

Connecting local communities

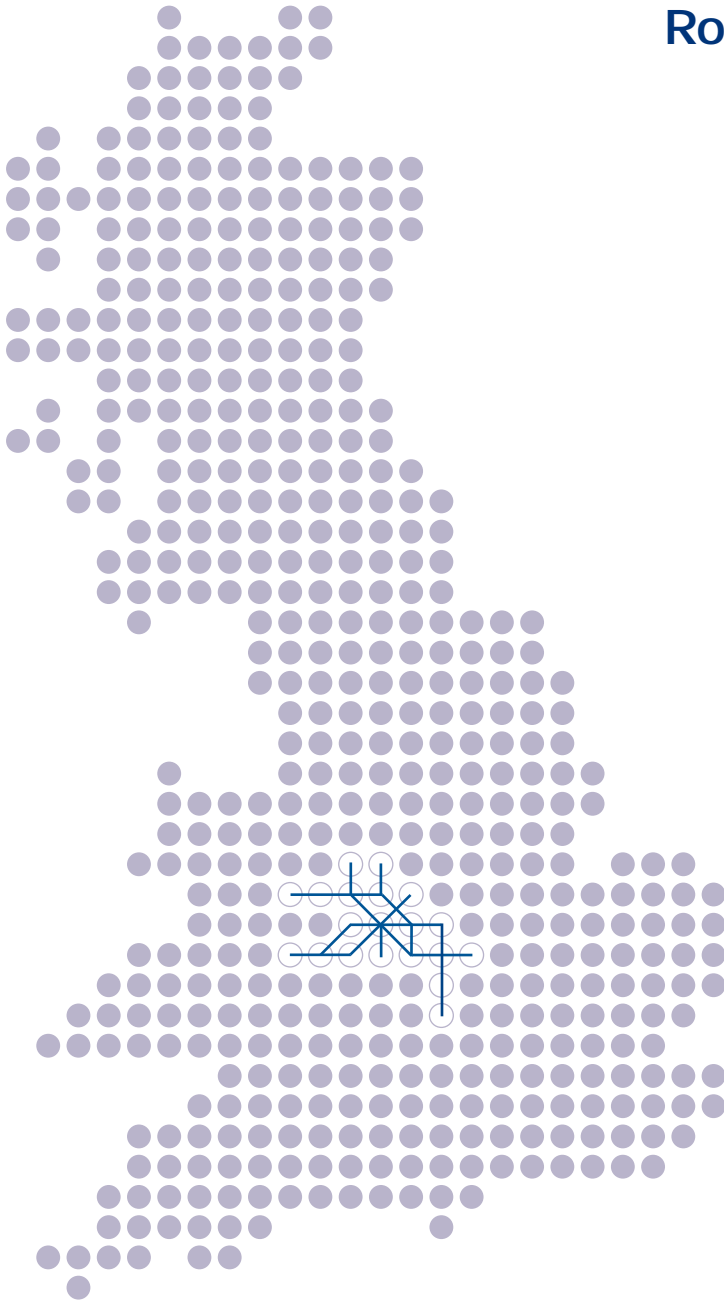


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Route 17 West Midlands



Section 1: Today's railway

Route context

The West Midlands route is the key hub at the centre of the national rail network, with long distance intercity, inter-urban rail and suburban rail services all passing through Birmingham. The national road network penetrates right into the heart of the city of Birmingham and competes with the principal rail corridors.

The route also plays a key role in the transport system of the wider West Midlands region, with a busy suburban rail network operating through Birmingham New Street, Moor Street and Snow Hill stations. New Street is one of the most important interchange stations on the network. Many of the local services operating throughout the West Midland region are supported by the

West Midlands Passenger Transport Executive (Centro). Route 17 has an important role in supporting the continued revitalisation of central Birmingham and is pivotal to continuing city centre growth. Additionally, rail has a major role in providing surface access to Birmingham International Airport and the adjacent National Exhibition Centre.

The route is also vital for many long distance freight flows, including traffic to and from the WCML, along the Thames Valley corridor via Oxford (which forms part of the freight route for container traffic from Southampton that joins the WCML in the West Midlands) and significant coal, steel and automotive flows, which are predominately aligned on the axis from Bristol and Gloucester towards Derby and the North Midlands.

In July 2005 the SRA published a Route Utilisation Strategy (RUS) for the West Midlands region (broadly matching the area of Route 17) to cover the period up to December 2011. This set out scenarios of continuing growth in commuting to the centre of Birmingham, and identified, in terms of train paths, where the current network is operating at, or close to its capacity. This analysis is being revisited and updated as part of the current RUS process (through the West Midlands and Chilterns RUS).

The DfT subsequently published the Regional Planning Assessment (RPA) in July 2006, covering the time period between 2011 and 2026. We worked closely with the DfT during its development to ensure consistency between our views on route strategy and the RPA.

As mentioned, the West Midlands and Chilterns RUS programme is well underway and is due to be published late in 2009. In addition, the West Coast RUS will impact upon this route and started in November 2008. As part of the broader RUS programme, cross-RUS issues are being identified and options developed.

Today's route

The route is bounded to the east and north by the WCML, the west by Shrewsbury and Hereford and the south by Oxford and Worcester. The four principal elements of the West Midlands route are described below, with the relevant Strategic Route Section shown in brackets:

- WCML, including the Birmingham loop (Rugby – Coventry – Birmingham New Street – Wolverhampton, rejoining the WCML at Stafford) (17.01, 17.02, 17.03, 17.07) and the Stechford to Bushbury Junction line (17.09) (the Grand Junction which provides vital diversionary capability for both the WCML Trent Valley route and the Birmingham loop);
- intercity and interurban routes, which include the radial routes from Birmingham to Cheltenham (17.11), Derby (17.06), Oxford (17.07), Leicester (17.18) and Worcester/Hereford (17.05), plus the route from Wolverhampton to Shrewsbury (17.16);
- West Midlands local routes, which form two main networks, centred on Birmingham's New Street and Snow Hill stations (17.04, 17.08, 17.10, 17.12, 17.13, 17.14, 17.15, 17.19 and 17.23); and
- freight routes, including heavily used through routes carrying long distance traffic (e.g. Sutton Park Line, St. Andrews Junction to Landor Street) and a number of branch lines serving private sidings and terminals on the route (e.g. Prologis Park (Coventry), Hams Hall, Birch Coppice, Round Oak) (17.20, 17.21 and 17.22).

In describing and developing these routes we are well aware that none exist in isolation and that constraints and opportunities here have implications for the rest of the national rail network and vice versa.

Current passenger and freight demand

The most recent, comprehensive analysis of passenger demand is the West Midlands RUS, published by the SRA in July 2005. The RUS identified that, between 1995 and 2004, rail patronage on this route had grown by 44 percent, compared with the national average of 34 percent.

The West Midlands RUS analysis also showed that work journeys to central Birmingham had increased from 12 percent to 20 percent between 1991 and 2004, with an average annual growth rate of 3.9 percent in the period between 1999 and 2004. However, recent evidence suggests that growth since 2004 has exceeded the trajectory of the RUS middle scenario of 3.9 percent. A growth trend of 6 percent on Centro supported services has been observed, and recent passenger counts indicate that the Cross City line has exhibited even higher levels of growth, reaching 10 percent for 2006-2007. The average growth rate across other services on the route is currently 4.7 percent.

The growth in journeys starting or ending in the West Midlands has been matched by growth in journeys that traverse the region, either on through services or via interchange. On top of this, the December 2008 timetable structure has increased the number of passengers interchanging at Birmingham New Street.

It is recognised that improved services frequency levels, retail expansions in Birmingham city centre (especially the completion of the Bullring development in September 2003), continued employment growth in the three core cities (Birmingham, Wolverhampton and Coventry) and road congestion are the major contributors to increased levels of passenger growth.

There are significant flows of freight traffic to local terminals and marshalling yards within the West Midlands, and a substantial volume of freight traffic also traverses the route to and from locations outside of the region. These flows include metals traffic (e.g. Handsworth, Round Oak, Kingsbury, Wolverhampton Steel terminal), automobiles

e.g. Washwood Heath and Castle Bromwich, petroleum (Kingsbury) and aggregates (e.g. Walsall, Washwood Heath, Bordesley). Container and intermodal traffic is handled at Lawley Street, situated close to the city centre, Hams Hall, Birch Coppice and Daventry. Coal originates locally from Daw Mill Colliery while the power stations at Ironbridge and Rugeley are served by longer distance coal flows from the ports and loading facilities in Scotland, Liverpool, Bristol and the East Coast.

Current services

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

Passenger services

The West Midlands network supports a complex mix of freight, suburban, inter-urban and intercity passenger services operating on many of the corridors. This is further complicated by the variation in the stopping patterns of the services and the differing rolling stock types used. Several of the rail corridors into Birmingham are operating at or close to capacity, primarily the routes from Wolverhampton, Bromsgrove, Derby and between Leamington and Coventry.

The passenger operators across this route are: Arriva Trains Wales, Chiltern Railways, CrossCountry, London Midland, Virgin Trains and Wrexham, Shropshire and Marylebone Railway Company.

Following the implementation of the December 2008 timetable, there have been some significant improvements, primarily to the frequency of Virgin Trains services. The timetable has provided three trains per hour between Euston to the West Midlands (two to Birmingham; one to Wolverhampton). It has also provided a redraft of the inter-urban services along the Coventry corridor, including the SRA RUS recommendation to strengthen services between Birmingham New Street and Northampton.

Figure 1 Current train service level (am peak trains per hour – to/from Birmingham)

Route section	Number of trains
Wolverhampton – Birmingham New Street	12
Coventry – Birmingham New Street	7
Longbridge – Birmingham New Street	6
Four Oaks – Birmingham New Street	6
Stourbridge – Snow Hill	7
Dorridge – Moor Street	7



Virgin Trains operates the core intercity passenger services between London Euston and the West Midlands, offering three trains per hour on weekday services.

As CrossCountry's services traverse many of Network Rail's strategic routes, planning has to be considered across route boundaries in order to deliver maximum industry benefits.

London Midland is the principal operator of inter urban and suburban services across the West Midlands, providing the backbone for local commuter and leisure travel. London Midland operates around 800 services per weekday, and operates at over 120 stations within the route.

Arriva Trains Wales are the principal operator within Wales, with some services reaching to the West Midlands. These services provide popular links to Chester and destinations on the Cambrian coast.

Chiltern Railways operates passenger services between London Marylebone and Birmingham Snow Hill, via the Chilterns line, via Leamington Spa, Warwick Parkway, Dorridge and Solihull. Some trains continue beyond Snow Hill to Stourbridge Junction or Kidderminster. Chiltern Railways also operates passenger services between Leamington Spa and Stratford-upon-Avon.

Wrexham Shropshire and Marylebone Railway Company commenced services between the Welsh Borders region and London Marylebone in spring 2008, currently offering four trains a day.

The route also supports Vintage Trains, a small scheduled open access operator, providing scheduled summer steam services between Birmingham Snow Hill and Stratford-upon-Avon.

CrossCountry operates longer distance intercity services and geographically are one of the most extensive operators of passenger services. It covers around 1500 route miles and calls at over 100 stations.

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)	25	5	30
Train tonne km per year (millions)	5,079	4,099	9,178

Freight services

Freight operators on the route include DB Schenker, First GBRf, Freightliner Limited, Freightliner Heavy Haul Limited, DRS, Fastline Freight and Advenza. There is high demand for intermodal freight transport in the West Midlands area, and there has been an increase in services to Hams Hall, Birch Coppice and Daventry in 2008. A further increase is expected to be stimulated by the gauge clearance schemes across the route and the new terminal at Donnington (near Telford).

Current infrastructure capability

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

Figure 4 Line speed

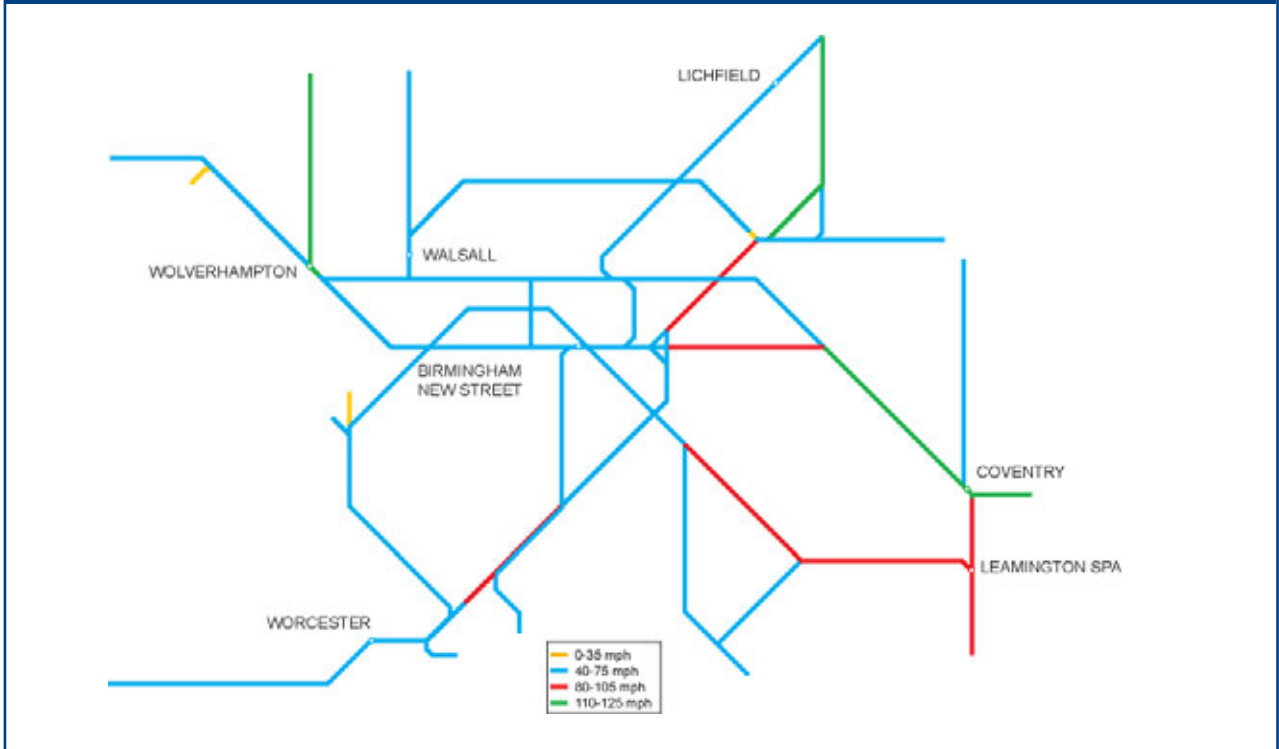


Figure 5 Electrification

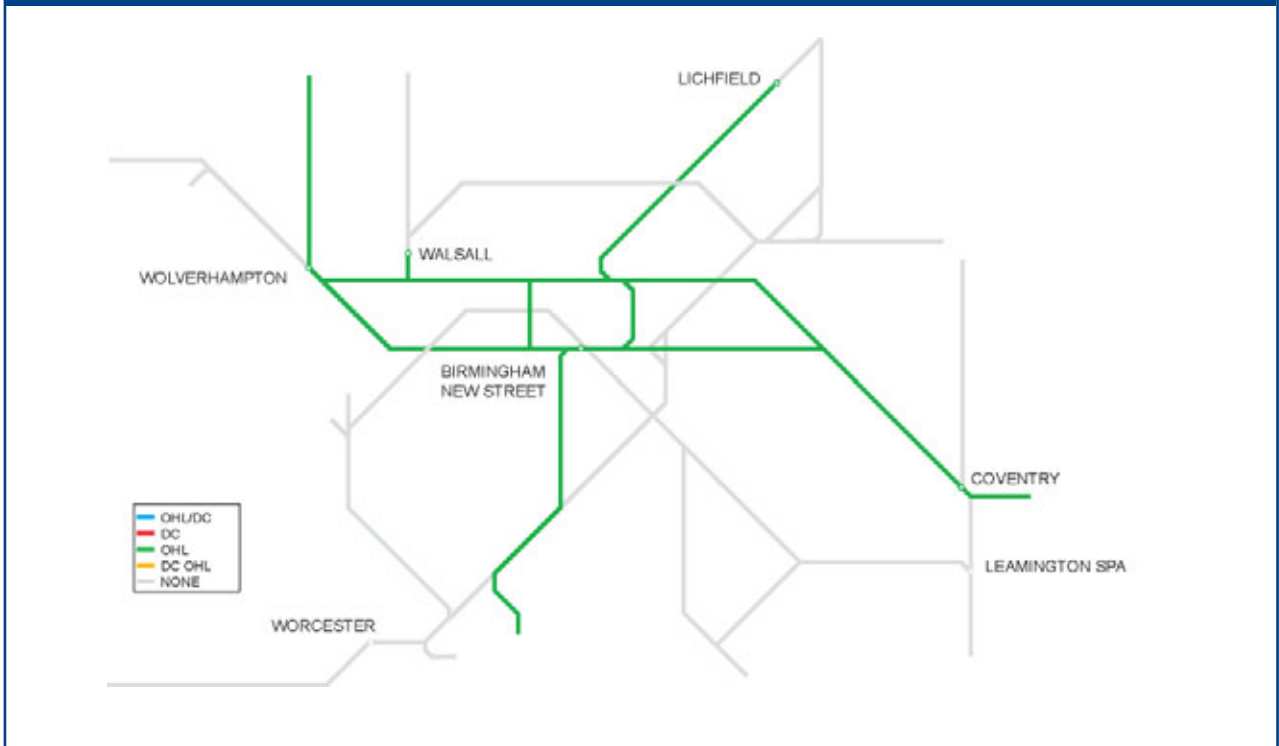


Figure 6 Gauge

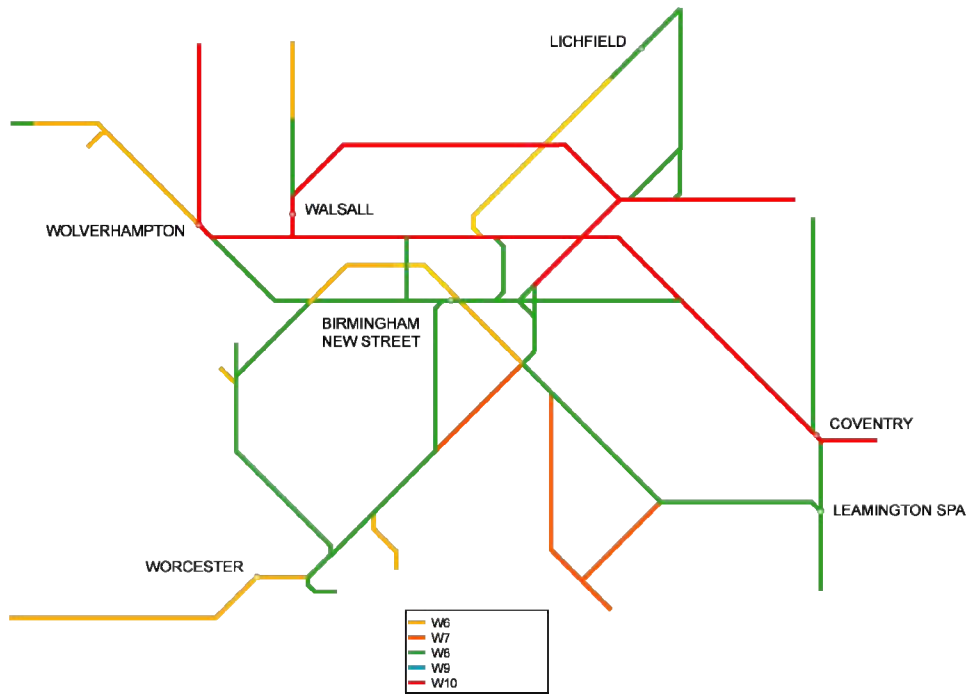


Figure 7 Route availability

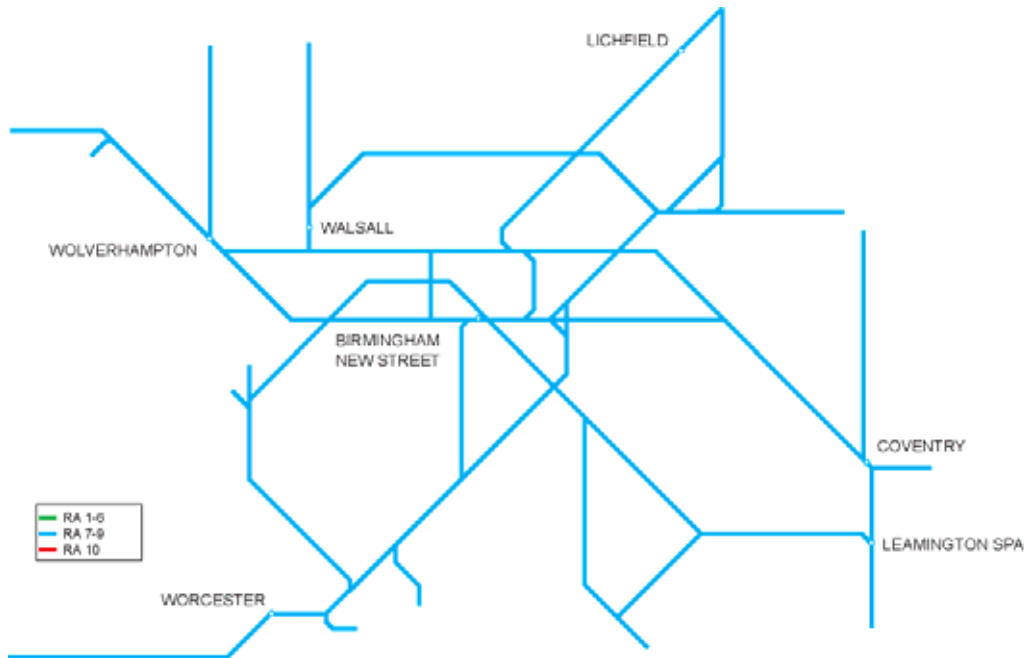


Figure 8 Current CUI and timetabling headways

Corridor	CUI	Average planning Headway
Cross City North	68%	5 mins
Bromsgrove/ Cross City South	98%	4.5 mins
Worcester/Stourbridge	61%	7 mins
Coventry	73%	4 mins
Wolverhampton	96%	4 mins
Grand Junction Line	43%	5 mins
Water Orton	64%	4 mins
Leamington Spa	61%	4 mins
Stratford	43%	9 mins
Cannock Line	80%	AB - various

Current capacity

Figure 8 shows the current Capacity Utilisation Index and timetabling headways along the principal corridors of the route.

Passenger capacity

Peak rail travel into the West Midlands core is characterised by a significant morning peak hour arriving into Birmingham between 07.45 and 08.45; current passenger counts indicate some services are significantly overcrowded. During the shoulders of the core peak hour, most of the nine radial routes have limited capacity for additional passenger growth. However, the existence of a shorter, more pronounced morning peak means that the ability to provide additional services by 'bouncing back' resources is reduced, and is constrained by the lack of spare paths available.

Generally the evening peak shows a better spread of demand, reflecting the local practice of an earlier finish to the working day than elsewhere. Schools traffic and the resurgence of late evening shopping in the Bullring also contribute to pm peak spreading. Many operators now experience increased levels of demand during the evening peak on Fridays and throughout the weekend. For example CrossCountry's second busiest day of the week is a Sunday.

Although various service upgrades over the past decade have increased patronage levels, they have also led to the introduction of 'skip stopping' on some services/corridors. Whilst 'skip stopping' has created additional network capacity, on some corridors it has led to intensified overcrowding as a consequence of omitting certain station calls.

Freight capacity

The increase in intermodal traffic has put further pressure on capacity in the West Midlands. Many of the freight terminals and yards on the route have expanded over the past five years with some now operating at their design capacity. This increase in

demand has led to significant freight flows traversing the already busy corridors of the West Midlands.

The lack of freight diversionary routes and suitable loop facilities on busy corridors, further compounds freight growth expansion.

There are also issues relating to access to and from Kingsbury (particularly propelling moves), to and from Bescot yard, especially the north end, and access to Wolverhampton Steel Terminal.

Network constraints

Constrained infrastructure can affect journey times, performance and timetable development. The route has several highly restrictive track and junction configurations; for example, the section between Bant Green and Kings Norton, which is exacerbated by the Lickey Incline just south of Bant Green. Further north, the junctions at Aston restrict improvements in passenger service frequencies and increments in freight flows. The Birmingham to Tamworth corridor has significant freight traffic flows that serve a number of terminals in the area. The current linespeed across the flat junction at Landor Street is a key operational constraint. Stafford to Rugby via Birmingham New Street and Wolverhampton has a lack of regulating/passing points which can lead to exacerbated delay when trains are out of sequence.

Capacity is further constrained at the hub of the network, in particular the approaches to Birmingham New Street and Birmingham Snow Hill. At present some of these corridors are controlled by signalling technology installed in the 1960s which restricts any opportunities for additional train paths during peak times. Longer signalling headways on the periphery of a number of these routes reflects the continuing existence of a number of mechanical signal boxes, using absolute block signalling.

The route also has a number of single line sections that provide further restrictions on the efficient operation of the network. Amongst these are the sections between Coventry and Leamington, Stoke Works Junction to Droitwich, Barnt Green to Redditch and the curves connecting the Sutton Park line to Water Orton and Castle Bromwich.

Network crowding can occur throughout the day and in the short to medium term re-routing certain services may help to alleviate crowding.

Station capacity

Passenger capacity is a real issue at both Birmingham Moor Street and Birmingham New Street, of which Birmingham New Street is most critical. Birmingham New Street is one of the busiest stations on the national network, where recent passenger growth has left the station operating very close to capacity in terms of passenger numbers. More than 40,000 people have been known to pass through the station in the busiest three peak hours, leading to passenger congestion in key circulation areas. This has been exacerbated further by the opening of the Bullring shopping centre in 2003 and increased city centre employment opportunities. Increased city centre service frequencies has also led to additional passengers using Birmingham New Street as a key destination and interchange station.

Providing efficient and safe interchange at Birmingham New Street is therefore a key priority in CP4, and is a key output in the Birmingham Gateway project. For example, it is estimated that 45 percent of CrossCountry passengers change train nationally, with Birmingham New Street supporting around 20 percent of this figure.

Birmingham Moor Street is constrained by its narrow platform on the Leamington Spa bound direction and by the continued increase in passenger demand during the peak hours. This constraint is also compounded by its close proximity to the Bullring shopping centre.

During CP4 a review of passenger capacity and passenger flows will be required at Birmingham Snow Hill station. It is recognised the current station layout, at both concourse and platform level, restricts passenger circulation and capacity. The scheme currently underway to provide an additional access to the station, via Lower Livery Street, is one of the steps being undertaken to improve passenger entry and egress.

The ability to alleviate overcrowding by lengthening services is constrained by existing platform lengths at smaller stations along most key corridors. As part of our strategy to address congestion on existing rail services and meet long term growth projections we have recently completed platform lengthening at Tile Hill and Berskwell stations. The extensions now allow eight-car services to serve these stations, and improvements have also been made to enhance waiting facilities and passenger access.

Current car parking

Today there are 128 stations falling within Route 17, of which 57 percent of these stations provide car parking facilities for rail passengers. Car parking at stations currently operated by London Midland within the West Midlands Passenger Transport area (Centro area) is mostly free for rail passengers. At the larger stations, such as Wolverhampton, Birmingham International and Coventry, car parking charges are applied.

Approximately 71 percent of these car parks are more than 85 percent full, or are over their design capacity. The insufficient number of parking spaces at some stations can encourage on street parking, resulting in further street congestion which can be an inconvenience the community.

The extent of demand for further car parking, and the need to address road congestion in the West Midlands, has enhanced the case for increasing park and ride facilities across the route. Coleshill Parkway station was opened in summer 2007 on the Birmingham to Nuneaton line offering park and ride facilities and new multimodal passenger opportunities for the north Warwickshire area.

Figure 9 2008/09 PPM

TOC	MAA	As at period
London Midland	86.5%	10
CrossCountry	89.8%	10
Arriva Trains Wales	92.7%	10
Chiltern Railways	95.1%	10
Virgin Trains	81.3%	10

Current performance

Figure 9 shows the current PPM for the main train operators running along the route.

The route has a complex mix of heavy freight and passenger traffic operating across it. Very busy sections include the Snow Hill and Cross City lines. The routing of trains is varied and presents challenges for train regulation at key junctions and stations. This can have a severe impact on service resilience during perturbation. The recently completed re-signalling of the Leamington corridor has increased the speed through the main junction at Tyseley to 60mph and has removed a major pinch point from this part of the network. However, issues with the reliability of axle counters on the corridor have overshadowed what should have been improved performance. We have an ongoing workstream nationally that is working to resolve these teething issues.

The need to accommodate the extensive mix of traffic over the route is further compounded by the amount of two track sections along some busier corridors, which leaves limited opportunities for train regulation. As a consequence, once trains lose their scheduled path, there is a common tendency for them to lose further time, rather than recover it, often resulting in other services losing their paths. This has been considered when producing the new December 2008 VHF (Very High Frequency) timetable and much work has been done in ensuring that trains are pathed robustly and that contingency plans are in place to quickly recover any service disruption.

Some of the key challenges during 2008 were:

- minimising disruption to services as a result of WMCL possessions,
- the high capacity utilisation levels over most routes affecting service resilience,
- the number of resignalling projects potentially affecting performance and the transfer of West Midlands signalling to the West Midlands Signalling Control Centre.

Further performance issues also exist on those corridors where recent linespeed improvements have increased the differential speed capability between fast and slow trains. For example, the Cannock line can suffer from low PPM at times due to scheduling. However, timetable modifications recently made have helped alleviate this. The industry continues to work closely together to improve the flighting of timetabling services, optimising the route's full capacity.

In general terms, the newly introduced VHF timetable has proven successful.

Section 2: Tomorrow's railway: requirements

HLOS output requirements

Figure 10 Total demand to be accommodated by Strategic Route

Routes	Annual passenger km (millions) forecast in 2008/09	Additional passenger km (millions) to be accommodated by 2013/14
West Midlands	1,862	258

Figure 11 Peak hour arrivals to be accommodated by Strategic Route

City	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 (%)
Birmingham	32,000	4,600	48	15,400	2,400	55

Note: the load factor requirement in the HLOS applies as an average across 12 London stations.

Future demand in CP4

Passenger demand

Both the SRA RUS and RPA studies examined the impact of wider regional changes on changing patterns of rail passenger demand.

According to the RPA forecasts, continued growth may see some 38,000 passengers in 2026, a 56 percent increase from 2004. Continued employment growth in central Birmingham is expected to act as a key driver in railway demand. The Regional Spatial Strategy (RSS) aims to concentrate development on the major urban areas and this is likely to start to reduce the rate of growth within the next 10 years.

Passenger demand throughout CP4 and beyond is currently being examined as part of the West Midlands and Chilterns RUS programme. Detailed outputs from the RUS demand workstream will be available later this year and will be used to support recommended interventions.

We expect the increase in services as part of the December 2008 timetable will have a major influence on future growth, and Virgin Trains envisage that it will result in a doubling of demand from 2007 figures by the end of their franchise in 2012.

Recent counts on CrossCountry services also indicate an overall growth rate of eight percent per annum, with steady growth on their Scotland - North East and West Yorkshire, West Country and Manchester to Thames Valley services.

Generally detailed analysis on a train-by-train basis indicates that increasing numbers of peak services will begin to suffer from severe overcrowding during CP4 unless preventative action is taken. Given the constraints of traffic density, mix and the ability to cater for additional traffic, train lengthening is the preferred option to accommodate additional demand. As a result, throughout CP4 and as part of our response to the capacity targets specified in the HLOS, we shall be undertaking modest platform lengthening across some corridors.

In the regional context, growth in rail use is likely to continue from city centre regeneration in Coventry and Wolverhampton in addition to that underway in Birmingham. Other factors likely to influence growth include induced growth from train service improvements (e.g. later stages of the West Coast upgrade) and expansion at Birmingham International Airport (which is forecast to increase from around 10 million passengers per annum to at least 30 million by 2030, with a target for a higher public transport share). Modal shift to rail may also be influenced by certain regional initiatives.

Chiltern Railways business plan is based upon a prediction of continued expansion of its route between London and Warwickshire and the West Midlands. Key elements of Chiltern Railways strategy are to provide extra platforms at Moor Street, shorter journey times, longer trains and expanded car parking facilities.

Freight demand

In the 2007 White Paper 'Delivering a Sustainable Railway', the government indicated that it is confident that rail freight will continue to grow over the next 10 years and double over the next 30 years. The Freight RUS predicts the number of freight services in the West Midlands to continually increase to 2014/15. There is predicted growth in intermodal traffic from deep sea ports, which involves the movement of goods using the larger 9' 6" containers. The Southampton to WCML W10 gauge enhancement scheme will facilitate the conveyance of these containers on standard wagons which will drive commercial demand for extra trains from the port. This increase in loading gauge from the port of Southampton to the WCML will be via Reading, Didcot, Oxford, Tyseley, Bordesley Junction, and St Andrews Junction to Landor Street Junction. A diversionary route will also be cleared from Leamington to Nuneaton via Coventry. Funding for this scheme is via a grant from the Transport Innovation Fund (TIF), with additional funding from the South East England Development Agency (SEEDA), Associated British Ports, DP World Southampton and the Network Rail Discretionary Fund. The completion of the gauge clearance project will facilitate additional freight movements and is likely to lead to higher levels of demand than those forecast by the freight RUS.

The Felixstowe to Nuneaton (F2N) TIF scheme is designed to provide W10 gauge on that corridor. The section of route with the highest growth is from the WCML through Water Orton towards the terminals in the centre of the route. The completion of this project will enable 9' 6" high containers to be carried to and from the ports of Felixstowe and Tilbury to the WCML, and on to the Midlands, North West and Scotland.

There are also predicted increases in CP4 in imported coal and aggregates. It is likely that the source points for imported coal to West Midlands power stations will change with greater demand for services from ports in the South Wales and the Bristol area. In contrast, there is predicted to be a reduction in metal traffic between South Wales and the North East over the period to 2014/15.

It is expected that the new intermodal terminal at Donnington, near Telford, will stimulate further freight growth on the route between Shrewsbury and Wolverhampton.

Car parking

We recognise that the current shortage in car parking provision is one of the main factors suppressing demand across the West Midlands area. Therefore we will continue to work closely with industry parties to improve parking facilities and develop suitable car parking expansion programmes.

WSMR have plans underway to increase the car parking capacity at Cosford, initially providing 100 spaces with the potential to expand further.

The development of the WM&C RUS is considering the factors outlined above; in particular, current and predicted growth, car park expansion, the effects of recent service recasts, and the impact on the route following the introduction of the WCML December 2008 timetable. The RUS will also review key stations that have potential to act as feeder/satellite locations to support interchange between long distance intercity and interurban/suburban services.

Future demand beyond CP4

Demand growth is expected to continue into CP5 and beyond for both passenger and freight business.

Planned and pre-planned future housing developments must be taken into account when considering future demand beyond CP4. The eco town development planned at Middle Quinton near Stratford-upon-Avon is currently included in the short list issued by the Department of Communications and Local Government. If delivered, the development would have a major impact on demand for public transport in the area. The development aims to reduce travel by car by 50 percent, and will maximise non car use by discounting public transport services. Planned rail enhancements include the use of existing rail links to the site for delivery of construction materials and supporting the site following its completion.

There are also proposals to reopening passenger rail links that are currently under protection. Current Government plans propose the completion of the eco-towns between 2016 and 2020.

As previously mentioned, airport expansion plans for Birmingham International Airport need to be accounted for as well as proposals planned at other airports. For example CrossCountry aim to focus on the need to accommodate demand generated by

the expansion of Stansted Airport, which is anticipated to continue beyond 2014.

Indications are that intermodal freight traffic will grow substantially beyond CP4, and it is therefore likely that more routes will require W10 gauge clearance, for example the Cannock line. In addition, following the completion of terminals at Mid-Cannock and Stretton, it is likely that Hams Hall and Daventry terminals will require enhancement to meet this demand.

The port expansions at Felixstowe, Bathside Bay and London Gateway are forecast to continue beyond CP4. To ensure that rail maintains its competitiveness in the carriage of containers to and from the ports, it is imperative that key routes are adapted to enable trains to convey 9'6" containers without the need for special lower capacity wagons. Gauge clearance to W12 on key routes within the West Midlands will therefore be essential in order to accommodate forecast growth in freight traffic. The Cannock line is a key priority route for gauge clearance due to capacity pressures on the Stour Valley line. The need to address the capacity issues at Water Orton and Sutton Park will also be significant in facilitating this growth.

Section 3: Tomorrow's railway: strategy

Figure 12 summarises the key milestones, aspirations and 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 Network Rail's proposed strategy milestones and key aspirations			
Implementation date	Service enhancement	Infrastructure enhancement	Expected output change
2009 - 2014	Additional DMU and EMU rolling stock to strengthen regional services in the peaks	Additional rolling stock vehicles to support HLOS growth till the end of CP5	Increased passenger capacity Additional rolling stock supports HLOS growth till the end of CP5.
2009 - 2014	Platform lengthening to accommodate longer trains	Platforms lengthened to accommodate longer train formations on specific corridors	Increased passenger capacity by enabling stations to accommodate additional rolling stock
2009 - 2014	Increased service frequency to Bromsgrove	Extension of Cross City service to Bromsgrove (3tph), requiring electrification of the line between Barnt Green and Bromsgrove	Increased passenger capacity
2009 - 2014	Increased service frequency to Redditch	Additional 2nd Platform at Redditch and/or passing loop at Alvechurch to allow an additional service to operate	Increased passenger capacity
2009 - 2014	Re-opening of terminal platforms at Birmingham Moor Street	Two 8x23m platforms brought into use	Capacity, Performance and operational flexibility
2009 - 2018	West Midlands Resignalling	Resignalling of the West Midlands area, relocating some signalling areas in to the new West Midlands Signalling Control Centre (WMSCC)	Improved capacity and capability through increased junction speeds, linespeeds and reduced headways
2010 - 2014	Camp Hill Chord(s) Connection of the Camp Hill lines into Moor Street Station	Feasibility and possible land acquisition for development of a north and south facing chord line that connects Moor St to the Camp Hill lines	Increase in capacity to central Birmingham stations. Improved connectivity and new journey opportunities.
2010 - 2014	Additional stabling location for additional fleet	New stabling location with Route 17 area (Duddeston area)	Provides stabling location for the cascade of additional vehicles
2013 - 2015	Birmingham New Street Gateway project	Enhanced passenger handling capability	Increased passenger capacity

Figure 13 Capacity enhancements to meet HLOS peak capacity in CP4

Description	Additional vehicles involved	Station served	0700 – 0959 Capacity Impact	0800 – 0859 Capacity Impact
West Coast intercity train lengthening	(Shown under Route 18)	Birmingham	2,200	700
Train lengthening on Birmingham suburban services	65	Birmingham	10,200	7,500

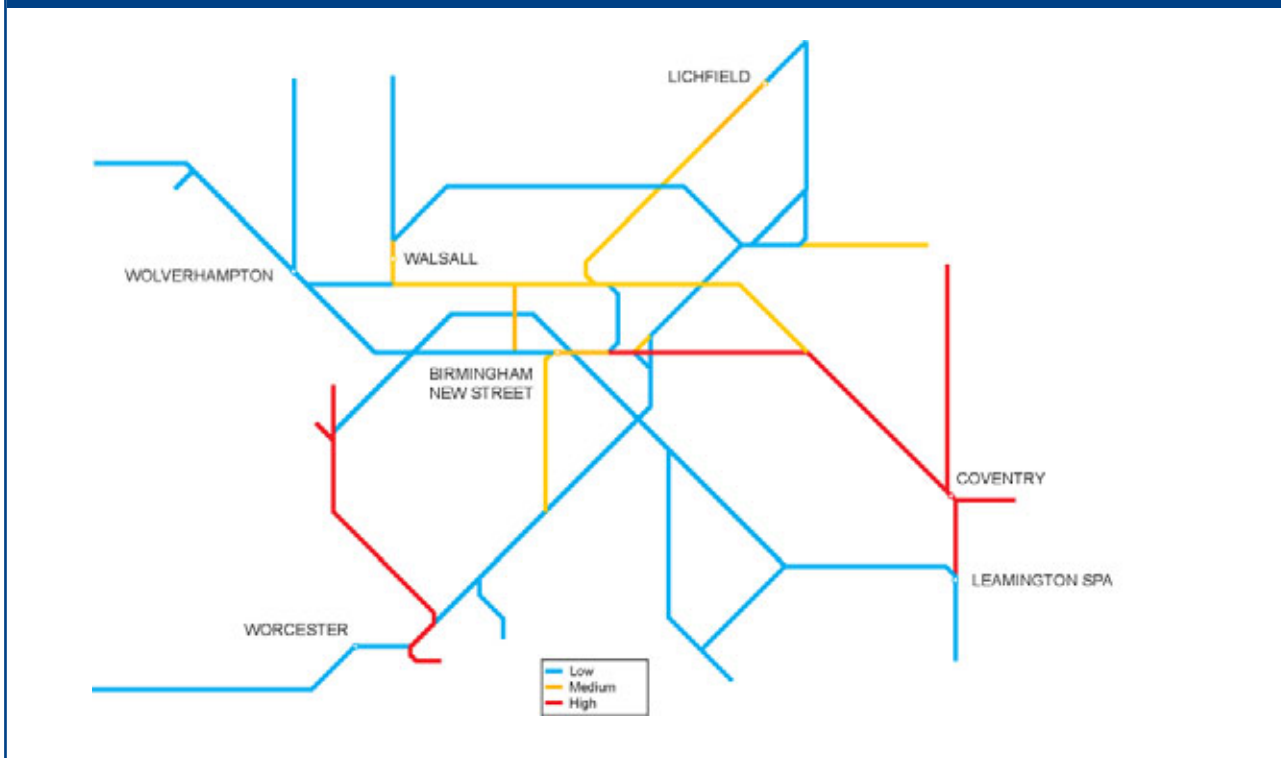
These figures exclude the additional HLOS vehicles allocated to CrossCountry (six vehicles).

The table below shows how the HLOS load factor targets for locations on the route are met by the proposed strategy.

Figure 14 Impact on HLOS peak capacity metric

London Terminals and regional Hubs	Peak three hours				High peak hours			
	Demand end CP4	Capacity start CP4	Capacity end CP4	Load factor end CP4	Demand end CP4	Capacity start CP4	Capacity end CP4	Load factor end CP4
Birmingham	36,600	69,900	82,300	44%	17,800	28,100	36,300	49%

Figure 15 Tonnage growth



Strategic direction

We expect this route will continue to see high levels of passenger growth during CP4 as journey times become quicker and industry performance levels continue to improve. As mentioned earlier, other anticipated drivers of this growth include the increases in employment and leisure/retail activities in central Birmingham, service improvements and increasing road congestion. In terms of freight traffic, the West Midlands is expected to remain at the heart of the traffic from the ports of Felixstowe and Southampton to the WCML. Enhancing key routes to accommodate traffic, and ensuring terminal and track capacity is available, will be key to the freight strategy in CP4 and beyond.

In order to meet the capacity targets that are set out within the HLOS, and to meet future passenger demand, our strategic direction in CP4 will focus on train lengthening, with associated platform lengthening and SDO operation where necessary. Any initiative will also need to focus on the other targets set within the HLOS such as safety, performance and the reduction in 'significant lateness'.

Through the ongoing RUS programme, London Midland and CrossCountry aim to address train service provision, capacity and journey time issues within CP4 through this process.

We aim to address the station challenges set out in the 'Developing a Sustainable Railway' White Paper, in CP4 and beyond, through the development of a National Stations Improvement Programme (NSIP). This programme is being developed with the industry, and is described in more detail in the future capability section.

Future train service proposals

Figure 15 indicates the forecast percentage change in tonnage to 2018.

Passenger services

In order to meet the HLOS targets for the morning three hour peak into Birmingham, there is a need for around 130 additional 'vehicle arrivals'. These will be provided by a mixture of strengthening of the Virgin Trains Pendolino fleet and strengthening the regional services.

Demand in the Bromsgrove and Redditch areas has been steadily growing as a result of recent housing developments. This is expected to continue as further brown field sites are developed. As previously mentioned, accommodating this expected demand will require infrastructure enhancements to facilitate the proposed extension/increase in current Cross City services operated by London Midland.

We recognise that our plans to extend three electric Cross City services from Longbridge to Bromsgrove will require three additional train paths in each direction. These paths will need to be carefully integrated with existing services between Longbridge and Stoke Works Junction.

CrossCountry have aspirations to improve overall journey times and frequencies on some of their service flows. Routing more services via Leeds and Birmingham International will be key to doing this. CrossCountry also wish to increase services to Stansted Airport with extensions of Birmingham New Street to Leicester trains to Cambridge as an interim measure. Some but not all of these developments are likely to require investment in infrastructure.

Chiltern Railways have ambitions to accelerate their London Marylebone to Birmingham services. Longer term, the aspiration is to provide a point to point journey time of 90 minutes, providing comparable journey times to those offered on the WCML.

The additional services provided by WSMR since spring 2008 have further increased network utilisation and reduced the time available for performance recovery.

ATW have an aspiration to provide service improvements between Aberystwyth, the West Midlands and London Marylebone.

Freight services

Some of the existing intermodal terminals within the route have expansion plans to enable them to cater for continued demand as a number of them are already operating at, or close to, their capacity. These terminals include Birch Coppice and Hams Hall.

There are a number of new intermodal site aspirations for this route. These include new terminals at mid-Cannock and Stretton. The opening of a new terminal at Donnington took place in March 2009.

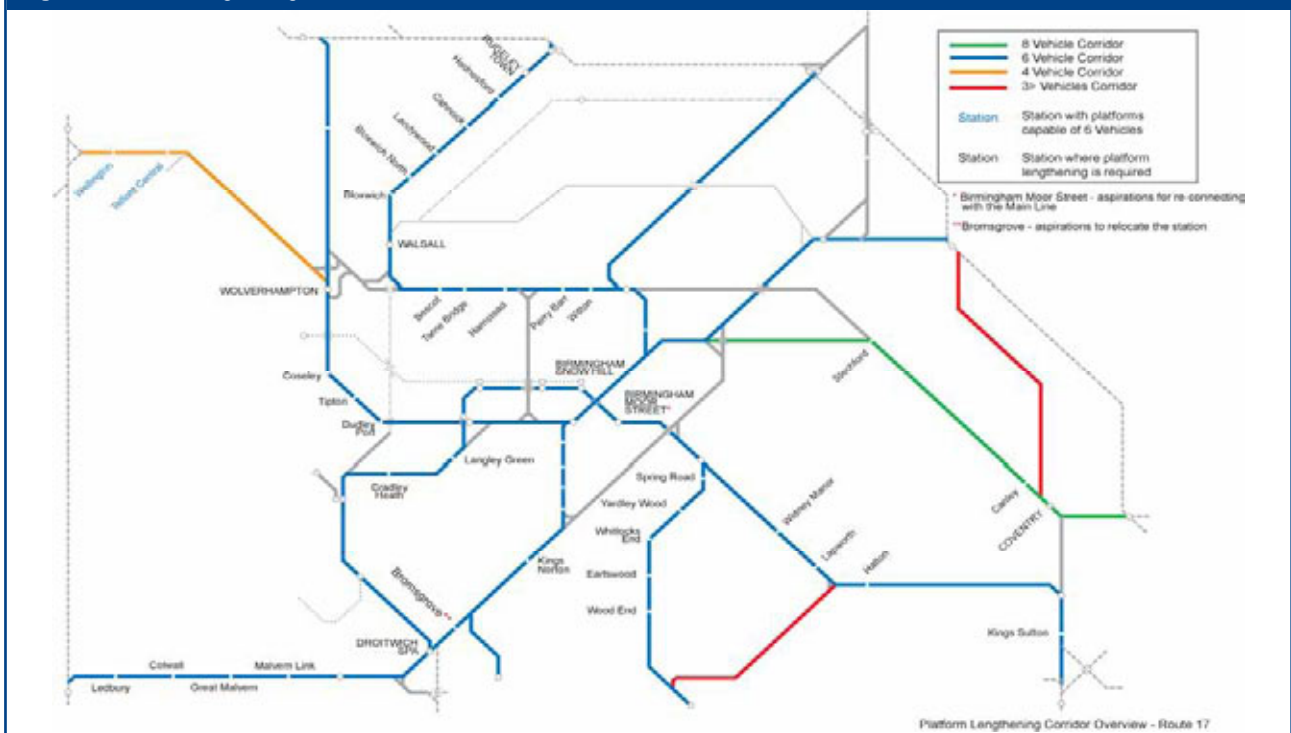
Growth in the movement of scrap metals is also being experienced, and further increased traffic flows from key sites at Queens Head – Handsworth and Dunn Brothers – Brierley Hill are expected. Possible new sites catering for scrap metals traffic in the Tyseley and Saltley areas are also proposed.

Growth continues in the transportation of steel strip and tin plate from South Wales to Round Oak, with a regularised train plan for 22 trains per week.

The completion of the Rugeley Power Station FGD fitment in 2009 will lead to two trains per week transporting aggregates (originating from Tunstead) and two trains per week transporting out gypsum.

The installation of a new track connection at Washwood Heath will also enable new container freight flows from the LDV site to the Channel Tunnel and Easy Coast ports.

Figure 16 Platform lengthening



Future capability

Stations

National Stations Improvement Programme (NSIP)

The Government is proposing an additional £150m during CP4 to support the modernisation of a range of stations. The criteria for a station being selected includes station category, footfall and current facilities. The programme is being developed within the industry through Local Delivery Groups (LDGs), and is described in our Strategic Business Plan. London Midland has been allocated an initial tranche of funding and analysis work has been undertaken to identify a short list of candidate stations. The programme outputs are focused on the need to modernise the most basic urban stations and improve access. Route 17 schemes are currently being developed at various stations including at Kidderminster, Cannock line stations, Tamworth, Shrewsbury and Wolverhampton.

Access for All – improving access at stations schemes are being developed at various stations including Henley-in-Arden, Hereford, Northfield, Selly Oak, Shirley, Sutton Coldfield and Worcester Shrub Hill.

Platform lengthening

Figure 16 highlights the region's overall long term platform lengthening strategy by corridor.

Despite the high network utilisation and demand for train paths, some services into central Birmingham are presently operated by trains of just two vehicles. The lengthening of trains has been identified as a key approach to enable the industry to meet the growth in passenger demand across the route; this makes best use of the scarce and high value paths into both Birmingham New Street and Snow Hill. Consequently, some platforms throughout the route will require lengthening enabling us to reduce overcrowding and meet the capacity targets set by the HLOS through CP4 and beyond CP5. Options and estimates (GRIP stage 2) for platform extensions on Route 17 have now been completed. Further work is being undertaken to determine the proposed strategy is aligned to HLOS requirements and we will work to ensure that where platform lengthening works are proposed they are considered across route boundaries and not in isolation.

The use of either GPS-SDO (Global Positioning Satellite System Standard Door Opening) or conventional SDO will be evaluated at intermediate locations where demand is moderate, but it is still necessary to provide longer trains to end destinations. The resignalling programme to be

progressed in CP4 provides a 'once-in-a-35 year cost-effective' opportunity to increase capacity.

Integrated Station Plans

The Joint Stations Board has developed the Integrated Stations Planning initiative which seeks to improve the planning and delivery of work at stations and to provide greater visibility of investment proposals to all stakeholders in the industry. This cross industry approach will increase the alignment of investment plans and funding streams at stations, improve productivity, and develop more efficient ways of working. These principles are supported by train operators, the Office of Rail Regulation, the Department for Transport and ourselves.

Linespeed improvements

Linespeed enhancements can deliver faster journeys and opportunities well beyond the location of the works.

The route between Walsall – Rugeley (Cannock Line) suffers from a particularly poor line speed for an interurban route. We have a project currently underway examining the possibility of increasing the linespeed across some sections. We are currently reviewing the outputs from a recent study undertaken to analyse the practicality of increasing the linespeed from 45 mph to 65mph on this corridor. However, the outputs from this study indicate that only marginal linespeed improvements (50mph across key sections) will be achievable prior to resignalling. Following the planned resignalling in late CP4, our plans remain to substantially increase the majority of the line to a regularised 75 mph.

In parallel with the improvements to the Cannock line, we are also reviewing a study that examines our aspiration to increase the linespeed between Shrewsbury and Oxley junction from 70 to 90mph. Early indications from the study suggest that some sections may prove difficult without major track renewals, primarily to the junctions in the Wellington area. Further analysis to determine the most cost effective and beneficial sections to increase in CP4 is currently being undertaken.

The linespeed between Birmingham Moor Street and Jewellery Quarter is also constrained by restrictive PSRs which extend journey times significantly. The aspiration is to increase the linespeed to more closely match the capability of the rolling stock in use.

Other routes where capacity is likely to become more constrained and may benefit from line speed improvements are:

- Soho East Junction to Perry Barr;
- Tyseley Junction to Stratford;
- approaches to Birmingham New Street;
- Kingsbury Junction to Whitacre Junction; and
- Kings Norton to Landor Street.

We recognise that passenger and freight speed differentials (in some areas) do not make best use of route capacity. To overcome this, we continue to work with industry partners to find the best solution during CP4 and 5.

Gauge

The Freight RUS sets out a proposed intermodal freight network cleared for the transportation of 9' 6" high containers. The routes from Leamington – Coventry – Nuneaton, Leamington Spa – Bordesley – Landor Street, Nuneaton – Water Orton – Walsall via the Sutton Park line have been identified as priority core routes, with the Cannock line identified as a priority diversionary route. In December 2006, the DfT announced that a number of important rail freight projects to alleviate road congestion will be taken forward as part of the DfT's Transport Innovation Funding for productivity schemes. The schemes relevant to this route are gauge enhancement of Southampton – WCML near Birmingham (including Oxford North Junction – Coventry – Nuneaton on this route), and gauge and capacity enhancements between Peterborough and Nuneaton.

During July 2008 track lowering works were completed to allow W10 gauge on the Sutton Park line to compliment existing W10 routes.

Further gauge clearance during CP4 is being considered for the Cannock line. Upgrading this line to allow W10 gauge would provide an alternative route for freight traffic going from Southampton to the WCML, allowing traffic to bypass the Wolverhampton to Stafford part of the Rugby to Stafford loop. The line has also been identified as a key diversionary route, and could be used for this during blockades or perturbation on the Wolverhampton to Stafford.

Level crossings

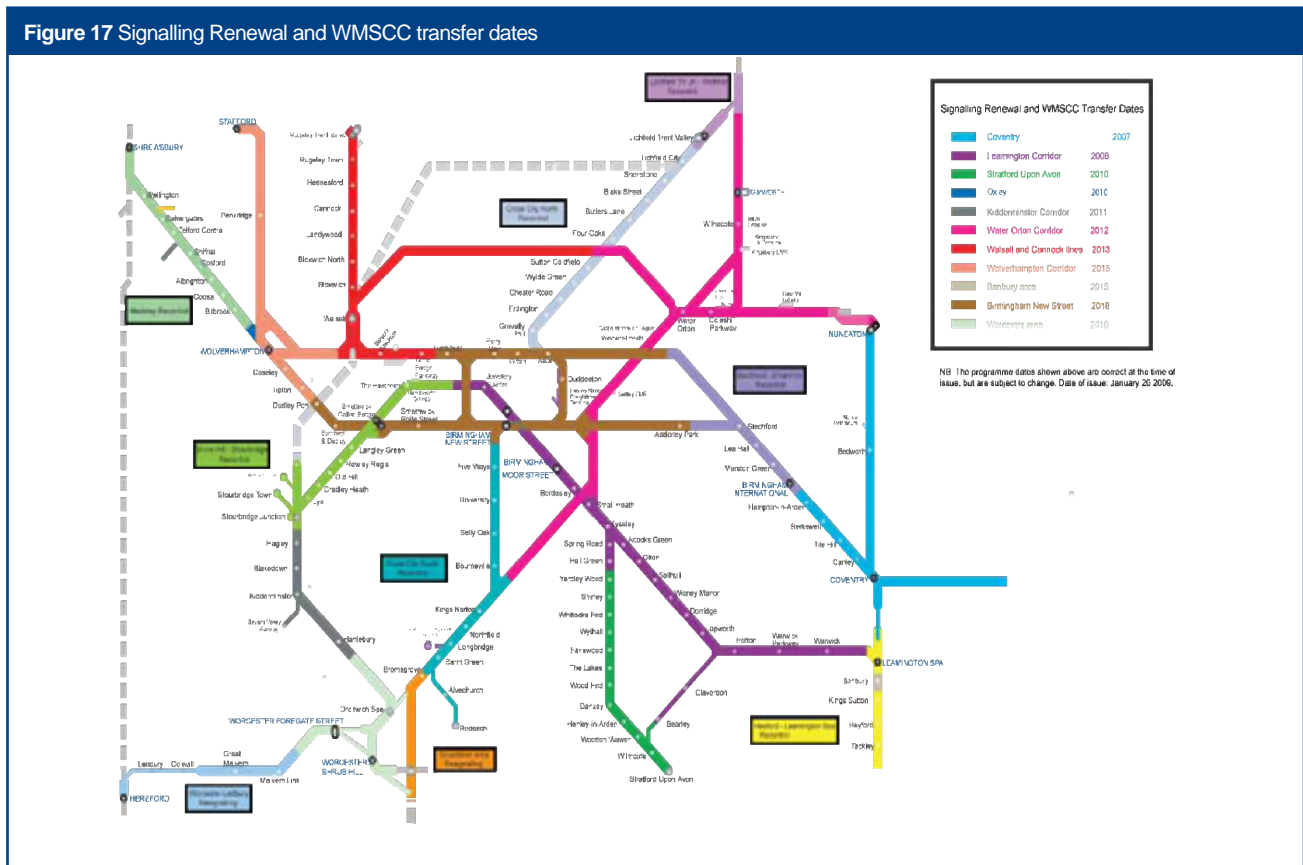
Steps are being taken to reduce safety related incidents on level crossings. A new under bridge is being developed as part of the Owen Street level crossing project at Tipton station. This will enable the removal of the crossing, which will increase safety and improve performance. A review is being undertaken into the closure of Hoggrills End foot crossings, near Whitacre junction. This would potentially involve the diversion of two footpaths, to an existing nearby overbridge. In addition to the safety improvement, this will enhance capacity and performance by enabling freight trains to have full use of the down goods loop. It will also eliminate the noise from train horns which causes disturbance to the local community. Further safety mitigation works are taking place at Burton Old Road, on the Cross City north line. Works include the provision of non-slip decking, a self-closing gate and anti-trespass guards. Work will be combined with safety awareness campaigns, a local education programme and regular proactive patrols.

Combined with our resignalling plans we are working closely with Walsall Metropolitan Borough Council to investigate the possibility of closing the level crossing at Bloxwich, facilitating a further improvement in linespeed and capacity.

Future capacity Resignalling

There are a number of major resignalling renewal projects scheduled within CP4 which provide a cost-effective opportunity to increase capacity. In conjunction with the planned renewal of near life expired signalling equipment, the area controlled by each individual signal box is being relocated into the new 'West Midlands Signalling Control Centre' (WMSCC) situated in the Salfley area of Birmingham. Figure 17 shows the signal boxes and areas that sequentially transfer to the West Midlands Signalling Control Centre following the resignalling renewal work. As part of these renewals, we continue to work with the Route Investment Review Group (RIRG) members to identify further enhancements over and above the like-for-like renewal. The group's objective is to identify additional enhancements that deliver much needed capacity and operational flexibility. This will help improve performance levels, and in some instances, allow us to operate more services or improve journey times.

Figure 17 Signalling Renewal and WMSCC transfer dates



We understand the importance of minimising disruption on routes during engineering works and the inconvenience that this can cause our customers. Therefore, our planned renewals, including the forthcoming resignalling works, will provide us with the opportunity for some tactical enhancements without the need for further disruptive possessions.

Passenger services

The forecasts of significant further growth in commuting to central Birmingham poses two critical challenges.

First, in the absence of intervention, overcrowding on peak services would worsen, particularly in one core hour (07.46–08.45) into which there is considerable concentration of peak travel and overcrowding exists. Our analysis concluded that an additional 55 vehicles are needed in order to meet the HLOS average load factor for Birmingham based on the DfT demand figures.

Secondly, Birmingham New Street station is already operating close to capacity in terms of passenger numbers, leading to passenger congestion in key circulation areas and the increasing risk of full or partial station closure. This situation will be exacerbated by the anticipated growth in demand. The Government approved option for redeveloping the station ('The New Street Gateway') is designed to provide a greatly increased passenger capacity, better access to platforms, and relieve current congestion while also providing commercial and public realm benefits. We will continue to work with regional and industry partners to progress this scheme.

Freight services

The Strategic Freight Network (Felixstowe to Nuneaton capacity scheme) will facilitate the increase in W10 traffic flows from Felixstowe to the north, via a new chord line at Nuneaton which provides direct access to the WCML. The combined signalling renewals and enhancements scheduled in the Water Orton/Nuneaton area will release additional capacity to support the projected increase in service flows bound for the West Midlands from Felixstowe.

As mentioned previously, the additional cross city services planned between Barnt Green and Bromsgrove will possibly restrict further freight growth. As a result, we continue with our plans to analyse the industry aspirations to reopen the former freight route between Round Oak and Walsall, providing additional freight capacity between the South West and Midlands/North East.

Train-Tram technology

An industry wide working group has recently selected the Penistone line within Route 20 for a trial of Train-Tram technology. If this trial is successful then two lines in Route 17 have been highlighted as potential further sites for train-tram technology. These lines are:

Coventry and Nuneaton – studies are been undertaken by Warwickshire County and Coventry City Councils (in conjunction with Centro) to assess the relative benefits of increasing the frequency of heavy rail services and, train-tram technology, which operates along shared infrastructure.

Round Oak – Walsall – we are undertaking a joint pre-feasibility study with Centro to examine the business case for reinstating the former freight route for joint running operation between heavy rail freight and train-tram technology. From a heavy rail perspective, this would provide considerable benefits for freight, and would free up capacity in the centre of Birmingham.

Depots and stabling

Outlined within the DfT's 'Rolling Stock Plan', the West Midlands region is expected to receive additional vehicles. The additional rolling stock will support the region's busy suburban and interurban network through additional services or train lengthening, the latter being the preferred option. The deployment of additional rolling stock requires us to make various capacity related infrastructure enhancements such as platform lengthening and provision for additional stabling, including a new maintenance depot capable of light maintenance and servicing. Through industry discussions the preferred location in the West Midlands has been identified as Duddeston yard. This is a former wagon repair workshop and yard sited in the north of Birmingham. This location has the benefit of being in close proximity to Birmingham New Street and can be accessed by reconnecting the north and south facing connections, enabling it to serve the majority of the nine radial corridors. We are shortly undertaking feasibility work on behalf of London Midland, which will inform their bid to the DfT. It is proposed to utilise the Duddeston site to accommodate in the region of 50 of the new vehicles.

Soho – the London Midland maintenance depot at Soho is currently over its design capacity, with substantial overnight out-stabling at New Street station. The proposal is to use the Duddeston yard facility in conjunction with Soho depot to perform heavy maintenance tasks and full DMU/EMU service activities.

Improvements to other stabling locations on the network will also be reviewed in CP4. These locations include Worcester Shrub Hill, and utilising the through roads at Birmingham New Street for standby rolling stock.

Oxley – provision of an independent power supply to Oxley depot is required in order for the maintenance activity to continue during times of isolation. This will mean the elimination of additional moves and improve availability of the Class 390's.

Central Rivers – the Bombardier depot (Central Rivers) on the main corridor between Birmingham and Derby accommodates approximately 26 percent of CrossCountry's fleet. It is critical that continual access to the depot is maintained, driving possible enhancements to infrastructure.

There is the opportunity to provide stabling capacity for 16 further vehicles by expanding scope of the Chiltern Railways scheme to connect two terminal platforms at Birmingham Moor Street.

Integrated Train Planning System

The implementation of Integrated Train Planning System (ITPS) is planned to be phased in during the next two years. The new system allows us to plan at a lower level of granularity, for example it calculates sectional running times to the nearest second. We believe that using a system that has the ability to plan at this level of detail, may unlock additional capacity and modestly improve some journey times.

Wider regional plans

In developing our wider strategy for the West Midlands, we continue to work closely with operators, Centro, the Regional Rail Forum and our other industry partners. Our commitment to this partnership approach has ensured our strategies are aligned and reflect our shared aims to deliver improvements in service provision and network capacity to benefit the region.

The West Midlands region has published their first draft of the 'Rail Network Development Plan', which details the overall vision for rail service improvements across the West Midlands Metropolitan area. This covers the five year period between 2009 and 2014 (and beyond). The Plan supports key platform lengthening, new stations, station improvements, future park and ride proposals, improved service frequency levels and new service flows.

Our wider strategic approach also indicates the need for increased service frequencies between central Birmingham and other locations such as, Kidderminster, Rugeley, Stratford, and Northampton. Improved service possibilities will be further examined in the WM&C RUS.

We continue to work with key stakeholders to develop a number of further enhancement proposals that address the broad capacity challenges on the route.

Stations

Aldridge – the plans for a new station at Aldridge are in the very early stages of development. Passive provision within the Walsall resignalling scheme will allow for a turn back facility off the Sutton Park line.

Birmingham Moor Street – the former terminal platforms will be reconnected as part of Chiltern Railway's franchise commitments, including some Network Rail funding to replace a disused bridge deck. Initially two out of the three platforms will be reinstated as part of this project. Longer-term our aspiration is to reconnect the remaining platform.

Birmingham New Street – it is a priority scheme to deliver essential additional passenger handling capacity at New Street station. As over 20 percent of passengers currently use the station as an interchange, particular focus will be needed on maintaining and improving interchange opportunities between services both during and once the development is completed. The planned works are designed to transform the 1960s built station into a modern transport hub which will provide better links to and through the city centre. A key aim of the project is to ensure the station is more accessible, and this includes improved access to platforms, new escalators and lifts and the provision of additional station entrances. In addition to the benefits to rail passengers, there are major associated economic and tourism benefits for the region. The completion of the major upgrade of Birmingham New Street station is planned for 2015.

Birmingham Snow Hill – the area surrounding Birmingham Snow Hill is currently being redeveloped, creating additional office accommodation, a new hotel and a small retail outlet. Whilst the station will remain largely untouched during this development, we recognise that Snow Hill is nearing its design capacity in terms of passenger handling capability. We estimate that during early CP5, the station will require various capacity improvement interventions. We are currently working closely with stakeholders to

progress an outline study to investigate options for improving station capacity.

Brinsford – a proposal for a park and ride station at Brinsford, north of Wolverhampton (situated close to the A449) is currently on hold due to town planning issues. If developed, the station would be funded by the Local Authority and a developer and the Wolverhampton resignalling project is making provisions for this potential new station.

Bromsgrove – recent analysis demonstrates that demand in the area is being suppressed, principally by an inadequate station, car parking facilities and relatively infrequent service levels. The northbound platform cannot accommodate trains formed of more than 3 x 23m vehicles, although the southbound platform will accept 4 x 23m vehicles.

Additional peak services have been provided between Worcester/Hereford and Birmingham in recent years to supplement the one train per hour core frequency, but the operation of any further trains on this corridor is constrained by the number of single line sections between Hereford and Great Malvern. As a result, the operation of three car trains leads to overcrowding.

The platform in the Birmingham bound direction is sited between an overbridge and pointwork, so platform lengthening in the current location is highly undesirable.

This has led to strong aspirations from industry parties to relocate Bromsgrove station 500 yards further south, utilising the former freight sidings site. The relocation of Bromsgrove station forms part of a wider local transport strategy (south Birmingham capacity improvements) and includes electrification and extension of the current Cross City services from Longbridge to Bromsgrove.

The upgrade of the down goods loop at Bromsgrove from freight to passenger standard will improve capacity and performance at this location. Access and egress speeds to the loop are to be increased as part of this project. This upgrade is potentially an integral part of the proposal to relocate the station.

We will work to ensure that any adverse impact on performance and overall track capacity is mitigated against and that the investment elsewhere in linespeed and journey time improvements are not compromised.

Coventry to Nuneaton line – Local Councils have aspirations for two new stations on the Coventry to Nuneaton line. The first is at **Bermuda Park** which

is located at the southern part of Nuneaton and would serve anticipated housing developments in the area. The second is **Arena Park** which would be adjacent to the Ricoh Stadium, conference centre and arena shopping park. This new station would have the potential for a park and ride facility due to its location close to the M6 and would provide services into Coventry. A new bay platform will need to be provided at the west side of Coventry station in order to allow the additional services to run to Nuneaton, as it will need to be independent of the main line services.

Kenilworth – a new station located on the line between Coventry and Leamington Spa at Kenilworth is being proposed by Warwickshire County Council. A feasibility study is currently being undertaken by Warwickshire County Council.

Kidderminster – station enhancements at Kidderminster are currently being progressed by Worcestershire County Council, Centro, Network Rail and London Midland as part of the Access for All and NSIP programmes. This includes a new footbridge, upgraded station building, enhanced security and improved modal integration.

Longbridge – the takeover of MG Rover by Nanjing Automobile Corporation resulted in the rationalisation of the current production site at Longbridge. Property developers, in conjunction with Birmingham City Council (BCC) and Advantage West Midlands (AWM), have received outline planning permission to regenerate the Longbridge area creating shopping facilities and additional private property. Centro have aspirations to relocate the station further south, locating it adjacent to the development. This involves utilising elements of the current junction configuration. Relocating the station, however, would be optimal post resignalling.

In addition, operational capacity is becoming a constraining element on timetabling additional services. Once the surrounding area development is complete, it is likely that platform four will be reinstated for heavy rail use.

In addition to improving current rail provision, we are aware that there are a number of key locations throughout the West Midlands where extensive demand exists which is currently underserved by rail. By working with local stakeholders and our industry partners we are currently investigating the extent of this demand, and reviewing new station proposals that are currently being progressed. These include:

Stratford Parkway – a new station located at Bishopton on the line between Stratford-upon-Avon and Birmingham/Leamington Spa is being proposed by Warwickshire Country Council.

Wolverhampton – we continue to work with Wolverhampton City Council on the interchange (Gateway) project for Wolverhampton station. The main objectives of this project are to improve access to the station, provide a high quality interchange between the rail and bus network, and to enhance the public realm in the station forecourt area.

Worcester Foregate Street – Worcester Foregate Street station currently has restrictive platform widths and is severely overcrowded, combined with less than ideal operational flexibility. We recognise that the current situation is limiting further service improvements, and during late CP4 and early CP5 interventions to increase capacity and capability will be required, preferably during the resignalling programme, as this is the most cost effective approach for delivery.

Car parking

Centro will continue to operate car parks within the PTE area and has no current plans to change their charging policy. Centro is currently working to actively expand car parks through the Local Transport Plans and other funding streams. Included in Centro's rolling programme of park and ride schemes are proposals for a major new park and ride facility at Longbridge with a minimum of 900 spaces, major car park schemes at Lichfield Trent Valley, Four Oaks, Tamworth, Nuneaton and Sutton Coldfield, and tactical park and ride expansions at more than 20 other stations across the conurbation, totalling a further 2,000 parking spaces on top of the 6,250 already provided.

London Midland has also included improvements to car parking as a specific initiative in their franchise plans. In addition to a commitment to provide at least one thousand extra spaces, London Midland are also promoting socio-economic sustainability through a policy of reduced parking fees for drivers with low emission cars and free parking for electric vehicles.

As part of Virgin West Coast car park upgrades, Wolverhampton, Stafford, Coventry and Birmingham International car parks will also be enhanced.

Chiltern Railways are also intending to expand the size of car parks at several of their stations in Warwickshire.

In addition to investment in car parking facilities, we support the concept of Station Travel Plans, which promote the concept of making stations more accessible by other modes of transport. This initiative, endorsed by the DfT in the 'Delivering a Sustainable Railway' White Paper, not only provides a solution where potential car park expansion is limited, but is also a concept which promotes more sustainable and environmentally friendly forms of travel. The creation of Station Travel Plans for each of the stations managed by ourselves is proposed by the end of CP4.

We also support the development of plans at the franchised stations and will be an active partner in the industry planning group. The plans will involve the promotion and improved facilitation of cycling, walking and car sharing as a means of accessing stations. Better signage, cycle storage and integration with other modes of transport will be key to the success of these plans.

Figure 18 Forecast MMA

TOC	2009/10	2010/11	2011/12	2012/13	2013/14
London Midland	87.8%	89.1%	89.9%	90.5%	90.6%
Arriva Trains Wales	92.7%	92.9%	93.2%	93.4%	93.5%
Chiltern Railways	95.1%	95.3%	95.3%	95.8%	95.9%
CrossCountry	90.0%	90.2%	90.6%	90.9%	91.3%
Virgin Trains	85.0%	87.8%	90.3%	90.6%	90.9%

Future performance

Figure 18 sets out the planned PPM for each train operator for CP4. With a tighter timetable structure in place following the introduction of the December 2008 timetable, right time arrival at junctions is critical to meeting the targets for PPM and significant lateness targets set in the HLOS.

London Midland

The performance of London Midland is currently 86.5% percent PPM and is forecast to continue through to April 2009 as an outcome of the 2008/09 Joint Performance Improvement Plan (J-PIP). GoVia took over the operation of the franchise late last year and are working with the Network Rail London North Western Route to continue the elimination of consistent small problems which tend to drive down PPM on a daily basis.

The key performance issues and opportunities for London Midland on this route have been identified as:

- West Midlands resignalling;
- improved asset reliability through the use of maintenance benchmarking and the full installation and deployment of remote condition monitoring;
- increased timetable robustness;
- line speed improvements;
- eradication of intrusive T2 track patrols;
- implementation of further bridge strike prevention and mitigation measures;
- reduction in the impact of trespass, vandalism and fatalities;
- right time railway – reduction in late starts;
- Efficient Engineering Access improvements;
- fitment of forward facing CCTV and enhanced usage of on train monitoring recording equipment;
- extreme weather mitigation through enhanced drainage; and
- autumn management – increased back to boundary de-vegetation.

The route plan is being developed around these key points and currently suggests that performance for London Midland by April 2014 will be around 90.6% percent. This includes an allowance for passenger/traffic growth and an increase in engineering work. This figure has been discussed

with London Midland and is in line with their aspirations.

Virgin Trains

The performance of Virgin Trains is currently 81.3 percent PPM. In the last 18 months Virgin Trains performance has been significantly affected by the works being undertaken to upgrade the WCML.

The key performance issues and opportunities for Virgin Trains on this route have been identified as:

- West Midlands re-signalling;
- improved asset reliability through the use of maintenance benchmarking and the full installation and deployment of remote condition monitoring;
 - Efficient Engineering Access and possession planning Improvements;
 - full implementation of GSMR;
 - enhanced management of the network;
 - eradication of intrusive T2 track patrols;
 - weather proofing the network through enhanced drainage and upgrade of climate control systems for signalling equipment;
 - enhanced usage of on train monitoring recording equipment;
 - reduction in the impact of trespass, vandalism and fatalities and;
 - quicker incident response.

The route plan is being developed around these key points and currently suggests that performance for Virgin Trains by April 2014 will be around 90.9 percent, this includes an allowance for passenger/traffic growth and an increase in engineering work.

CrossCountry

As a long distance operator CrossCountry faces significant performance challenges. Additional capacity in the form of HSTs as well as additional seating on Class 220/221 and Class 170s has been introduced in the period between May 2008 and summer 2009.

Performance Levels

PPM MAA for the franchise at the end of period 10 2008/09 is 89.8 percent. Franchise plans developed during bidding based on TOC on self improvements have a PPM figure of 91.3 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.

Significant lateness

Network Rail nationally is developing plans for a 25 percent reduction in trains over 30 minutes late over CP4. 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.

The key performance issues and opportunities for CrossCountry on this route have been identified as:

- West Midlands re-signalling;
- improved asset reliability through the use of maintenance benchmarking and the full installation and deployment of remote condition monitoring;
- Efficient Engineering Access and possession planning Improvements;
- full implementation of GSMR;
- enhanced management of the network;
- eradication of intrusive T2 track patrols;
- weather proofing the network through enhanced drainage and upgrade of climate control systems for signalling equipment;
- enhanced usage of on train monitoring recording equipment;
- reduction in the impact of trespass, vandalism and fatalities and;
- quicker incident response.

The route plan is being developed around these key points and currently suggests that performance for CrossCountry services by April 2014 will be around 91.3 percent, this includes an allowance for passenger/traffic growth and an increase in engineering work.

Chiltern Railways

The performance of Chiltern Railways is currently 95.1 percent PPM. Underlying infrastructure and rolling stock performance has remained good and contributed to this excellent result. The J-PIP has recently been supported by the newly formed Joint Performance Improvement Group and the LUL/Network Rail/Chiltern interface group.

The key performance issues and opportunities for this route have been identified as:

- impact of the West Midlands re-signalling schemes;
- improved asset reliability through the use of maintenance benchmarking and the full installation and deployment of remote condition monitoring;
- implementation of further bridge strike prevention and mitigation measures;
- reduction in the impact of trespass, vandalism and fatalities;
- higher quality Automatic Route Setting (ARS);
- right time railway – reduction in late starts;
- extreme weather mitigation through enhanced drainage;
- Efficient Engineering Access improvements; and
- continued maintenance of Automatic Train Protection (ATP) system.

The route plan is being developed around these key points and currently suggests that performance for Chiltern Railways by April 2014 will be around 95.9 percent. This includes an allowance for passenger/traffic growth and an increase in engineering work. This figure has been discussed with Chiltern Railways and is in line with their aspirations.

The other passenger operators on this route are Arriva Trains Wales and WSMR.

The future performance section for Arriva Trains Wales can be found in the plans for Routes 14, 15 and 22.

Network availability

The West Midlands has reasonable availability for diversionary routing over much of its network. Consequently, for some years we have operated and refined a pattern of midweek night possessions, cycling through each route in turn every six weeks. This has the benefit of greater traffic throughput, and, because of the predictability, more robust timetabling and performance with higher levels of site safety and productivity than are possible with the traditional use of single line working. However, on some parts of the network there is difficulty in gaining access for maintenance and renewals work, for example between Wolverhampton and Stafford, where there is no competent diversionary route. The potential gauge enhancement on the Cannock line would provide this required freight diversionary route.

A large programme of track renewals is planned across the area on all key routes, primarily in all day Sunday possessions, although a number of S&C renewals require all-weekend closures, into which other large works such as bridgeworks have been optimised. Whenever possible, these closures have been planned in such a way that a diversionary route is maintained.

We recognise the recent requirement to maintain a near weekday service during weekends that caters for the weekend traveller. Efforts to review engineering practices and diversionary route capacity constraints continues.

CrossCountry, like other operators has aspirations for a Seven Day Railway. Due to the nature of CrossCountry, Sunday carries the second highest volume of passengers (with Friday peak having the greatest volume). Some services operate on a 30 minute frequency, therefore reducing the number of services during engineering works can often be impractical due to the diverse origin and destination points within service groups.

Long term opportunities and challenges

Accommodating demand: passenger

We recognise that both additional and longer trains may become more difficult to accommodate across the route, especially at major stations like Birmingham New Street and other areas like Worcester. Accommodating these increments will require staged infrastructure interventions, some modest and some more some significant.

The West Midlands region has already compiled a Regional Transport Plan (RTP) which proposes opportunities for alleviating many of the demand pressures, some of which focus on enhanced rail infrastructure. Once established, the RTP will inform the Regional Funding Allocation (RFA) discussions held with DfT in order to develop transport initiatives in this area. We remain a key player throughout this process.

In the longer-term, our plans include the feasibility of developing a north and south facing chord line that links the Camp Hill lines to Birmingham Moor Street (Snow Hill Lines). This would enable new service opportunities and greater use to be made of Moor Street, hence alleviating pressure at New Street. The RTP also identified Birmingham Moor Street as a station that offers a low cost opportunity for additional platforms and stabling space to be provided in the heart of Birmingham. Space exists for up to four eight-car platforms to be installed at relatively low cost.

Accommodating demand: freight

The long-term plans for enhanced passenger capacity in the West Midlands will have a direct impact on the ability to timetable future freight services through an already constrained infrastructure. It is therefore imperative that the need to accommodate current and future freight services is taken into consideration within this context. Improving terminal connectivity and increasing freight capacity in central Birmingham are key challenges. Re-opening routes, in particular the Walsall to Stourbridge line, and removing capacity constraints, such as the limited headways on the Sutton Park line, will be key to increasing freight capacity within the West Midlands.

Journey times

Our long-term aspirations are to improve journey times on longer distance journeys by delivering linespeed improvements. Our objective is to focus on those sections of line where linespeeds could be raised to closely align with rolling stock capability. Through the RUS process we are working with operators to develop a 30-year strategy that focuses on corridors of opportunity. These include the West Country – North East and South West to the North West.

West Midlands Signalling Strategy

Our joint strategy is to relocate all West Midlands signalling control into the new West Midlands Signalling Control Centre (WMSCC) at Saltley. This also includes some of the signalling control on the fringes of Route 17, for example the section from Barnt Green to Abbots Wood Junction.

Our Route Planning team continue to work closely with infrastructure renewals teams, primarily track and signalling to ensure the remaining areas of the West Midlands resignalling in CP5, is aligned to the wider strategy. Key signalling renewals planned for CP5 include work at Wolverhampton, Banbury, Birmingham New Street and the Worcester area.

Electrification

Electrification infill remains high on our agenda for the route. Throughout CP4 we aim to develop studies that examine the possibility of electrifying corridors that connect already electrified routes. These include Proof House to Nuneaton, Sutton Park line and the Cannock line. Longer-term the strategy will examine other corridors, primarily north of the Snow Hill lines and Camp Hill line.

Working with stakeholders

We are working with Centro, local authorities and London Midland on improvements for the Cannock line between Walsall and Rugeley. The aim of this project is to deliver co-ordinated improvements to station facilities, expanded car parks, longer and more frequent trains. We also have aspirations to improve infrastructure and increase the linespeed from 45mph to 75mph, improving performance and significantly reducing journey times. Our overall aspiration is to work with key stakeholders to develop appropriate rail strategies and then apply the process to other corridors.

Infrastructure Investment in CP4

Figure 19 Infrastructure investment in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2009/10	(A) Birmingham Snow Hill second access	New northern entrance to Snow Hill station, including lifts, escalators and stairs	Improved access to the station/passenger flows	PTE	4
2009/10	(B) Birmingham Snow Hill platform 4 reinstatement	Reinstating platform 4 for heavy rail use following extension of Metro services to city centre	Increased capacity and performance	PTE	6-7
2009/10	(C) Birmingham New Street second access to Platform 12	Additional access to platform 12 from dispersal bridge	Increased passenger circulation	Network Rail Discretionary Fund	5
2009/10	(D) Cannock Line Speed Improvements	Increase line speed along Cannock Line to 65mph. Post re-signalling in CP4, possible further line speed increase to 75mph.	Reduced journey time and possible service frequency opportunities. Route acquires potential to become a diversionary route between Birmingham and the WCML.	Network Rail Discretionary Fund	4
2009/10	(E) West Midlands depot and stabling facilities	New depot facilities to support additional HLOS vehicles	Increased capacity	Periodic Review 2008	1-3
2009/10	(F) Burton Old Road level crossing	Risk mitigation work to reduce safety related incidents	Increased safety and performance	Network Rail Safety and Environment Fund	3-4
2009/10	(G) Hoggrills End crossings	Review of two public foot crossings by diversion to an existing nearby overbridge	Increased safety and performance	Network Rail Safety and Environment Fund	3
2009/10	(H) Tipton level crossing	New underbridge to replace level crossing	Increased safety and performance	Third party	6
2009/10	(I) E&P Renewal	Overhead line renewal and refurbishment of SMOS	E&P Renewal	Network Rail	3
2009/10	(J) Structures Renewal : Shenstone	Scour protection and general brickwork repairs to Shenstone Viaduct on the Cross City north	Structures Renewal	Network Rail	4
2009/10	(K) Structures Renewal : Earthworks	Major embankment works to Knightcote embankment south of Banbury	Earthworks	Network Rail	3

Figure 19 Infrastructure investment in CP4					
Implementation date	Project	Project description	Output change	Funding	GRIP stage
2009/10	(L) Brinsford station (on hold currently)	New station with large park and ride facility	Improved access to the rail network and capacity for growth	Third party	2
2009/10	(M) Birmingham Moor Street: Phase 3	Reinstatement of disused platforms and installation of stabling siding at Birmingham Moor Street	Increased capacity and stabling facilities	TOC	4
2009 - 2014	(N) Bromsgrove : Station development Extension of cross city services Goods loop	Relocation of station to south of existing location to permit longer trains to call (as part of station enhancements project)	Increased capacity, performance and improved station facilities	Multi-funded	4
		Extension of service to Bromsgrove providing a 20-minute electrified service			2
		Conversion of Down Goods Loop to passenger status with entry and exit line speed increase (Scheme conditional on Bromsgrove station re-location)			3
2010/11	(O) Wolverhampton to Shrewsbury line speed improvements	Line speed improvement to achieve 90 mph between Wolverhampton and Shrewsbury	Reduced journey times	Network Rail Discretionary Fund	4
2010/11	(P) Tyseley Depot	Works to provide permanent stabling facilities for new fleet (London Midland)	Increased capacity	TOC	3
2010/11	(Q) Kidderminster Station Enhancements	Modular station building and improved station facilities at Kidderminster, including NSIP and Access for All contributions	New station building and improved facilities at station	Multi-funded	3
2010/11	(R) Structures Renewal : Lawley Street Sandwell & Dudley	Brick work repairs and waterproofing of Lawley Street Viaduct	Structures Renewal	Network Rail	1
		Infill bridge works to the underbridge at Sandwell and Dudley			1
2010/11	(S) LDV Washwood Heath new connection	Installation of new track connection at Washwood Heath	Enables new freight flows (containers) from LDV site to Channel Tunnel/East Coast ports.	Third party	3
2010/11	(T) Southampton to West Coast freight upgrade	Works to allow W10 gauge trains to run from Southampton to the WCML	The line will be cleared to enable 9' 6" high containers to be conveyed on conventional wagons	Transport Innovation Fund	3

Figure 19 Infrastructure investment in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2010/11	(U) Wolverhampton Interchange	Improved station building and facilities	Improved facilities at station	Third party	3
2009 - 2011	E&P Renewal	25Kv Switchgear renewal and signalling supply points	E&P Renewal	Network Rail	3
2009 – 2011	(V) NSIP : National Stations Improvement Programme	Shrewsbury station – DDA improvement works and resignalling of platform (NRDF funded) Hereford station – Access for All improvements and improved customer facilities	Improved capacity and customer facilities	Network Rail	1
2009 – 2013	(W) NSIP : National Stations Improvement Programme	Improvement schemes at various stations including: <ul style="list-style-type: none"> • Wolverhampton, aligned with Interchange and car park expansion scheme • Tamworth, improved customer facilities • Stations along the Cannock Line aligned with the 'Showcase' project 	Improved customer facilities	Network Rail	2
2012	(X) Enhancement to Cross City service to Redditch	Increase in service frequency to Redditch providing a 20-minute service. This includes the development of an additional platform at Redditch.	Increase passenger frequency and capacity	Periodic Review 2008	2
2012/13	(Y) Round Oak to Walsall	Feasibility into re-opening of disused freight line for tram-train options.	Increased capacity and capability	Multi-funded	2
2009 - 2015	(Z) Birmingham New Street Gateway	Station Upgrade project including retail development, station environment and facilities	Increased passenger capacity, improved access and performance	Periodic Review 2008	5
2009 - 2014	(AA) Car park extension schemes - across the Route	<ul style="list-style-type: none"> • Car park extension schemes at various stations in conjunction with Centro and London Midland • West Coast car park extension scheme in conjunction with Virgin Trains and DfT 	Improved station facility (and passenger access) Car park expansion scheme in line with predicted increase in footfall at Lichfield Trent Valley, Nuneaton and Tamworth (also see Route 18)	PTE TOC/Network Rail	Various
2009 – 2014	(AB) Access for All Scheme – various stations	Improved access schemes at the following stations: Henley-in-Arden, Hereford, Northfield, Selly Oak, Shirley, Sutton Coldfield and Worcester Shrub Hill	Improved customer facilities	Periodic Review 2008	1-3

Figure 19 Infrastructure investment in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2009 – 2012	(AC) West Midlands Platform lengthening scheme	Lengthening platforms at various stations across the corridors within the West Midlands to accommodate growth	Increased platform capacity	Periodic Review 2008	2
2009 – 2011	(AD) Telephone concentrators at Birmingham New Street PSB and Stourbridge	Renewal of telephone concentrator at Birmingham New Street power signal box and 6 remote sites (interfaces with wider West Midlands resignalling projects). Renewal of telephone concentrator at Stourbridge.	Telecoms renewal	Network Rail	1
2009 – 2011	(AE) Birmingham New Street : CIS & PAVA	Renewal of CIS and PAVA in alignment with Birmingham New Street Gateway project.	Telecoms renewal	Network Rail	1
2011 – 2014	Telecoms systems Renewal : various locations across route	Transmission data systems Renewal at various sites across the route.	Telecoms renewal	Network Rail	1
2009 – 2014	Track Renewal Programme	S&C works are planned at various locations across the route.	Track Renewal	Network Rail	2-3

Candidate NRDF schemes in CP4

Figure 20 Candidate NRDF Schemes in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2009/10	(AF) Tipton station platform lengthening	Lengthening of both platforms for 6 x 23m capability in association with platform Renewal	Increase capacity at the station	Network Rail Discretionary Fund	3
2009/10	(AG) West Midlands Line speed Improvements Project <i>(Schemes may align to West Midlands resignalling projects subject to robust business cases)</i>	Feasibility Study to assess linespeed improvements at various sections across Route 17 including:- Soho East - Perry Barr West Kings Norton – Landor Street Whitacre Jn – Kingsbury Jn Stratford-Upon-Avon Line Bart Green Junction Ledbury - Shelwick	Reduced journey times	Network Rail Discretionary Fund	0
2010/11	(AH) Snow Hill Line speed improvements	Feasibility to increase line speed between Birmingham Snow Hill and Jewellery Quarter	Journey Time Improvements	Network Rail Discretionary Fund	1
2010/11	(AI) Shirley – Stratford resignalling enhancement element	Signalling renewal of life-expired asset along the Shirley to Stratford route section including : Reduced headways New crossover at Stratford-upon-Avon New turnback facility at Whitlocks End (relocated crossover) Rationalisation of equipment at Henley-in-Arden	Improved capacity and performance	Network Rail Discretionary Fund	5
2011/12	(AJ) Stourbridge – Hartlebury resignalling enhancement element	Reduced signalling headways between Stourbridge –Kidderminster Higher exit/entry speed Kidderminster goods loop. New facing crossover at Stourbridge Jn	Improved capacity and operational flexibility	Network Rail Discretionary Fund	4
2012/13	(AK) Water Orton resignalling enhancement element	Signalling renewal at Water Orton to include: Improved layout at Water Orton Remodelling of Landor St and Water Orton Jns Increased capacity between Water Orton West and Castle Bromwich Reduced headways between Water Orton – Tamworth/Nuneaton Reduced headways on Sutton Park line	Increased capacity due to reduced signalling headways, operational flexibility and improved performance and capacity	Network Rail Discretionary Fund	4

Figure 20 Candidate NRDF Schemes in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2013/14	(AL) Walsall and Cannock lines enhancements (aligned with resignalling project)	Signalling renewal in the Walsall area including: Walsall station through running Electrification of slow lines Reduced headways on the Sutton Park line New crossover at Tame Bridge Partial re-instatement of the Round Oak line Signalling renewal on the Cannock line including: Potential headway improvements and enhancements as part of the wider resignalling scheme	Increased capacity and ease congestion at Bescot. Performance Improvements Operational Flexibility	Network Rail Discretionary Fund	3
2009 – 2014	(AM) Cannock line gauge clearance	Improved gauge capability on the Cannock line to provide a diversionary route in the West Midlands	Increased capability and operational flexibility	Network Rail Discretionary Fund	0
2009 – 2014	(AN) Wichnor Jn (Central Rivers) lead	New connection at Central Rivers depot at Barton-under-Needwood.	Additional capacity and operational flexibility	Network Rail Discretionary Fund	0
2009 – 2014	(AO) Loop entry/ exit speed review	Review loop speeds across the route 17.	Increased capacity and performance	Network Rail Discretionary Fund	0
2009 – 2014	(AP) Birmingham New Street station – new bay platform	New bay platform – a review of converting and lengthening either the current East or West Dock to create additional platform facility.	Increased capacity	Network Rail Discretionary Fund	0

Renewals activity

Figure 21 shows the estimated renewals 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.

Through regular Route Investment Review Groups (RIRG) all industry parties continue to evaluate key corridors on the route, identifying possible enhancements that would unlock further diversionary opportunities.

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 21 Summary of estimated renewals costs and activity volumes

£m (2009/10 prices)	2009/10	2010/11	2011/12	2012/13	2013/14	CP4 total
Renewals						
Track	49	73	65	35	29	251
Signalling	40	60	52	63	44	259
Civils	10	7	14	14	13	59
Operational property	10	7	8	6	7	37
Electrification	1	1	1	1	1	6
Telecoms	4	2	1	1	1	8
Plant and machinery	0	0	0	0	0	1
Total	115	150	141	121	96	623
Renewals volumes						
Track						
Rail (km)	39					
Sleeper (km)	17					
Ballast (km)	23					
S&C (equivalent units)	22					
Signalling						
SEUs (conventional)	0	99	312	244	308	963
SEUs (ERTMS)	0	0	0	0	0	0
Level crossings (no.)	0	0	0	3	0	3

Appendix

Figure 22 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
17.01	Rugby – Birmingham New Street	RBS1	Primary	DfT	No	W9 & W10	8	100 (125)	25Kv (AC)	TCB	4 (3)	2
17.02	Birmingham New Street – Wolverhampton	RBS2	Primary	DfT	No	W8	8	75	25Kv (AC)	TCB	4 (3)	2
17.03	Wolverhampton – Stafford	RBS2 RBS3 OXC	Primary	DfT	No	W9 & W10	8	125	25Kv (AC)	TCB	5	2
17.04	Birmingham New Street – Barnt Green	BAG1 BAG2	Primary	DfT	No	W8	8	60 (90)	25Kv (AC)	TCB	5 (4½) (3)	4
17.05	Barnt Green – Stoke Works Junction	BAG2 SKN SAG	Primary	DfT	No	W8	8	90	none	TCB	4	2
17.06	Wichnor Junction – Grand Junction	DBP1 DBP2 DBP3 KJW	Primary	DfT	No	W8	8	90 (125)	none	TCB	5 (4) (3)	2 (6)
17.07	Wolvercote Junction – Hatton Junction/Coventry South Junction	DCL LSC1 LSC2	Primary	DfT	No	W8	8	90	none	TCB (AB)	4 (6) (5) (3)	2 (1)
17.08	Hatton Junction – Snow Hill	DCL	Secondary	DfT	No	W7 (W6)	8	100 (90)	none	TCB	3 (4)	2
17.09	Stechford Junction – Bushbury Junction	PJB BJW1 WDJ PJW PBL SAS	Secondary	DfT	No	W9 & W10	8	75	25Kv (AC)	TCB	5 (7) (3)	2
17.10	Birmingham Snow Hill – Stourbridge Junction plus Galton Junction	GSJ1 GSJ2 HSJ DCL	Secondary	DfT	No	W8	8	60	none	TCB	4 (5)	2

Figure 22 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
17.11	Shelwick Junction – Worcester – Stourbridge Junction	OWW WAH STO ABW	Secondary	DfT	No	W8 (W6)	8 (7)	70 (60)	none	AB (TB)	2 to 16	2 (1)
17.12	Stratford-upon-Avon Lines	TSB HAS	Rural	DfT	No	W7	8 (7)	60	none	AB (TCB)	5 (6) (12)	2
17.13	Cross City North	ALC1 ALC2 PBJ BJW3	Secondary	DfT	No	W6	8	60	25Kv (AC)	TCB	5	2
17.14	Rugeley – Bescot	RRN1 RRN2 BJW2	Secondary	DfT	No	W6 (W9) W(8)	8	45	none	AB (TCB)	5 (8) (15)	2
17.15	Redditch – Barnt Green Junction	BEA	Secondary	DfT	No	W6	8	55	25Kv (AC)	OTW	–	1
17.16	Wolverhampton – Abbey Foregate Jn	WSJ1 WSJ2	Secondary	DfT	No	W6	8	70	none	AB	6 (8½) (3)	2
17.17	Camp Hill Line	LSS SKN	Secondary	DfT	No	W7	8	60	none	TCB	3 (4) (5)	2
17.18	Water Orton – Nuneaton	NOW	Secondary	DfT	No	W9 & W 10	8	70	none	TCB	5	2
17.19	Nuneaton – Coventry North Junction	CNN	Secondary	DfT	Yes	W8	8	45	none	AB	10	2
17.20	Soho Junctions – Perry Barr Junctions	SCL SSP	Secondary	DfT	No	W8	8	45	25Kv (AC)	TCB	5	2
17.21	Main Freight Lines	OWW BCV	Freight	DfT	No	various	8	various	none	various	various	2
17.22	Other Freight Lines	OWW DPJ CBR2 DBP1BJW3	Freight	DfT	No	various	8	various	none	various	various	2
17.23	Stourbridge Branch	SJS	Secondary	DfT	Yes	W6	8	20	none	OTS	–	1

Capacity and operational constraints

- | | |
|---|--|
| A | Birmingham New Street: platform and junction capacity |
| B | Birmingham Snow Hill: restricted platforms, and limited headway |
| C | Coventry – Birmingham – Wolverhampton: two-track sections with intensive and mixed traffic |
| D | Five Ways – Kings Norton: stopping patterns and signalling headways |
| E | Coventry – Leamington Spa: single line capacity constraint |
| F | Landor St – Water Orton: track layout and convergence of freight traffic |
| G | Walsall – Bescot: track layout and convergence of freight traffic |
| H | Tyseley – Leamington Spa: stopping patterns and signalling headways |
| I | Banbury – Oxford: signalling headways and traffic mix |
| J | Barnt Green – Redditch: single line section |
| K | Worcester – Hereford: single line sections and long headway |
| L | Water Orton - Capacity for crossing moves to Sutton Park |
| M | Stour line - Daytime capacity for freight traffic |
| N | Sutton Park line – limited headway |
| O | Kingsbury Oil Terminal – access issues for freight |
| P | Bescot yard – access issues for freight |
| Q | Wolverhampton Steel Terminal – access issues for freight |

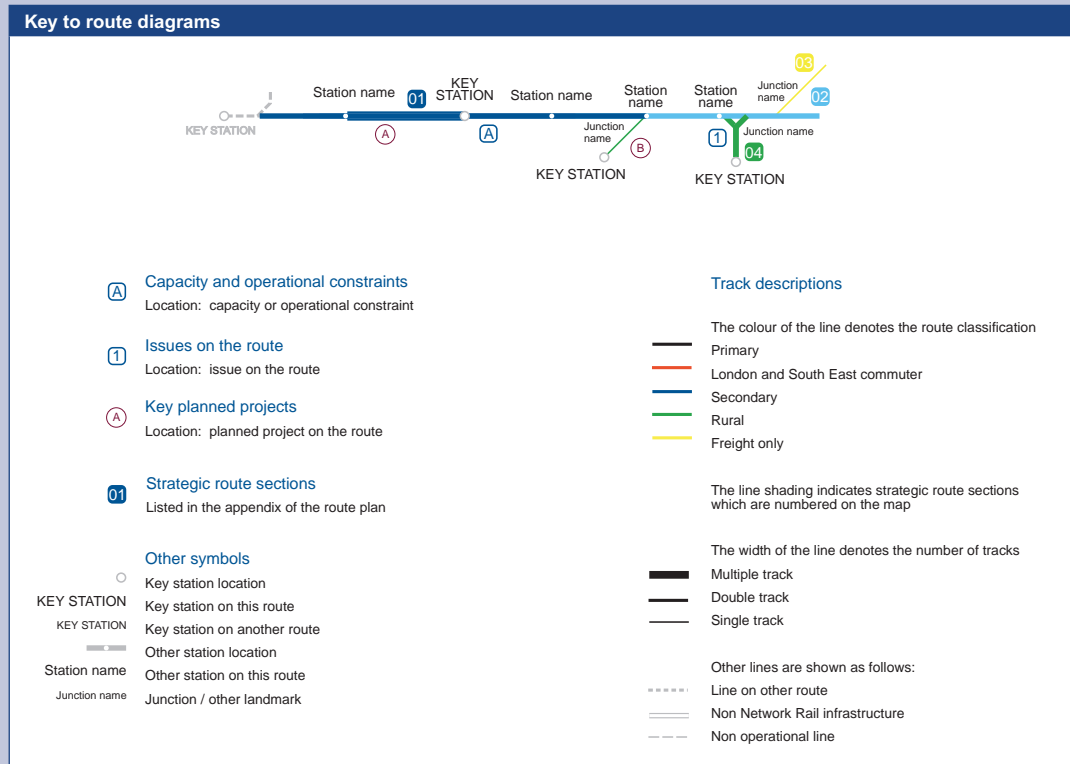
Other issues on the route

- | | |
|---|---|
| 1 | Birmingham New Street: passenger capacity at peak times |
| 2 | St. Andrews Curve – 15mph speed restriction |
| 3 | Lickey Incline: restricts tonnage and speed of freight trains |

Note

This Route Plan forms part of the Control Period 4 (CP4) Delivery Plan and supersedes the version published in April 2008.

Other documents in the Delivery 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

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