAM BR
NUNEATON TRENT VALLEY	LONDON BR
MILTON KEYNES CENTRAL	WATFORD JUNCTION
SHREWSBURY	BIRMINGHAM BR

Operational Interfaces and Resources

London Midland is a new franchise that combined operations formerly provided by Silverlink on the WCML and local West Midlands services formerly operated by Central Trains. As can be seen from the maps above there is a good deal of interface with other operators and LM is the sole operator only on certain routes in the West Midlands and Worcester areas.

LM provides all local services on the WCML south of Birmingham and which on the 4-track section south of Rugby are predominantly on the Slow Lines. There is, however interface with VT with the fast Northampton services that operate partly over the Fast Lines. Whilst the off-peak service is concentrated on platforms 8-11 at Euston, in the peaks other platforms need to be occupied, creating interfaces with VT services. The Euston to Watford LO service also requires access to platforms 9 or 10 at Euston but north of Camden Junction is physically separate from the WCML.

The Coventry corridor is a particularly congested 2-track section and LM services share the route with VT (3tph), with XC (1tph from Coventry) and ATW (1tph from International). Many routes are funnelled through New Street station and platform capacity is a particular problem particularly in the peaks.

LM provides the full service between Birmingham and Liverpool via Wolverhampton over a route shared with ATW to Wolverhampton (1tph), XC (2tph to Stafford) and VT (1tph to Wolverhampton) along with its own local services to Wolverhampton itself.

The new Euston to Crewe via the Trent Valley and Stoke service has created a number of interfaces including with VT and EM between Stoke and Crewe.

The route between Birmingham and Shrewsbury is shared with AW's 1tph to either Aberystwyth or Chester / North Wales.

LM provides the principal services over the Snow Hill lines between Stratford / Dorridge and Stourbridge / Kidderminster / Worcester but the section to the south of Birmingham is shared with CH and XC. CH also operate peak services through to Stourbridge and Kidderminster.

The Cross City line from Lichfield to Redditch has no interfaces to the north of Birmingham but needs to be slotted through New Street whereupon it then shares the critical 2-track section to Kings Norton with its own non-stop services to Hereford, the 2tph XC service to Bristol and the 1tph XC service to Cardiff.

LM operates both electric and diesel fleets. The newly introduced class 350 fleet now operates most services on the WCML and the class 323 fleet those on the cross City line and other local services in the West Midlands. The diesel fleets consist of the class 139s dedicated to the Stourbridge Town line, classes 153 and 170 used on West Midlands urban and inter-urban routes and class 150 predominantly employed on the Snow Hill route. The class 150s are due to be shortly replaced by new-build class 172s.

LM operations provide a good geographic fit with NR and are mostly within the London North Western Route. The services to Worcester and Hereford areas, however, operate on to the Western Route.

Franchise Options

The most significant franchise interfaces exist with VT over the WCML and therefore an option to consider would be amalgamating at least the LM WCML services with the VT operation. This would remove all interfaces between Euston and Stoke / Crewe via the Trent Valley and as far north as Coventry on the New Street route. The diesel services could also be added to the enlarged franchise or be split with those on the Snow Hill lines added to the CT operation and the remainder added to VT.

Option	Description
LM0	Unchanged
LM1	Merge with VT
LM2	As LM1 but transfer out Snow Hill suburban / diesel routes to Chiltern

The timing of franchise replacement may not make either of these options readily deliverable in a cost effective manner in the medium term, with VT replacement process about to be triggered, and Chiltern with a long term franchise in place.

National Express East Anglia (LE)

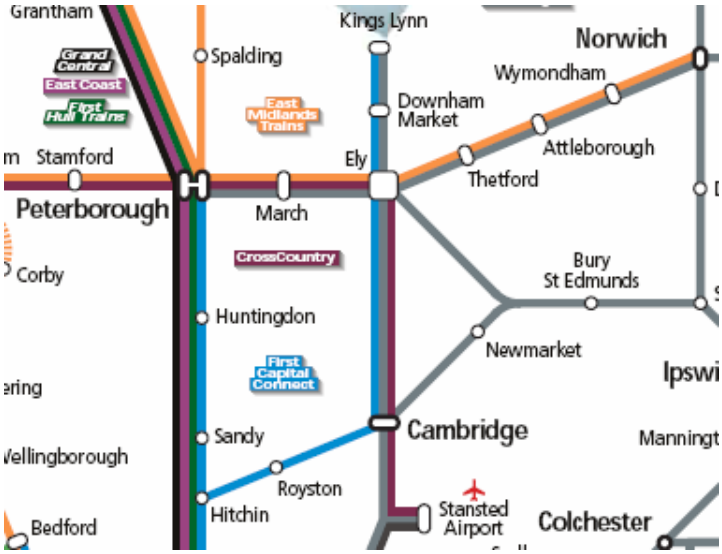
Franchise Map

Source: National Express East Anglia www.nationalexpresseastanglia.com/stations_route_map

Franchise Facts

National Express East Anglia (LE)	
Franchisee	National Express Group
Franchise Expires	Feb 2012
Passenger Journeys	71,999k
Services	West Anglia • Liverpool St / Stratford – Stansted Airport / Cambridge • Liverpool St – Chingford / Cheshunt / Hertford East / Enfield Town Great Eastern • Liverpool St – Norwich • Liverpool St – Shenfield / Southend / Southminster • Liverpool St – Braintree / Colchester Town / Clacton / Ipswich • Colchester – Walton • Manningtree – Harwich • Marks Tey – Sudbury • Romford - Upminster Regional • Ipswich – Lowestoft / Cambridge / Peterborough / Felixstowe • Norwich – Yarmouth / Lowestoft / Sheringham / Cambridge
Train Miles	20,350k
Resources	DMU • Class 153 1 car: 5 • Class 156 2 car: 9 • Class 170 2 car: 4 • Class 170 3 car: 8 EMU • Class 315 4 car: 61 • Class 317 4 car: 60 • Class 321 4 car: 84 • Class 360 4 car: 21 Loco Hauled • Cl 90+8/9+DVT: 14
Vehicle Miles	118,513k
Rolling Stock Depots	Ilford, Clacton, Crown Point
Traincrew Depots	Liverpool St, Gidea Park, Chingford, Southend, Colchester, Clacton, Ipswich, Norwich, Bishops Stortford, Cambridge
Franchise Overlaps	There is relatively little interface with other operators other than on small parts of the West Anglia and inter-urban regional networks: • Stansted Airport – Cambridge: XC • Cambridge – Ely: XC, FC • Ely – Kings Lynn: FC • Ely – Peterborough: XC, EM • Ely – Norwich: EM
Major Schemes	• Stansted Express fleet renewal • Crossrail (loss of Shenfield – Liverpool St route)

Franchise Interfaces Map



Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

LE
FC
EM
XC

Passenger Interfaces

A relatively small proportion of LE passengers travel on flows shared with other TOCs. 9% of passenger journeys and 12% of passenger miles are on jointly served flows.

These jointly served flows are shared with:

- CC (41%) including the Southend- London BR flow;
- FC (30%) including the Ely /Cambridge – London BR flows;
- EM (7%) on Norwich – Nottingham route flows; and
- XC (6%) on Stansted - Birmingham route flows

The 30 top existing shared journey flows include:

From	To
SOUTHEND BR	LONDON BR
ENFIELD BR	LONDON BR
HERTFORD BR	LONDON BR
ELY(CAMB)	CAMBRIDGE
LONDON BR	SOUTHEND BR
CAMBRIDGE	LONDON BR
LONDON BR	CAMBRIDGE
LONDON BR	STRATFORD
SOUTHEND EAST	LONDON BR
NORWICH	CAMBRIDGE
ATTLEBOROUGH	NORWICH
AUDLEY END	CAMBRIDGE
CAMBRIDGE	ELY(CAMB)
BURY ST EDMUNDS	LONDON BR
KING'S LYNN	LONDON BR
WYMONDHAM	NORWICH
CAMBRIDGE	NORWICH
THETFORD	NORWICH
LONDON BR	ENFIELD BR
LONDON BR	HERTFORD BR
LONDON BR	BURY ST EDMUNDS
EMERSON PARK	LONDON BR
SHELFORD	LONDON BR
ELY(CAMB)	LONDON BR
NEWMARKET	LONDON BR
NORWICH	ATTLEBOROUGH
MARCH	PETERBOROUGH
WYMONDHAM	LONDON BR
NORWICH	WYMONDHAM
LONDON BR	NEWMARKET

Operational Interfaces and Resources

LE is the sole operator of most services in East Anglia and there is only limited interface with other operators on the western side of the operation on routes emanating from Ely as shown in the map above.

The Liverpool Street to Cambridge services operate over a route shared with XC north of Stansted Airport. The Norwich to Ely route is shared with EM and between Ely and Peterborough is shared with both EM and XC.

With the exception of access to Peterborough station all LE services operate within NR's Anglia Route.

Given the relatively homogenised nature of the LE operation, options involving LE are likely to be limited to the absorption of the CC network and residual FC and / or EM Norwich services.

Franchise Options

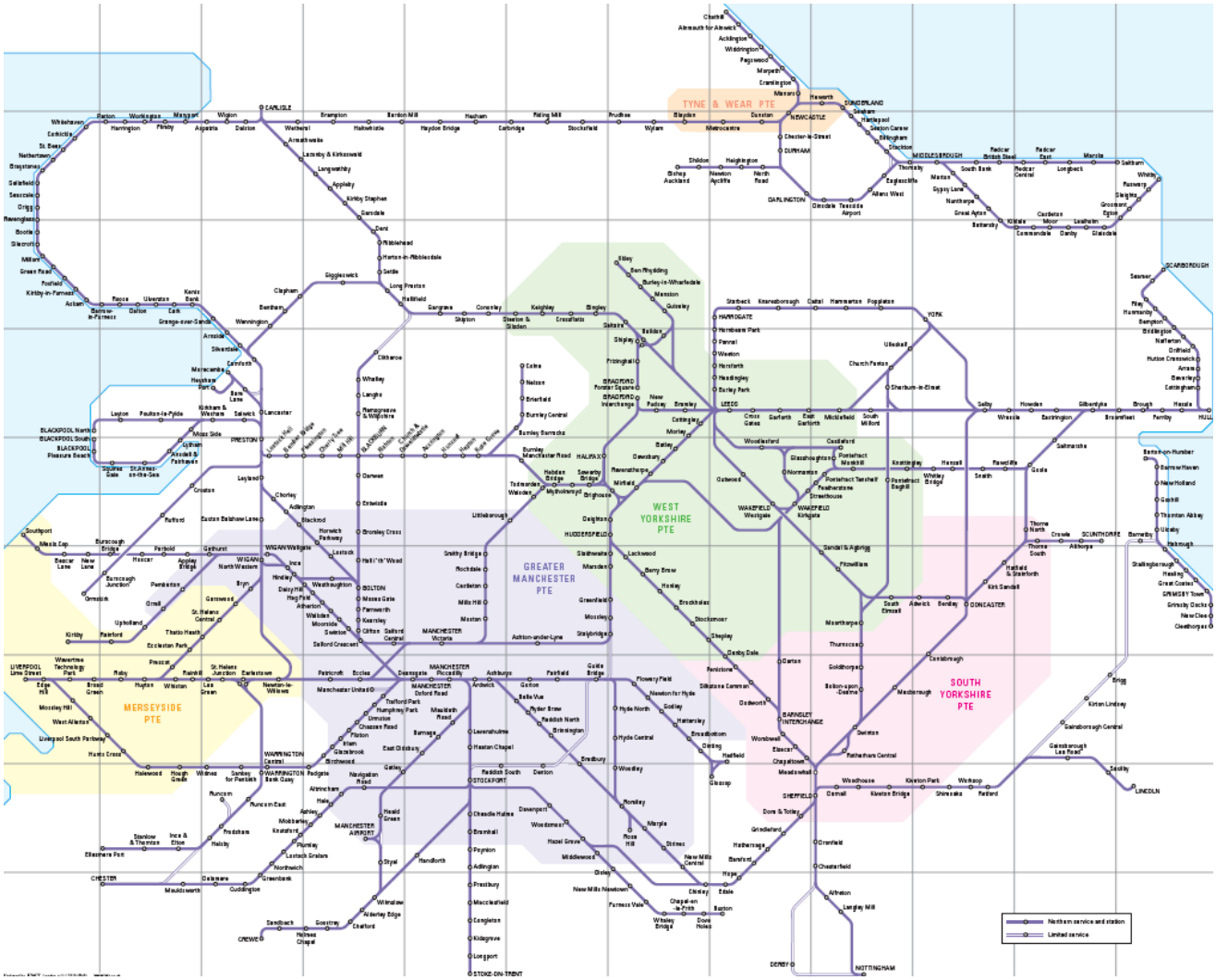
The creation of an enlarged Thameslink group of services will lead to a number of services between Cambridge / Peterborough / Hertford / Welwyn Garden City and Kings Cross / Moorgate remaining on the route to Kings Cross main line and Moorgate. One option to be considered will be the transfer of some or all of these services into the LE franchise. For further details see FC option FC04.

If the EM Norwich to Liverpool service was split at Nottingham then one option for the Norwich to Nottingham section would for it to be added it to LE. This would remove all interfaces form the Norwich to Ely section and reduce the number of operators between Ely and Peterborough. It would, however introduce a new operator into Nottingham.

These options are defined in CC, FC and EM sections of this report.

Northern Rail (NT)

Franchise Map

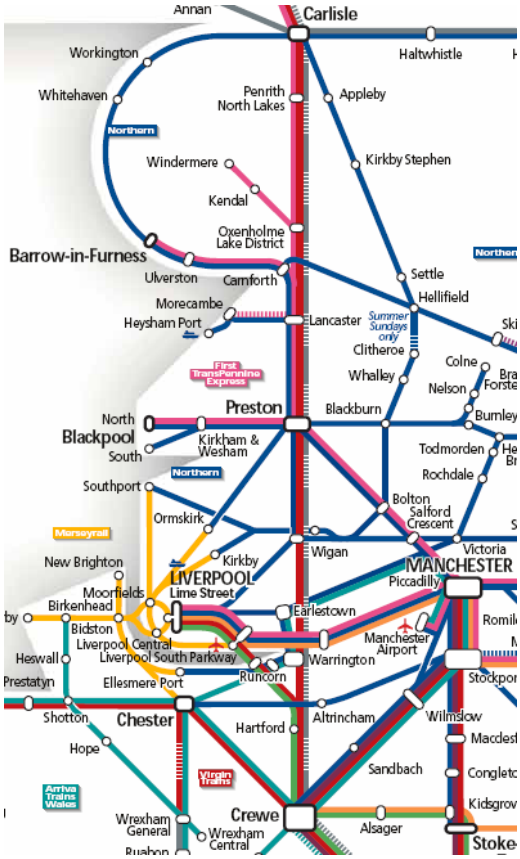


Source: Northern Rail www.northernrail.org/travel/networkmap

Franchise Facts

Northern Rail (NT)		
Franchisee	Serco / Abellio	
Franchise Expires	Sep 2013	
Passenger Journeys	52,181k	
Services	• Cleethorpes – Barton-on-Humber • Hull – York ; Hull – Doncaster; Hull – Sheffield • Lincoln – Scunthorpe • Sheffield – Leeds ; Doncaster – Leeds; Knottingley – Leeds • Sheffield – York; Nottingham – Leeds • Sheffield – Huddersfield • York / Knaresborough – Leeds • Leeds / Bradford Forster Square / Ilkley / Carlisle / Morecambe • Leeds – Huddersfield; Leeds / Huddersfield – Manchester Victoria • Leeds – Selby • Leeds – Manchester Victoria / Blackpool North via Halifax • Hull – Bridlington / Scarborough • Bishop Auckland / Darlington – Saltburn • Hexham – Middlesbrough; Middlesbrough – Whitby • Morpeth – Metrocentre; Newcastle – Carlisle • Manchester Piccadilly – Marple / Rose Hill / New Mills / Sheffield • Manchester Piccadilly – Glossop / Hadfield / Preston / Southport • Manchester Vic – Southport/Clitheroe/Wigan/Kirkby/Blackpool N • Manchester Picc – Manchester Apt/Crewe/Stoke/Chester/Liverpool • Manchester Piccadilly – Hazel Grove / Buxton • Liverpool – Wigan; Ormskirk – Preston • Blackpool South – Colne • Lancaster – Morecambe / Heysham; Barrow - Carlisle	
Train Miles	28,056k	
Resources	DMU • Class 142/4 2 car: 85 • Class 144 3 car: 10 • Class 150 2 car: 40 • Class 153 1 car: 18 • Class 156 2 car: 46 • Class 158 2 car: 45 • Class 180 5 car: 3	EMU • Class 321 4 car: 3 • Class 323 3 car: 17 • Class 333 4 car: 16
Rolling Stock Depots	Heaton, Newton Heath, Neville Hill, Longsight	
Traincrew Depots	Crewe, Liverpool, Manchester Piccadilly, Manchester Victoria, Blackpool North, Preston, Barrow, Carlisle, Whitehaven, Newcastle, Darlington, Hull, Sheffield, Buxton, York, Leeds, Skipton	
Franchise Overlaps	• Manchester – Preston / Blackpool North: TP • Preston – Carnforth: TP, VT • Carnforth – Barrow: TP • Manchester – Liverpool via Warrington: EM, TP • Manchester – Runcorn: AW • Manchester Piccadilly – Airport: TP • Wilmslow – Crewe: VT, AW, XC • Manchester – Sheffield: TP, EM • Sheffield – Doncaster: XC, TP • Doncaster – Selby: EC, XC • Leeds – Selby: TP • Selby – Hull: TP, EC • Selby – York: EC, XC • Doncaster – Scunthorpe: TP • Barnetby – Cleethorpes: TP, EM • Gainsborough – Lincoln: EM • Manchester – Leeds via Stalybridge: TP • Leeds – York: TP, XC • Darlington – Newcastle: EC, TP, XC	
Major Schemes	None	

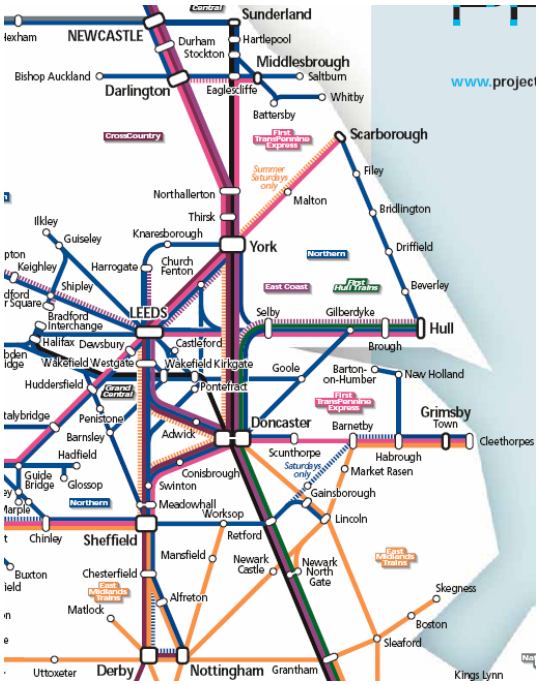
Franchise Interface Maps – West



NT
VT
AW
XC
TP
EM
LM
ME

Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Franchise Interface Maps – East



NT
XC
TP
EM
EC
Open Access
Open Access

Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Passenger Interfaces

Over a quarter of NT passengers travel on flows shared with other TOCs: 27% of passenger journeys and 33% of passenger miles are on jointly served flows.

One half of these journey flows are shared with TP (50%), and flows are also shared with:

- XC (10%) mainly Manchester, Leeds and Sheffield inter-urban flows;
- EM (9%) mainly flows on the Sheffield – Manchester - Liverpool corridor;
- WC (8%), mainly on Manchester flows;
- EC (8%) mainly on Leeds flows; and importantly:
- "Other" mainly Merseyrail Liverpool flows.

The 30 top existing shared journey flows include:

From	To
BOLTON	MANCHESTER BR
STALYBRIDGE	MANCHESTER BR
STOCKPORT	MANCHESTER BR
HUYTON	LIVERPOOL BR
GARFORTH	LEEDS
MANCHESTER AIRPORT	MANCHESTER BR
ST HELENS CENTRAL	LIVERPOOL BR
SALFORD CRESCENT	MANCHESTER BR
LIVERPOOL BR	MANCHESTER BR
MANCHESTER BR	SALFORD CRESCENT
WAKEFIELD BR	LEEDS
GATLEY	MANCHESTER BR
MANCHESTER BR	LIVERPOOL BR
LOSTOCK PARKWAY	MANCHESTER BR
NEWTON-LE-WILLOWS	MANCHESTER BR
HORWICH PARKWAY	MANCHESTER BR
MANCHESTER BR	BOLTON
SHEFFIELD	MEADOWHALL
MANCHESTER BR	MANCHESTER AIRPORT
HEALD GREEN	MANCHESTER BR
BLACKPOOL NORTH	PRESTON
PRESCOT	LIVERPOOL BR
EAST DIDSBURY	MANCHESTER BR
SHEFFIELD	RAILMASTER SOUTH YORKSHIRE-K177
WHISTON	LIVERPOOL BR
LEA GREEN	LIVERPOOL BR
DEWSBURY	LEEDS
WILMSLOW	MANCHESTER BR
PRESTON	LIVERPOOL BR
SHEFFIELD	LEEDS
PRESTON	BLACKPOOL NORTH
IRLAM	MANCHESTER BR

Operational Interfaces and Resources

Northern operates a dense and complex network throughout the north of England. As can be seen from the maps above there is a considerable amount of interface with other operators on a number of routes, particularly with TP. Interfaces with TP have been explored in that section and here we will concentrate on interfaces with other operators.

To the west of the Pennines interfaces exist between Manchester and Liverpool on the Warrington route which is shared with EM along with TP. The section between Liverpool South Parkway and Lime Street is also shared with LM. Local NT services between Manchester and Crewe share the route with VT, XC and AW and between Manchester and Stoke with VT. The southern approach to Manchester Piccadilly is particularly congested and shared between a number of operators. Congestion is particularly exacerbated by NT, TP and EM services crossing the station throat in order to access the Oxford Road route via platforms 13 and 14 at Piccadilly.

NT operates services along the WCML between Wigan, Preston and Carnforth and these need to be accommodated amongst the key high speed VT services along this route and with TP north of Preston.

The north and south Trans-Pennine routes are both shared with other operators, the former with TP and the latter with both TP and EM. The number of operators together with a mixed specification for both fast and stopping services coupled with long absolute block sections creates particular timetabling difficulties on the south route.

To the east of the Pennines the Sheffield area is particularly congested and the Sheffield to Chesterfield section is shared with both EM and XC. Doncaster to Leeds is a difficult route with a mix of fast and stopping services operated by EC, XC and NT.

The Leeds station area is particularly complex and the network is intensively utilised. NT is by far the dominant operator although the services need to be tailored to fit amongst significant volumes of services operated by EC, XC and TP.

NT operates a wide range of diesel and electric rolling stock which is operationally focussed on depots at Newton Heath and Longsight to the west of the Pennines and at Neville Hill and Heaton to the east. The three Trans-Pennine routes (Copy Pit, Standedge and Hope Valley) lead to a significant amount of inter-working of rolling stock between the Manchester and Leeds centred areas.

Franchise Options

Options to place TP into NT are covered in the TP section of the report. NT is a large franchise geographically, and one option would be to split it either side of the Pennines and merge into the main line operators EC and VT.

Option	Description
NT0	Unchanged
NT1	Split NT and merge into EC and VT

South West Trains (SW)

Franchise Map

Source: South West Trains www.southwesttrains.co.uk/networkmap.aspx

Franchise Facts

South West Trains (SW)		
Franchisee	Stagecoach Group	
Franchise Expires	February 2017	
Passenger Journeys	120,122k	
Services	• Waterloo – Kingston / Hounslow / Richmond / Windsor / Reading • Waterloo – Guildford / Hampton Court / Shepperton / Chessington / Dorking / Strawberry Hill / Woking • Waterloo – Alton / Basingstoke • Waterloo – Haslemere / Portsmouth • Waterloo – Poole / Weymouth • Waterloo – Portsmouth via Eastleigh • Waterloo – Salisbury / Yeovil / Exeter / Bristol • Romsey – Salisbury • Brockenhurst – Lymington • Southampton – Portsmouth • Ryde - Shanklin	
Train Miles	24,688k	
Resources	DMU • Class 158 2 car: 10 • Class 159 3 car: 30	EMU • Class 444 5 car: 45 • Class 450 4 car: 155 • Class 455 4 car: 98 • Class 458 4 car: 30 • Class 483 2 car: 6
Vehicle Miles	148,200k	
Rolling Stock Depots	Wimbledon, Northam, Bournemouth, Ryde	
Traincrew Depots	Waterloo, Woking, Farnham, Guildford, Basingstoke, Wimbledon, Strawberry Hill, Staines, Northam, Fratton, Bournemouth, Weymouth, Salisbury, Ryde	
Franchise Overlaps	There is relatively little overlap with adjacent franchises except: • Wokingham – Reading: GW • Epsom – Dorking / Guildford: SO • Havant – Portsmouth: SO • Portsmouth / Havant – Southampton: SO, GW • Southampton – Bristol: GW • Basingstoke – Bournemouth: XC • Dorchester – Weymouth: GW • Exeter Central – St Davids: GW	
Major Schemes	None	

Franchise Interfaces Map

Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Passenger Interfaces

SW flows are largely self-contained within the TOC: 16% of passenger journeys and 13% of passenger miles are on jointly served flows

The majority of these journey flows are shared with SN (61%), including Clapham Junction as an interchange for London BR flows, and the jointly served Epsom route. Flows are also shared with:

- GW (20%) Wokingham, Salisbury-Portsmouth/ Exeter route flows; and
- XC (9%) on the Basingstoke – Bournemouth main line flows

The 30 top existing shared journey flows include:

From	To
CLAPHAM JUNCTION LONDON	LONDON BR
EPSOM	LONDON BR
LEATHERHEAD	LONDON BR
ASHTEAD	LONDON BR
WOKINGHAM	LONDON BR
LONDON BR	CLAPHAM JUNCTION LONDON
DORKING BR	LONDON BR
LONDON BR	WIMBLEDON
SOUTHAMPTON CENTRAL	WINCHESTER
LONDON BR	PORTSMOUTH BR
BOURNEMOUTH	BROCKENHURST
WINCHESTER	SOUTHAMPTON CENTRAL
HAVANT	PORTSMOUTH BR
WOKINGHAM	READING BR
LONDON BR	EPSOM
LONDON BR	EARLSFIELD
LONDON BR	ASCOT
FAREHAM	LONDON BR
EARLEY	LONDON BR
LONDON BR	BRACKNELL
FAREHAM	PORTSMOUTH BR
COSHAM	PORTSMOUTH BR
BOOKHAM	LONDON BR
PORTSMOUTH BR	HAVANT
BOURNEMOUTH	SOUTHAMPTON CENTRAL
BASINGSTOKE	WINCHESTER
WINCHESTER	BASINGSTOKE
LONDON BR	RAYNES PARK
LONDON BR	LEATHERHEAD
READING BR	WOKINGHAM

Operational Interfaces and Resources

SW is the sole operator at Waterloo station and interfaces with other operators are mostly limited to the fringes of the franchise area as can be seen from the Overlaps Maps above. Important exceptions are the main line between Basingstoke and Bournemouth shared with XC, the Coastway route between Portsmouth and Southampton shared with GW and SC, between Epsom, Dorking and Guildford shared with SC and between Wokingham and Reading shared with GW.

Rolling stock comprises primarily a large electric fleet of classes 444, 450, 455 and 458, supplemented by diesel classes 158 and 159 used on the Salisbury and Exeter routes. The class 455 fleet is of a common base design to that operated by SC although each has been recently refurbished to a significantly different specification.

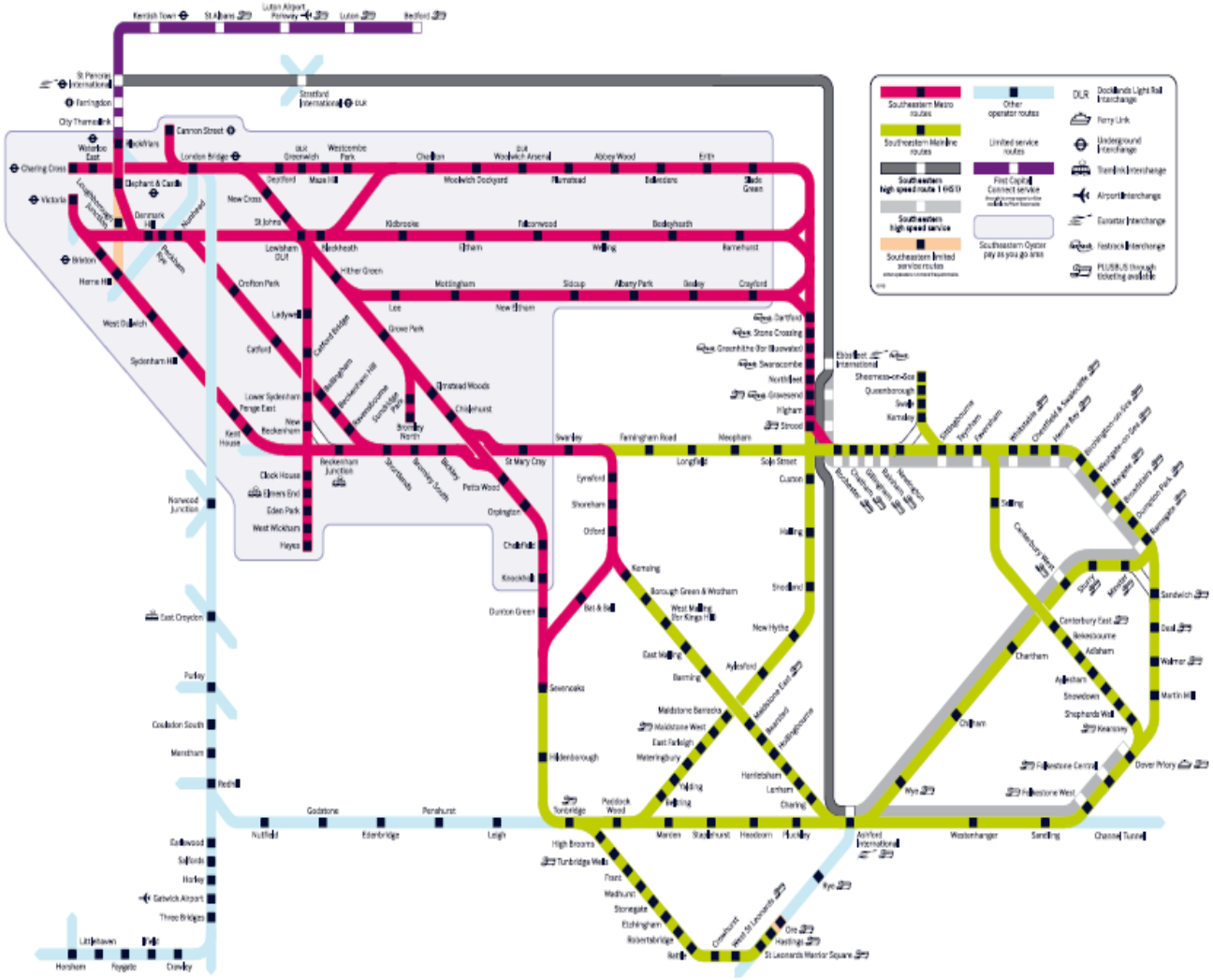
With the exception of the small number of SW services to Bristol and the far western end of the Exeter line, all SW services operate within NR's Wessex Route.

Franchise Options

In the SN section of this report the option of merging SE, ST and SW into a "Southern Region" TOC is identified. The GW section identified the possible option to transfer North Downs services to SW (or to SN).

South Eastern (SE)

Franchise Map



Source: Southeastern http://www.southeasternrailway.co.uk/your-journey/network-map/

Franchise Facts

South Eastern (SE)	
Franchisee	Go Ahead
Franchise Expires	2015 (Can be handed back Apr 2012)
Passenger Journeys	102,371k
Services	• St Pancras – Dover / Margate , Faversham • Victoria – Dartford / Orpington • Victoria – Ashford via Maidstone • Charing Cross / Cannon St – Dartford / Gillingham via Bexleyheath, Sidcup, Plumstead, Hayes • Charing Cross / Cannon St – Orpington / Sevenoaks • Grove Park – Bromley North • Charing Cross – Tunbridge Wells / Hastings • Charing Cross – Dover / / Canterbury West via Deal and Wye • Strood – Maidstone – Paddock Wood • Victoria – Dover / Ramsgate via Faversham • Sittingbourne – Sheerness
Train Miles	20,981k
Resources	EMU • Class 375 3 car: 10 • Class 375 4 car: 102 • Class 376 5 car: 36 • Class 395 6 car: 29 • Class 465 4 car: 147 • Class 466 2 car: 43
Vehicle Miles	124,152k
Rolling Stock Depots	Ashford, Ramsgate, Gillingham, Slade Green
Traincrew Depots	Victoria, Slade Green, Grove Park, Sevenoaks, Ramsgate, Dover, Ashford, Faversham, Hastings,
Franchise Overlaps	There is currently little overlap with adjacent franchises except: • London Bridge: FC • Denmark Hill – Nunhead via Catford: FC • Shortlands – Sevenoaks via Swanley: FC
Major Schemes	Thameslink

Franchise Interfaces Map

Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

SE
FC
SN

Passenger Interfaces

SE flows are very largely self-contained within the TOC: Only 6% of passenger journeys and 6% of passenger miles are on jointly served flows.

The majority of these journey flows are shared with SN (55%), including Hastings area to London BR flows.

Flows are also shared with FCC (24% of shared journeys) on Catford loop flows and the Maidstone East line via Herne Hill

The 30 top existing shared journey flows include:

From	To
MAIDSTONE BR	LONDON BR
SWANLEY	LONDON BR
HERNE HILL	LONDON BR
PENGE BR	LONDON BR
HASTINGS	LONDON BR
PECKHAM RYE	LONDON BR
LONDON BR	BECKENHAM JUNCTION
LONDON BR	HASTINGS
LONDON BR	HERNE HILL
ST LEONARDS W S	LONDON BR
LONDON BR	DENMARK HILL LONDON
LONDON BR	PECKHAM RYE
LONDON BR	PENGE BR
EAST DULWICH	LONDON BR
LONDON BR	RYE
BEXHILL	LONDON BR
RYE	LONDON BR
LONDON BR	CROFTON PARK
LONDON BR	SYDENHAM HILL
LONDON BR	KENT HOUSE
NORTH DULWICH	LONDON BR
BROMLEY SOUTH	ELEPHANT & CASTLE
GRAVESEND CENTRAL	DENMARK HILL LONDON
DARTFORD	DENMARK HILL LONDON
SHORTLANDS	ELEPHANT & CASTLE
LONDON BR	ST LEONARDS W S
CATFORD BR	ELEPHANT & CASTLE
QUEEN'S ROAD PECKHAM	LONDON BR
HAM STREET & ORLESTONE	LONDON BR
LONDON BR	STRATFORD

Operational Interfaces and Resources

There is currently little interface between the SE network and other operators. Interface is limited to the London Bridge station area and the Sevenoaks via Catford Loop services with FC. Interface at the fringes exists with SC at between St Leonards and Hastings and in Ashford station.

Rolling stock is 100% electric and the Networker class 465/6 stock is not in use elsewhere. The class 375 Electrostars are of a similar specification to the Electrostar fleet operated by SN and the operation of a combined fleet might realise economies in terms of optimised maintenance and deployment.

With the exception of the high speed services on HS1, all services operate within NR's Kent route.

The timetable plans for the enlarged Thameslink operation will see services on the Maidstone East route being provided by that operator.

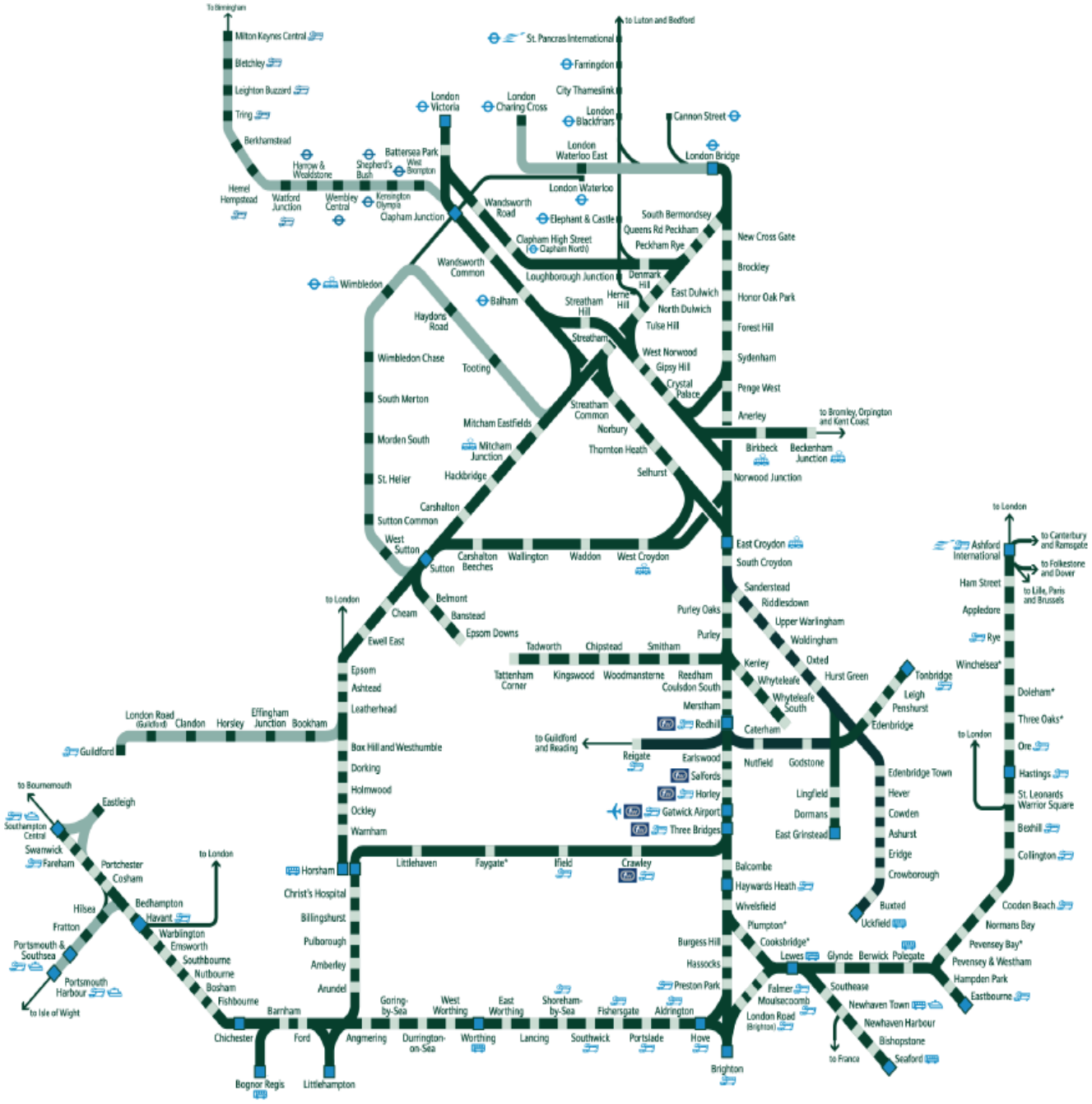
Franchise Options

Potential options for absorbing FC Thameslink services into SN and SE merging into SN, and adding SW, SN and SE together are set out in the FC, SN and SW sections of this report.

Clearly extracting HS1 domestic services from "Integrated Kent" franchise would create significant new interfaces and is not proposed as an option to study.

Southern (SN)

Franchise Map

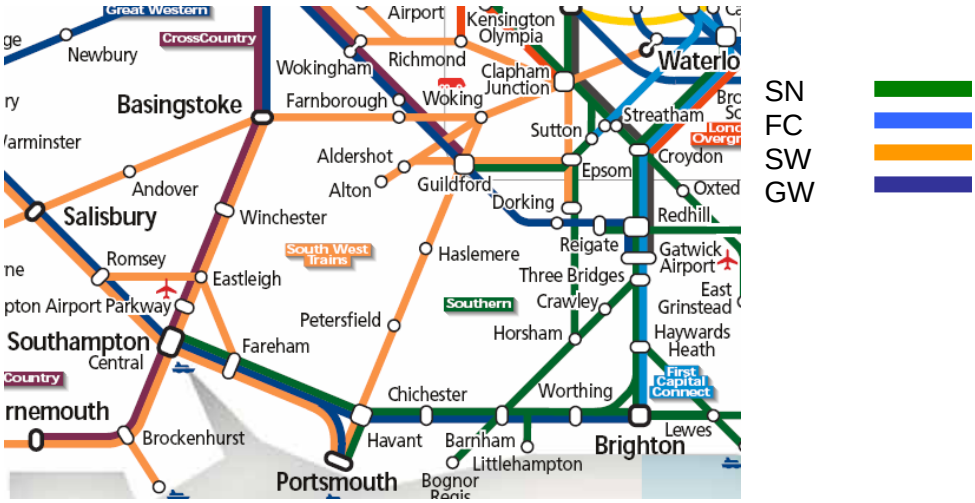


Source: Southern www.southernrailway.com/your-journey/network-map/

Franchise Facts

Southern (SN)	
Franchisee	Go Ahead
Franchise Expires	Sep 2016/7
Passenger Journeys	106,653k
Services	• Victoria – Sutton / Epsom / West Croydon / Crystal Palace • London Bridge – Beckenham Jn / Victoria / Horsham / Reigate / Tonbridge • Victoria / London Bridge – Caterham / Tattenham Corner • Victoria – East Grinstead / Horsham • Victoria – Gatwick Airport / Brighton / Eastbourne / Ore / Littlehampton • Victoria – Horsham / Portsmouth / Bognor / Southampton • London Bridge - Uckfield • East Croydon – Milton Keynes • Brighton – Hove / West Worthing / Portsmouth • Littlehampton - Bognor / Portsmouth • Brighton – Lewes / Seaford / Ore / Ashford
Train Miles	23,325k
Resources	DMU • Class 171 2 car: 10 • Class 171 4 car: 6 EMU • Class 313 3 car: 20 • Class 377 3 car: 28 • Class 377 4 car: 154 • Class 442 5 car: 17 • Class 455 4 car: 46 • Class 456 2 car: 24
Vehicle Miles	54,988k
Rolling Stock Depots	Brighton, Selhurst, Stewarts Lane
Traincrew Depots	Eastbourne, Brighton, Barnham, Horsham, Redhill, Epsom, Selhurst, Norwood, Victoria, London Bridge, Caterham
Franchise Overlaps	• London Bridge – Brighton: FC • Reigate – Redhill: GW • Redhill – Gatwick: GW, FC • Epsom – Guildford / Dorking: SW • Brighton – Havant: GW • Portsmouth / Havant – Southampton: SW, GW
Major Schemes	Thameslink. Extended East London Line further extension

Franchise Interface Maps



Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Passenger Interfaces

Approximately one third of SN flows are shared with other TOCs: 34% of passenger journeys and 39% of passenger miles are on jointly served flows.

The majority of these journey flows are shared with FC (72%), including Brighton main line flows.

Flows are also shared with:

- SW (14%) on Epsom line and Clapham Junction interchange for London BR flows; and
- SE (only 5%) e.g. Peckham Rye – London, and Bexhill – London

The 30 top existing shared journey flows include:

From	To
GATWICK AIRPORT	LONDON BR
LONDON BR	GATWICK AIRPORT
BRIGHTON	LONDON BR
SUTTON (SURREY)	LONDON BR
REDHILL	LONDON BR
HAYWARDS HEATH	LONDON BR
LONDON BR	BRIGHTON
PECKHAM RYE	LONDON BR
THREE BRIDGES	LONDON BR
LONDON BR	CROYDON BR
CLAPHAM JUNCTION LONDON	LONDON BR
REIGATE	LONDON BR
EPSOM	LONDON BR
HACKBRIDGE	LONDON BR
STREATHAM	LONDON BR
TULSE HILL	LONDON BR
LONDON BR	CLAPHAM JUNCTION LONDON
DORKING BR	LONDON BR
BURGESS HILL	LONDON BR
HASSOCKS	LONDON BR
LEATHERHEAD	LONDON BR
EAST CROYDON	GATWICK AIRPORT
HAVANT	PORTSMOUTH BR
LONDON BR	REDHILL
LONDON BR	SUTTON (SURREY)
MAIDSTONE BR	LONDON BR
BEXHILL	LONDON BR
MITCHAM EASTFIELDS	LONDON BR
ASHTEAD	LONDON BR
CROYDON BR	LONDON BR

Operational Interfaces and Resources

The principal interface between SC and other operators exists on the Brighton main line which is shared with FC throughout from London Bridge. A key constraint on this route are the 2-track sections south of Three Bridges and the competing demands of SC's Brighton, Eastbourne and Coastway West services with the 4tph Bedford to Brighton service operated by FC.

Interface with SW exists between Epsom and Dorking / Guildford and along with GW on the south coast route between Portsmouth and Southampton. The latter route comprises a complex timetable owing to the competing needs of local and longer distance flows and the number of junctions particularly in the Barnham / Ford area.

The electric fleet comprises class 455 inner suburban units as operated by SW (although refurbished to a different specification. These are supplemented by the 2-car class 466 units, particularly for peak strengthening on 10-car routes. The class 377 electrostars are of a similar specification to the class 375s of SE and the 3-car variants useful for achieving 9 and 10 car formations in the peaks to suit maximum platform lengths. The class 313s have recently been refurbished for use on the Coastway network in order to release class 377s to strengthen other services.

Other than at the fringes, all services operate within NR's Sussex Route.

The enhanced Thameslink specification will result in a number of existing SN services being incorporated within that operation e.g. to Horsham, Caterham and peak services to East Grinstead. Notably the latest specification does not include services to Eastbourne and Littlehampton as previously envisaged to become part of Thameslink.

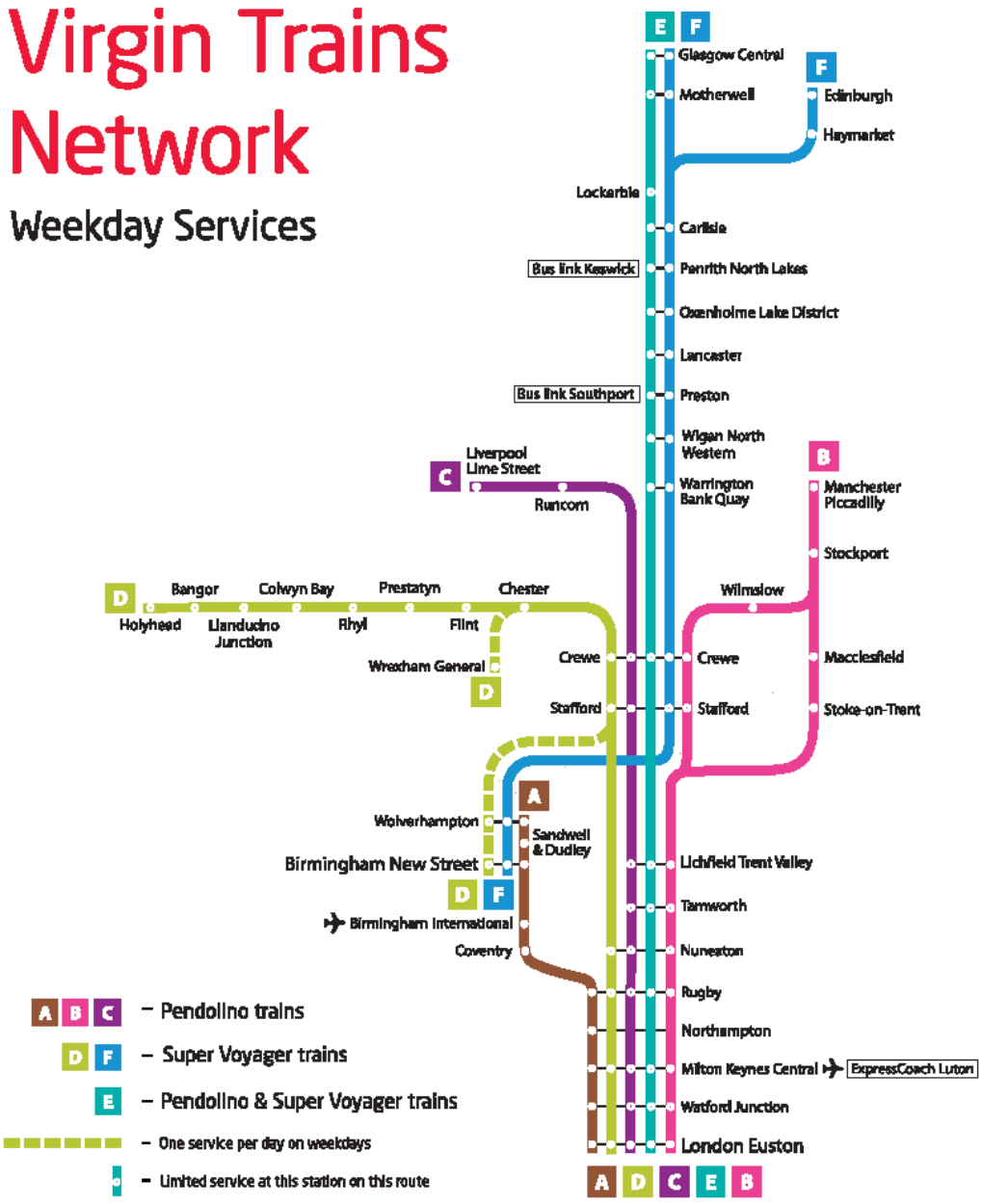
Franchise Options

Future options for SN are most likely to revolve around the future Thameslink service and these have been considered in that section of this report. Merging with SE may be worth examination: it is notable that these two TOCs have been operated by the same franchise operator (previously Connex and now Govia). A potential option for the combination of all three south of the river TOCs (SE, SN and SW) could explore whether further efficiencies and synergies could be realised from a greater "Southern Region" TOC.

Option	Description
SN0	Unchanged
SN1	Merge with SE
SN2	Merge with FC and SE
SN3	Merge with SE and SW

Virgin Trains (VT)

Franchise Map

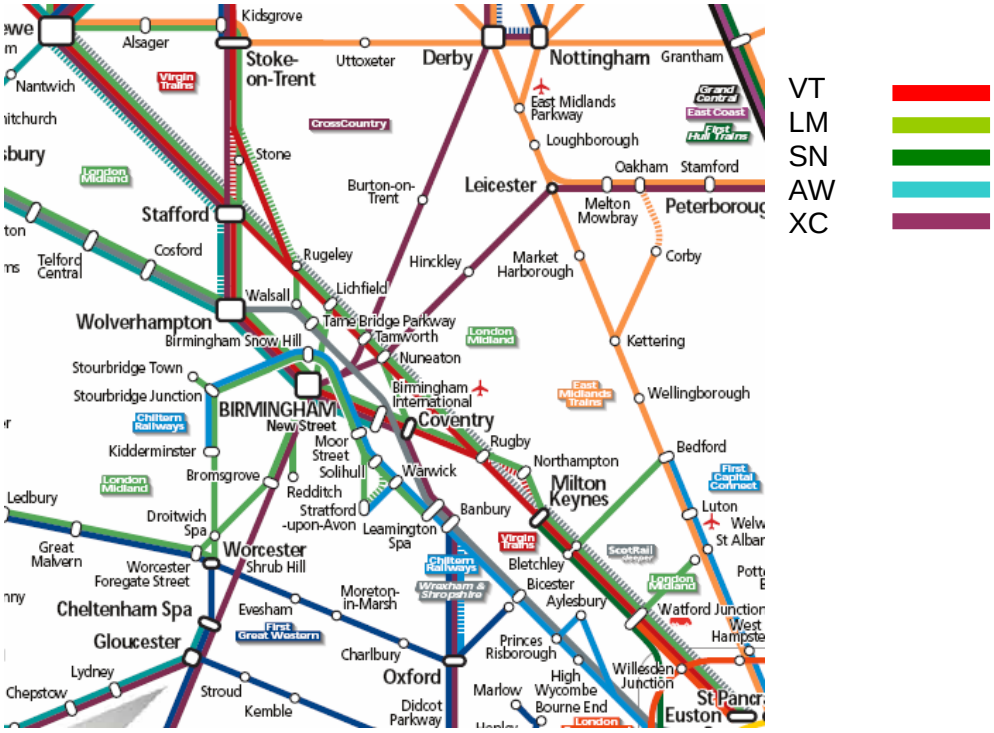


Source: Virgin Trains www.virgintrains.co.uk/routes-stations/

Franchise Facts

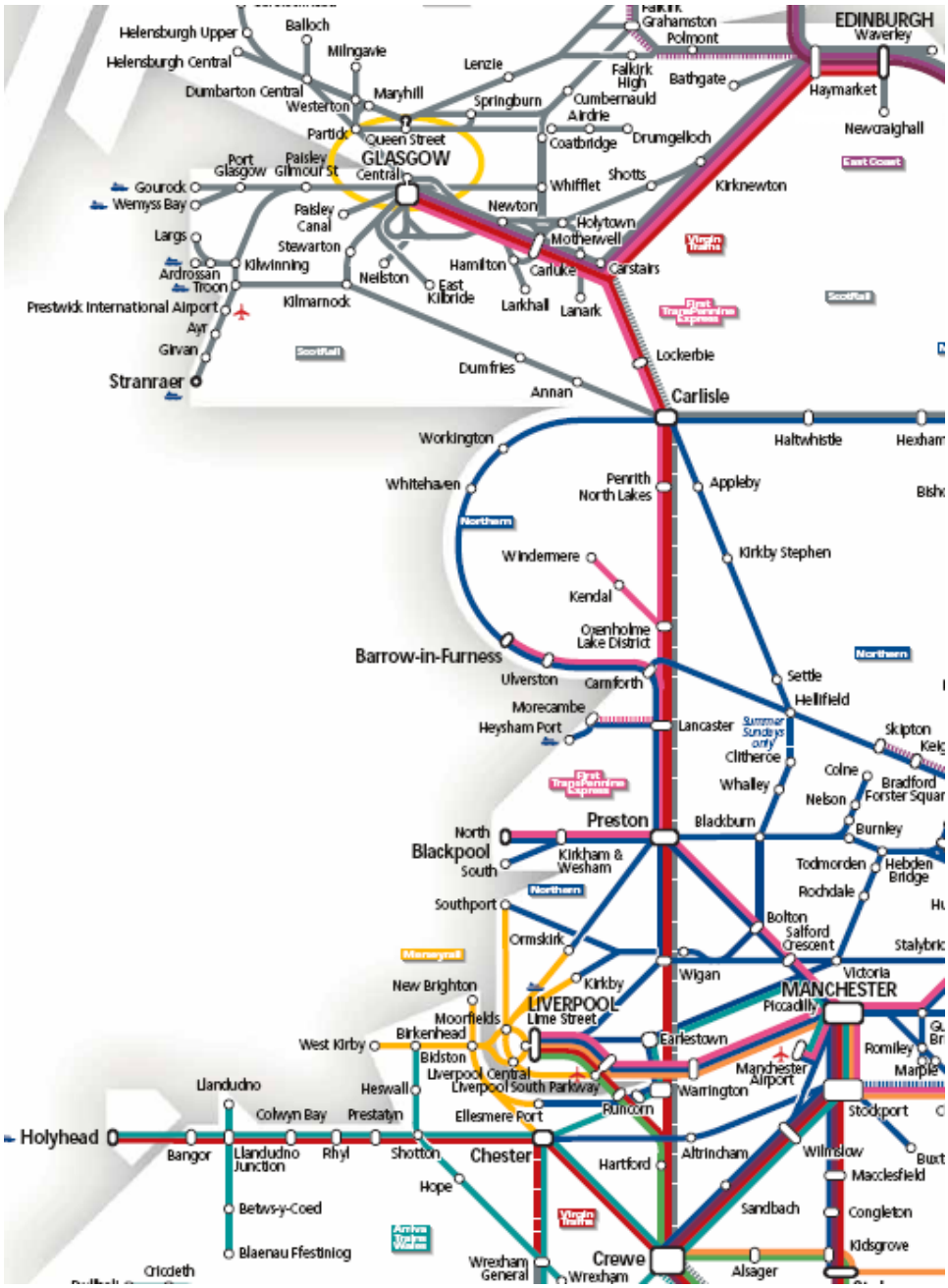
Virgin Trains (VT)		
Franchisee	Virgin	
Franchise Expires	Apr 2012	
Passenger Journeys	21,336k	
Services	• Euston – Birmingham / Wolverhampton • Euston – Manchester / Liverpool • Euston – Preston / Lancaster / Glasgow • Euston – Chester / Wrexham / Holyhead • Birmingham – Glasgow / Edinburgh	
Train Miles	22,219k	
Resources	DMU • Class 221 5 car: 21	EMU • Class 390 9 car: 53
Vehicle Miles	170,946k	
Rolling Stock Depots	Longsight, Wembley, Central Rivers	
Traincrew Depots	Euston, Birmingham New Street, Wolverhampton, Crewe, Manchester, Liverpool, Preston, Carlisle, Glasgow, Edinburgh	
Franchise Overlaps	Virgin Trains operates over a network shared completely with other operators as follows; • Euston – Watford Jn: LM • Watford Jn – Milton Keynes: LM, SN • Rugby – Stafford / Coventry: LM • Coventry – Birmingham International: LM, XC • Birmingham International – Stafford - Crewe: LM, XC, AW • Stafford – Stoke: LM, XC • Crewe – Chester / Wrexham / Holyhead: AW • Crewe – Liverpool South: LM • Liverpool South – Lime St: LM, EM, TP, NT • Wigan – Preston: NT • Preston – Carnforth: NT, TP • Carnforth – Carstairs: TP • Carstairs – Glasgow / Edinburgh: TP, SR, EC	
Major Schemes	HS2	

Franchise Interface Maps – South



Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

Franchise Interface Maps – North



Source: National Rail, Train Operators
www.nationalrail.co.uk/passenger_services/maps/nationalrailoperatorsmap.pdf

VT
LM
AW
XC
NT
TP
EM

Passenger Interfaces

Over half of VT passenger flows are shared with other TOCs: 56% of passenger journeys and 37% of passenger miles are on jointly served flows

38% of these jointly served flows are shared with LM on the southern section of the West Coast Main Line, principally London flows.

Flows are also shared with:

- CH (10%) Birmingham – London BR;
- NT (9%) feeder flows to WCML, and Manchester area flows;
- TP (8%) on the northern section of the WCML; and
- "Other" (13%) mainly North Wales flows

The 30 top existing shared journey flows include:

From	To
MILTON KEYNES CENTRAL	LONDON BR
BIRMINGHAM BR	LONDON BR
LONDON BR	BIRMINGHAM BR
COVENTRY	BIRMINGHAM BR
LONDON BR	MILTON KEYNES CENTRAL
MACCLESFIELD	MANCHESTER BR
GLASGOW BR	LONDON BR
STOKE-ON-TRENT	MANCHESTER BR
STOKE-ON-TRENT	LONDON BR
STOCKPORT	MANCHESTER BR
LONDON BR	GLASGOW BR
LONDON BR	WOLVERHAMPTON
STAFFORD	LONDON BR
BIRMINGHAM INTERNATIONAL	BIRMINGHAM BR
BIRMINGHAM BR	BIRMINGHAM INTERNATIONAL
LONDON BR	STOKE-ON-TRENT
BIRMINGHAM BR	COVENTRY
RUGBY	BIRMINGHAM BR
CREWE	MANCHESTER BR
WOLVERHAMPTON	BIRMINGHAM BR
LONDON BR	RUGBY
LANCASTER	PRESTON
NUNEATON TRENT VALLEY	LONDON BR
NORTHAMPTON	LONDON BR
LONDON BR	STAFFORD
WILMSLOW	MANCHESTER BR
MILTON KEYNES CENTRAL	BIRMINGHAM BR
MANCHESTER BR	STOKE-ON-TRENT
LICHFIELD TRENT VALLEY	LONDON BR
MANCHESTER BR	MACCLESFIELD

Interface Issues and Resources

Like EC, all VT services operate over routes shared with other operators. The southern part of the WCML is shared with LM who provide all local services over the Slow Lines but also operate the fast Northampton trains over sections of the Fast Lines. The Coventry and Wolverhampton corridors are described in the LM section. The two routes to Manchester are shared with NT local services and with XC. The route via Crewe also sees the hourly AW service from Cardiff. The section from Stockport into Manchester is particularly congested and is shared with a number of operators.

The route from Weaver Junction to Liverpool is shared with LM throughout and additionally with EM, TP and NT over the final section between Liverpool South Parkway and Lime Street.

Interfaces on the northern section of the WCML beyond Crewe are predominantly with NT between Wigan and Carnforth and with TP between Preston and Glasgow / Edinburgh. The approaches to Edinburgh and Glasgow are particularly congested and the main interfaces are with SR services which are outside the scope of this study.

VT serves Chester and the North Wales Coast and there are interfaces throughout the route with AW, the principal operator. Services within Wales are, however, outside the scope of this study.

The principal VT fleet is the class 390 Pendolino that operates the majority of services form Euston. This is supplemented by the diesel class 221 Voyager fleet that operates the services off the electrified network to Chester and Holyhead along with those between Birmingham and Scotland via the WCML.

Franchise Options

Options for VT to absorb the western half of NT, the WCML services of TP, and LM's WCML services are set out in the NT, TP, and LM sections of this report.

With the infill electrification in the North West, it may be possible to combine provision of Birmingham – Scotland and Manchester – Scotland services. InterCity operated such a combined route. This Birmingham - Manchester – Scotland route, could then potentially be EMU operated.