

Route Plans 2008
Route 19
Midland Main Line
and East Midlands



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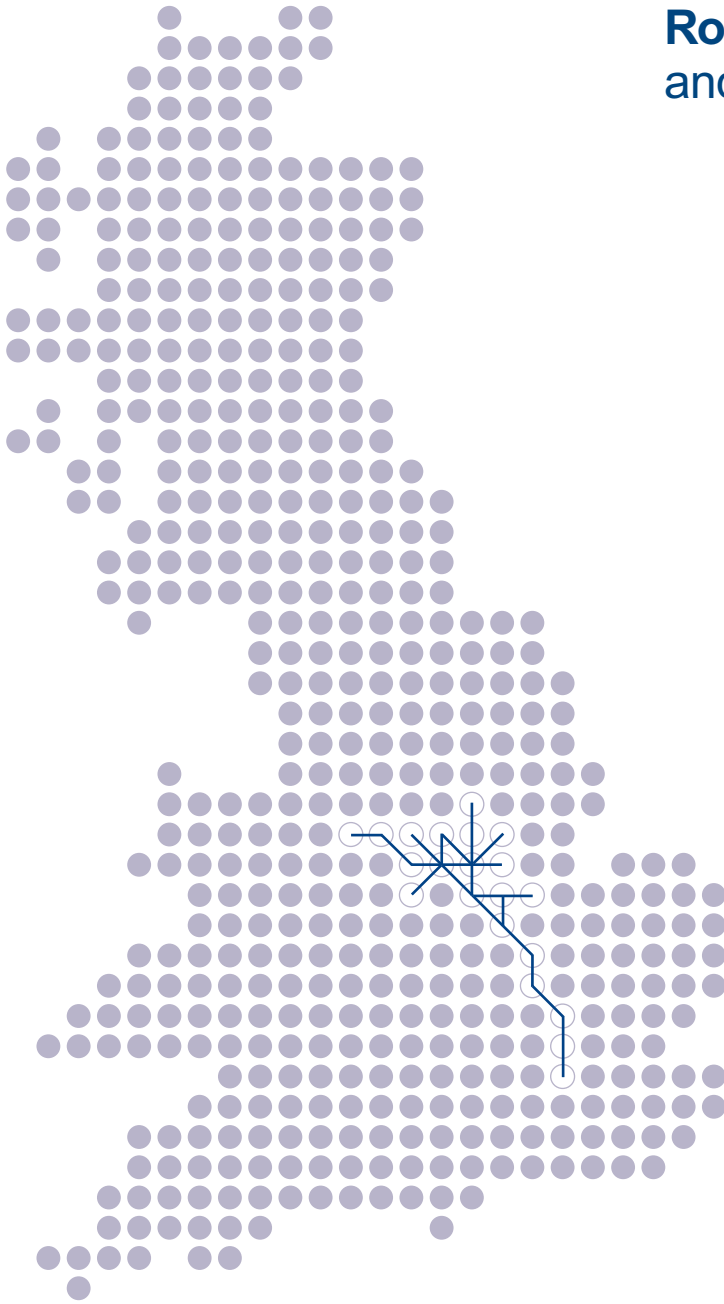


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Route 19 Midland Main Line and East Midlands



Section 1: Today's railway

Route context

This route covers the Midland Main Line (MML) from St Pancras to Chesterfield, along with the East Midlands local routes radiating from Derby, Nottingham and Leicester as far as the East Coast Main Line (ECML) and West Coast Main Line (WCML). This route serves a large number of communities in North London, the Home Counties and the East Midlands. It carries significant volumes of long distance, commuter and other local passenger services, and a number of key freight flows.

The London to Leicester section, which parallels the M1 motorway, is the primary link between the

East Midlands and London and is mainly used for long distance journeys, London commuting and freight services. A mixture of local, long distance and freight traffic exists north of Leicester on a network of routes. The Chesterfield – Derby – Burton-on-Trent section forms part of the North East/Yorkshire to West Midlands link and is key to both cross-country passenger and freight trains.

Key features causing capacity constraints and affecting performance are the heavily used sections between London and Bedford (with particular problems of platform capacity at St Pancras International and Bedford), and between Trent Junctions and Nottingham.

Work is underway on the East Midlands Route Utilisation Strategy (RUS), led by Network Rail on behalf of the industry. The RUS covers this route and a small section of Route 11 not included in the Yorkshire and Humber RUS.

The DfT has published two Regional Planning Assessments (RPA) relevant to the route covering the East Midlands and the East of England.

Today's route

The route's four main elements are described below. The relevant Strategic Route Section is shown in brackets:

- Midland Main Line – London to Chesterfield, via Derby and Nottingham. The south end of the route, from Bedford to St. Pancras, forms part of the Thameslink network (19.01, 19.02, and most of 19.03 and 19.04);
- East Midlands local routes (part of 19.04, 19.05, 19.06, 19.07 and 19.10);
- Cross Country routes – Derby to Burton-on-Trent and Nuneaton to Peterborough (part of 19.03, 19.08 and 19.09);
- freight only routes – including the following through lines (19.11 and 19.12);
- Wigston Junction – Burton on Trent;
- Pye Bridge Junction – Kirkby Summit Junction;
- Kettering – Manton Junction; and
- Sheet Stores Junction – Stenson Junction.

Current passenger and freight demand

The London to Leicester section serves commuters, long distance passengers and freight, and is experiencing a considerable increase in commuter journeys.

From both Leicester and Burton-on-Trent to Derby the route serves long distance as well as local passenger markets while north of Derby the main passenger traffic is medium to long distance. The Chesterfield – Derby – Burton-on-Trent section forms part of the North East – Yorkshire – West Midlands link and is crucial for both cross country passenger and freight services.

The route also provides access to Nottingham for both local and long distance services.

The main passenger markets are:

- long distance journeys between London and the East Midlands and South Yorkshire;
- commuter journeys particularly from East Northamptonshire, from the Home Counties and North London into the Capital;
- commuter and other local journeys in the East Midlands; and
- medium to long distance cross country journeys to/from the East Midlands and through journeys connecting the North West, North East, Yorkshire, East Anglia, the West Midlands and South West.

Freight demand generally falls into three categories:

- aggregates traffic from various quarries on the route and from the Buxton area on Route 11 to East Anglia and the South East;
- coal traffic from the loading points on the route and/or to the power station on the route at Ratcliffe (north of Loughborough); and
- through workings from Northern England to the West Midlands and South West, mostly operating via Chesterfield, either through Derby or via the Erewash Valley through Langley Mill. However, some flows from the Humber ports run via Newark and Nottingham.

Current services

East Midlands Trains (operated by Stagecoach), CrossCountry (operated by Arriva) and First Capital Connect operate passenger services on this route along with English Welsh & Scottish Railway Ltd, Freightliner Ltd, Freightliner Heavy Haul Ltd and GB Railfreight Ltd providing freight services.

The commuter services at the southern end of the route form part of the Thameslink service which is operated by First Capital Connect with an off-peak pattern of four semi-fast services between Bedford and London with four slow services between Luton and London. All these trains operate through the low level platforms at St Pancras International to Farringdon and Blackfriars to serve locations south of London as far afield as Brighton. There are additional trains in the peak periods, many of which operate to/from Moorgate. Significant crowding problems exist on peak services.

The majority of the remaining services are operated by East Midlands Trains. There are currently two fast services per hour between London St Pancras and Leicester with one operating to/from Sheffield via Derby and the other serving Nottingham, and two semi-fast services from London (one to each of Derby and Nottingham). Some of the semi fast services are extended to/from other locations such as Barnsley while some of the fast Sheffield trains are extended to/from Leeds.

A long distance interurban service operates hourly between Norwich and Liverpool, via Grantham, Nottingham, Chesterfield and Sheffield.

East Midlands Trains also operates all the local services on the route, extending to a number of off route destinations, as listed below.

- Leicester – Nottingham – Lincoln;
- Nottingham – Skegness;
- Nottingham – Worksop via Mansfield (the Robin Hood Line);
- Derby – Crewe; and
- Derby – Matlock.

These run at broadly hourly frequencies, but when combined with interurban services provide a two train per hour service on some key route sections.

The other passenger trains are operated by CrossCountry who provide an integrated network that links virtually all GB's nations and regions. Long distance services operate between Aberdeen and Penzance, Manchester and Bournemouth, Nottingham and Cardiff, and Birmingham and Stansted. On this route the pattern of service is two tph between Newcastle and Birmingham with one of these running to/from Bristol, and the other extending to Edinburgh and the South or South West. These operate via Chesterfield, Derby and Burton-on-Trent and form part of the Birmingham to Leeds corridor which is one of the busiest parts of the CrossCountry network.

In addition, CrossCountry operates local services between Birmingham and Leicester, and two interurban services:

- Stansted Airport – Cambridge - Birmingham via Peterborough and Leicester ; and
- Nottingham – Derby – Birmingham – Cardiff.

Figure 1 shows the current level of service to St Pancras International (MML platforms) and its low level (Thameslink) platforms from principal stations.

Figure 1 St Pancras International / Thameslink – current train service level (trains per hour)	
Originating Station	tph to London St Pancras International /Thameslink
Bedford	11 peak / 6 off peak
Leicester	4
Derby	2
Nottingham	2
Sheffield	1

Figure 2 shows the total annual tonnage levels on the route.

Traffic volumes are summarised in Figure 3.

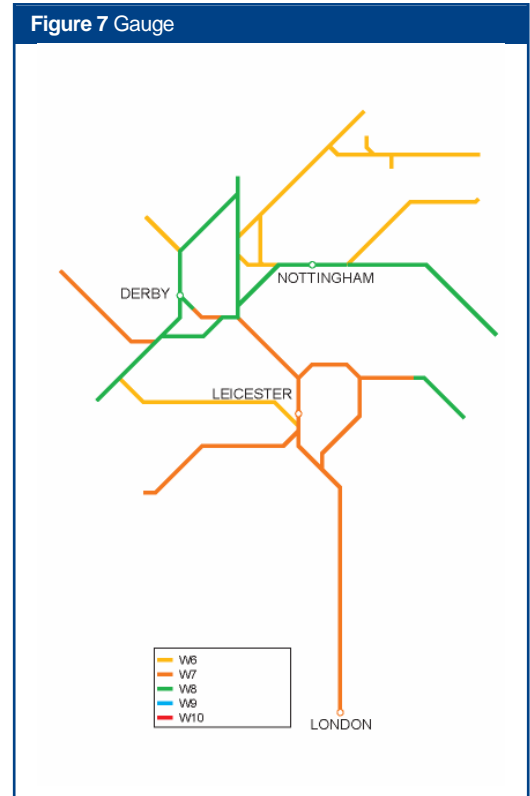
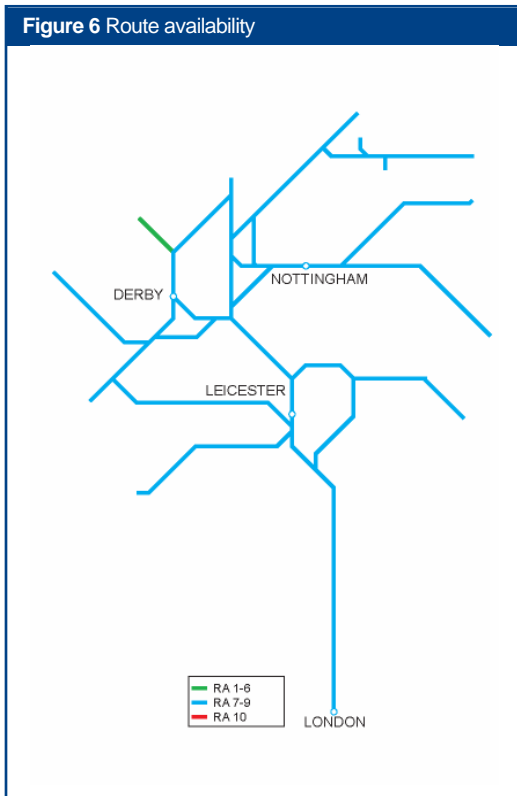
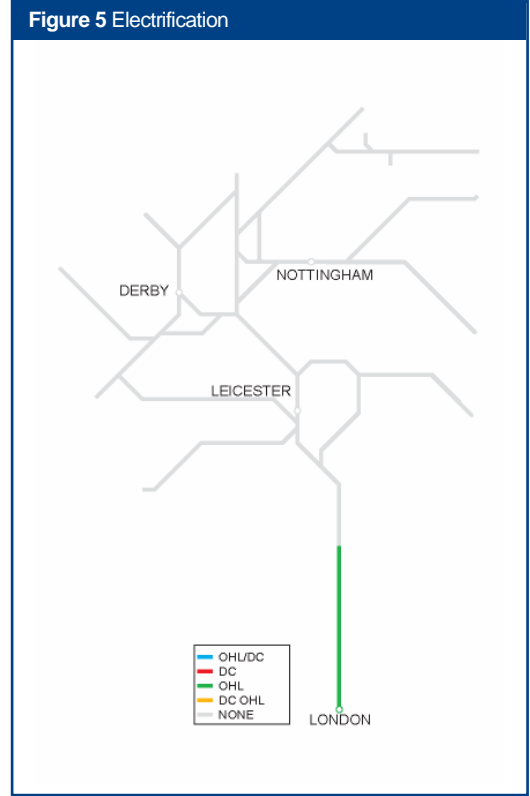
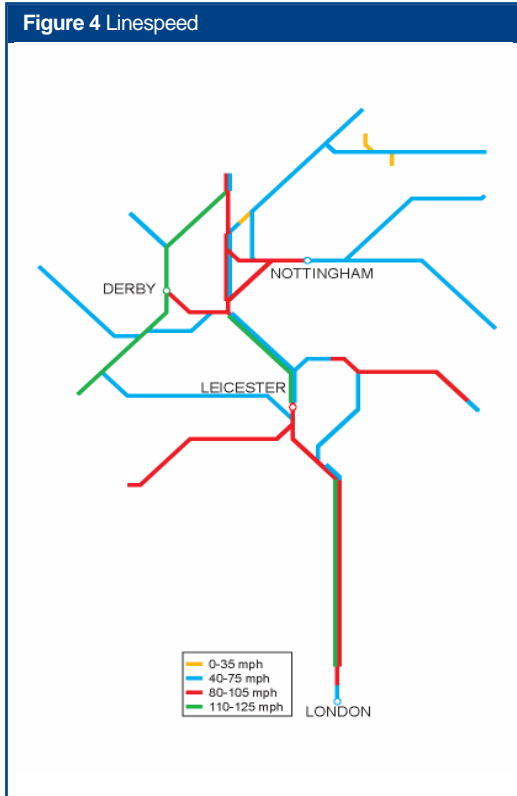


Figure 3 Current use

	Passenger	Freight	Total
Train km per year (millions)	24	4	27
Train tonne km per year (millions)	6,226	3,776	10,002

Current infrastructure capability

The following maps set out the capability of the current network.



Current capacity

The busiest sections of the route, which run at or near capacity at peak times, are from London to Bedford and between Trent Junctions and Nottingham. The most heavily loaded trains on the route are those on London peak commuter services south of Bedford.

St. Pancras International has just four platforms for all East Midlands Trains services in the main train shed. The remainder of this part of the station is used by Eurostar and Kent services using High Speed 1 (the Channel Tunnel Rail Link). The number of platforms constrains capacity significantly. There are also two low level platforms for Thameslink corridor trains.

Other major capacity constraints include:

- current signalling control arrangements on the approach to junctions at Radlett, Harpenden and Leagrave, when trains need to cross between the fast and slow lines. Where these moves are not planned up to two minutes delay can be incurred;
- Bedford station area – all terminating/starting First Capital Connect services, and southbound East Midlands Trains services calling at Bedford need to use just three platforms and the slow lines between the station and Bedford South Junction. This constrains the number of southbound East Midlands Trains services that can call and causes congestion during perturbed operations;
- the infrastructure between Bedford and Kettering, where there is a mixture of four, three and two track sections which limit the availability of paths at busy times and affect performance when trains are running out of course;
- Trent East Junction, where the lines from Nottingham, Derby, Leicester and Toton meet, regularly causes delays when trains are running out of course due to the number of crossing moves over the short single line sections;
- Nottingham station, which is heavily congested on the western approaches to the station. This and current signalling control can lead to the routing of trains becoming constrained and therefore lead to delays. There is insufficient capacity available at Nottingham for the number of terminating services which results in congestion; and
- Derby station is heavily congested and the speed of the lines running into and out of the station further exacerbate delays when trains are running out of course.

Figure 8 shows the current train service level in key sections of the route.

Figure 8 Current train service level (peak trains per hour)

Route Section	Number of trains
Radlett – St Albans	13
Harrowden Junction – Kettering	8
Loughborough – Ratcliffe Junction	5
Clay Cross Junction – Chesterfield	6
North Staffordshire Junction – Clay Mills Junction	8
Attenborough – Beeston	9

Figure 9 Current PPM MAA (2007/08)

TOC	MAA	As at period
London Midland	89.1%	12
CrossCountry	86.9%	12
FCC	90.4%	12
East Midlands	87.1%	12

Current performance

Figure 9 shows the current PPM for the main TOCs running along the Route.

Performance issues are particularly pronounced at locations where the route is heavily congested. These are indicated in the previous section.

The Robin Hood Line suffers from particularly poor performance mainly as a result of the single line sections and line speeds causing the train plan to be quite tight.

Section 2: Tomorrow's railway

HLOS output requirements

Figure 10 Total demand to be accommodated by Strategic Route

Route	Annual passenger km forecast in 2008/09 (millions)	Additional passenger km to be accommodated by 2013/14 (millions)
Midland Main Line and East Midlands	2,655	498

Figure 11 Peak hour arrivals to be accommodated by Strategic Route

London Terminals and Regional Hubs	Peak three hours			High- peak hours		
	Forecast demand in 2008/09	Extra demand to be met by 2013/14	Maximum average load factor at end CP4 (%)	Forecast demand in 2008/09	Extra demand to be met by 2013/14	Maximum average load factor at end CP4 (%)
St. Pancras International including Thameslink and Kent services via High Speed 1	25,900	10,900	67	13,100	5,700	76
Nottingham & Leicester #		13% increase on 2008/09	41		16% increase on 2008/09	46

Note #: included in aggregate target across a number of regional hubs

In addition to the outputs above, the HLOS includes Key Output 1 of the Thameslink Programme which covers the section south of Bedford on this route.

Future demand

Demand will continue to grow, particularly on the southern part of the route, as growth in local employment and new housing development encourages further commuting, business and leisure journeys. Demand is expected to be highest south of Leicester in view of development around Corby, Kettering and Wellingborough, and in Bedfordshire and Hertfordshire, and also at Cricklewood.

Passenger demand (journeys) is forecast by industry models to grow by up to five per cent per annum on the main line, and about two per cent per annum elsewhere. However, given that past growth has been higher, more significant growth is likely on some regional flows.

Further growth is expected as a result of the transfer of Eurostar services to St Pancras International in November 2007. These mainly operate to/from Paris, Brussels and Lille but offer interchange at these locations to services serving many other European destinations. In addition Key Output 1 of the Thameslink programme will further increase demand with many new journey opportunities.

The proposed line speed improvements on the Midland Main Line would also provide additional growth.

Growth on the Stansted, Birmingham to Nuneaton corridor is expected to increase considerably due to population growth in Anglia and the continued expansion of Stansted Airport. This will increase the amount of interchange at Peterborough.

Similar, or even greater growth, is anticipated on all other CrossCountry services as modal shift from road to rail accelerates over the coming years. A key feature of CrossCountry services is the opportunity to interchange and connect to services operating on the MML, ECML and WCML.

There is expected to be a steady growth in freight traffic over the key freight arteries on the route.

Coal traffic will continue to see significant changes as a result of increased coal imports from Hull and Immingham to East and West Midlands power stations replacing much of the traffic from the East Midlands' loading points.

Section 3: Proposed strategy

The table below summarises the key milestones during CP4 in delivering the proposed strategy for the route. Further explanation of the key service changes and infrastructure enhancements are set out in the following sections.

Figure 12 Summary of proposed strategy milestones

Implementation date	Service enhancement	Infrastructure enhancement	Expected output change
2009	FCC service alterations to allow Thameslink Programme works	Various schemes to protect performance while revised services are being operated	Improved performance
2010-2012	Progressive programme of train lengthening on interurban and regional services in the East Midlands	Platform extensions	Increased capacity
2011	Thameslink Programme Key Output 1	Platform lengthening and improved layout at Bedford and Route 2 works	Increased capacity and improved performance
2012/13	Improved journey times for long distance services	Various schemes to improve line speeds	Reduced journey times

Strategic direction

Work on the East Midlands Route Utilisation Strategy (RUS) started last autumn and the first meeting of the Stakeholder Management Group was held in March. This will provide a strategy for future development of long distance services to St Pancras International and cross country and regional services on routes in the East Midlands. The main strategic challenge to be answered by the RUS is likely to be catering for increased demand, particularly in the peak.

Other than as described below in changes to services starting in the December 2008 timetable, in the short to medium term much of the peak growth will be met through additional train carrying capacity. This will include train lengthening and the deployment of alternative types of rolling stock, as proposed in other parts of the country. There are some routes where a revised service pattern may provide a better option for the use of the additional rolling stock than train lengthening.

In particular Key Output 1 of the Thameslink Programme will deliver significant crowding relief for the commuter services south of Bedford by allowing 12 car operation from December 2011.

Journey times between Sheffield, Nottingham, Derby and Leicester and London St Pancras are proposed to be reduced both through line speed improvements and service enhancement included in the East Midlands Trains franchise. This will allow this route between the Sheffield City Region, parts of the East Midlands and London to provide journey times which are more comparable with those on the East Coast Main Line.

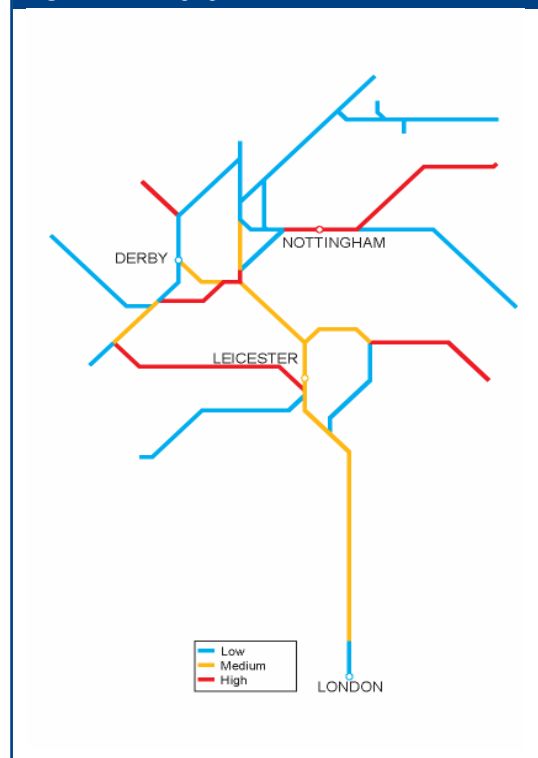
Future train service proposals

Figure 13 indicates the forecast percentage change in tonnage to 2017.

A number of train service changes will occur from the start of the December 2008 timetable. The first is a new hourly Nottingham – Sheffield – Barnsley – Leeds service to be operated by Northern Rail. Not only will this create new direct journey opportunities but will largely overcome forecast peak crowding on the Chesterfield – Alfreton – Nottingham corridor.

The East Midlands Trains franchise will alter some train formations. The effect on capacity for commuter flows to/from Nottingham, Leicester and London is still being examined but these will help with the HLOS commuter growth metrics for St Pancras International and Leicester. In addition, the franchise will create a new Kettering to London service, which could be extended to Corby if funding is found for the new station there.

Figure 13 Tonnage growth



Increased capacity on the Norwich – Nottingham – Sheffield – Liverpool service is planned within the East Midlands Trains franchise which will assist with the HLOS commuter growth metrics for Nottingham and Sheffield.

East Midlands Trains is proposing an hourly Matlock – Derby – Nottingham service. This provides an enhanced level of Community Rail services between Derby and Matlock and reinstates the third train an hour between Derby and Nottingham which will help with peak loading.

The other franchise with a significant service change is that operated by CrossCountry which will operate a standard pattern timetable across its network from December 2008 and will provide an increase in capacity on its most crowded services. This should provide some growth capacity on certain commuter flows to/from Sheffield, Derby and Birmingham.

CrossCountry has an option in its franchise agreement with the DfT to extend the Birmingham to Leicester service to Cambridge and Stansted Airport each hour.

In addition to the changes in capacity in the three hour morning peak at Leicester arising from the new franchises above, additional vehicles will be required.

Our plans provide for around 20 additional vehicles arriving in Nottingham in the three hour morning

peak provided by a mixture of committed franchise changes and additional rolling stock. These would probably be deployed to lengthen existing services thereby making best use of track capacity and traincrews.

The DfT Rolling Stock plan, which was published on 30th January, provides additional vehicles to meet the HLOS commuter growth metrics.

Overall there will be sufficient capacity to accommodate the additional fleet maintenance requirements across the route once the enhancement scheme, proposed by East Midlands Trains, for Derby Etches Park has been completed.

The growth targets for peak hour services into St Pancras International are expected to be met through the service proposals contained in the East Midlands Trains franchise, longer FCC services upon completion of Key Output 1 of the Thameslink Programme and the introduction of services from Kent via High Speed 1.

Future capability

Speed improvements on the up and down fast lines to provide journey time savings between St. Pancras and the East Midlands and Sheffield are currently being examined. This will support the East Midlands Trains franchise proposal to improve journey times by the use of Class 222 units on Sheffield services and reducing the performance allowances included in the timetable. Infrastructure schemes to improve the line speed along the route are also being developed with the ultimate aim to reduce the journey time by up to eight minutes for journeys from London to Derby, Nottingham, Chesterfield and Sheffield, and to bring the fastest London to Sheffield journey below two hours.

The East Midlands Resignalling Scheme, which is primarily renewals driven, is also providing some capacity and capability improvements, either through changes driven by the need to match current outputs within the requirements of today's design standards or by add-on enhancements.

One aspect of the above is examining line speed increases on the slow lines between Leicester and Trent South Junction that will reduce journey times for the Leicester to Nottingham and Lincoln local services. This scheme is strongly supported by Nottingham County Council and operators.

The route has several proposed new stations at various stages of development including East Midlands Parkway (due for completion for the December 2008 timetable), Elstow and Cricklewood North and we are developing major

enhancements at Nottingham, Wellingborough, St. Albans and Luton.

Short platforms at a number of stations on the Midland Main line are a constraint. We are currently examining options to address those at Loughborough.

In addition, platform extensions at Market Harborough, Kettering and Wellingborough would make maximum use of the train formation changes proposed by East Midlands Trains for December 2008.

Platform lengthening may also be required at Attenborough, Melton Mowbray, Spondon and Willington to support growth on interurban routes.

All outer suburban platforms south of Bedford will need to be extended to 12 cars in order to deal with growth and such works are included in the scope of Key Output 1 of the Thameslink Programme. Work on site has already commenced at Luton Airport Parkway.

We are examining further line speed increases between Nottingham and Chesterfield which would benefit services currently operated on this section by East Midlands Trains and the planned Nottingham to Leeds service.

Modest speed improvements on some interurban and rural routes would give longer turn rounds at one or both ends of a route which would improve performance as well as increase demand through faster journeys. Where renewals are planned we will seek ways to increase line speeds though this may require some funding from NRDF.

We are working with DfT and other stakeholders (including several in the East Midlands) on development work for W9 and W10 gauge enhancement on a number of routes that could provide a comprehensive network of core freight arteries, in the northern half of the country, capable of taking deep sea containers on standard deck height wagons and swapbodies.

These enhancements would provide more diversionary opportunities for freight services and reduce potential delays caused when trains are running out of course. Routes in the East Midlands are included in this development work.

Development work is also underway on Bainton Green AHB level crossing, between Peterborough and Stamford, to provide vehicle activated signs which will improve operational safety.

We are also strengthening bridges and renewing track on the Matlock branch in 2008/09. This will raise the RA of the route from RA1 to RA8 and allow Class 222 Meridian trains to operate at line speed.

Future capacity

As mentioned previously, the main issue on the route will be providing capacity for the ongoing demand for commuter journeys to London. As track capacity is limited south of Bedford, the plan is largely to make better use of existing train paths by running longer trains. For First Capital Connect this will require a move to 12 car operation which is a key output of the Thameslink Programme. As well as the platform extension works on this route, major works are required on the core Thameslink section (see Route 2).

The severe capacity constraints of the East Midlands Trains platforms at St Pancras International limit the options for dealing with growth in longer distance commuting journeys, particularly from East Northamptonshire. However, the Kettering to London services included in the East Midlands Trains franchise are likely to use less capacity as they will probably need less turnaround time at St Pancras International than services from further north.

With the limited capacity still available on the route south of Bedford it may be possible to run further Kettering (or Corby) services in the peaks. These would need to run at maximum possible length to provide sufficient capacity. The East Midlands RUS will examine this issue in more detail.

Bedford station area is a capacity constraint as all terminating / starting Thameslink services and southbound Midland Mainline trains calling at Bedford need to use just three platforms and the Slow lines between the station and Bedford South Junction. This constrains the number of southbound Midland Mainline services that can call and causes congestion between Cauldwell depot and the station during perturbed operations. We are developing a scheme to make the layout more flexible. Such works will provide synergies with the Thameslink Programme.

Trent East Junction, where the lines from Nottingham, Derby, Leicester and Toton meet, regularly causes delays, when trains are running out of course, due to the number of crossing moves over single lead junctions on the Toton and Derby routes. Phase 2 of the East Midlands Resignalling Scheme includes doubling the junction to allow more 'parallel' moves. This facilitates the proposed re-introduction of the third Nottingham to Derby

service per hour. The new service is currently planned for December 2008 so we are working with East Midlands Trains to determine what can be achieved prior to completion of the infrastructure works, currently programmed for Christmas 2009.

At Nottingham a major redevelopment of the station is being examined. The aim of this scheme is to provide additional capacity on the station itself and improved customer facilities. The scheme will also help generate local employment and commuter journey opportunities in the East Midlands area by improving interchange links.

Nottingham station layout is heavily congested and Phase 3 of the East Midlands Resignalling Scheme will aim to provide performance and capacity benefits. The scope is likely to include some bi-directional signalling between Mansfield Junction and Nottingham station.

Figure 14 Forecast PPM MAA- CP4 plan

	2009/10	2010/11	2011/12	2012/13	2013/14
East Midlands Trains	88.3%	89.1%	89.9%	90.4%	90.8%
First Capital Connect	89.9%	90.4%	90.7%	91.1%	91.4%
CrossCountry	87.9%	88.7%	89.7%	90.4%	90.9%
Northern Rail	90.5%	91.0%	91.5%	91.9%	92.2%

Figure 15 Forecast PPM MAA - proposed local commitments

	2009/10	2010/11	2011/12	2012/13	2013/14
East Midlands Trains	87.2%	88.0%	88.9%	89.4%	89.8%
First Capital Connect	88.9%	89.4%	89.6%	90.0%	90.4%
CrossCountry	86.7%	87.4%	88.4%	89.1%	89.7%
Northern Rail	89.9%	90.4%	90.9%	91.3%	91.6%

Future performance

Figure 14 sets out the planned PPM for each train operator. Figure 15 sets out the trajectory we propose as local commitments with each operator. These are lower than planned given the need for flexibility in achieving the HLOS targets and to reflect the greater uncertainty and risk associated with projecting performance at a disaggregated level. Reasonable requirements will finally be established for CP4 in our 2009 Business Plan.

The capacity constraint of four platforms at St. Pancras International is one which East Midlands Trains and ourselves will need to manage. Late running or slow turnaround of trains causes delays.

In association with First Capital Connect, we have identified a number of schemes aimed at protecting performance while the implementation works for Key Output 1 of the Thameslink Programme are being undertaken.

The timing of freight growth and associated schemes to provide additional capacity and diversionary routes, will be key to managing future performance on the route.

There are a number of other proposed schemes that we are currently developing to improve performance and provide incremental capacity benefits as described below.

Changes to the signalling system at Radlett, Harpenden and Leagrave will enable trains to continue at a higher speed than now before crossing over at any of these junctions thereby improving operational flexibility and minimising delays to following services.

The provision of a third bi-directionally signalled line between Harrowden Junction and Kettering would avoid conflicts that currently exist between freight

and passenger services in this area. This will improve maintenance access and provide incremental capacity that will benefit the proposed Kettering to London service.

The line speed increases on the slow lines between Leicester and Trent South Junction described above would reduce delay minutes during service disruption as trains diverted onto the slow lines would be able to run closer to the fast line speeds. This scheme is looking at opportunities to extend Platform 3 at Loughborough to enable long distance services to call during times of perturbation or engineering work.

Central Rivers depot is critical to the operation of the CrossCountry service with more than a quarter of the fleet maintained there. CrossCountry and Network Rail are working on initiatives to improve the flexibility of the infrastructure in the area.

Although the Robin Hood line is a very poorly performing route, it is difficult to justify significant investment for line speed improvements, level crossing modernisation and signalling headways which would make the timetable much more robust. The optimum time to undertake any signalling improvements would be when the Nottingham station area is resignalled in 2012. However, we are examining a number of small scale interventions to provide some performance improvements in the shorter term.

We are modifying the track layout in the Toton area to maintain and improve freight access and performance within the yard complex.

Driving down cable theft will provide performance benefits

Network Rail is working with operators to tackle issues of significant lateness to trains.

East Midlands Trains

This is a new franchise which commenced operation in November 2007. The performance of the TOC is currently 87.1 percent PPM and should reach 87.6 percent by the end of March 2009 as a result of the actions agreed in the 2008/09 Joint Performance Plan. Performance has improved recently due to joint actions by the TOC and Network Rail and a timetable restructuring of some regional services.

The key performance issues and opportunities for this TOC have been identified to include:

- the implementation of Stagecoach's franchise performance plan;
- potential line speed improvements on the MML;
- impact of the December 2008 timetable change;
- joint review of performance on the Robin Hood Line;
- better fencing in the rural areas to reduce animal incursions;
- impact of poorer FCC punctuality during Thameslink enhancement work;
- performance improvements will be delivered through Nottingham Station layout remodelling and various junction remodelling schemes as part of the East Midlands Signalling Renewals Programme
- Bedford Station layout changes will be designed to improve performance in conjunction with the Thameslink programme of works
- better information on small delays (especially in the rural areas) through use of OTMR and GPS.

The route plan is being developed around these key points and currently suggests that performance for the TOC will be around 90.8 percent by April 2014. We have started discussions with the TOC around this plan and will continue during the development of a Long Term Performance Plan with the operator during the Summer

First Capital Connect

First Capital Connect operates the suburban train routes into London Kings Cross and the cross London Thameslink route. The performance of the TOC is currently 90.4 percent and this is planned to rise to 90.7 percent by the end of March 2009 due as a result of the action included within the Joint Performance Plan. There is a significant level of change in service patterns driven by the Thameslink works throughout CP4 and the likelihood that some services will be jointly operated with South Eastern. This together with relatively major changes to fleet resources will result in some challenges to maintain performance.

The key performance issues and opportunities identified for this TOC include:

- minimising the operational impact of the Thameslink programme; to date modelling work has only been focussed on Key Output 0 and there is a degree of uncertainty around the full impact of the work programme;
- uncertainty over the impact of the ELL extension and planned rewrite of the South London and Brighton Mainline timetables;
- impact of passenger growth;
- the impact of enhancements on the East Coast – especially around Kings Cross, Finsbury Park and Hitchin;
- specific concerns over seasonal variation and the likely benefits of Remote Condition Monitoring;
- maintenance of journey times; and
- the impact of fleet changes – and stabling arrangements.

The TOC is currently concerned by the lack of a detailed plan to deliver performance improvements on this route especially due to the large amount of uncertainty. We will work with the TOC to produce a long term performance plan during the Summer and the expectation is that this will result in a forecast level of performance of 91.4 percent by the end of 2013/14 (including the impact of the Thameslink works).

CrossCountry

As a long distance operator CrossCountry faces significant performance challenges. The franchise was re-mapped from 11 November 2007 bringing together parts of former Virgin Cross Country and former Central Trains routes. Additional capacity in the form of HSTs as well as additional seating on Class 220/221 and Class 170s will be introduced in the period between May 08 and Summer 09.

Performance Levels

PPM MAA for the remapped franchise at the end of period 12 2008 is 86.9 percent. The target contained in the 2008-09 JPIP is 87.3 percent.

Franchise plans developed during bidding based on TOC on Self improvements have a PPM figure of 88.7 percent at the end of the franchise. This was based on a given bid assumption of no improvement from Network Rail in CP4. It is therefore expected by CrossCountry that the further improvement sought in franchise and national PPM will come from Network Rail initiatives. The PPM figures shown for CP4 represent Network Rail's forecasts but while there have been some high level discussions, CrossCountry has not yet been able to agree formally a PPM figure for the end of CP4.

Significant lateness

Network Rail nationally is developing plans for a 25 percent reduction in trains over 30 minutes late over Control Period 4. These plans include, continued work on flooding prevention and joint initiatives being developed between Network Rail and BTP to prevent theft and vandalism. These commitments are consistent with CrossCountry's desire to minimise the number of significantly late trains, a source of customer complaint, loss of business to rail and payments under the delay repay regime. Although plans are currently in their early stages, any actions under this heading are likely to benefit the performance of the CrossCountry services given the geographic extent and long distance nature of the business.

Extreme weather

Extreme weather is no longer confined to particular periods of the year. Flooding and high winds can strike at any time with an adverse effect on services. CrossCountry's geographic coverage means that a regional weather event can have a national impact. Vulnerable pieces of infrastructure and land such as Dawlish Sea Wall and the Teignmouth cliffs will continue to pose a performance risk although specific Network Rail operational plans deal with such incidents. Of particular concern to CrossCountry are blanket emergency speed restrictions which can severely impact services which operate the length and breadth of the country as well as across Network Rail organisational boundaries

Engineering access

Despite the busy nature of the route, overall engineering access is sufficient particularly as many sections of the route have three or more tracks. Generally, where only two tracks are available, diversionary opportunities exist. One exception is the Kettering to Harrowden Jn section where we are planning a third line (see above).

The Birmingham – Wichnor Junction – Derby line also causes problems as the diversionary route via Leicester adds considerable time to journeys. The RUS will examine this further.

Wherever possible diversionary routes are used to allow access to the track, which means red zone working can be avoided. However, this does increase resources and costs for our customers.

Some of the other schemes mentioned in the sections above will also provide more flexibility for engineering access by reducing the time penalties for using the slow lines on three or four track sections.

CrossCountry, like other operators has aspirations for a 7 day railway. The nature of CrossCountry, Sunday carries the second highest volume of passengers (with Friday peak having the greatest volume). Therefore, some weekend line closures, extended journey times and bus replacement services can impact on the revenue of the business. Possession overruns resulting in unplanned service changes are particularly damaging.

Long term opportunities and challenges

Commuter growth will continue to be a key issue for the route, especially into London. It will be very difficult to create further peak paths to/from London due to the constraint of four platforms at St Pancras International and the number of paths available through the Thameslink core from Kentish Town to Blackfriars once Key Output 2 of the Thameslink Programme connects it to the ECML route.

In the East Midlands, longer term growth in commuter and leisure travel is likely to be addressed through a mixture of continued train lengthening and additional services. As with London commuter growth, these options will be considered in the forthcoming RUS.

If the W9 and W10 gauge enhancement proposals come to fruition in the East Midlands then there will be a significant increase in the number of intermodal freight paths required. Again the RUS will consider this issue.

Enhancements to be completed by end of CP3

Figure 16 CP3 enhancements

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2007/08	ⓐ St Albans station Phase 1	New multi-storey car park and interchange	Improved station facilities and footfall capacity	Third Party	6
2008/09	ⓑ Chesterfield new Platform 3	New platform	Increased capacity, better engineering access and improved performance.	Network Rail Discretionary Fund	5
2008/09	Ⓒ Enhanced signalling at Leagrave, Harpenden and Radlett	Enhanced signalling arrangements for trains crossing between the fast and slow lines	Improved performance.	Network Rail Discretionary Fund	2
2008/09	Ⓓ Matlock branch	Strengthening of three underbridges	Increased capability	Network Rail	5
2008/09	Ⓔ East Midlands resignalling Phase 1B North Erewash Coney Green to Tapton Jn, Enhancement element	Renewal with improved junction layouts	Renewal, improved performance and linespeed increases	Network Rail	6
2008/09	Ⓕ East Midlands Parkway	New station	New journey opportunities	Network Rail	6
2008/09	Ⓖ Corby	New station and line speed improvements	New journey opportunities	Network Rail Discretionary Fund / Third Party	4
2008/09	ⓓ St Albans station Phase 2	Upgrade of station	Improved station facilities and footfall capacity	Network Rail	6
2008/09	Ⓚ Robin Hood line performance	Minor enhancements to improve performance	Improved performance	Network Rail Discretionary Fund	3

Proposed enhancements in CP4

Figure 17 Proposed enhancements in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2009/10	Ⓝ Peterborough – Nuneaton	Gauge clearance of the route and incremental capacity improvements between Peterborough and Nuneaton in connection with the port developments at Felixstowe and Bathside Bay	To accommodate the carriage of deep sea container traffic on standard deck height wagons as an alternative route to operating via London and the West Coast Main Line and to provide increased capacity to meet growth in freight train demand associated with the aforementioned ports	Transport Innovation Fund	3
2010/11	Ⓟ Castle Donnington	Connection to new freight terminal	New freight operators	Third Party	1
2010/11	Ⓞ Wixams (Elstow)	New station	To meet local housing developments	Third Party	3
2010/11	Ⓡ Wellingborough station	Redevelopment of the station and a new station footbridge	Improved station facilities	Third Party	2
2008/09	Ⓟ Derby Etches Park	Depot improvements phase 2	Improved depot facilities to service Meridian trains	Third Party	1
2009-2012	Ⓜ MML St Pancras – Sheffield LSI	Line speed increases London to Sheffield	Improved journey times	Periodic Review 2008	3
2011/12	Ⓢ Thameslink Programme	Major works including revised track layout, and platform extensions between Kentish Town and Bedford and new customer information service facilities	Improved capacity and new journey opportunities	Periodic Review 2008	6
2008-2011	Ⓣ Nottingham Hub.	Redevelopment, potential additional platform, improved waiting/retail facilities	Enhanced station and interchange facilities	Third Party/Network Rail	4
2012	ⓧ Whitwell Tunnel	Removal of tunnel	Improved asset condition	Third Party	1

Figure 17 Proposed enhancements in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2012/13	Ⓥ East Midlands Airport Rail Freight connection	Proposed new rail freight link onto Sheet Stores Jn – Stenson Jn route	Improved rail freight link	Third Party	3
2012/13	Ⓦ Radlett	Connection to new freight terminal	New freight operations	Third Party	2
2012-2016	Ⓐ Ipswich to Nuneaton capacity increase	Capacity enhancements including work in conjunction with the Leicester re-signalling scheme.	Freight and passenger capacity improvement	Periodic Review 2008/ Third Party	1
2013/14	Ⓐ Northern gauge improvements	Gauge clearance of various routes	To accommodate the carriage of deep sea container traffic on standard deck height wagons from ports to the East and West Midlands and via the West Coast Main Line	Subject to agreement	3
2011/12	Ⓢ East Midlands resignalling: Nottingham station area enhancement element	Enhancements on the back of Nottingham station resignalling scheme	Capacity and line speed increases	Periodic Review 2008	3

NRDF candidate schemes in CP4

Figure 18 Candidate NRDF schemes in CP4					
Implementation date	Project	Project description	Output change	Funding	GRIP stage
2009/10	Ⓞ Trent East Junction doubling.	Doubling single lead junction on back of signalling renewals	Increased capacity and improved performance	Network Rail Discretionary Fund	5
2009/10	Ⓛ Leicester, North Jn to Trent South Jn	Increase in linespeed on the slow lines and platform lengthening at Loughborough	Improved performance and capacity	Network Rail Discretionary Fund	4
2009/10	Ⓧ Kettering to Harrowden additional line.	Provide 3rd line with bi-directional signalling	Increased capacity, better engineering access and improved performance.	Network Rail Discretionary Fund	4
2010/11	Ⓞ Luton station	Redevelopment of the station and new car park	Improved station facilities and footfall capacity	Network Rail Discretionary Fund	5
2011/12	Ⓜ Nottingham to Sheffield linespeed increases.	Linespeed increases	Increased capacity and improved performance	Third Party / Network Rail Discretionary Fund	2
2012/13	Ⓜ Nottingham to Grantham resignalling: enhancement element	Enhancements on the back of East Midlands resignalling scheme, including turn-back facility at Bingham	Increased linespeed and capacity between Nottingham and Grantham	Network Rail Discretionary Fund / Third Party	2
2012/13	Ⓜ Nottingham to Newark resignalling: enhancement element	Enhancements on the back of East Midlands resignalling scheme	Increased linespeed and capacity between Nottingham and Newark	Network Rail Discretionary Fund / Third Party	2
2012/13	Ⓜ East Midlands platform extensions	Platform extensions at selected stations to allow longer interurban and regional services	Increased capacity	Network Rail Discretionary Fund	1

Maintenance and renewals activity

Figure 19 shows the estimated maintenance and renewal costs and activity volumes.

The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible consistent with the reasonable requirements of operators and other stakeholders.

It should be noted that in order to manage the deliverability of our Civils, Signalling & Electrification plans we have included an element of over planning in our work banks. As a consequence the sum of our route plans exceeds our plan for the network as a whole. It is likely that a small proportion of the activities in these areas will slip to subsequent years.

Figure 19 Summary of estimated maintenance & renewals costs and activity volumes

£m (2006/07 prices)	2009/10	2010/11	2011/12	2012/13	2013/14	Control Period Totals			
						CP4	CP5	CP6	CP7
Maintenance expenditure									
Track	29	27	26	25	24	131	113	107	107
Signalling	7	6	6	6	6	31	28	27	27
Electrification	1	1	1	1	1	4	4	3	4
Telecoms	4	4	3	3	3	18	16	15	15
Plant and Machinery	1	1	1	1	1	4	4	3	3
Other (overheads / indirect)	22	21	21	20	20	104	93	89	89
Total	63	60	58	56	55	292	256	245	245
Renewals									
Track	50	42	41	42	44	220	193	172	137
Signalling	29	18	41	54	48	190	85	237	54
Civils	21	21	21	19	19	102	92	88	88
Operational Property	9	8	8	8	8	42	40	39	39
Electrification	2	2	2	2	3	10	9	5	4
Telecoms	18	13	8	7	3	50	17	18	20
Plant and Machinery	7	4	3	2	2	18	21	19	22
Total	136	108	123	134	128	629	456	579	364
Renewals Volumes									
Rail (KM)	82	81	79	81	80	403	255	150	160
Sleepers (KM)	21	21	21	21	21	106	228	302	180
Ballast (KM)	30	30	30	30	30	149	318	438	316
S&C Units	53	35	40	48	59	235	140	78	56
SEUs commissioned	269	0	0	198	69	536	543	1292	273

Appendix

Figure 20 Strategic route sections

Predominant aspect recorded (secondary aspects recorded in brackets). ELR is Engineers Line Reference, RA is Route Availability

SRS	SRS Name	ELR	Classification	Funding	Community Rail	Freight Gauge	RA	Speed	Electrification	Signalling Type	Signalling Headway (mins)	No of Tracks
19.01	St Pancras – Bedford	SPC1	Primary	DfT	No	W8 (W6)	RA8	110 (50)	25kV	TCB	5	4(6)
19.02	Bedford – Nottingham	SPC2/3/4/5/ TSN/WYM	Primary	DfT	No	W7 (W8)	RA8	105	None	TCB	4	2(3/4)
19.03	Wichnor – Derby – Chesterfield	DBP1/SPC 6/ 7/8	Primary	DfT	No	W8 (W7)	RA8	125 (90)	None	TCB	4	2(4)
19.04	Worksop/ Chesterfield – Nottingham	RAC/PBS1/ 2/3/PSE/TC C	Secondary	DfT	No	W6	RA8 (7)	80(60)	None	TCB (AB)	5	2(3/4)
19.05	Nottingham – Newark Crossing	NOB1	Secondary	DfT	Yes	W6 (W8)	RA8	60 (70/50)	None	AB (TCB)	5	2
19.06	Matlock Branch	AJM	Rural	DfT	No	W6 (W8)	RA8	50	None	OTW	Single line	1
19.07	Netherfield – Grantham	NOG1/2	Rural	DfT	No	W8 (W6)	RA8	60 (75)	None	AB (TCB)	5	2
19.08	Nuneaton – Wigston Junctions	WNS	Secondary	DfT	No	W7	RA8	90 (75)	None	TCB (AB)	5	2
19.09	Syston Junctions – Helpston Junction	GSM2/PMJ	Secondary	DfT	No	W7(W8)	RA8(9)	90(75)	None	AB(TCB)	5	2

Figure 20 Strategic route sections

Predominant aspect recorded (secondary aspects recorded in brackets). ELR is Engineers Line Reference, RA is Route Availability

SRS	SRS Name	ELR	Classification	Funding	Community Rail	Freight Gauge	RA	Speed	Electrification	Signalling Type	Signalling Headway (mins)	No of Tracks
19.10	North Stafford Junction – Stoke-on-Trent	NSS	Secondary	DfT	No	W7	RA8	70	None	AB (TCB)	14	2
19.11	Freight Through Branches	Various	Freight	DfT	No	Various	Various	Various	None	Various	Various	2(1)
19.12	Other Freight Lines	Various	Freight	DfT	No	Various	Various	Various	None	Various	Various	1(2)

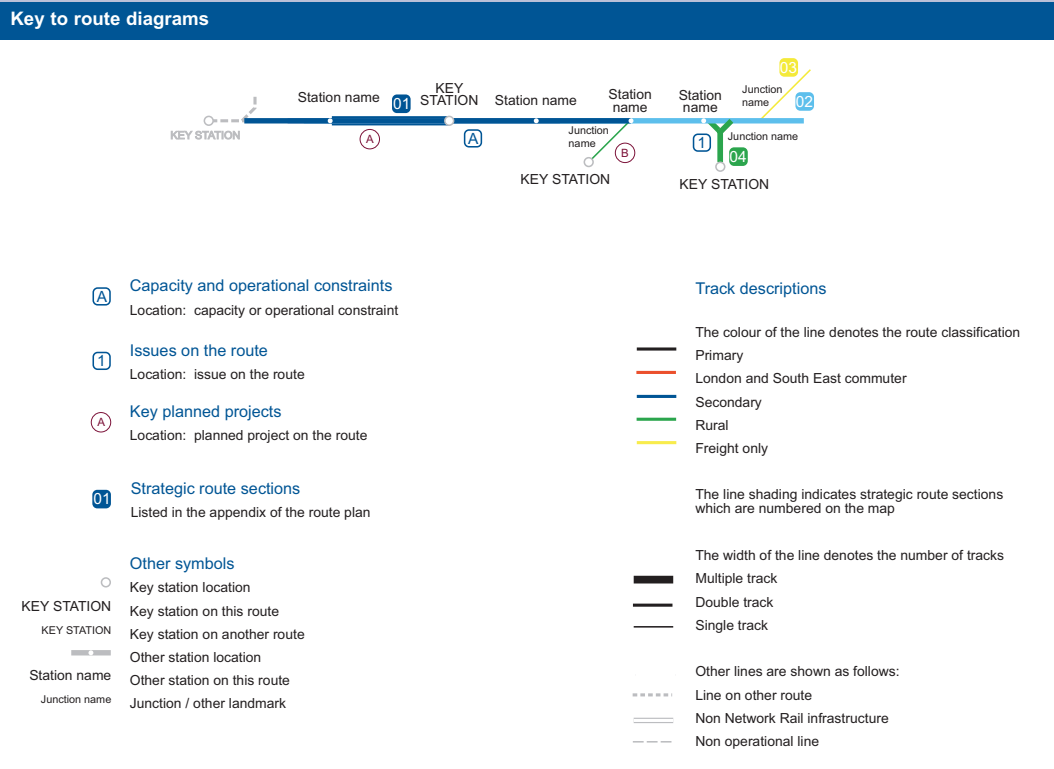
Capacity and operational constraints

- A Nottingham station: complex station layout and curvature
- B Leicester station: constrained station layout and curvature
- C Wellingborough – Leicester – Syston: mixture of two and three tracks
- D Bedford: constrained station layout
- E Matlock – Ambergate: single line section and weak bridges
- F Bulwell – Kirkby in Ashfield: single line section

Note

This Route Plan forms part of the April 2008 update of Network Rail's Strategic Business Plan. The Route Plan supersedes the version published on 1 November 2007.

Other documents in the Strategic Business Plan can be found on the Network Rail website www.networkrail.co.uk



GRIP stages

1	Output definition
2	Pre-feasibility
3	Option selection
4	Single option selection
5	Detailed design
6	Construction, test and commission
7	Scheme hand back
8	Project close out

**This Route Plan is part of a set.
To view or download the others
visit www.networkrail.co.uk**

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