



## Route 17 West Midlands

The Regional Planning Assessment, to cover the period from 2011 to 2026, will be published shortly by DfT. We have drawn on our work with the DfT to align this route plan with the RPA emerging findings.

### 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);
- Cross country and interurban routes, which include the radial routes from Birmingham to

Cheltenham (17.11), Derby (17.06), Oxford, 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. Longbridge, Hams Hall, Birch Coppice, Round Oak) (17.20, 17.21 and 17.22).

### Route context

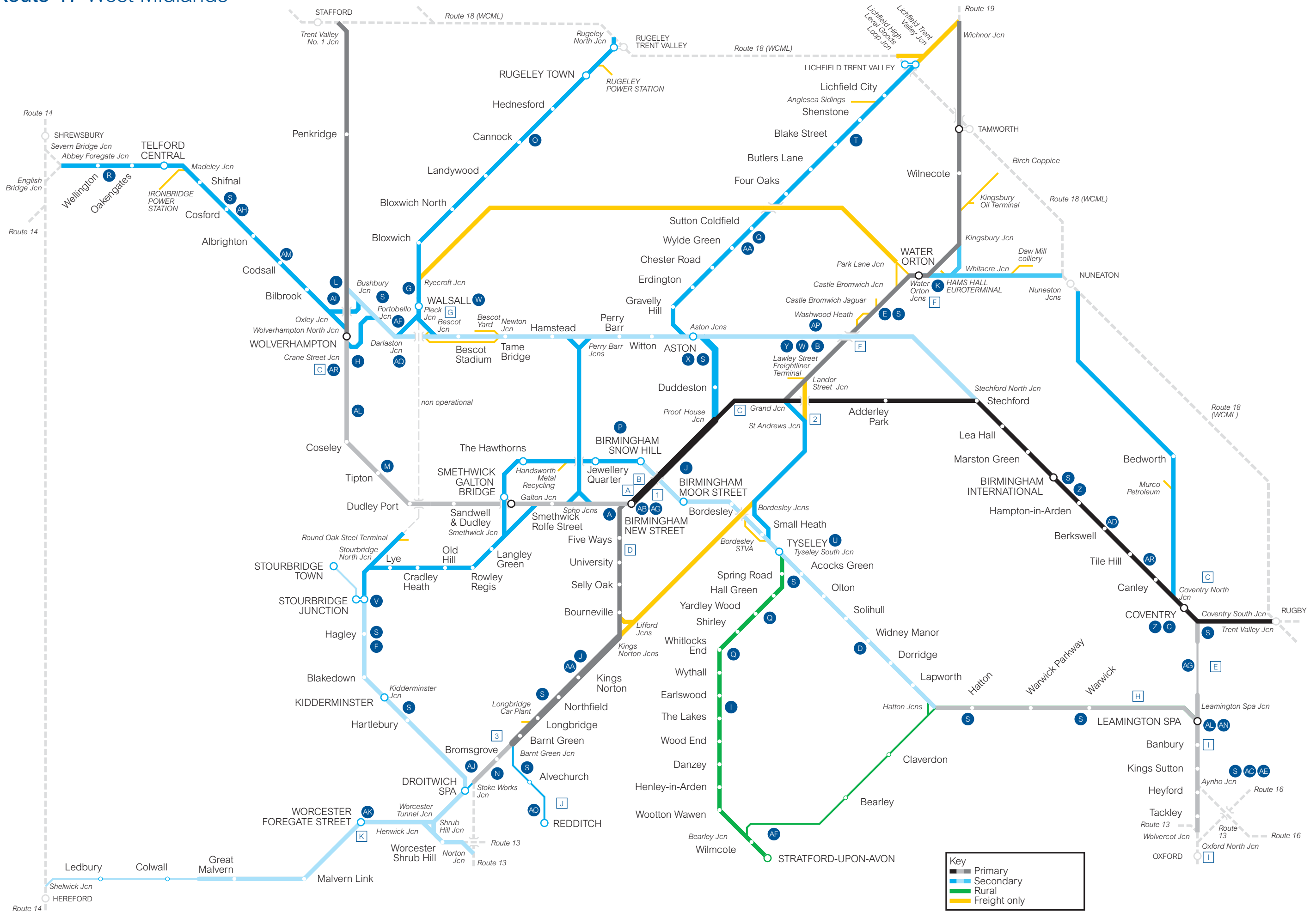
The West Midlands route is the key hub at the centre of the national rail network, with both the cross country and inter urban rail networks based on Birmingham New Street station. The principal routes into the area replicate and compete with the motorway network and rail services penetrate right to the heart of Birmingham.

The route also plays a key role in the transport system of the wider West Midlands region, with a busy suburban rail network, supported by the West Midlands Passenger Transport Executive (Centro), serving the business, commuter and leisure markets. This network has had an important role in supporting the revitalisation of central Birmingham and will be pivotal to continuing city centre growth. Additionally, rail

has a major role in providing surface access to Birmingham International Airport and the National Exhibition Centre.

In July the SRA published a 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. However, there is also an acknowledgement that the current network is operating at or close to capacity in terms of train paths and there is a critical passenger capacity issue at New Street station. The RUS outlines options and recommendations for accommodating future growth and these are developed further in this route plan.

# Route 17 West Midlands



### Passenger and freight demand

The West Midlands RUS identified that rail use in this route grew faster than the national average during 1995-2004, with journeys up by 44% compared to 34% nationally. Growth has been particularly strong at stations such as Walsall (180%), Sutton Coldfield (165%), Solihull (163%), Tamworth (135%), Stourbridge (128%), Leamington (127%) and Telford (113%). Reasons for this high level of growth are varied. Since 1995 there have been a number of significant service improvements. The Jewellery line was opened in June 1995 and later service improvements since 2002 include more frequent services on the Cross City Line and Snow Hill lines, improved frequencies to London Marylebone, the Cross Country upgrade and the WCML upgrade.

Other factors include retail expansion in Birmingham (especially the Bull Ring in September 2003) and employment growth in Birmingham city centre. In 1991, 12% of work journeys to central Birmingham were by rail. By 2004 this had increased to 20%, against a much higher employment base. The SRA's analysis for the West Midlands RUS indicates an average annual growth rate of 3.9% in rail travel in the West Midlands since 1999. Despite this growth, on each radial route there is still capacity for additional passenger growth when measured across the three hour peak periods. However, there is evidence of significant overcrowding on trains in the core morning peak hour, arriving into Birmingham approximately 07.45-08.45.

At the other extreme are stations with very low usage. Eight of the 20 least used stations in the West Midlands are on the lines from Stratford to Shirley and Leamington, with Bearley managing on average just 6 passengers per day.

The route is vital for several long distance freight flows, including traffic to and from the WCML, along the Thames Valley line from Oxford (which forms part of the freight route from Southampton that joins the WCML in the West Midlands) and significant coal, steel and automotive flows. There are significant volumes of freight to local terminals and yards, including metals traffic (e.g. Handsworth, Brierley, Round Oak, Wolverhampton

Steel terminal), automotives (e.g. Washwood Heath, Birch Coppice and Castle Bromwich) and aggregates (e.g. Walsall, Washwood Heath). Recently, strong growth has been seen in intermodal traffic to Lawley Street, Hams Hall and Daventry. Coal trains serve power stations at Ironbridge and Rugeley.

### Current services

The main operators on this route are Central Trains, Chiltern Railways, Virgin West Coast, Virgin Cross Country, Arriva Trains Wales, First Great Western and First Great Western Link (collectively known as First Great Western from 1st April), EWS, GB Railfreight, Freightliner Ltd., Freightliner Heavy Haul Ltd., Advenza and DRS. There is also a regular Sunday service between Stourbridge Town and Stourbridge Junction run by Pre Metro Operations, and a timetabled steam train service during the summer, the 'Shakespeare Express', between Birmingham Snow Hill and Stratford-upon-Avon.

Since 1999 train services on the route have been improved to offer higher frequencies on journeys to main centres. On weekdays there is a half-hourly service to and from London (on routes both to Euston and Marylebone), the Thames Valley, the North East, the North West, the South West and most Midlands regional centres. A high frequency service operates on three commuter routes from Birmingham – to Longbridge, Four Oaks and Stourbridge – with 6 tph throughout most of the day.

### Current traffic

The West Midlands network carries a mix of traffic, with wide variation in speed, acceleration and stopping pattern. On many corridors this involves a complex mix of freight, urban, interurban and high speed trains up to 125 mph. There is little traffic segregation on the nine major radial corridors. As the route is predominantly two track, there are high levels of utilisation, imposing constraints on the timetable. Several radial routes into Birmingham are operating at or close to capacity, including the routes from Coventry, Wolverhampton, Leamington (via Solihull), Bromsgrove and Water Orton.

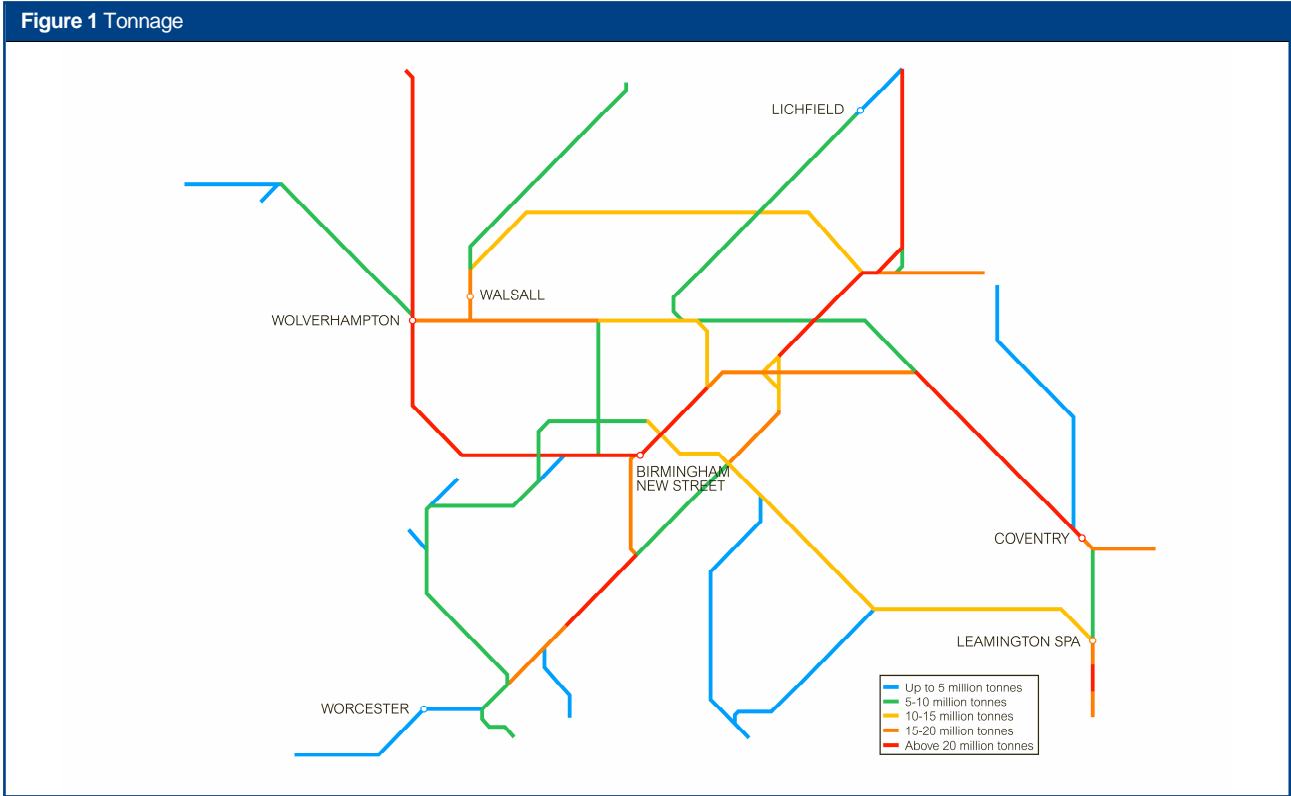


Figure 1 shows the tonnage levels on the route.  
Traffic volumes are summarised in Figure 2.

| Figure 2 Current use               |           |         |       |
|------------------------------------|-----------|---------|-------|
|                                    | Passenger | Freight | Total |
| Train km per year (millions)       | 24        | 4       | 29    |
| Train tonne km per year (millions) | 4,752     | 3,762   | 8,514 |

### Current infrastructure capability

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

Figure 3 Linespeed

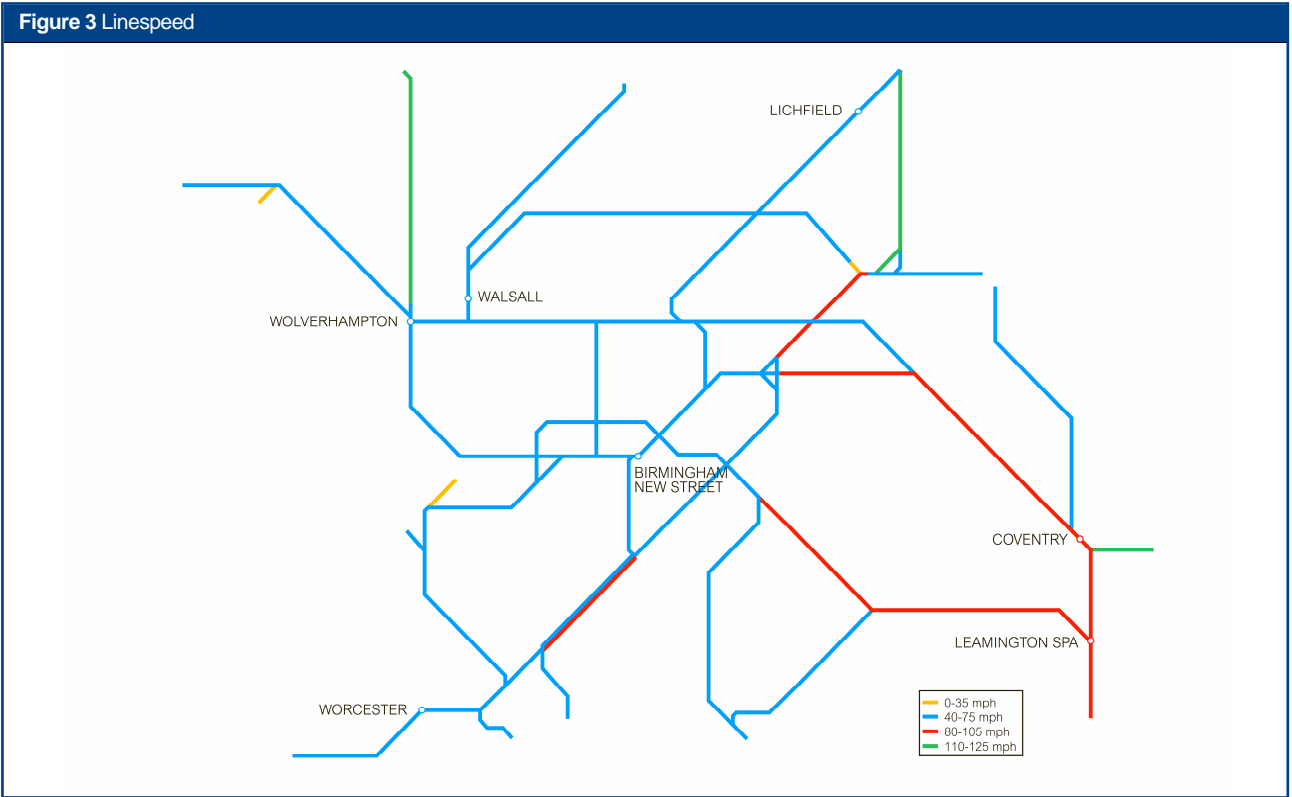


Figure 4 Electrification

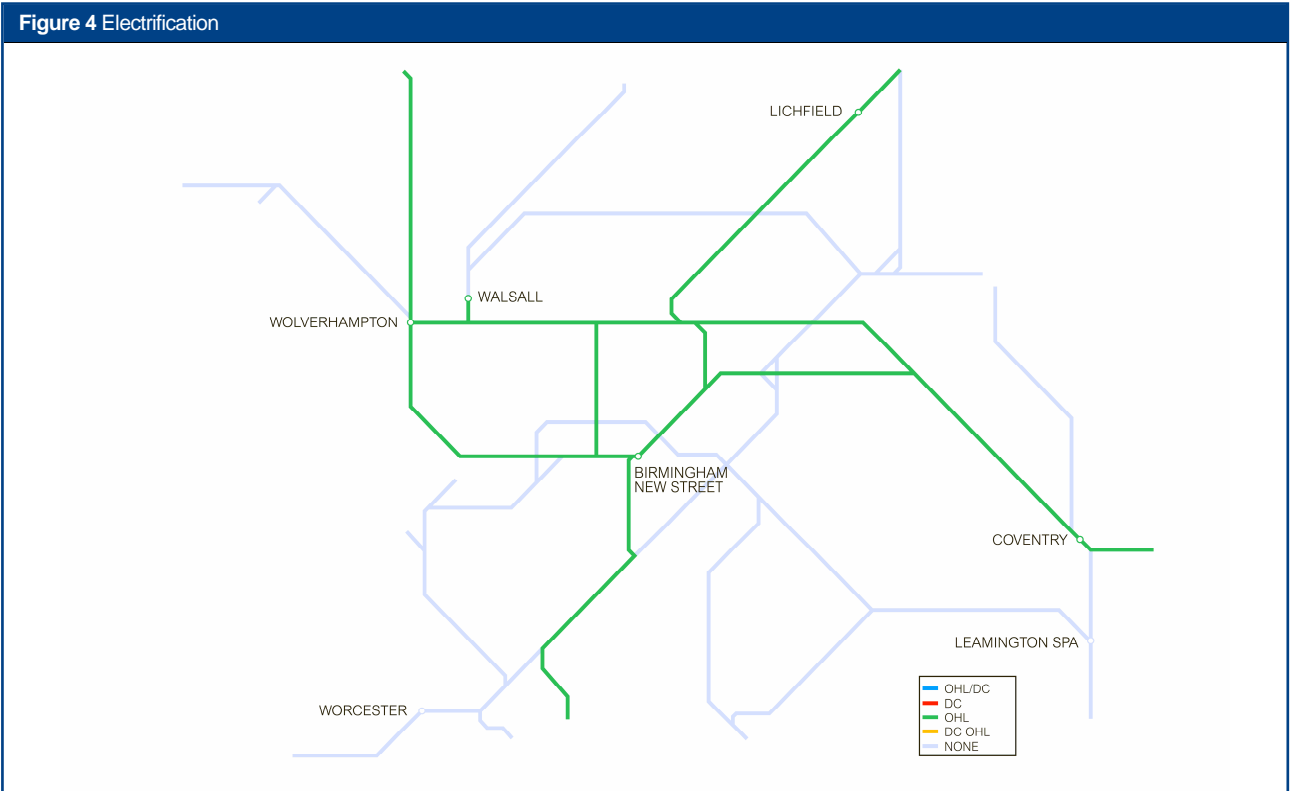


Figure 6 Route availability

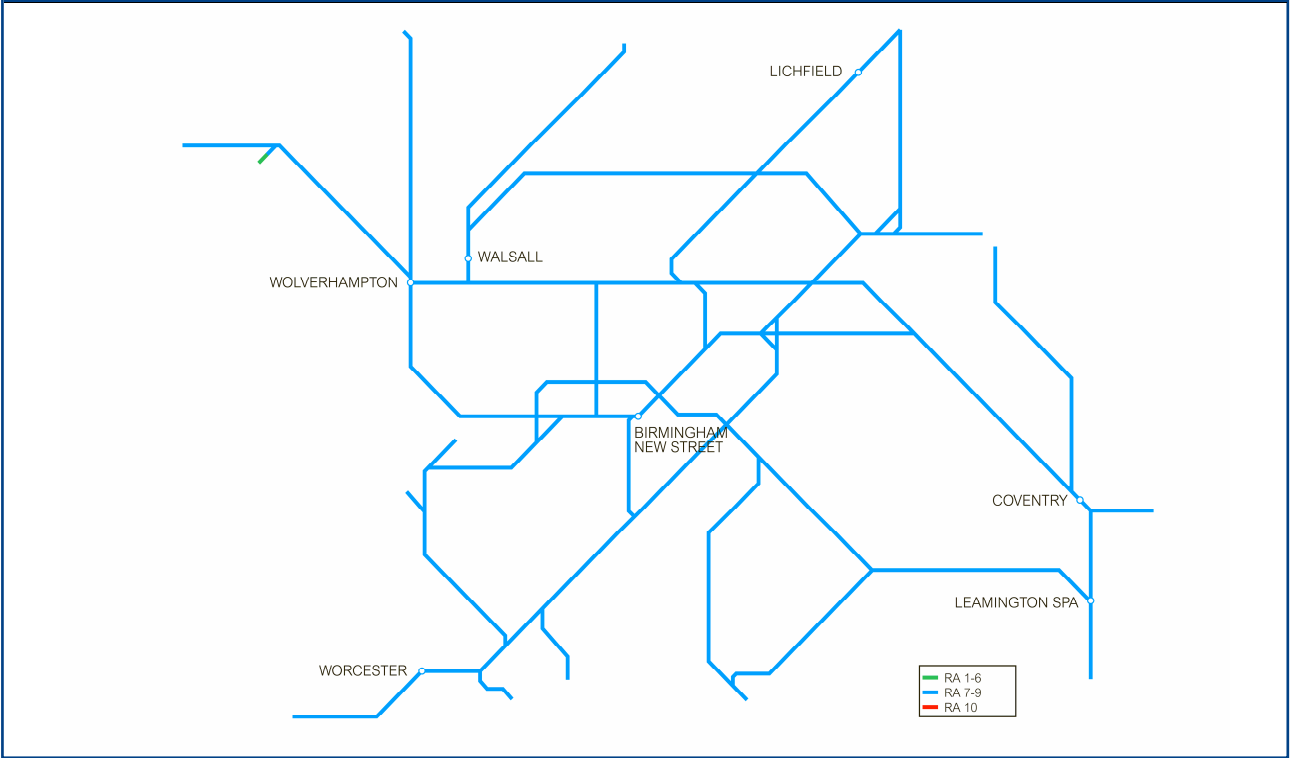
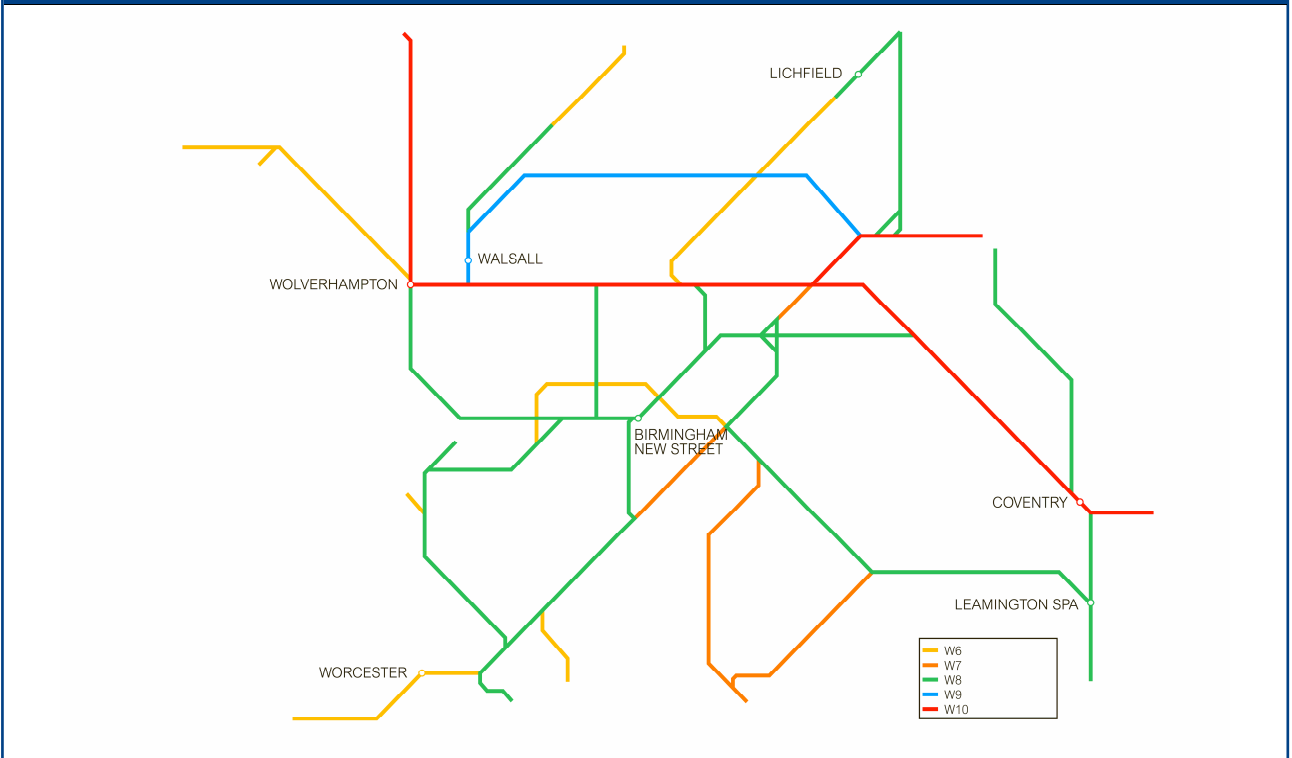


Figure 5 Gauge



### Current capacity

There are six major sets of capacity issues in the West Midlands. First is the very high level of capacity utilisation on most radial routes into central Birmingham. On sections of the Coventry – Wolverhampton line the Capacity Utilisation Index (CUI) exceeds 90% in peak hours. This has a severe impact on service resilience in times of disruption, with little reserve capacity to aid service recovery. The high CUI is a result of the combination of the wide range of traffic types and the signalling headways that date back to the 1960s and are now more restrictive than is required for such a busy hub.

The RUS identified a number of issues relating to overcrowding with at least 10 trains in the morning peak regularly exceeding the Centro target of no more than 10% standing (excluding Virgin CrossCountry and Virgin West Coast), although only one exceeded the SRA PIXC standard.

Secondly, there are certain stretches of outlying routes that, due to having absolute block signalling with very long sections, restrict service frequency to important regional destinations such as Kidderminster/Worcester, Hednesford/Rugeley and Stratford. Another route with restricted signalling headways is the Sutton Park freight route, where the problem is exacerbated by the single track curves at its eastern end.

Capacity is very constrained at the hub of the network, in particular New Street, Snow Hill to Moor Street and the Landor Street/Washwood Heath areas. There are few opportunities for additional paths at peak times in any of these areas. In particular, utilisation of the throats and platforms at New Street is very high.

The route has a number of single lines that act as restrictions to the efficient operation of the network. Principal amongst these are the routes from Coventry to Leamington, Stoke Works Junction to Droitwich, Barnt Green to Redditch and the single track curves connecting the Sutton Park line to Water Orton and Castle Bromwich.

The route also has several highly restrictive layouts, such as for example the section between Barnt Green and Kings Norton, exacerbated by the Lickey Incline south of Barnt Green which further restricts growth, particularly for heavy freight trains. The Birmingham – Water Orton route has intense freight traffic to numerous terminals on the route and the flat junction at Landor Street is a major constraint to growth.

Finally passenger capacity is a real issue at two stations on the route. There are problems at Moor Street with narrow platforms, compounded by recent strong growth in passenger numbers. The more critical problem is at Birmingham New Street station, 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 hours, leading to passenger congestion in key circulation areas. In some very busy periods we have been obliged to restrict access to platforms, or in extreme cases the whole station, in order to maintain passenger safety. The decision to close is however only taken when absolutely necessary and we will continue to work to minimise disruption to rail travellers.

**Figure 7** Current train service level (peak trains per hour)

| Route Section                         | Number of trains |
|---------------------------------------|------------------|
| Wolverhampton – Birmingham New Street | 13               |
| Coventry – Birmingham New Street      | 10               |
| Longbridge – Birmingham New Street    | 12               |
| Four Oaks – Birmingham New Street     | 8                |
| Stourbridge – Snow Hill               | 7                |
| Dorridge – Moor Street                | 8                |

Figure 7 represents numbers of trains in the morning peak hour

### Current performance

Figure 8 shows the current PPM for the main TOCs running along the route.

The key performance issue on the route is the high level of track utilisation existing on the two track routes into New Street and Snow Hill stations, with the difficult mix of high-speed passenger, stopping local passenger and heavy freight services. Once trains have lost their path, the tendency is for them to lose further time, rather than recover it. The late trains then cause other trains to lose their paths – reactionary delay frequently accounts for over 90% of incident delay minutes. Linespeed increases to 125 mph have increased the differential between fast and slow trains, to the detriment of overall capacity.

The high level of reactionary delay can be attributed to a combination of three factors:

- the role of the West Midlands at the hub of the network, with many long distance services crossing the area;
- the complex mix of services with different characteristics and stopping patterns; and
- the high capacity utilisation, exacerbated by restrictive signalling on many sections on the route.

The current challenge is that of managing performance on a route with many different TOCs. An Integrated Control Centre (ICC), opened in Birmingham in Spring 2005, has now been operational for almost a year, with two TOCs having moved their control there. This has brought both operational and infrastructure controls together, providing opportunities for closer working and improved incident response.

In times of perturbation, reactionary delay to services has to be managed by signallers and controllers, who provide the initial tactical response by regulating trains. At stations with multiple platforms, trains may be allowed to overtake other services or there may be opportunities to turn back services short of destination or run fast and miss out station stops, etc. These decisions need close co-operation between Network Rail and the TOCs to ensure crewing and stock working issues are taken into account.

Signallers are guided in their regulating decisions by multilateral Regulation Policies. In June 2005 a trial commenced of a policy focussed on regulating to maximise PPM. Signallers have been allowed to make regulating decisions with the sole objective of ensuring the maximum number of train services arrive within their 5 or 10 minute PPM target. This policy is being kept under review and will continue to be discussed between Network Rail and the TOCs – each of whom recognise the need to work together and share the benefits of the policy.

**Figure 8** Current PPM MAA (2005/06)

| TOC                  | MAA   | As at period |
|----------------------|-------|--------------|
| Arriva Trains Wales  | 80.4% | 10           |
| Central Trains       | 76.8% | 10           |
| Chiltern Railways    | 91.9% | 10           |
| Virgin Cross Country | 80.2% | 10           |
| Virgin West Coast    | 80.3% | 10           |

## Future requirements

### Strategic direction

We expect that the route will continue to see high levels of growth, with passenger and freight growth forecast over the medium term by the RUS, and into the longer term by the (yet-to-be-published) RPA. The main drivers of this will continue to be growth in central Birmingham, especially employment and leisure/retail activities, service improvements and increasing road congestion. A study has been recently announced which will be funded by the Transport Innovation Fund, and will look at options for road demand management in the West Midlands. Rail growth could accelerate if road demand management measures were implemented in the area, although it is not expected that these will materialise in the near future.

The majority of this area is controlled by a small number of power signal boxes which are approaching life-expiry and will be renewed. As part of these renewals, we will be looking at alterations that can be made in order to provide much needed additional capacity and flexibility on certain routes where this is needed to cater for predicted growth and changing journey requirements.

On selected routes there are drivers for increased loading gauge and line speed. These are described further in the sections below.

The strategy for the track renewals programme is to take preventative rather than remedial action, along with the continuing replacement of jointed track sections with Continuous Welded Rail (CWR). At Christmas last year, the south end of Birmingham New Street station was completely renewed which has helped lower maintenance costs, improved reliability and gives a smoother ride. Over the next couple of years, the route will have been substantially renewed to CWR on the secondary routes and in later years, attention will switch to first generation CWR on primary routes. This approach will keep the already low number of track related restrictions to a minimum.

### Future demand

Both the RUS and the RPA studies have examined wider regional changes as the context for the changing pattern of rail passenger demand. A detailed analysis of passenger demand growth was carried out for the West Midlands RUS. The Regional Spatial Strategy aims to focus development on the major urban areas and this is likely to start to reduce the rate of growth within the next ten years. However, continued growth in central Birmingham employment is expected.

These factors were picked up by the demand forecasts in the RUS and the RPA. The SRA RUS sets out three different scenarios for central Birmingham commuting growth to 2011-12:

- low: 3.2% annual growth rate in trips up to 2006-07 and then 0.7% beyond. This is based on regional economic forecasts and thus does not take account of the additional specific factors that are driving up demand for rail commuting into Birmingham;
- medium: 3.9% p.a. based on projecting forward the average growth rate since 1999; and
- high: 5.5% p.a. using the multi-modal work undertaken for the West Midlands Districts' Local Transport Plan submission to the Department for Transport in 2003.

Overall the low forecasts for the RUS would see the typical three hour morning peak into Birmingham increase from 24,400 passengers in December 2004 to 27,800 passengers in 2011. The RPA continues this trend, forecasting 32,100 by 2026, an increase of 31% from 2004.

However a number of responses to the RUS consultation suggested that many regional stakeholders believed that growth would be most likely in line with the medium or high growth scenarios. The RPA will include a forecast with continued city centre employment growth as an input which will indicate a continued higher than national average growth beyond 2011, but at a lower rate than the period from 2005 – 2011. This scenario would see three hour morning peak commuting into Birmingham increase to 31,900 passengers in 2011 and 38,100 passengers in 2026, a 56% increase from 2004.

In the regional context there are a number of investment initiatives likely to facilitate further growth, including new station proposals (e.g. Coleshill) and Centro's rolling programme of park and ride schemes. These proposals include a major new park and ride facility at Longbridge with 900 spaces and tactical park and ride expansion at more than 20 stations across the conurbation, totalling a further 2,000 parking spaces. In the West Midlands Local Transport Plan (LTP), Centro have two major scheme bids for car park expansions at Four Oaks and Sutton Coldfield. Further work is underway by Centro and other regional partners to identify and develop sites for new large regional park and ride facilities. Other factors likely to influence growth include improved performance, induced growth from 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).

Detailed analysis on a train by train basis of the RUS medium growth scenario – and its extrapolation beyond 2011 in the RPA – has shown that increasing numbers of peak services would begin to suffer from severe overcrowding. The main conclusion from this work is that if the train service timetable were to remain as now the number of morning services suffering from overcrowding (as set out by the Centro measure of overcrowding, i.e. passengers in excess of 10% greater than seating capacity) would increase from 6 in 2004 to 52 by 2011 and 71 by 2026. (This excludes Cross Country and West Coast services). Peak spreading, although not favoured by regional stakeholders, could alleviate this situation and enable much growth to be accommodated within existing rolling stock resources and train paths. However, over time this would begin to suffer from diminishing returns as the number of peak services affected is forecast to spread beyond the core peak hour. This level of growth would require an increase in system capacity as well.

The RUS also indicated that there was a need for increased levels of services out from the conurbation to locations such as Kidderminster, Rugeley, Stratford and Northampton. In each case most trains terminate short of these destinations as a result of a capacity constraint that currently limits the number of services, especially off-peak.

Detailed forecasts of passenger loadings on Cross Country and West Coast services suggest a continuation of growth. However, in each case significant train service alterations are likely – the

December 2008 timetable, with a potential increase in frequency of Euston – West Midlands services to 3 tph all day and Cross Country re-specification. The aim of the latter, led by the DfT, is to help to match train lengths and destinations more closely to demand. Until this process is complete we have not assessed the likelihood of the need for train lengthening on Cross Country services.

The prediction for freight growth in the West Midlands shows an increase to 2014, especially in intermodal traffic from deep sea ports. The trend also includes increases in imported coal and aggregates.

Figure 9 indicates the forecast percentage change in tonnage to 2015.

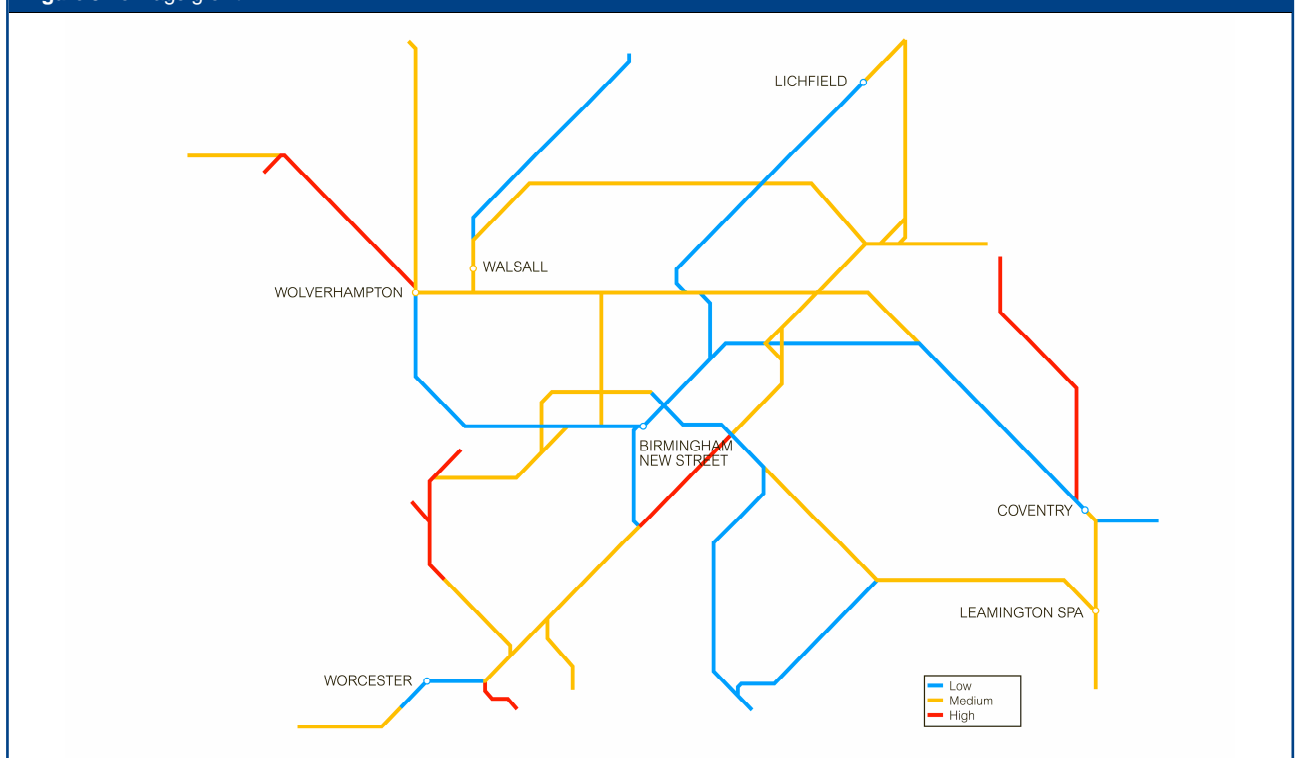
### Future capability

#### Gauge

The SRA Gauging Policy set out a proposed intermodal freight network cleared for the transportation of 9'6" high containers. The following routes were identified as priority routes, for which there was believed to be a business case for gauge clearance but for which no funding was available:

- Leamington – Coventry – Nuneaton
- Leamington – Bordesley – Landor Street
- Castle Bromwich Junction – Walsall via the Sutton Park line
- Walsall – Darlaston and Bescot

Figure 9 Tonnage growth



**Figure 10 Platform lengthening**

|                                | Maximum peak length | Platforms requiring lengthening | Platforms requiring SDO (or other measure) |
|--------------------------------|---------------------|---------------------------------|--|
| Wolverhampton – Coventry       | 8 x 20m             | Berkswell, Tile Hill, Tipton    | Adderley Park, Stechford, Dudley Port      |
| Lichfield – Redditch           | 6 x 23m             | –                               | –  |
| Leamington – Snow Hill         | 5 x 23m             | –                               | –  |
| Stratford – Snow Hill          | 4 x 23m             | Wythall                         | The Lakes                                  |
| Rugeley – Walsall – Birmingham | 4 x 23m             | Cannock, Landywood, Bloxwich    | Bescot                                     |
| Kidderminster – Birmingham     | 5 x 23m             | Old Hill, Lye                   |  |

The SRA Gauging Policy also proposed Water Orton/Whitacre – Derby as a tactical opportunity. Consequently the future gauge specification for these routes is for W10.

#### Line speed

The routes from Wolverhampton – Shrewsbury and Walsall – Rugeley suffer from particularly poor line speeds. On the Shrewsbury route, the prevailing line speed (70 mph) is comparatively poor for such an inter-urban route. The Regional Spatial Strategy shows this corridor, and especially Telford, as a regional development site/high technology corridor. A higher line speed would also generate resource (train crew/rolling stock) benefits as well as performance improvement and revenue benefits. The medium term aim has for some time been to increase line speed to 90 mph. Consequently the various resignalling schemes on the route (Wellington now delivered, Codsall – Madeley due shortly for implementation and Oxley) have all made provision for 90 mph. Ongoing track renewals over the last few years have replaced much of the former jointed track with CWR, removing some of the main obstacles to achieving a 90 mph railway.

There are similar pressures on the Walsall – Rugeley line, which has a very low 45 mph line speed. This route would have the added benefit of being able to be used as a diversionary route for the Bushbury – Stafford route for non-gauge sensitive traffic if it had a higher line speed. Once again, much of the jointed track has now been removed and forthcoming track renewals will facilitate works to make a higher line speed easier to achieve.

Line speed in the Moor Street – Jewellery Quarter area is restrained by restrictive PSRs. This extends journey times significantly. The aspiration for the future is to remove the PSRs to enable the full line speed to be achieved.

#### Platform lengths

The practical incremental approach to continued growth is to lengthen trains, especially as this solution is flexible and caters for the wide range of different growth scenarios – the solution to growth is the same, but the pace of growth merely affects the timing of the solution. It also makes better use of the scarce and high value paths into Birmingham New Street. Despite the high network

utilisation and demand for train paths, some services at Birmingham New Street are still operated by trains of just two vehicles. On the busy corridor into Birmingham New Street from Coventry, there are plans in the 2006 – 2011 West Midlands LTP to extend the platforms at both Tile Hill and Berkswell to enable longer trains on this busy section. Figure 10 sets out the train lengthening options for each urban service group and the consequences for platform lengthening. A separate exercise has confirmed that the longer trains can be accommodated within the platforming constraints at Birmingham New Street.

From the exercise outlined above – which identified the required length for each train service by 2026 using the medium RUS growth forecast – a maximum peak train length can be identified for each local service group. In almost all cases this is expected to cater for the expected per train loadings within the Centro loading standards (110% of seating capacity) although the maximum peak length is also determined by reference to the practical maximum length of platforms. (On most routes there is a maximum length beyond which there is a steep increase in lengthening costs due to topology or structures). Figure 10 sets this out as well as an initial assessment of those platforms which require lengthening to accommodate that maximum train length. However, at a number of stations, shown in the final column, even this train length cannot practically be achieved due to exceptional difficulty and high cost. Following the RUS, a train lengthening workstream has been established to lead the process of developing options for train lengthening. It is anticipated that this workstream will lead the process of risk assessment and investigation of alternatives (e.g. selective door opening) to platform lengthening.

#### Fragile routes

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

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

industry is Coventry – Nuneaton. The extensive track renewals recently undertaken on the Coventry to Nuneaton line has meant that this route can be removed from the fragile routes list in the near future.

### Future capacity

The RUS suggests that the forecasts of significant further growth in commuting to central Birmingham will pose two problems.

Firstly, with no 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.

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. As we expect to see continued high levels of passenger growth there is an increasing risk that Birmingham New Street station will experience further instances of full or partial closure in the coming year. In the short term we are ensuring the safe management of the station by applying robust passenger management plans and emergency evacuation plans, backed up by risk assessments. However, this can mean that passengers may be prevented from catching their preferred train. In the longer term, there are plans to redesign and redevelop the station. The preferred option would see a greatly increased passenger capacity, better access to platforms, and relieve current congestion. Over the next year, we will be working with regional and industry partners on funding arrangements and planning processes to progress the scheme. Work on the project could start as early as 2008.

The RUS recommended a series of generic options for accommodating peak growth including:

- train lengthening: to be considered by DfT and Centro on a case by case basis – to be

evaluated based on value for money appraisal and affordability constraints and taking account of crowding on individual services;

- changing off-peak fare restriction times and introducing lower pre-peak fares; and
- a combined package consisting of raising peak fares, reducing shoulder peak fares and implementing selective car park pricing.

The RUS also makes specific line of route recommendations for service changes, as well as setting out the need for additional passenger capacity at Birmingham New Street station.

Train lengthening options exist for the majority of routes and service groups, including local, interurban and cross country services, supported where necessary by platform lengthening. For example, most trains on the Cross City line operate with 3 vehicles. Increasing the proportion of 6 car trains would deliver many more seats without any infrastructure changes or performance effects. The requirements for platform extensions are set out in the demand section above.

It is clear that continuous performance improvement and the demand for more capacity are driving a requirement for additional capacity across the West Midlands. Currently most of the West Midlands network is already operating at, or very close to, capacity, with high values of CUI. Consequently there are few options for increasing the number of train paths available at peak times (or, on some corridors, for changing the stopping patterns). This high level of capacity utilisation is a result of two factors – signalling headway and timetable mix.

Figure 11 sets out the current Rules of the Plan (ROTP) planning headway for the main part of each radial route into central Birmingham (or the predominant headway) together with the most restrictive headway on the route (where applicable).

The table also sets out the required future headway for each radial route, commensurate with the role of

**Figure 11** Planning headway

|   | ROTP<br>Planning Headway | Future<br>required<br>headway | Other restrictive<br>headway on<br>radial route                | Future<br>required<br>headway |
|---|--------------------------|-------------------------------|--|-------------------------------|
| Wolverhampton – Birmingham New St               | 4 mins                   | 3 mins                        | n/a  | n/a                           |
| Coventry – Birmingham New St                    | 4 mins                   | 3 mins                        | n/a  | n/a                           |
| Longbridge – Birmingham New St (via Selly Oak ) | 5 mins                   | 3 mins                        | Single line Redditch<br>– Barnt Green                          | n/a                           |
| Leamington – Solihull – Birmingham New St       | 4 mins                   | 3 mins                        | n/a  | n/a                           |
| Shirley – Tyseley                               | 6 mins                   | 3 mins                        | Henley-in-Arden<br>– Shirley 20 mins                           | 10 mins                       |
| Walsall – Birmingham New St                     | 5 mins                   | 3 mins                        | Rugeley Town<br>– Walsall 14 mins                              | 10 mins                       |
| Stourbridge – Birmingham Snow Hill              | 4 mins                   | 4 mins                        | Kidderminster<br>– Stourbridge 11 mins                         | 5 mins                        |
| Water Orton – Birmingham New St                 | 4 mins                   | 3 mins                        | Tamworth – Water Orton 5 mins<br>Nuneaton – Water Orton 5 mins | 3 mins<br>3 mins              |
| Four Oaks – Birmingham New St                   | 5 mins                   | 5 mins                        | n/a  | n/a                           |

the West Midlands network and the drivers for greater demand and performance. The business case for reduced headways is improved by the forthcoming signalling renewal programme, whereby improved headways can be implemented as part of the renewal scheme at reduced cost. Each of the routes set out in the table above is due for signalling renewal in the next 10 years, except Four Oaks – Birmingham and Stourbridge – Birmingham. The RUS recommends further development work and assessment of the business case for these potential infrastructure changes. These potential projects are included in the investments section of this route plan.

To facilitate increased services to regional locations outside the conurbation such as Kidderminster, Rugeley, Stratford and Northampton, the capacity requirements would involve:

- reduction of the long absolute block signalling sections;
- improvement of the layout at Stratford which limits train arrivals to just one platform; and
- new timetable structure of the Birmingham – Coventry corridor (and new layout at Rugby – see route 18).

Further path capacity may also be generated by changes to the train timetable and service mix. This also has a role in improving capacity by improving service interaction and is described in the next section on performance.

On the Coventry – Nuneaton line, studies have been undertaken by Warwickshire County and Coventry City Councils in conjunction with Centro to assess the relative benefits of increasing heavy rail frequency, train-tram services on shared track

or alternative adjacent bus routes. These options are currently under evaluation, with Network Rail acting in an advisory role. Recently on this line, rail services were restored following bus substitutions. This allowed extensive track renewals works, as part of a programme to remove certain long-term TSRs on this section.

#### Future performance

Figure 12 shows the forecast reduction in Network Rail delay minutes compared with 2005/06.

Figure 13 shows the forecast PPM for the main TOCs running along the route.

In addition to continued improvement in asset reliability, a major focus of attention going forward is the work necessary to devise more robust train timetables. Network Rail is working closely with all train operators to encourage the development of timetables and resource plans that are more robust in terms of recovery from incidents. Specifically, we are currently working with DfT, Centro and train operators to develop detailed plans for the December 2008 timetable for the key section from Coventry – Wolverhampton.

A future challenge (as overall asset performance and incident recovery continues to improve) is that external events are assuming a higher proportion of delays. Recent events have included two spates of related vandalism incidents which affected signalling equipment and accounted for over 5% of total delays for the year.

As mentioned earlier, two TOCs have moved their control to the Integrated Control Centre in Birmingham. The challenge for the future is to increase participation at the ICC so that the full operational benefits of joint control working are realised.

**Figure 12** Forecast reduction in delay minutes

|                              | 2006/07 | 2007/08 | 2008/09 |
|------------------------------|---------|---------|---------|
| % reduction in delay minutes | 8%      | 8%      | 6%      |

**Figure 13** Forecast PPM MAA

| TOC                  | 2006/07 | 2007/08 | 2008/09 |
|----------------------|---------|---------|---------|
| Arriva Trains Wales  | 83.6%   | 84.5%   | 85.2%   |
| Central Trains       | 83.8%   | 84.5%   | 84.5%   |
| Chiltern Railways    | 93.5%   | 93.8%   | 93.9%   |
| Virgin Cross Country | 81.6%   | 83.5%   | 84.3%   |
| Virgin West Coast    | 85.5%   | 87.8%   | 88.6%   |

### Engineering access

Two separate factors are contributing pressure for increased access for maintenance work. The drive for greater performance through improved asset reliability is set out in the Management Plan and the result is a desire for greater access for regular maintenance. Secondly, the demand section sets out the expected increase in tonnage expected across the West Midlands. For 3 sections this will result in an increase in track category and in another an increase in track classification. This is reflected in proposals for fine tuning of the access regime for maintenance. Current proposals are for approximately 7 hour midweek maintenance possessions to be taken on a 1-in-6 week rotation, fully using diversionary routes. This would give the advantage of having two sets of opportunities to remedy 13-week defects. In addition there is a requirement for a regular 12 hour Saturday night/Sunday possession approximately every 16 weeks, but in many cases we are able to use renewals possessions to avoid creating further disruption.

In terms of non-maintenance possessions there are three large challenges for the next few years. Firstly there is a disproportionate level of track renewals throughout 2006/7 and 2007/8 particularly on the line from Birmingham to Derby. Secondly access opportunities for renewals across the Birmingham Loop or Grand Junction route will be limited until December 2008 as a result of the continuing Trent Valley 4-tracking work.

However, the greatest challenge will be the large number of possession hungry major signalling renewals planned across the route for the next 10 years. This will start with Coventry PSB in August 2006 and Saltley Leamington corridor commencing in 2006, completing in 2007. Where possible we will plan to undertake the majority of the preparatory work in existing possessions planned for track renewals. Feedback from TOCs (to the RUS and in previous access consultations) has suggested a preference for long blockades rather than frequent smaller possessions and we will be exploring this approach for the signalling renewals, subject to maintaining freight access as far as possible.

### Opportunities and challenges

We anticipate that accommodating growth in commuting into central Birmingham will be a significant challenge on the route, as employment in central Birmingham continues to increase. The context is that most of the West Midlands network is already operating at, or very close to, capacity. This includes Birmingham New Street station itself.

We believe that the solution to passenger growth and future capacity requirements will be best met by a combination of initiatives:

- measures to spread the peak and smooth the high peak requirements. A number of possible measures are set out in the RUS. However, we do not believe that this will be sufficient to cater for all forecast demand growth, particularly if the medium (or high) growth scenarios set out in the RUS and continued in the RPA prove to be the outcome;
- train lengthening, often supported by platform lengthening;
- incremental enhancements, delivered on the back of planned track and signalling renewals, and certain limited stand alone enhancements. These have the potential to improve performance (necessary for growth), enable specific increases in train paths and facilitate timetable restructuring. This is also vital for freight growth which is not restricted by the lack of track capacity at Birmingham New Street;
- changes to the timetable structure to reduce the mix of different train types and the number of conflicting moves; and
- provision of additional passenger capacity at Birmingham New Street. The station building will require significant enhancement to enable it to handle, on a consistent basis, current passenger volumes and future passenger growth safely and efficiently. Until this takes place the lack of passenger capacity at New Street will act as a constraint to rail growth and growth in the city. This will also have an impact on schemes to attract passengers to rail. For example there may be insufficient passenger capacity at New Street to safely accommodate the extra traffic generated on the Cross City line by the additional 900 car parking spaces at the Longbridge park and ride site proposed by Centro.

Many measures are set out in the RUS and we are supportive of many of the specific line of route recommendations, subject to a detailed evaluation of the impact on train performance, where appropriate. Initiatives and options for provision of the capacity and performance improvement required from the West Midlands network are set out in the next section.

Last year, the new franchise maps were announced by the DfT, affecting a number of TOCs on this route. Network Rail is working with the DfT to ensure that opportunities for improvements are identified during this refranchising process.

### Delivering future requirements

#### Expenditure

Figure 14 shows the planned level of expenditure on renewals on this route over the next three years.

However, the precise timing and scope of renewals remains subject to review to enable us to meet our overall obligations as efficiently as possible, in accordance with the plans of operators and other stakeholders.

**Figure 14** Forecast expenditure

| £m (05/06 prices)                  | 2006/07   | 2007/08   | 2008/09   |
|------------------------------------|-----------|-----------|-----------|
| <b>Renewals</b>                    |           |           |           |
| <b>Track</b>                       |           |           |           |
| Plain line                         | 32        | 28        | 26        |
| S&C                                | 43        | 41        | 23        |
| Drainage                           | 1         | 1         | 1         |
| <b>Track Total</b>                 | <b>77</b> | <b>70</b> | <b>50</b> |
| <b>Civils</b>                      |           |           |           |
| Underbridges                       | 2         | 5         | 12        |
| Overbridges                        | 0         | 0         | 2         |
| Bridgeguard 3                      | 1         | 0         | 3         |
| Footbridges                        | –         | 1         | –         |
| Earthworks                         | 2         | 2         | 0         |
| Tunnels                            | 0         | 0         | 0         |
| Culverts                           | –         | –         | 0         |
| Retaining walls                    | –         | –         | 0         |
| Other                              | 26        | 22        | 3         |
| <b>Civils Total</b>                | <b>32</b> | <b>30</b> | <b>20</b> |
| <b>Signalling</b>                  |           |           |           |
| Resignalling                       | 66        | 80        | 57        |
| Minor works/other                  | 3         | 3         | 9         |
| <b>Signalling Total</b>            | <b>69</b> | <b>83</b> | <b>66</b> |
| <b>Electrification</b>             |           |           |           |
| <b>AC Systems</b>                  |           |           |           |
| HV switchgear                      | 0         | 1         | 0         |
| OHL campaign changes/refurbishment | 2         | 1         | 1         |
| Other                              | 18        | 25        | 2         |
| <b>DC Systems</b>                  |           |           |           |
| Other                              | 0         | 0         | 0         |
| <b>Electrification Total</b>       | <b>20</b> | <b>27</b> | <b>3</b>  |

|  |            |            |            |
|--|------------|------------|------------|
| <b>Telecoms</b>  |            |            |            |
| Concentrators: large   | 0          | 0          | 0          |
| CIS systems  | 0          | 1          | 1          |
| Telecoms cables  | 2          | 2          | 0          |
| Other  | 0          | 0          | 1          |
| <b>Telecoms Total</b>  | <b>3</b>   | <b>3</b>   | <b>2</b>   |
| <b>Plant and machinery</b>   |            |            |            |
| Fixed plant  | 1          | 2          | 0          |
| Signal supply point  | 0          | 0          | 0          |
| Mobile plant/vehicles  | 2          | 2          | 0          |
| Point heating  | 0          | 0          | 0          |
| <b>Plant Total</b>   | <b>4</b>   | <b>4</b>   | <b>1</b>   |
| <b>Operational property</b>  |            |            |            |
| Stations   | 3          | 1          | 2          |
| Light maintenance depots   | 1          | –          | –          |
| Lineside buildings   | 0          | 0          | 0          |
| <b>Operational property Total</b>  | <b>4</b>   | <b>1</b>   | <b>2</b>   |
| <b>Total Renewals</b>  | <b>208</b> | <b>217</b> | <b>145</b> |
| <b>Enhancements (funded by)</b>  |            |            |            |
| <b>Network Rail</b>  |            |            |            |
| West Coast Route Modernisation   | 69         | 58         | 8          |
| <b>Network Rail Total</b>  | <b>69</b>  | <b>58</b>  | <b>8</b>   |
| <b>Network Rail (RAB)</b>  |            |            |            |
| Bromsgrove down goods loop enhanced renewal  | 2          | 1          | –          |
| Conversion of down goods loop at Bromsgrove to passenger status (Bristol – Birmingham route) | 1          | 2          | –          |
| Coventry – Leamington part doubling (Park Junction – Gibbet Hill)                            | 4          | 1          | –          |
| Saltley power signal box renewal   | –          | –          | 2          |
| Stratford line enhancements  | 1          | 1          | –          |
| Tyseley North junction   | 3          | 2          | –          |
| Other  | –          | –          | –          |
| <b>Network Rail (RAB) Total</b>  | <b>10</b>  | <b>6</b>   | <b>2</b>   |
| <b>Other Third Party</b>   |            |            |            |
| Birmingham New St gateway  | 2          | –          | –          |
| Chiltern Franchise – Moor St reopening phase 3   | 9          | –          | –          |
| Owen St Tipton   | 0          | 2          | –          |
| West Coast Route Modernisation – TENS Funding Enhancements                                   | 2          | 2          | 2          |
| Wolverhampton station front  | 0          | 1          | 1          |
| Bromsgrove platform lengthening  | 1          | 2          | –          |
| Other  | 2          | 0          | 0          |
| <b>Other Third Party Total</b>   | <b>16</b>  | <b>8</b>   | <b>3</b>   |
| <b>Total Enhancements</b>  | <b>95</b>  | <b>71</b>  | <b>13</b>  |

The planned volume of renewals is detailed in Figure 15.

**Figure 15 Forecast volumes**

|                                      | 2006/07 | 2007/08 | 2008/09 |
|--------------------------------------|---------|---------|---------|
| <b>Track</b>                         |         |         |         |
| Rail (km)                            | 67      | 64      | 64      |
| Sleepers (km)                        | 67      | 63      | 63      |
| Ballast (km)                         | 77      | 73      | 73      |
| <b>Switches &amp; crossings (no)</b> |         |         |         |
| Complete renewal                     | 64      | 73      | 73      |
| Partial renewal/reballasting         | 2       | 0       | 0       |
| Abandonment                          | 14      | 16      | 16      |
| Fencing (km)                         | 0       | 1       | 0       |
| Drainage (km)                        | 8       | 7       | 7       |
| <b>Civils</b>                        |         |         |         |
| Underbridges (square metres)         | 987     | 1,829   | 2,487   |
| Overbridges (square metres)          | 571     | 242     | 523     |
| Footbridge (square metres)           | –       | 250     | –       |
| Embankments (square metres)          | 4,314   | 621     | 200     |
| Tunnels (square metres)              | 50      | 69      | –       |
| <b>Signalling</b>                    |         |         |         |
| Resignalling (SEUs)                  | 77      | 381     | 60      |
| <b>Electrification</b>               |         |         |         |
| <b>AC Systems</b>                    |         |         |         |
| HV switchgear (CBs)                  | –       | 9       | 7       |
| HV cables (km)                       | 104     | 60      | –       |
| Booster transformers (no)            | 3       | 56      | 2       |
| Grid supply points (CBs)             | 4       | 6       | –       |
| OHL re-wiring (tension length)       | 209     | 187     | 25      |
| OHL spanwires (no)                   |         |         |         |
| <b>Telecoms</b>                      |         |         |         |
| Concentrators: large (no)            | –       | 1       | 1       |
| CIS systems (stations)               | 3       | 9       | 7       |
| <b>Plant and machinery</b>           |         |         |         |
| Signal supply point (no)             | 1       | –       | 1       |
| Point heating (point end)            | 6       | –       | –       |

**Figure 16 Forecast expenditure**

| <b>£m (05/06 prices)</b> | 2006/07 | 2007/08 | 2008/09 |
|--------------------------|---------|---------|---------|
| Maintenance              | 39      | 36      | 33      |

It should be noted that in order to manage the deliverability of our Civils, Signalling & Electrification plans we have included an element of overplanning in our work banks. As a consequence the sum of our route plans exceeds

our plan for the network as a whole. It is likely that a small proportion of the activities in these areas will slip to subsequent years.

#### **Maintenance**

Figure 16 shows the planned level of expenditure on maintenance on this route over the next three years.

## Infrastructure investment

The following table highlights committed schemes that are planned for completion in the financial year shown.

**Figure 17** Planned infrastructure investment

| Project  | Scope   | Enhancement or output change   | Main asset Type(s) | Third party funding                       | GRIP Stage | Completion Year |
|--|---|--|--------------------|---|------------|-----------------|
| <b>A</b> Gateway Scheme (see note 1 at end of table) (17.01, 17.02, 17.04)   | Birmingham New Street Gateway   | Increased passenger capacity, improved access and performance                                    | Stations           | Birmingham CC/Advantage West Midlands/DFI | 4          | 2011/12         |
| <b>B</b> West Midlands Signalling centre (17.01, 17.04, 17.05, 17.06, 17.07, 17.09, 17.10, 17.12, 17.13, 17.15, 17.20 & 17.21) | New signalling (control) centre for West Midlands   | Renewals/Improved performance  | Signalling         | None                                      | 2          | 2016/17         |
| <b>C</b> Coventry PSB Signalling Renewal (17.01 & 17.07)   | Signalling renewal of the Coventry PSB control area.<br>Part doubling of the Coventry – Leamington line between Park Junction and Gibbet Hill | Renewals<br>Improved capacity and performance  | Signalling         | None<br>Potential NRDF                    | 5          | 2007/08         |
| <b>D</b> Saltley Leamington corridor signalling renewal (17.07 & 17.12)  | Signalling renewal of the Saltley Leamington corridor.<br>New 60 mph junction at Tyseley<br>Reduced signalling headways Tyseley – Warwick     | Renewals.<br>Faster speed junction (reduced journey times) and improves capacity and performance | Signalling         | None<br>Potential NRDF                    | 4          | 2007/08         |

Figure 17 Planned infrastructure investment

| Project   | Scope  | Enhancement or output change  | Main asset Type(s) | Third party funding    | GRIP Stage | Completion Year |
|---|--|---|--------------------|------------------------|------------|-----------------|
| <b>E</b> Saltley Water Orton corridor signalling renewal (17.06, 17.18 & 17.22) | Signalling renewals on the Saltley – Water Orton corridor.<br>Improved layout at Water Orton<br>Remodelling of Landor St and Water Orton jns<br>4 tracking Water Orton West – Castle Bromwich<br>Reduced headways Water Orton – Tamworth/Nuneaton<br>Reduced signalling headways on Sutton Park line | Renewals.<br>Increased capacity due to reduced signalling headways. Improved performance and capacity | Signalling         | None<br>Potential NRDF | 2          | 2009/10         |
| <b>A</b> Birmingham New Street (17.01, 17.02 & 17.04)                           | Flood mitigation works   | General improvement to drainage problems  | Stations           | None                   | 1          | 2007            |
| <b>F</b> Stourbridge – Hartlebury signalling renewals (17.10 & 17.22)           | Signalling renewals of Stourbridge – Hartlebury line.<br>Reduced signalling headways Stourbridge – Kidderminster   | Renewals.<br>Improved capacity  | Signalling         | None<br>Potential NRDF | 3          | 2010/11         |
| <b>G</b> Walsall signalling renewal (17.09, 17.14 & 17.22)                      | Signalling renewals in the Walsall area.<br>Turn back facility at Pleck (to increase capacity on Grand Junction route and ease congestion at Bescot yard)<br>Electrification of platform 2<br>Conversion of platform 3 to through platform   | Renewals<br>Increased capacity and ease congestion at Bescot.<br>Improved performance                 | Signalling         | None<br>Potential NRDF | 2          | 2011/12         |
| <b>H</b> Wolverhampton signalling renewal (17.02, 17.03, 17.09 & 17.16)         | Signalling renewals in the Wolverhampton area.<br>Reduced signalling headways Penkridge – Tipton<br>Creation of direct access to bay platform 6<br>Remodelling of Bushbury Junction  | Renewals<br>Improved capacity   | Signalling         | None<br>Potential NRDF | 2          | 2011/12         |

| Project                                     | Scope  | Enhancement or output change  | Main asset Type(s)                  | Third party funding                    | GRIP Stage | Completion Year |
|---|--|---|-------------------------------------|--|------------|-----------------|
| 1 Shirley – Stratford (17.12)               | Signalling renewals.<br>New turnback facility at Whitlocks End<br>New crossover at Stratford<br>Reduced signalling headway<br>Provision of new ticket office at Whitlocks End  | Renewals<br>Improved capacity<br><br>Improved station facilities          | Signalling<br>Track<br><br>Stations | None<br>Potential NRDF<br>Third party  | 1<br><br>2 | 2009            |
| 2 Moor Street station (17.08)               | Reconnection of the two terminal platforms at Old Moor Street station  | Increased capacity  | Track                               | Laing Rail                             | 4          | 2007            |
| 3 Coleshill Multi-modal interchange (17.18) | New station, with large car park and bus interchange   | New asset:<br>Improved access to the rail network and capacity for growth | Stations                            | Laing Rail/Warwickshire County Council | 4          | 2007/08         |
| 4 Brinsford station (17.09)                 | New station, with large park and ride facility   | New asset:<br>Improved access to the rail network and capacity for growth | Stations                            | Developer/Staffordshire County Council | 1          | 2009/10         |
| 5 Tipton Owen Street level crossing (17.02) | New underbridge to replace level crossing  | Increased safety and performance  | Safety                              | NR/Sandwell MBC                        | 2          | 2009            |
| 6 Bromsgrove station enhancements (17.05)   | Network Rail is working closely with Worcestershire County Council and Centro on the feasibility of: <ul style="list-style-type: none"> <li>both north and south bound platforms being lengthened to 4 x 23m, 5 x 23m and 6 x 23m).</li> <li>increasing car parking</li> <li>provision of ticket office and waiting facilities</li> <li>provision of step-free access to the south bound platform</li> </ul> | Increased capacity and improved station facilities                        | Stations                            | Local Authority/PTE                    | 1          | 2007/08         |

**Figure 17** Planned infrastructure investment

| Project   | Scope  | Enhancement or output change                   | Main asset Type(s) | Third party funding                | GRIP Stage | Completion Year |
|---|--|--|--------------------|------------------------------------|------------|-----------------|
| <p>Ⓞ Cannock Line Showcase (Walsall – Rugeley) (17.14)</p>              | Improved station facilities<br>Car park extensions<br>Platform lengthening   | Improved station facilities and capacity       | Stations           | Centro                             | 1          | 2011/12         |
| <p>Ⓜ Wolverhampton Interchange (17.02, 17.03, 17.09, 17.16)</p>         | Improved station building and facilities   | Improved station building and facilities       | Stations           | Wolverhampton City Council         | 3          | 2008            |
| <p>Ⓟ Snow Hill second access (17.08 &amp; 17.10)</p>                    | New northern entrance to Snow Hill station   | Improved access to the station/passenger flows | Stations           | Centro                             | 6          | 2007            |
| <p>Ⓞ Centro car park extensions (17.12, 17.13)</p>                      | Extensions to car parks at various stations across the PTE area, notably Whitlocks End, Sutton Coldfield and Yardley Wood  | Increased capacity at stations                 | Stations           | Centro                             | 2          | 2009 – 2011     |
| <p>Ⓟ Donnington freight terminal (17.16)</p>                            | New intermodal terminal  | Freight growth on route                        | Terminal           | Telford and Wrekin Borough Council | 5          | 2006/07         |
| <p>Ⓞ Track Renewals (16.01, 17.07, 17.12, 17.14, 17.16 &amp; 17.21)</p> | Plain line works are planned at 2006/07: Aylhno, Warwick, Hatton and Admaston (between Wolverhampton-Shrewsbury) 2007/08: Bromford, Hagley and Wednesfield Heath | Renewals                                       | Track              | None                               | 3          | 2006 – 2008     |

Figure 17 Planned infrastructure investment

| Project | Scope   | Enhancement or output change  | Main asset Type(s) | Third party funding | GRIP Stage | Completion Year |
|---------|---|---|--------------------|---------------------|------------|-----------------|
| Ⓔ       | Track Renewals (17.01, 17.04, 17.07, 17.08 & 17.12)<br>S&C renewals are planned at 2006/07: Aston South, Barnt Green, Birmingham International South, Coventry South, Kidderminster Junction, Longbridge<br>2007/08: Tyseley South Junction, and Birmingham Intl North Junction | Renewals  | Track              | None                | 3/4        | 2006 – 2008     |
| Ⓙ       | Lichfield – Sutton Coldfield (17.13)<br>Plain line track renewals   | Potential line speed increase   | Track              | None                | 3          | 2007/08         |
| Ⓚ       | Coventry (17.07)<br>Refurbishment of platform riser walls<br>Refurbishment of roofworks.  | Renewals  | Stations           | None                | 2          | 2007/08         |
| Ⓛ       | Tyseley (17.08 & 17.21)<br>Refurbish station canopies.  | Renewals  | Stations           | None                | 1          | 2006/07         |
| Ⓜ       | Tyseley (17.08 & 17.21)<br>Carriage washer renewal feasibility  | Renewals  | Stations           | None                | 2          | 2006/07         |
| Ⓝ       | Telecoms renewals (17.10 & 17.23)<br>Telecoms minor renewals – cable refurbishment in the Stourbridge area  | Investment in replacing cables  | Telecoms           | None                | 4          | 2006/07         |
| Ⓞ       | Telecoms renewals (17.09, 17.14 & 17.22)<br>Cable route refurbishment in the Walsall and Salliley areas   | Improvements to existing cable routes for easier maintenance purposes           | Telecoms           | None                | 1          | 2007            |
| Ⓟ       | Telecoms renewals (17.09, 17.13)<br>Aston SPT concentrator renewal  | Replacement of life-expired concentrator, utilising equipment already available | Telecoms           | None                | 4          | 2007            |

Figure 17 Planned infrastructure investment

| Project   | Scope  | Enhancement or output change   | Main asset Type(s) | Third party funding | GRIP Stage | Completion Year |
|---|--|--|--------------------|---------------------|------------|-----------------|
| Y<br>Telecoms renewals<br>(17.01)                                 | Saltley concentrator renewal in conjunction with FTN work  | Replacement of Saltley selective SPT system with modern equivalent (PABX) to improve reliability of asset and cabling infrastructure | Telecoms           | FTN                 | 4          | 2007            |
| Z<br>Telecoms renewals<br>(17.04, 17.09 & 17.13)                  | National project to renew Virgin Retail facilities to provide additional CIS facilities at 17 stations across the country (on this route Birmingham Intl and Coventry) | Improved communication and station environment   | Telecoms           | None                | 6          | 2005-2007       |
| AA<br>Cross City Lines (north and south) (17.09, 17.14 & 17.04)   | 25kV protection relay renewals<br>OHL renewals<br>Refurbishment of switchgear<br>Structure painting  | Renewals   | E & P              | None                | 6          | 2007            |
|   |  |  |                    | None                | 6          | 2007            |
|   |  |  |                    | None                | 6          | 2007            |
|   |  |  |                    | None                | 6          | 2007            |
| EE<br>Walsall area equipment refurbishment (17.09, 17.14 & 17.22) | Equipment refurbishment  | Renewals   | E&P                | None                | 2          | 2007            |
| AA<br>OHL (exc Cross City)  | Heavy refurbishment of OHL   | Renewals   | E&P                | None                | 6          | 2007            |
| EE<br>E&P Renewals  | Birmingham New Street signaling supply point – renewal of equipment including installation of UPS  | Renewals   | E&P                | None                | 6          | 2006/07         |

Figure 17 Planned infrastructure investment

| Project                                   | Scope   | Enhancement or output change                                     | Main asset Type(s) | Third party funding | GRIP Stage | Completion Year |
|---|---|--|--------------------|---------------------|------------|-----------------|
| 10 Civis Renewals (17.07)                 | Strengthening works will continue at Harbury Cutting and drainage works at Fenny Compton  | Renewals   | Structures         | None                | 2          | 2007/08         |
| 10 Civis Renewals (17.01)                 | Works will be carried out to improve drainage at Berkswell  | Renewals   | Structures         | None                | 2          | 2007/08         |
| 10 Civis Renewals (17.07)                 | Embankment work will be undertaken at Knightcote and Somerton   | Renewals   | Structures         | None                | 1          | 2008/09         |
| 10 Civis Renewals (17.12)                 | Reconstruction of Bridge over the canal at Stratford-upon-Avon  | Renewals   | Structures         | None                | 2          | 2007/08         |
| 10 Civis Renewals (17.06)                 | Bridgeguard 3 programme – we plan to strengthen Saitley viaduct, Gorsy Bank, Bentley Road and Lower Heyford   | Ensuring sufficient strength of bridge to carry appropriate load | Structures         | Local Authority     | 3          | 2006 – 2008     |
| 10 Civis Renewals (17.01, 17.02 & 17.04)  | Bridgeguard 3 programme – we plan to work on three Birmingham city centre bridges, at Navigation Street, Hill Street and Swallow Street               | Ensuring sufficient strength of bridge to carry appropriate load | Structures         | Local Authority     | 2          | 2007/08         |
| Class 350s gauging                        | Provision of gauge information for route clearance and engineering acceptance across WCML and branches  | New class of rolling stock introduced on the route               | Civils             | None                | 6          | 2006            |
| CIS Schemes (17.10, 17.12, 17.15 & 17.08) | Replacement and installation of new CIS systems at stations around the Central Trains network e.g. Birmingham Show Hill, Redditch and Henley-in-Arden | Improved station facilities and communication                    | Stations           | TOC                 | 4          | 2006            |

Figure 17 Planned infrastructure investment

| Project   | Scope   | Enhancement or output change | Main asset Type(s) | Third party funding | GRIP Stage | Completion Year |
|---|---|------------------------------|--------------------|---------------------|------------|-----------------|
| A1<br>Codsall – Madeley signalling renewals (17.16) | Renewal of signalling between Codsall and Madeley | Renewals                     | Signalling         | None                | 6          | 2006            |
| A1<br>Oxley Signalling renewals (17.16)             | Renewal of signalling at Oxley                    | Renewals                     | Signalling         | None                | 3          | 2009            |
| C<br>Coventry (17.01)                               | Renewal of car park and extension                 | Improved station facilities  | Stations           | Third party         | 2          | 2006/07         |

## Notes: 1

## Birmingham New Street station:

After 18 months of detailed analysis by a study group including senior representatives from Network Rail, Birmingham City Council, Advantage West Midlands, Centro, and the West Midlands Passenger Transport Authority (WMPTA), we have developed a comprehensive proposal for an enhanced station building. The preferred “Birmingham Gateway” scheme would see £500 million of public and private investment in the complete redesign and redevelopment of the station and surrounding area. The analysis shows that Birmingham Gateway is good value for money, and meets transportation and regeneration objectives.

## The plans include:

- More space, greatly increasing passenger capacity and relieving congestion
- World class passenger facilities
- Brighter, cleaner and clearer platforms
- Better access to platforms facilitated by 42 new escalators and 14 new lifts
- A new, enlarged concourse that is three and a half times bigger than the current space
- A hi-tech transparent roof
- Transformation of the concourse level into a giant atrium, flooding the station with natural light
- Comfortable, spacious and modern waiting lounges
- World class customer information systems, improving communications with passengers
- A new contemporary station exterior, in keeping with a modern city centre
- Two new open public spaces: a piazza on the south side of the station and a public square opposite the Bullring
- New pedestrian links across the city centre with direct access and interchange with the planned Metro stop in Stephenson Street

Over the next year the Birmingham Gateway partners will be working on funding arrangements and planning processes to get the scheme moving. Work on the project could start as early as 2008.

More information can be found at [renewstreet.co.uk](http://renewstreet.co.uk)

The following table highlights potential schemes in preliminary stages of development.

**Figure 18** Infrastructure investment under consideration

| Project   | Scope   | Enhancement or output change                                   | Main asset type(s) | Status  |
|---|---|--|--------------------|---|
| Ⓐ Freight Upgrade (17.05)   | Upgraded goods loop at Bromsgrove   | Enables passenger trains to be regulated. Improves performance | Signalling         | Case under consideration for NRDF                 |
| Ⓐ Increase capacity (17.11)   | Reduced headways between Droitwich Spa and Worcester  | Improves capacity and performance                              | Signalling         | Case under consideration for NRDF                 |
| Ⓐ Birmingham New Street resigalling (17.01, 17.04, 17.05, 17.06, 17.07, 17.09, 17.10, 17.12, 17.13, 17.15, 17.20 & 17.21) | Renewal of signalling in the Birmingham PSB area  | Improved capacity and performance                              | Signalling         | GRIP Stage 0, completion year anticipated 2012/13 |
| Telecoms Renewals   | CIS West Midlands local stations – real time CIS and public address   | Improved communication and station environment                 | Telecoms           | Third party funded scheme, GRIP stage 0           |
| Ⓐ Extension of Loop (17.08)   | Extension of Kenilworth Loop  | Reduced extent of single line and increases capacity           | Track              | Case under consideration                          |
| Ⓐ New platform (17.01, 17.02 & 17.04)   | New bay platform at Birmingham New Street station. Conversion and lengthening of East Dock to create additional platform at Birmingham New Street | Increases capacity and performance                             | Stations<br>Track  | Case under consideration                          |
| Ⓐ Additional access (17.01, 17.02 & 17.04)  | Additional access to platform 12 at Birmingham New Street station   | Reduces passenger congestion                                   | Stations           | Case under consideration – potential NRDF scheme  |
| Ⓐ Linespeed improvement (17.16)   | Linespeed improvement between Wolverhampton and Shrewsbury to achieve 90 mph linespeed  | Reduced journey times  | Track              | Case under consideration – potential NRDF scheme  |

Figure 18 Infrastructure investment under consideration

| Project                           | Scope   | Enhancement or output change           | Main asset type(s)  | Status  |
|-----------------------------------|---|--|---------------------|---|
| 18.07 Signalling Renewal (17.07)  | Signalling renewal at Banbury   | Improved performance and capacity      | Track<br>Signalling | GRIP Stage 0, Remit due to be submitted for 2010/11 works |
| 18.15 Redditch branch (17.15)     | Increase linespeed on Redditch branch   | Reduces journey times                  | Track               | Case under consideration                                  |
| 18.06 Washwood Heath Yard (17.06) | Relocation of slotting arrangements at Washwood Heath Yard, on the route between Water Orton and Birmingham   | Improved performance                   | Track               | GRIP Stage 0, case under consideration                    |
| 18.12 Stratford-upon-Avon (17.12) | Station redevelopment scheme including proposals for car park extension and bus interchange facilities  | Improved station access and facilities | Stations            | GRIP Stage 0, case under consideration                    |
| Platform lengthening              | West Midlands platform lengthening to support longer trains   | Increases capacity                     | Stations            | Case under consideration – potential NRDF scheme          |
| 18.09 Darlaston (17.09)           | Provision of a single north-west facing connection between Walsall and Wolverhampton in the Down Line, to provide 2 sidings for the loading of scrap metal by European Metals Recycling (EMR) | Increased capacity                     | Track               | Scheme in early stages of development (GRIP stage 0)      |
| 18.14 Walsall – Rugeley (17.14)   | Signalling renewals<br>Reduced signalling headways Bloxwich – Hednesford<br>Line speed improvement  | Renewals<br>Improved linespeed         | Signalling<br>Track | Case under consideration                                  |

### Non Infrastructure developments

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

**Figure 19 Non-infrastructure developments**

| Description   | Key issues   | Actions or options being developed  | Benefits   | Start date    |
|---|--|---|--|---------------|
| Refranchising   | Re-mapping and respecification of Central, Silverlink and Cross Country franchises   |   |  |               |
| AR Coventry – Wolverhampton timetable development (17.01 & 17.02) | West Coast Strategy incorporates increase in Euston – West Midlands services on route with an already very high capacity utilization and existing poor performance | Skip-stopping pattern for local services<br>20 minute all day frequency Birmingham – Euston | Increased inter-city service Euston – West Midlands<br>Improved local service for key local stations<br>Improved performance | December 2008 |
| Train lengthening   | Peak crowding on certain trains with further growth as forecast in the RUS   | Joint industry group  | Longer trains to accommodate growth  |               |

## Appendix

**Figure 20** Strategic route sections

| SRS   | SRS Name  | ELR                | Classification | Funding | Community Rail | Freight Gauge | RA | Speed     | Electrification | Signalling Type | Signalling Headway | 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        | No              | TCB             | 4                  | 2            |
| 17.06 | Wichnor Junction – Grand Junction                             | DBP1 DBP2 DBP3 KJW | Primary        | DfT     | No             | W8            | 8  | 90 (125)  | No              | 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 –  | PJB BJW1 WDJ PJW   | Secondary      | DfT     | No             | W9 &          | 8  | 75        | 25Kv (AC)       | TCB             | 5 (7) (3)          | 2            |



Figure 20 Strategic route sections

|       |  |                             |           |     |     |         |   |         |           |         |         |   |
|-------|--|-----------------------------|-----------|-----|-----|---------|---|---------|-----------|---------|---------|---|
| 17.20 | Soho Junctions – Perry<br>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<br>CBR2<br>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 Bant Green – Redditch: single line section
- K Worcester – Hereford: single line sections and long headway

### 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