Route 19 Midland Main Line and East Midlands

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); and
- 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.

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 and West Coast Main Line. It serves a large number of communities in North London, the Home Counties and East Midlands, and carries significant volumes of passenger services and freight trains.

The London to Leicester section is the primary link between the East Midlands and London and parallels the M1 motorway and is mainly used for long distance journeys and London commuting. North of Leicester the route sees a mixture of local, long distance and freight traffic 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 crucial for both cross-country passenger and freight services.

Route 19 was examined in the SRA's Midland Main Line/East Midlands Route Utilisation Strategy (RUS) published in March 2004. In addition, apart from the Thameslink services, all passenger services will be refranchised by the DfT in the new Cross Country and East Midlands franchises. We will be working with the DfT in the specification of these services.

Route 19 Midland Main Line and East Midlands

Passenger and freight demand

The London to Bedford section serves commuters, long distance passenger, and freight traffic. The Bedford – Kettering – Leicester section serves both long distance passengers and freight services, with commuting levels on the increase. 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 main passenger markets are:

- Long distance journeys between the East Midlands and South Yorkshire, and London;
- Commuter journeys from the Home Counties and North London into the Capital;
- Local journeys in the East Midlands; and
- Medium to long distance cross country journeys between the East Midlands and North East/North West/Yorkshire, and between the East Midlands/Yorkshire/North East and 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 the North East, Yorkshire and the Humber estuary ports to the West Midlands and South West. Much of this traffic operates via Chesterfield, either through Derby or via the Erewash Valley through Langley Mill. However, there are some through flows via Newark and Nottingham.

Current services

Services are provided on this Strategic Route by Central Trains, Virgin Cross Country, Midland Mainline, Thameslink (their services will be operated by First Capital Connect from 1 April 2006, English Welsh & Scottish Railway Ltd, Freightliner Ltd, Freightliner Heavy Haul Ltd and GB Railfreight Ltd.

Figure 1 shows the current level of service to London from principal stations.

There is currently a half hourly fast Midland Mainline service 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 Sheffield trains are extended to/from Leeds.

The commuter services at the south end of the route form part of the Thameslink service 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 Farringdon and Blackfriars to serve locations south of London as far a field as Brighton. There are additional trains in the peak periods, many of which operate to/from Moorgate. Significant over-crowding problems currently exist on peak services.

Central Trains operates four different long distance cross-country services per hour:

- Norwich – Liverpool via Nottingham and Chesterfield;
- Nottingham – Birmingham – Cardiff;
- Nottingham – Birmingham – Hereford; and
- Stansted Airport – Birmingham via Leicester.

They also run all the local services in the East Midlands which extend beyond the route to locations including Lincoln, Skegness, Worksop, Crewe, and Birmingham.

The other passenger trains are operated by Virgin Cross Country whose pattern of service is 2 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.

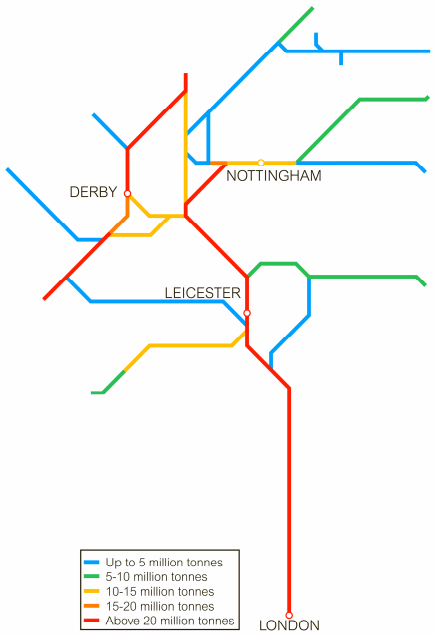
Figure 1 Current train service level (trains per hour)

Originating station	tph to London St Pancras/Kings Cross Thameslink
Bedford	peak/6 off peak
Derby	2
Nottingham	2
Sheffield	1

Current traffic

Figure 2 shows the tonnage levels on the route.

Figure 2 Tonnage



Traffic volumes are summarised in Figure 3.

Figure 3 Current use

	Passenger	Freight	Total
Train km per year (millions)	25	4	29
Train tonne km per year (millions)	6,670	3,801	10,471

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

Figure 4 Linespeed

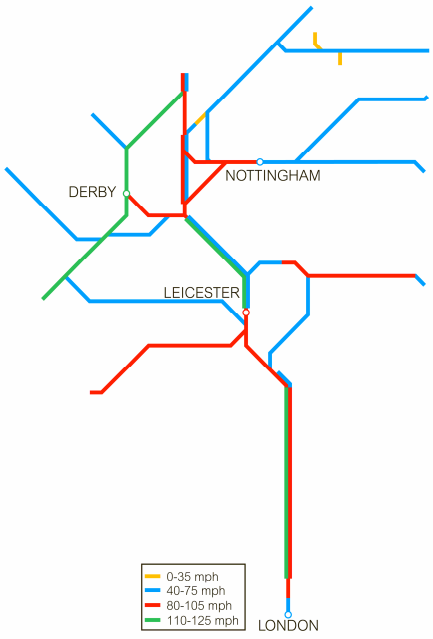


Figure 5 Electrification

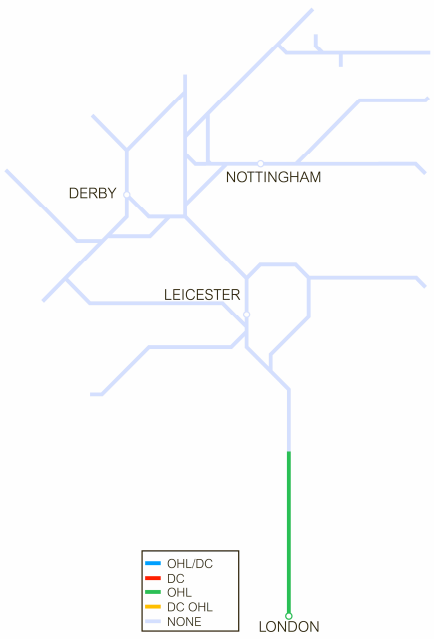


Figure 6 Route availability

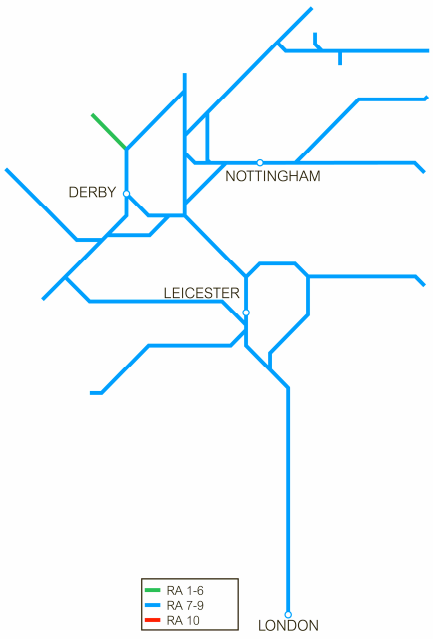


Figure 7 Gauge

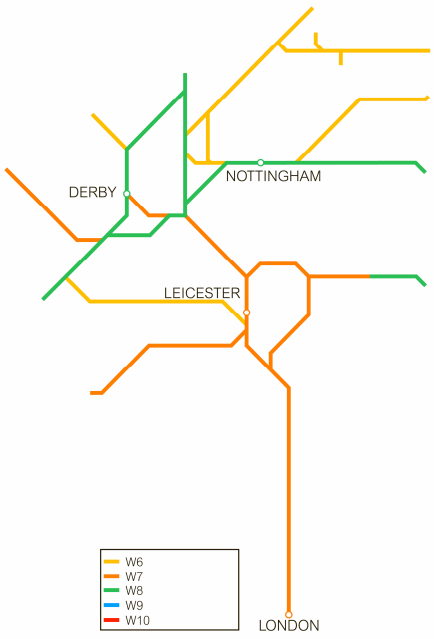


Figure 8 Current train service level (peak trains per hour)

Route Section	Main Lines	Relief Lines
Radlett – St Albans	13	8
Harrowden Junction – Kettering	8	N/A
Loughborough – Ratcliffe Junction	5	3
Clay Cross Junction – Chesterfield	6	4
North Staffordshire Junction – Clay Mills Junction	8	N/A
Attenborough – Beeston	9	N/A

Current capacity

The route runs closest to its practical capacity from London to Bedford and between Trent Junctions and Nottingham at the busiest times of day. The most heavily loaded trains on the route are those on London peak services south of Bedford.

London St. Pancras currently has four temporary platforms for all Midland Mainline services prior to them transferring to their new section of the station commissioned as part of the construction of the Channel Tunnel Rail Link. The new section will also contain only four platforms as opposed to the six available before the project started. This number of platforms constrains capacity significantly.

As well as the above, there are a number of other capacity constraints including:

- Restrictive signalling 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 2 minutes delay can be incurred. Even when they are planned this 'locks up' the junction for a significant time;
- Bedford station area – 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 during perturbed operations;
- Between Bedford and Kettering there is a mixture of four, three and two track sections which have an impact on the provisions of paths at busy times and train running performance when trains are running out of path;
- 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 single leads on the Toton and Derby routes; and
- Nottingham station is heavily congested on the western approaches to the station. This and current signalling control can lead to the routeing of trains becoming constrained and performance loss. The number of services terminating at Nottingham also causes congestion and capacity problems. Operational constraints within the Eastcroft depot complex can extend the above problems to the east of the station, particularly at the beginning and end of the day.

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 heaviliy congested. These are indicated in the previous section.

Figure 9 Current PPM MAA

TOC	MAA	As at period
Central Trains	76.8%	10
Midland Mainline	92.0%	10
Thameslink	86.0%	10
Virgin Cross Country	80.2%	10

Future requirements

Strategic direction

The SRA published its Midland Main Line RUS in December 2004. The new Thameslink Great Northern franchise starts in April 2006, to be operated by First Capital Connect, followed by the new East Midlands and Cross Country franchises in 2008. The new Thameslink Great Northern franchise should see a standard hour timetable in the peaks and the lengthening of trains where they are not at eight car lengths already.

Network Rail is undertaking a study to examine the infrastructure requirements of introducing a new passenger service to Corby. The Department for Transport (DfT) is considering this as an option for the new East Midlands franchise.

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 business and leisure journeys. Demand is expected to be highest south of Leicester in view of development in the Corby, Kettering, Wellingborough and Bedford areas, and also at Cricklewood.

New journey opportunities could be created between Nottingham and Leeds by introducing an hourly service which would enhance the service between Nottingham and Sheffield to half hourly. This was an option in the RUS but is constrained by capacity south of Sheffield. North of Sheffield, it would probably need to be linked with the recently introduced Sheffield-Barnsley-Leeds service as capacity is not available via Moorthorpe and Wakefield Westgate.

Construction of the Thameslink programme would enable through running of 12 car main line services across London, thereby providing significant extra capacity and creating new journey opportunities. In the meantime, lengthening of Thameslink peak trains to 8 or 12 car lengths will help meet the anticipated growth in commuter journeys. As mentioned above the new Thameslink/Great Northern franchise should provide 8 car formations on all peak services. Increasing to 12 car formations would only be feasible if the Thameslink Programme goes ahead as it would not only require platform lengthening at all MML stations but would require 12 car operation through the core section i.e. via Blackfriars and on routes south of London. St. Pancras does not have capacity for a volume commuter service even though it can accommodate 12 car trains.

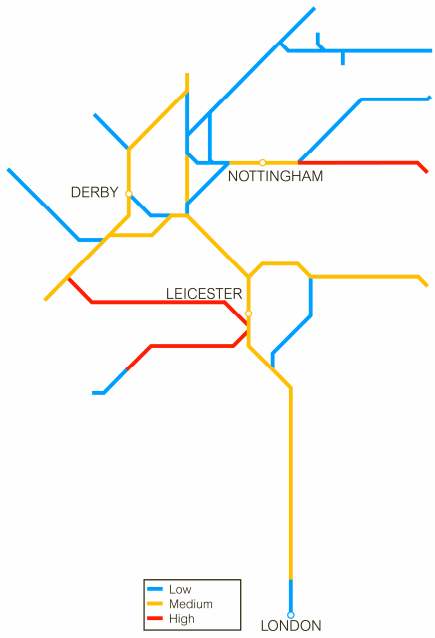
An interim solution, subject to rolling stock availability, would be to lengthen some key stations to 12 car operation and run some limited stop 12 car trains between Bedford and St. Pancras, replacing a few of the long distance services where necessary. Many of the latter are used for commuter journeys to and from Bedford in any case, so in the short term a rebalancing of station calls north of Bedford between the remaining long distance services could provide sufficient capacity. However, this option will not be sustainable in the longer term as the growth in housing proposed by the Office of the Deputy Prime Minister (ODPM) in Wellingborough, Kettering and Corby comes to fruition. The solution will also need to take into account how the proposed new station at Corby would be served. These will be the key issues for the DfT to consider in the East Midlands franchise.

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.

New freight terminals are proposed at Radlett, Wellingborough and Castle Donnington. The latter site may be served by wide bodied container traffic from the East Anglia port of Felixstowe.

Figure 10 indicates percentage change in tonnage to 2015.

Figure 10 Tonnage growth



Future capability

Linespeed improvements on the Slow Lines between Syston Junction and Trent South Junction are being investigated. These would allow an improvement in journey times for the stopping services between Leicester, Loughborough and Nottingham and for freight trains.

Figure 11 Forecast reduction in delay minutes

	2006/07	2007/08	2008/09
% reduction in delay minutes	3%	5%	8%

The route has several proposed new stations with schemes at various stages of development. These are the Network Rail funded East Midlands Parkway, and Elstow and Cricklewood (North) which are developer led. We are also developing major enhancements to Nottingham station.

Fragile routes
Network Rail engineers have identified a set of 'Fragile routes' across the country where the addition of any further loco hauled traffic would have a significant impact on the residual life of track and/or structures.

The rail freight industry has recently provided to Network Rail a set of 10 year traffic forecasts as part of the Freight RUS, and we are presently assessing their implications. The key route section within this route that has been identified as a fragile route and has clearly defined additional tonnage/train numbers projected by the industry is North Staffs Junction – Stenson Junction.

Future capacity
The Midland Main Line RUS was published in March 2004. This highlighted the need to examine timetable and layout options to alleviate congestion in the Bedford, Trent and Nottingham area.

Leicester to Nuneaton is a two track line with two passenger trains per hour and one freight path per hour. In conjunction with remodelling the layout at Croft and resignalling this route, the opportunity has been taken to install four additional automatic signals in the Croft area (two on each line). This has the effect of reducing the length of the long block section and doubling the route capacity. This will benefit both Virgin Trains and Central Trains as well as our freight customers during diversions when the main Birmingham to Derby route is blocked.

The section between St Pancras and Bedford is virtually at capacity in the morning and evening peaks. Although First Capital Connect is expected to extend further peak hour trains to eight cars, platform lengths do not allow trains to be further lengthened to make best use of track capacity in order to further alleviate overcrowding.

Future performance
Figure 11 shows the forecast reduction in Network Rail delay minutes compared with 2005/6.

The capacity constraint of four platforms at St. Pancras is one which the Midland Mainline franchise and its successor and ourselves will need to manage. Late running or slow turnaround of trains causes delays.

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

The provision of Flashing Yellow Colour Light Aspect Signalling at Radlett, Harpenden and Leagrave will enable trains to continue at line speed before crossing over at any of these junctions thereby improving operational flexibility and minimising delays to following services.

Proposed improvements to the existing track layout at Bedford would reduce delays and also increase the number of trains southbound inter city trains that can stop at Bedford.

The provision of a third mixed traffic 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 also improve maintenance access.

A proposal to double Trent East Junction will help reduce the number of conflicting moves and therefore reduce the number of delay minutes and would also improve capacity in the area.

Nottingham station layout is heavily congested on the western approaches to the station. Proposals to relax the restrictive signalling approach control and re-signalling in this area will help provide performance and capacity benefits.

The extension of the headshunt at Eastcroft Depot, Nottingham will help improve performance by reducing operational conflicts by enabling shunting moves to be contained within the depot complex and without the need to traverse the station throat area.

The linespeed increase on the Slow Lines between Syston South Junction and Trent South Junction mentioned 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.

Engineering access
Despite the busy nature of the route, overall engineering access is sufficient particularly as many sections of the route having three or more tracks. Where only two tracks are available diversionary opportunities exist, with the exception of Kettering – Wellingborough. Wherever possible diversionary routes are used to allow access to the track, which means red zone working can be avoided.

Figure 12 Forecast PPM MAA

TOC	2006/07	2007/08	2008/09
Central Trains	83.8%	84.5%	84.5%
Midland Main Line	91.4%	91.6%	91.6%
Thameslink	85.9%	86.3%	86.6%
Virgin Cross Country	81.6%	83.5%	84.3%

Opportunities and challenges

The Midland Main Line RUS identifies significant areas of growth and congestion and probably underestimates the effects of the ODPM housing proposals in Northamptonshire. A restructuring of the timetable with the advent of the new East Midlands franchise, including possible services to Corby, lengthening of London to Bedford services and redevelopment of Cricklewood may help address these issues.

Delivering future requirements

Summary

We are developing a number of small scale enhancements, some of them on the back of major renewals, which will provide improvements to performance and a degree of capacity enhancement. However, it is the Thameslink Programme that would deliver the major step change in capacity that will be required at the south end of the route.

Expenditure
Figure 13 shows the planned level of expenditure on renewals on this route over the next three years. However, the precise timing and scope of renewals remains 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.

Figure 13 Forecast expenditure

£m (05/06 prices)	2006/07	2007/08	2008/09
Renewals			
Track			
Plain line	43	37	35
S&C	8	8	7
Drainage	2	1	1
Track Total	52	47	44
Civils			
Underbridges	0	1	3
Overbridges	0	–	1
Footbridges	–	–	1
Earthworks	2	0	–
Tunnels	0	–	0
Major structures	0	1	1
Other	1	–	0
Civils Total	3	2	6
Signalling			
Resignalling	32	31	47
Minor works/other	11	5	4
Signalling Total	42	35	52
Electrification			
AC Systems			
HV switchgear	–	0	0
OHL campaign changes/refurbishment	1	1	1
OHL spanwires	1	1	1
OHL structures	1	–	–
Other	1	0	0
Electrification Total	4	2	2
Telecoms			
Concentrators: large	1	–	0
Concentrators: small	0	–	–
DOO CCTV	–	–	0
CIS systems	1	1	–
Other	1	0	0
Telecoms Total	3	2	0

Plant and machinery			
Fixed plant	1	2	1
Signal supply point	0	0	0
Point heating	2	0	0
Plant and machinery Total	3	2	1
Operational property			
stations	3	7	7
Light maintenance depots	–	–	1
Lineside buildings	–	1	1
Operational property Total	3	8	9
Total Renewals	**110**	**98**	**114**
Enhancements (funded by)			
Network Rail (RAB)			
Derby Etches Park	–	6	–
East Midlands Parkway	5	8	–
East Midlands resignalling – Trent East junction doubling	0	0	1
Kettering South to Harrowden junction	–	0	5
Midland Main Line – Flashing yellows	0	2	–
St Pancras Midland Rd station development	–	60	–
Syston to Trent South line speed improvements	0	0	2
Bedford station New S&C Platform 3 to Up Fast	0	1	–
Other	–	0	0
Network Rail (RAB) Total	6	77	7
Other Third Party			
Castle Donnington – East Midlands distribution centre	0	2	–
Cricklewood property development	0	0	6
Other	1	1	0
Other Third Party Total	1	4	6
Total Enhancements	**7**	**81**	**13**

Figure 14 Forecast volumes

	2006/07	2007/08	2008/09
Track			
Rail (km)	53	50	50
Sleepers (km)	40	38	38
Ballast (km)	56	53	53
Switches & crossings (no)			
Complete Renewal	14	16	16
Drainage (km)	4	4	4
Civils			
Underbridges (square metres)	176	82	870
Overbridges (square metres)	90	–	515
Footbridge (square metres)	–	–	385
Embankments (square metres)	7,761	2,000	–
Tunnels (square metres)	55	–	150
Culverts (square metres)	–	–	–
Major structures (square metres)	298	478	490
Signalling			
Resignalling (SEUs)	54	155	111
Electrification			
AC Systems			
HV switchgear (CBs)	–	–	10
OHL re –wiring (tension length)	89	40	40
OHL spanwires (no)	270	200	200
OHL structures (no)	7	–	–
Telecoms			
Concentrators: large (no)	2	–	–
Concentrators: small (no)	2	–	–
CIS systems (stations)	15	2	–
Other –			
PETS (level crossings)	5	–	–
Plant and machinery			
Signal supply point (no)	–	–	4
Point heating (point end)	246	15	11

The planned volume of renewals is detailed in Figure 14.

It should be noted that in order to manage the deliverability of our Civils, Signalling & Electrification plans we have included an element of overplanning 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.

Maintenance

Figure 15 shows the planned level of expenditure on maintenance on this route over the next three years.

Figure 15 Forecast expenditure

£m (05/06 prices)	2006/07	2007/08	2008/09
Maintenance	49	45	42

Infrastructure investment

Figure 16 highlights committed schemes that are planned for completion in the financial year shown.

Figure 16 Planned infrastructure investment

Project	Scope	Enhancement or output change	Main asset type(s)	Third party funding	GRIP stage	Completion year
Ⓐ Glen Parva – Nuneaton (19.08)	Resignalling with additional signalling at Croft	Improved capacity and performance	Signalling & track	None	6	2006/07
Ⓑ Trent South Junction S&C (19.02)	Renewal	Improved asset condition	Track	None	4	2006/07
Ⓒ Derby concentrator (19.03)	Like for like telecoms renewal	Improved asset condition	Telecoms	None	5	2006/07
Ⓓ Harpenden Junction S&C (19.01)	Renewal	Improved asset condition	Track	None	1	2008/09
Ⓔ East Midlands Resignalling North Erewash Sandiacre to Coney Green Junction (19.04)	Renewal with improved junction layouts and provision of a bi-directional slow line	Improved asset condition, performance and capacity	Signalling & track	None	4	2007/08
Ⓒ Derby station renewal (19.03)	Canopy renewal	Improved asset condition	Station	None	2	2007/08
Ⓔ East Midlands Control Centre	Renewal/replacement of existing operational facility	Operational improvements	Signalling	None	4	2008/09
Ⓔ East Midlands Resignalling North Erewash Coney Green Junction to Tapton Junction (19.04)	Renewal with improved junction layouts	Improved asset condition	Signalling	None	4	2008/09

Figure 16 Planned infrastructure investment

Project	Scope	Enhancement or output change	Main asset type(s)	Third party funding	GRIP stage	Completion year
E East Midlands Resignalling South Erewash, Sandiacre to near Loughborough (19.02 and 19.11)	Renewal	Improved asset condition	Signalling	None	4	2008/09
F Radlett Junction S&C (19.01)	Renewal	Improved asset condition	Track	None	1	2008/09
G Sharnbrook Junction S&C (19.02)	Renewal	Improved asset condition	Track	None	1	2008/09
H Leicester North S&C (19.02)	Renewal	Improved asset condition	Track	None	1	2008/09
I Bedford to St. Pancras overhead line equipment (19.01)	Renewal of the spanwire	Improved asset condition and performance	Electrification and plant	None	3	2008/09
J Nottingham station area (19.02)	Signalling renewal	Improved asset condition	Signalling	None	2	2010/11
K West Hampstead concentrator (19.01)	Like for like telecoms renewal	Improved asset condition	Telecoms	None	1	2014/15
Q East Midlands Parkway	New status	New status facilities and growth	Status	None	6	2008/09

Figure 17 highlights uncommitted schemes under development.

Figure 17 Infrastructure investment under consideration

Project	Scope	Enhancement or output change	Main asset type(s)	Status
E East Midlands Resignalling South Erewash (19.02)	Doubling Trent East Junction	Improved performance and capacity	Signalling	In development for Network Rail Discretionary Funding in association with a signalling renewal
L Castle Donnington (19.11)	New Freight Terminal	New freight operations	Track & signalling	In development for funding by a Third Party
J Nottingham station (19.02)	Redevelopment of the station	Improved station facilities	Station	In development for funding by a Third Party
C Derby Etches Park (19.03)	Depot improvements	Improved depot facilities to service Meridian trains	Depot	In development for funding by a Third Party
F Radlett (19.01)	New Freight Terminal	New freight operations	Track, signalling & electrification & plant	In development for funding by a Third Party
M Harrowden Additional Line (19.02)	Additional bi directional track between Harrowden Junction and Kettering N. Junction	Improved performance and capacity	Track	In development for Network Rail Discretionary Funding
F Radlett, Harpenden and Leagrave (19.01)	Provision of flashing yellow aspect signalling	Improved performance and capacity	Signalling	In development for Network Rail Discretionary Funding
N Syston North Junction to Trent South Junction (19.02)	Partial route upgrade. Increase of the line speed on the slow lines	Improved performance and capability	Signalling & track	In development for Network Rail Discretionary Funding

Figure 17 Infrastructure investment under consideration

Project	Scope	Enhancement or output change	Main asset type(s)	Status
Ⓘ Bedford station (19.01)	Revised track layout	Improved performance and capacity	Track	In development for funding by Third Party and Network Rail Discretionary Funding
Ⓞ Elstow (19.01)	New station	To meet local housing growth	Station	In development for funding by a Third Party
Ⓟ Cricklewood (19.01)	New station and significant track layout changes	To meet growth associated with a major development site	Station, track, signalling, electrification & plant.	In development for funding by a Third Party
Ⓡ Thameslink programme	Major works including renewed truck and signalling layouts and platform extensions between St Pancras and Bedford	Eliminates bottlenecks Improved capacity and performance	All asset types	In development, funding TBC

Non infrastructure developments

The table below shows potential developments which do not involve changes to the infrastructure.

Figure 18 Other projects

Description	Key issues	Actions or options being developed	Benefits	Start Date
Smartcard introduction	Revenue protection and flexible ticketing	TfL/ATOC to take forward	Revenue increase and potentially demand management improvements	

Appendix

Figure 19 Strategic route sections

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

SRS	SRS Name	ELR	Classification	Funding	Community Rail	Freight Gauge	RA	Speed	Electrification	Signalling Type	Signalling Headway	No of Tracks	SRS
19.01	St Pancras – Bedford	SPC1	Primary	DfT	No	W8 (W6)	RA8	110 (50)	25kV	TCB	5 mins	4(6)	19.01
19.02	Bedford – Nottingham	SPC2/3/4/5/ TSN1/2/WYM	Primary	DfT	No				None	TCB	4	2(3/4)	19.02
19.03	Winchnor – Derby – Chesterfield	DBP1/SPC6/ 7/8	Primary	DfT	No	W8 (W7)	RA8	100	None	TCB	4	2(4)	19.03
19.04	Worksop/Chesterfield – Nottingham	RAC/PBS1/2/ 3/PSE/TCC	Secondary	DfT	No	W6	RA8 (7)	80(60)	None	TCB (AB)	5	2(3/4)	19.04
19.05	Nottingham – Newark Crossing	NOB1	Secondary	DfT	Yes	W6 (W8)	RA8	60 (70/50)	None	AB (TCB)	5	2	19.05
19.06	Matlock Branch	AJM	Rural	DfT	No	W6 (W8)	RA8	50	None	OTW	Single line	1	19.06
19.07	Netherfield – Grantham	NOG1/2	Rural	DfT	No	W8 (W6)	RA8	60 (75)	None	AB (TCB)	5	2	19.07
19.08	Nuneaton – Wigston Junctions	WNS	Secondary	DfT	No	W7	RA8	90 (75)	None	AB (TCB)	5	2	19.08
19.09	Syston Junctions – Helpston Junction	GSM2/PMJ	Secondary	DfT	No	W7(W8)	RA8(9)	90(75)	None	AB(TCB)	5	2	19.09
19.10	North Stafford Junction	NSS	Secondary	DfT	No	W7	RA8	70	None	AB (TCB)	14	2	19.10

Figure 19 Strategic route sections

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

	– Stoke-on-Trent												
19.11	Freight Through Branches	Various	Freight	DfT	No	Various	Various	Various	None	Various	Various	2(1)	19.11
19.12	Other Freight Lines	Various	Freight	DfT	No	Various	Various	Various	None	Various	Various	1(2)	19.12

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 Croft – Hinckley: signalling headways restrict capacity
F Croft Sidings: capacity restricted by need to block main line when propelling
G Matlock – Ambergate: single line section and weak bridges
H Bulwell – Kirkby in Ashfield: single line section