

Route Plans 2007
Route 18
West Coast Main Line



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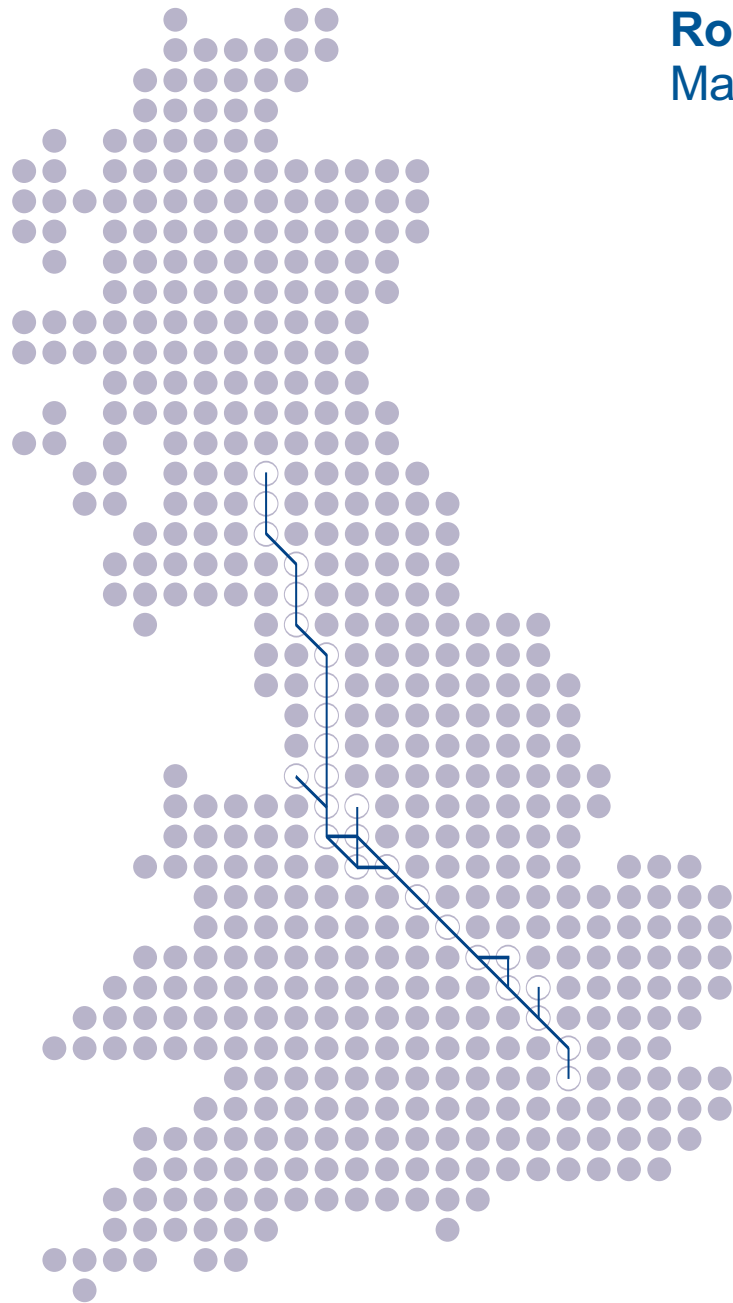




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Route 18 West Coast Main Line

Route context

The West Coast Main Line (WCML) is of strategic importance in a European context and has been designated as a priority Trans-European Network (TENS) route. It is the principal rail freight corridor linking the European mainland (via the Channel Tunnel) via London and South East England to the West Midlands, North West England and Scotland and is one of the busiest freight routes in Europe.

In terms of the national context, the WCML is the busiest mixed traffic route in the UK. It is central to the business of Virgin West Coast in providing fast long distance Intercity passenger services between London, the West Midlands, the North West, North Wales, Glasgow and Edinburgh. Beyond this, it plays a crucial role in commuter rail services in North West London and beyond, as well as linking with numerous other urban,

interurban and rural rail services. Silverlink County operates fast interurban commuter services between Northampton and London Euston. Both Virgin West Coast and Silverlink County have recently invested in new rolling stock; Virgin Trains introduced the class 390 'Pendolino' capable of speeds up to 125mph, and Silverlink introduced the class 350 'Desiro' with a maximum speed of 100 mph. 40 per cent of all UK rail freight uses the WCML at some stage in its journey and key freight depots along the route are forecast to generate increasing traffic for at least the next 10 years. All the main UK freight operators run trains over the route.

The West Coast Route Modernisation (WCRM) has delivered a significant amount of infrastructure improvement, including: line speed improvements

along the majority of the route providing 125 mph in tilt mode; resignalling; track and overhead line renewals and improvements; electrification of the Crewe – Kidsgrove line, plus power supply upgrades; new and extended platforms; new lines and a flyover at Nuneaton and new junctions at several locations. Additional line speed improvements are planned, including further work on Stoke and Crewe lines and improvements to sections of the Liverpool and Glasgow lines. Enlargement of Milton Keynes and Rugby stations, widening of the Trent Valley route, along with changes at Nuneaton and between Crewe and Weaver Junction are programmed for delivery by the end of 2008. A revised timetable will be implemented after the completion of the main elements of the project at the end of 2008.

The key outputs that will be delivered by this timetable are:

- London to West Midlands services every 20 minutes, with a standard journey time of 1 hour 23 minutes;
- London to Manchester frequency increases to a train every 20 minutes, and end to end journey times of just over two hours;
- London to Liverpool will be around 20 minutes quicker and extra peak trains will operate;
- increased frequencies between London, Lancashire, Cumbria and Scotland, with considerable journey time improvements and Glasgow trains being half an hour quicker; and
- increased route capacity for further growth in freight traffic.

The north end of the route – Carlisle to Scotland – is undergoing the final stages in the upgrade, which will include additional capacity provision. Focus will then be centred on a number of site-specific improvements for completion during the remainder of this control period (up to 2009) and into the next (up to 2014). These schemes will enable a further improvement in performance, capacity and service, all of which will be realised during the next control period. The only constraining elements remaining will be the two-track mixed-traffic railway north of Preston, the low speed on the through lines at Crewe and the junction layouts north and south of Stafford. Options to improve the restrictions at the last two of these locations are being developed as part of schemes that will be delivered during the next control period.

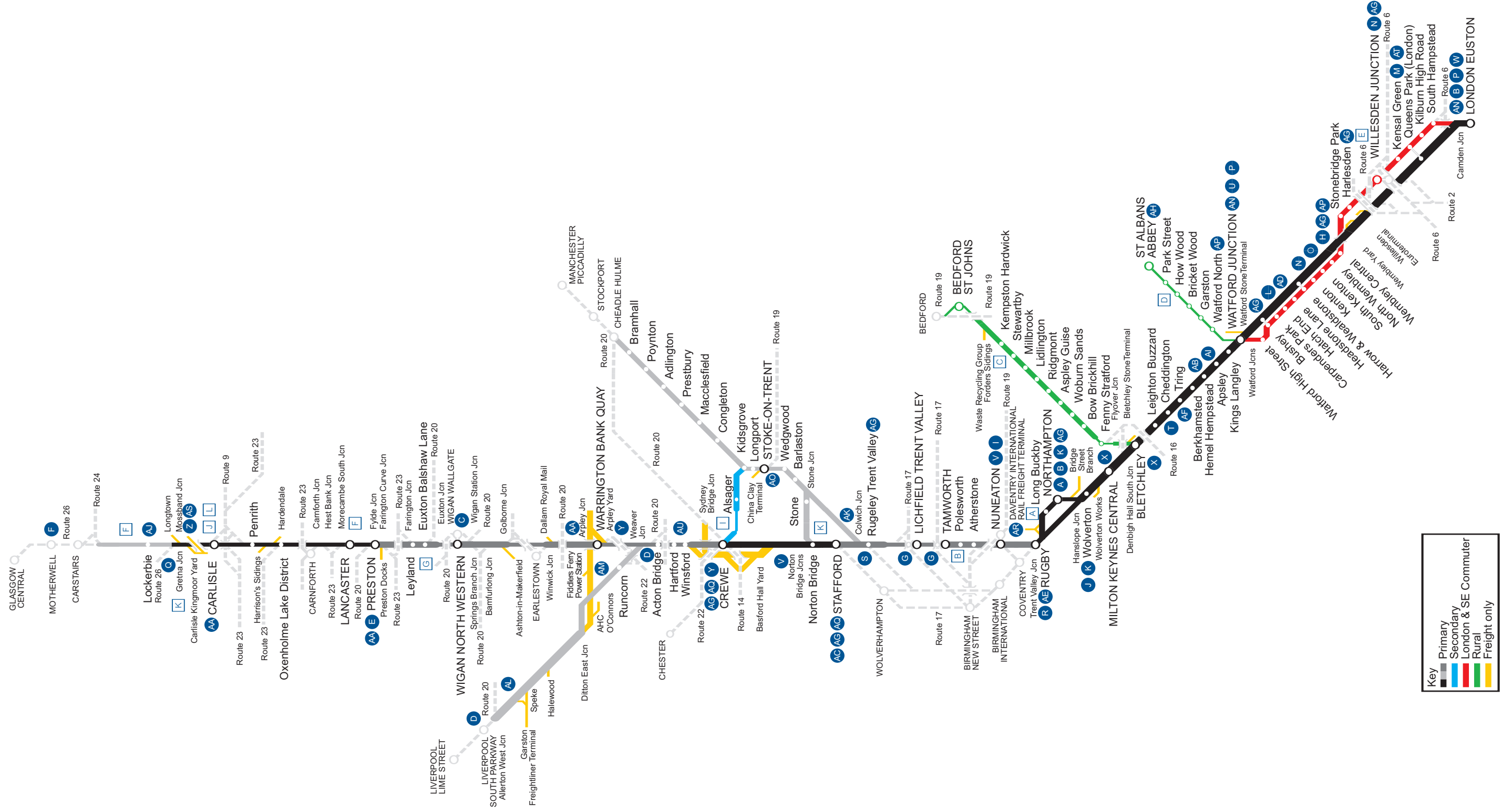
Train service improvements, involving additional services with reduced journey times, were gradually introduced in September 2004 and then in June and December 2005, taking advantage of the upgraded infrastructure. This has already delivered significant journey time improvements London – Manchester and London – Glasgow. WCRM has transformed the reliability of the WCML and performance consistently exceeds the interim target of 88% PPM for Virgin West Coast and 90% PPM for Silverlink's interurban services.

Today's route

The principal elements of the route are described below with the relevant Strategic Route Section shown in brackets:

- the WCML from London Euston to Carstairs via Trent Valley and Crewe for approximately 600km (18.01 – 18.06) with diverging routes at Rugby for Birmingham, Colwich Junction/Norton Bridge to Cheadle Hulme (Manchester) (18.08) and at Weaver Junction to Allerton (Liverpool) (18.07);
- the Camden Junction to Watford Junction DC electric lines (18.11);
- the branch from Watford Junction to St Albans Abbey (18.10) which was designated as a 'Community Rail' pilot by the SRA;
- the branch from Bletchley to Bedford (18.12); the passenger service run on this branch line has been designated as a community rail service by the DfT;
- the Kidsgrove to Crewe line (18.09); and
- various freight-only lines (18.13).

Route 18 West Coast Main Line



Key	
	Primary
	Secondary
	London & SE Commuter
	Rural
	Freight only

Passenger and freight demand

An increase in passenger journeys has been experienced on long distance intercity services operated by Virgin West Coast, with recent growth in the range of 8% to 9% p.a. Passenger demand for peak services into London at the southern end of the route has also been growing steadily. Growth in demand has in part been driven by increased employment opportunities within the central London area. Continued economic growth can be expected to generate further increases in the off-peak travel market, especially to central London where rail competes strongly with other modes.

Passenger demand on inter-urban services along the Northampton – Coventry – Birmingham New Street corridor has also been growing steadily at a yearly rate of 4.5%. This growth is being stimulated by improved service performance, timetabling, service quality and line speed improvement initiatives.

The West Midlands Route Utilisation Strategy (RUS) listed the 20 'most heavily used' stations in the RUS area which included Stafford and Tamworth. At the other end of the scale, six of the 20 'least used' stations in the West Midlands were identified on Route 18. These were Atherstone, Polesworth, Rugeley Trent Valley, Norton Bridge, Barlaston and Wedgwood. Polesworth was noted as averaging less than one passenger per train.

Current services

Route 18 is unusual in terms of the diversity of traffic types it carries. In particular it accommodates the network's long distance tilting passenger services, operating at speeds of up to 125 mph. These are operated by Virgin West Coast, the predominant operator along the route. These provide long distance intercity services between London and the West Midlands, the North West, North Wales, Glasgow and Edinburgh. The majority of the services are operated by class 390 electric tilting trains, with some services to Holyhead provided by tilting class 221 diesels. Typical weekday frequency is two trains per hour between London Euston and Birmingham; two trains per hour between London Euston and Manchester; and hourly services between London Euston and Liverpool / Preston, with a lower frequency operating further north.

Virgin Cross Country operates long distance intercity services that radiate on a clock face timetable from Birmingham New Street, linking major destinations like Manchester, Glasgow and Edinburgh across the network using the WCML as a key component in their operation.

Silverlink County operates inter-urban services along the route between London, Milton Keynes and Northampton, including the branches to St Albans Abbey and Bedford. Silverlink Metro operates services on the DC lines providing an 'all stations' service between London and Watford Junction. LUL Bakerloo line services also utilise the lines between Queens Park and Harrow & Wealdstone.

Central Trains provide inter-urban services on many other parts of the route between Northampton/West Midlands and Preston.

Further north, Arriva Trains Wales, Northern Rail and TransPennine Express operate an extensive range of rural and inter-urban services that connect various intermediate stations on the route. In many cases these services provide vital connections linking long distance main line services with numerous communities in the Midlands, North West England, Wales and Scotland.

First ScotRail operates the Caledonian Sleeper services between London Euston and Edinburgh, Glasgow, Inverness, Aberdeen and Fort William.

Southern provides a service linking Brighton and Gatwick Airport with a WCML interchange at Watford Junction.

English, Welsh and Scottish Railway (EWS), Freightliner, Freightliner Heavy Haul, GB Railfreight, Direct Rail Services and Cotswold Rail provide freight services over the route, of which some operate over almost its entire length. Freight traffic conveyed across the route is dominated by coal, aggregates, intermodal and European container traffic. A modest amount of Royal Mail traffic is moved by GB Railfreight using class 325 EMUs between Willesden, Warrington, and Shieldmuir.

Figure 1 shows the tonnage levels on the route.

Traffic volumes are summarised in Figure 2.

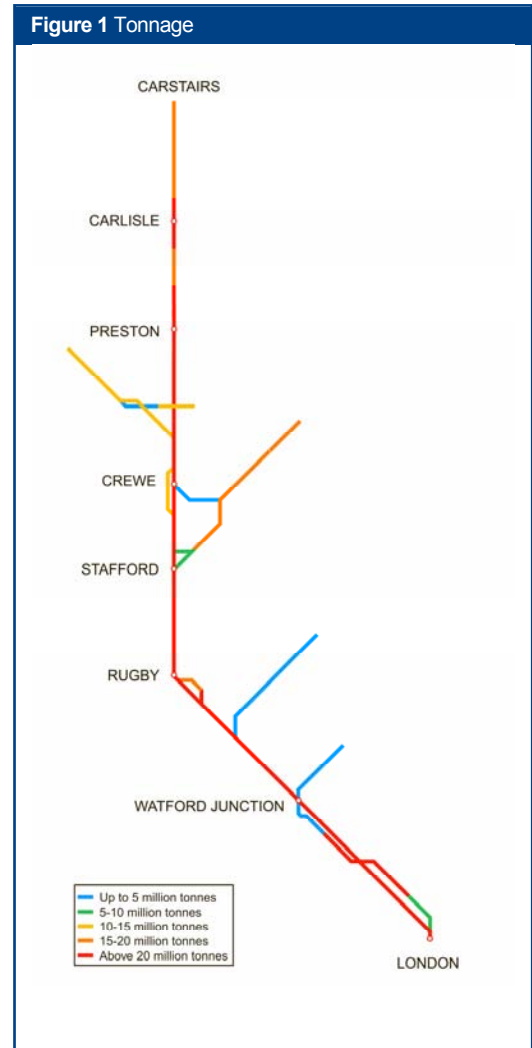


Figure 2 Current use

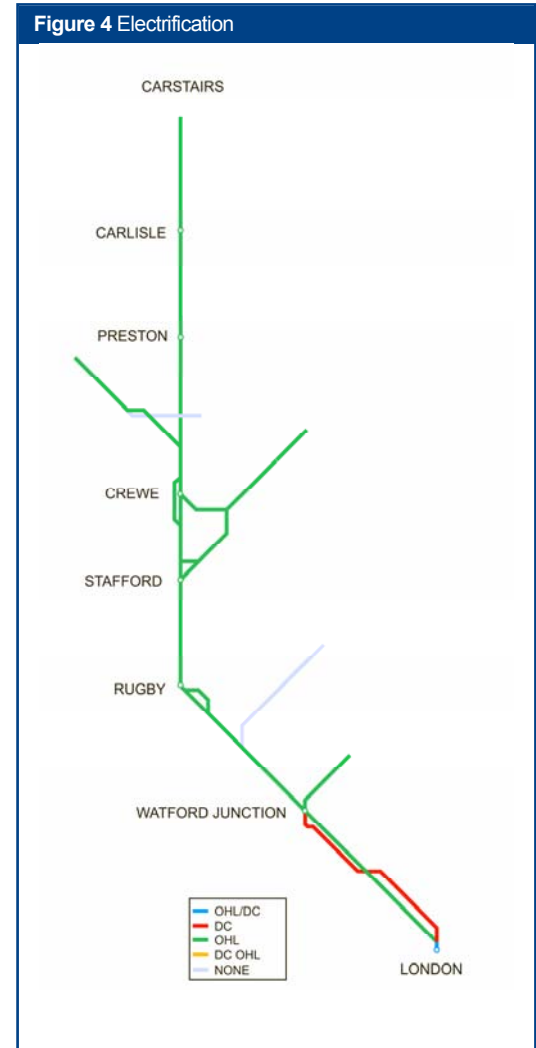
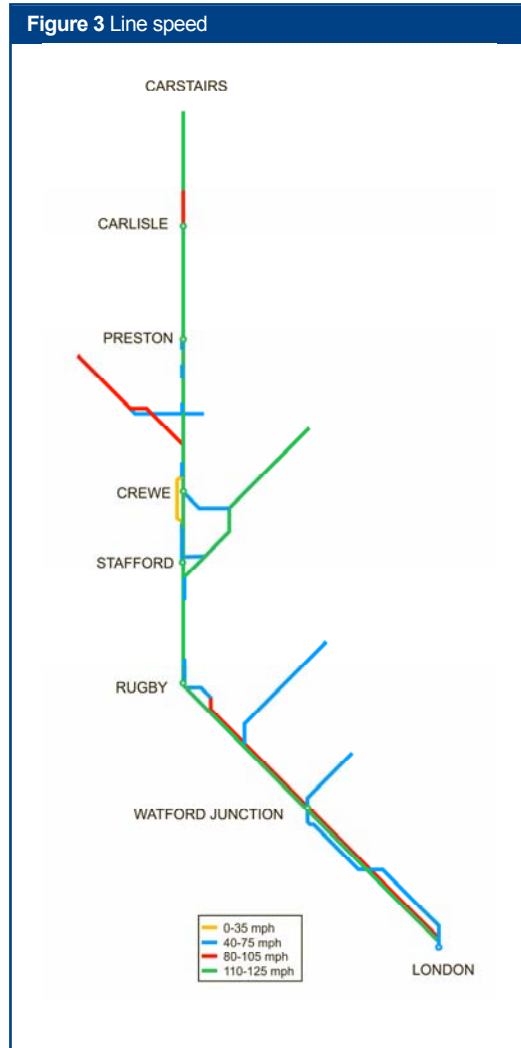
	Passenger	Freight	Total
Train km per year (millions)	38	11	49
Train tonne km per year (millions)	13,821	9,487	23,308

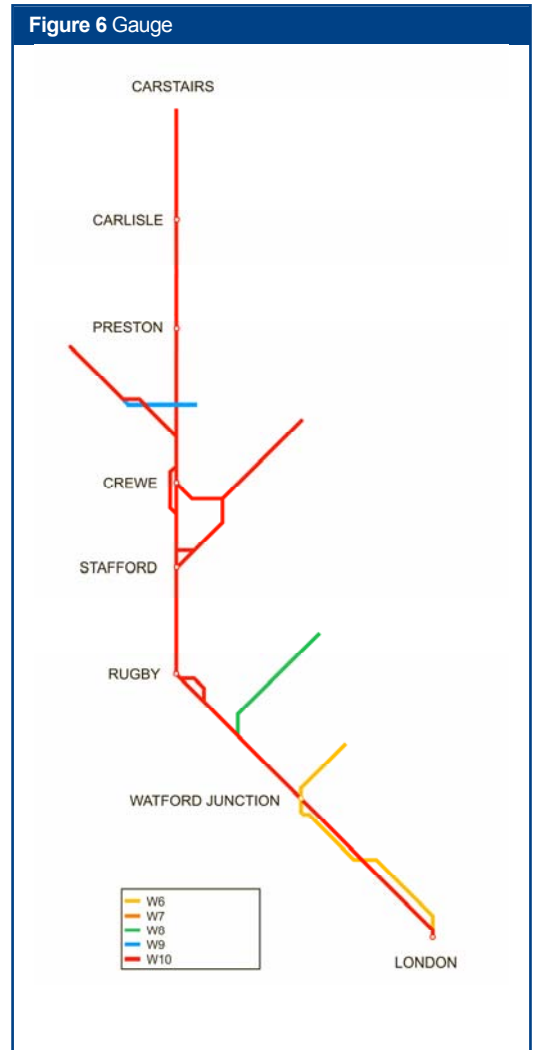
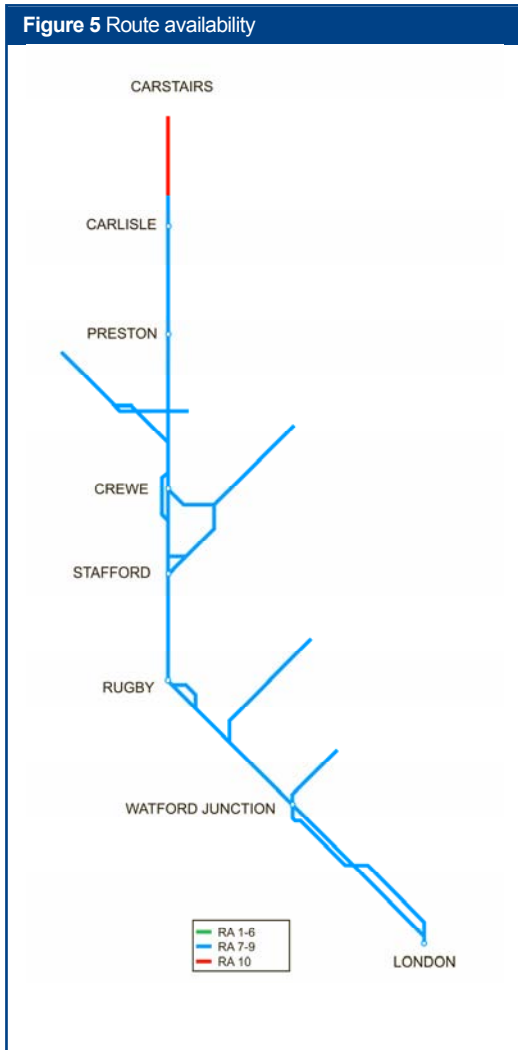
Current infrastructure capability

Route clearance of the G&SW route (Gretna – Dumfries – Kilmarnock – Glasgow) for Class 390 trains to be diesel hauled in non-tilting mode was completed earlier this year. This facilitates the diversion of Virgin West Coast services when the

WCML north of Gretna is blocked by engineering work.

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





Current capacity

Timetable changes that occurred between September 2004 and December 2005 consumed much of the current daytime capacity on the route. Further capacity will be released in December 2008 upon completion of a number of major capacity enhancement schemes such as at Rugby and along the Trent Valley.

Timetabling

The complex mix of services on the WCML represents a major challenge. For example, it is recognised that the use of more electric locomotives (class 92) to haul coal trains along double track sections north of Preston may create more capacity, especially when timetabled amongst long-distance passenger services operating at speeds of 100mph and above. At the southern end of the WCML where four or more tracks are available, the question of fast and slow traffic mix is less acute. Further capacity could be realised by utilising allocated paths that are not used on a daily basis.

Junction configurations and track layouts at Crewe are sub-optimal, placing operational limitations on manoeuvres whilst limiting through line speed (for example Manchester - Cardiff services traverse the entire junction throat).

The section of line between Watford Junction and St Albans Abbey is currently capacity constrained as it is a single track.

Station capacity

The majority of the stations between London Euston and Bletchley have received platform extensions enabling peak Silverlink services that are 12 vehicles in length to call. However, the up slow line platform at Bletchley will not be lengthened until completion of remodelling/ re-signalling in 2009/10.

Current rolling stock

The new fleet of Class 350 trains introduced by Silverlink and Central Trains over the past year has proven to be critical in delivering improved passenger standards and expectations. Delivery of the class 350 trains has enabled train operators to

provide additional capacity on the Euston to Northampton corridor, facilitating the increased number of 8 and 12-car formations. Furthermore, the new rolling stock has led to improved acceleration in services and enabled key services within and from the West Midlands to Liverpool and Preston to be strengthened.

TransPennine Express has recently taken delivery of its new 2- and 3-car, class 185 diesel fleet. The additional rolling stock has supplemented its existing fleet thus providing increases in passenger capacity, improvements in performance, reliability and overall passenger experience.

Current car parking

It is recognised that the limited car parking facilities at smaller stations along the WCML could be suppressing further passenger growth. There are ongoing discussions between the train operators, local authorities and Network Rail to consider how improved facilities can be accommodated and funded. In a few cases, improvements to local bus/light rail may also offer opportunities.

Figure 7 represents numbers of trains in the morning peak hour.

Current performance

Industry performance levels along the route are steadily improving, primarily driven by the introduction of new rolling stock and improved infrastructure reliability. Further improvements will be realised as planned renewals and enhancements are completed. The agreed annual delay minutes target – Network Rail on Virgin West Coast – for 2006/07 is set at 486,000 compared to 550,000 minutes in 2005/06.

Performance can be expected to be adversely impacted during the final WCRM projects at Rugby, Milton Keynes, Colwich, Nuneaton and Trent Valley 4-tracking. We are working with operators and stakeholders to minimise this impact as much as possible and we will continue with our on-going commitments arising from joint industry working groups to deliver year on year performance improvements.

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

Route Section	Fast Lines	Slow Lines	DC Lines
Euston – Watford Junction	11	9	13
Milton Keynes – Rugby (south of Hanslope Junction)	11	6	n/a
Rugby – Stafford (south of Colwich Junction)	9	n/a	n/a
Stafford – Crewe (south of Norton Bridge)	7	3	n/a

Figure 8 Current PPM MAA (2006/07)

TOC	MMA	As at period
Arriva Trains Wales	87.2%	11
Central Trains	84.2%	11
Northern Rail	87.2%	11
Silverlink	90.9%	11
Transpennine Express	89.2%	11
Virgin Cross Country	83.7%	11
Virgin West Coast	86.4%	11

As part of this joint working, Network Rail has sought to encourage bidders for the West Midlands and Cross-Country franchises to consider participation in the Birmingham integrated control centre (ICC), which opened in Spring 2005. This centre has brought about improvements to performance and opportunities for closer working with operators. Progressive centralisation of WCML South signal operations into Rugby, and the West Midlands signalling into the West Midlands Signalling Centre (WMSC) at Saltley is expected to yield similar benefits.

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

Future requirements Strategic direction

The overall strategy for the route is as defined in the former SRA's West Coast Main Line Strategy, dated June 2003. This envisaged that by completion of the WCRM programme in December 2008, an expansion of 80% in long distance passenger paths would be achieved compared to the pre-WCRM situation, and capacity for 60-70% more freight paths and 775 metre freight trains. The strategic direction of the WCML post-2008 will be addressed by the WCML RUS. This will include an assessment of opportunities presented by resignalling, notably at Crewe and Stafford, and life-extension works at a number of other signal boxes further north. It will also consider the aspirations of Scottish Ministers for improved cross-border connectivity, including destinations other than London. Work on this RUS is expected to commence in late 2007.

Future demand

It is recognised that growth in passenger usage may be considerably more on the major long-distance flows than envisaged in the SRA document, as a result of the WCRM improvements. Virgin West Coast is already experiencing growth in the region of 8-9% p.a. and they anticipate 100% growth by the end of their franchise. Much of this growth is a result of new trains and faster journey times that are proving to be a more powerful stimulus to travel than might have been anticipated.

Journey time and service frequency improvements within the December 2008 timetable may accelerate growth further.

Based on industry assumptions and the recent evidence outlined above, it is probable that passenger growth can be handled for the next few years by means of increased train lengths and increasingly advanced methods of yield/demand management. However, there is a real possibility that in 10-20 years time, even with these measures, parts of the WCML will reach a point where saturation is reached at peak periods once all practical options on longer trains have been taken up. This is a key challenge that will be investigated in the WCML RUS.

Additional growth may be experienced on completion of the proposed housing development announced in 2003 by the Office of the Deputy Prime Minister around Milton Keynes and Northampton.

Pricing is one option to manage demand, but it would be unrealistic not to recognise the wider societal impacts/costs this would have in terms of road usage and congestion. Other longer term options that the RUS will need to consider are: ERTMS; higher line speeds at key locations; and additional infrastructure at emerging pinch-points. The broader issue of whether there is merit in considering a completely new railway, which could be unconstrained by historic limitations, needs to be addressed.

There is a growing demand for freight traffic throughout the route, including potential high speed parcels and logistics services. Present predictions demonstrate a continuing upward trend in the demand for freight paths. Network Rail has agreed a growth line for freight to be assumed for December 2008 to 2016 as part of the Freight RUS.

Figure 9 indicates the forecast percentage changes in tonnage to 2016.

Future services

The timetable recast in December 2008 is expected to release further capability and capacity, including improved journey times and increases service frequency levels. These key improvements are as follows:

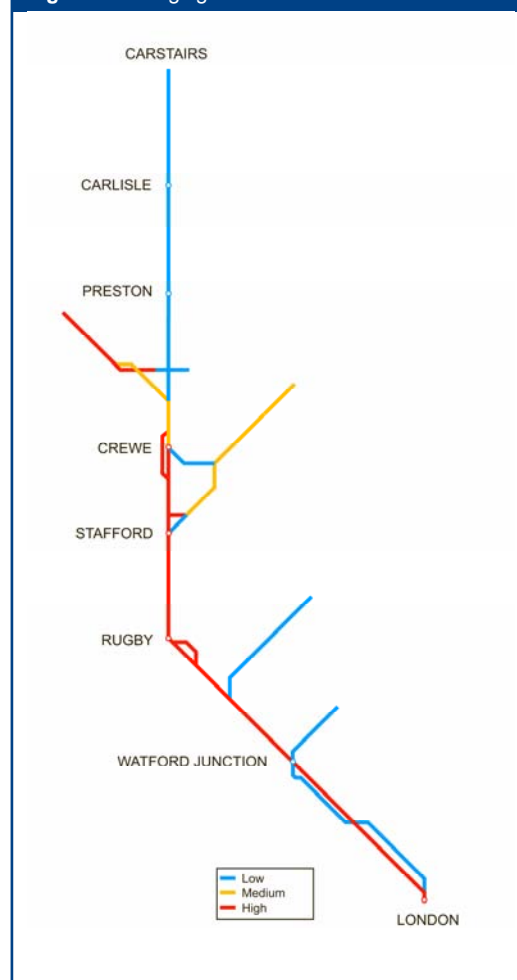
- frequency improved to 3 tph between London to both Birmingham and Manchester Piccadilly;
- improved journey times between London Euston to Liverpool, Lancashire, Cumbria and Scotland;
- a new hourly service between London Euston and Chester, with certain services extended through to North Wales, and
- a new hourly service between London Euston and Crewe, calling at Northampton, Trent Valley stations and Stoke-on-Trent.

If the growth trend continues, it would be realistic to expect further increases in service frequency and train length on both intercity and inter-urban services. Typical weekday frequency on intercity services could increase to four trains per hour between London Euston and Birmingham; four trains per hour between London Euston and Manchester; and two services between London Euston and Liverpool / Scotland.

As part of the overall acceleration in intercity services, it is likely that some station calls on the southern end of the route may be substituted by longer inter-urban services.

There is a long-term aspiration by Local Authorities and other bodies to reopen an East-West route linking Oxford, Bletchley, Bedford and Cambridge. This is being driven by the desire to serve growth areas and connect Oxford and Milton Keynes. Significant upgrading would be necessary for a large portion of the route. The key service that this would introduce would be an Oxford – Bletchley – Milton Keynes service. However, operation eastwards from Bedford to Cambridge looks far more challenging with the need to construct new sections of railway and to cross the intensively utilised ECML. It is expected that any reinstated route could also offer useful opportunities for freight, particularly if the line is cleared for W10 gauge or greater.

Figure 9 Tonnage growth



As part of a Community Rail development pilot, we are working with partners to review the costs and feasibility for the installation of a passing loop at Bricket Wood on the Watford Junction to St Albans Abbey line. This would permit a 30 minute service frequency. This project is being used to examine standards and cost-effective delivery methods that are appropriate for a community rail line.

Figure 10 Potential capability changes

Route section or location	Capability measure	Current value	Future value	Date
Alsager – Crewe	Number of tracks	Single Track	Double	2012
Colwich – Norton Bridge	Capacity	Poor alignment	Modify alignment	2012

Figure 11 Planned capacity and capability changes

Route section or location	Capability measure	Current value	Future value	Year
Bletchley	Up Slow platform length	8 car	12 car	2009/10
Rugby	Additional platforms	2 through 3 bays	5 through, 2 bays	2008
Milton Keynes Central	Additional platforms	4 through 1 bay	6 through	Target 2008
Trent Valley	Capacity	2 tracks	4 tracks	2008
Tamworth – Armitage				

Future capability

Figures 10 and 11 show potential and planned capability changes on this route.

If expansion in the London commuter market continues, the present 3-car operation of the London Euston to Watford Junction DC services may be insufficient to handle the demand. This will drive the requirement for infrastructure enhancements to support longer services. However, under the Department for Transport's re-franchising programme, current Silverlink Metro (DC) services will transfer to Transport for London (TfL), to become part of the wider LUL network from November 2007. This should encourage further capacity enhancement opportunities, with possibilities of investing in new rolling stock and increased service frequencies.

The proposal to extend the class 390s in length to 11 vehicles with consequent platform extensions is currently under review. Subject to approval, delivery of the first two vehicles is expected in December 2008. In the short-term it is believed such train lengthening will absorb the immediate increase in demand before further increases in service frequency is required.

The population is steadily growing around Milton Keynes and Northampton, and this is set to continue. As a result, the capacity at Milton Keynes Central is likely to become insufficient in the medium term. This will be addressed by the proposed track remodelling targeted for completion in December 2008, which is planned to provide an additional platform face and turnback facilities on the down fast line; convert the up slow bay platform into a through line; provide turnback facilities on the existing up slow platform; and provide a new 4-car south-facing bay.

Further works continue at Nuneaton (Phase 2 project) to carry out track and signalling remodelling in order improve functionality and flexibility.

In the short term, significant growth is expected on services to Wembley Central when the stadium is completed. We have been working with the local authority to provide improved passenger handling capability at the station, and are developing a scheme to lengthen platforms to allow additional trains to stop there when there are events on.

Aspirations have been expressed by Virgin West Coast, to operate intercity services at 135mph across key sections of the route in the future. There is potential for further line speed improvements on the slow lines north of Stafford and between Hanslope and Northampton.

Additional aspirations have been expressed by the Freight companies to gauge clear the route to W12, combined with longer loop lengths to cater for longer trains.

As part of the 2008 timetable development, a review of the allowances (engineering and performance) and overall route management is being undertaken to optimise the delivery of sustainable journey time savings, whilst ensuring ongoing sustainable route maintenance.

Work continues on the linespeed enhancements between Weaver Junction and Liverpool and north of Preston to allow for higher speed trains and 125mph running. The associated power supply scheme to support this upgrade continues in parallel.

As part of the DfT's 'Railways for All' strategy to expand the accessibility of the railway network, funding has been made available to develop a new accessible footbridge at Lockerbie station.

Fragile routes

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

As part of the Freight RUS, the rail freight industry provided Network Rail with a 10 year traffic forecast that outlined projected demand across fragile routes. The study identified the Crewe Independent lines as having growth of at least 1 million gross tonnes per year by 2014/15. The study also identified the following routes where further significant increases in freight tonnage/numbers are expected: Ditton to Garston and Kingmoor – Mossband Junction.

Future capacity

Figure 12 shows a planned headway change that potentially increases capacity.

The WCRM infrastructure work, along with the fleets of new trains, has provided significantly enhanced capacity on this route. By December 2008, there will be additional improvements at Rugby, Milton Keynes, along the Trent Valley and between Crewe and Weaver Junction. The following year, Bletchley remodelling will commence with final completion planned for 2010. The outputs of the Bletchley remodelling scheme will facilitate higher linespeeds on the main lines, provision of a freight looping facility suitable for 775m freight services and permit extension of the Bedford to Bletchley services through to Milton Keynes, as previously mentioned. The most restrictive sections left will then be north of Preston and through Stafford and Crewe.

As part of a wider commercial property redevelopment scheme, a new transport interchange facility is being developed at Watford. This will provide a new station building with improved station facilities.

Capacity limitations of the present layout at Stafford will present a performance liability and a cap on future traffic growth. Discussions with the DfT are ongoing concerning a range of options for improvement in the next Control Period. We are currently in discussions with stakeholders to examine and develop various options at Crewe that are more viable and cost efficient. These include rationalisation and remodelling of the layout and surrounding area. The possible reinstatement of double track between Alsager and Crewe has also been identified as an aspiration and may be of particular value when Stafford and/or Crewe re-signalling/remodelling take place. In the longer term, there are signalling renewals due at boxes further north. These will present opportunities to provide additional capacity.

We are working closely with the Freight and passenger operators to encourage future development of timetables and resource plans that are more robust in terms of recovery from incidents. The migration of the timetable in 2004 to one based on repeated pattern standard paths was an important milestone, but until completion of the capacity schemes in 2008/09 it consumes most available daytime capacity on the route. Even from December 2008, the enhanced passenger and freight services will leave very limited spare capacity. The improved frequency of inter-urban services between London and the intermediate stations along the Trent Valley corridor (hourly) is due to commence in December 2008. Continuous improvement to asset reliability and robust timetable design will be key areas of focus for the future. In the meantime, there is an unavoidable ongoing short-term performance risk as fast and slow traffic must continue to share tracks and potentially cause congestion at junctions. Timetable development work undertaken as part of the West Coast Route Modernisation identified a capacity bottleneck for northbound services between Winsford and Weaver Junction. This is a predominantly 2-track section that is heavily used by freight and passenger services. The solution developed was to create an additional Down Slow line between Hartford and Acton Bridge, re-using a disused trackbed at this location. This will be commissioned during 2008, and will create valuable additional capacity on this section of route.

Figure 12 Planned headway changes

Route section	ROTP planning headway	Future headway
Colwich Junction to Stone	3 minutes	5 minutes
		(former headway not attainable)

Figure 13 Forecast reduction in delay minutes

Year	2007/08	2008/09
% reduction in daily minutes	10%	12%

Figure 14 Forecast PPM MAA

TOC	2007/08	2008/09
Arriva Trains Wales	87.9%	88.5%
Central Trains	85.7%	
Northern Rail	88.4%	90.0%
Silverlink	91.0%	
Transpennine Express	90.9%	91.5%
Virgin Cross Country	85.1%	
Virgin West Coast	87.7%	87.6%

Station capacity

We are working with local authorities and industry partners to provide improved station facilities and capacity at Watford, Bletchley, Milton Keynes, Crewe, and Wembley Central. A number of these are being taken forward as 'Gateway' schemes, to improve interchange opportunities with other modes of transport. Car parking facilities are also being improved at these stations, along with Tring, Euston, and Rugby, some of which are part of the West Coast car park expansion programme.

It is proposed to improve capacity at Northampton station by lengthening the bay platform (number 4), in order to accommodate the operation of eight car Class 350's. This is required before the introduction of the December 2008 timetable.

Future performance

Figure 13 shows the forecast reduction in Network Rail delay minutes compared with 2006/07.

Figure 14 shows the forecast PPM for the main TOCs running along the route.

In July 2007 the DfT will announce the successful bidders to operate the West Midlands and Cross Country franchises. These new franchises will commence in November 2007. Joint PPM targets for these new franchises are still being determined.

The Northampton Phase 2 project will help to improve performance on this route by transferring signalling control to a new signalling centre, at Rugby.

Action plans are in place to improve the reliability of axle counters, along with trial initiatives to reduce the impact of routine track patrolling under 'T2' rules, involving the use of Lookout Operated

Warning System (LOWS) and physical TSRs.

It is expected that more routine daylight monitoring of track assets will be provided by remote measurement technology such as the New Measurement Train, reducing the need for maintainer access to the track during daylight hours.

Although asset performance and incident recovery continue to improve, future challenges lie ahead to minimise external events such as vandal and weather related incidents (e.g. stressing to reduce heat speeds and installation of palisade fencing).

Engineering access

General arrangements

Our general policy is to maintain two-track access between Camden and Hanslope to allow work to be carried out on the other two tracks at times of least traffic, and between Hanslope and Rugby to utilise the alternative routes as between the main line and the Northampton loop.

Beyond Rugby, access can be maintained as far as possible using diversionary routes via the Trent Valley, West Midlands or via Colwich on to Stoke-on-Trent. However, the Nuneaton phase 2 remodelling and the Trent Valley four-tracking will continue simultaneously, entailing critical capacity constraints through the Midlands at times in 2007/08 and 2008/09.

We continue to co-ordinate work on the WCML with that on the ECML, so that as far as possible a through electrified route is always available between England and Scotland.

Current strategy

Where new and additional tracks are being installed, the opportunity is taken wherever possible to provide improved spacing (minimum of 6ft) between tracks to allow typically two tracks to be taken out of use for maintenance whilst operations continue unimpeded on the other two. This has not been traditionally the case on multi-track sections, resulting in work on one middle track causing those on each side to be put out of use whilst work was carried out. Similarly, increased use of bi-directional signalling improves the ability to take individual tracks out of use whilst normal operations continue on adjacent lines. In designing renewed assets, we aim to include features which will reduce the need for service disruption by maintenance activities. For example, the use of heavier UIC60 rail will provide a track section more resilient to increased loading therefore, increasing the periodicity of the maintenance and renewal cycles.

Major possessions

During 2007 the Rugby Remodelling Project – which improves the through line speed and reduces junction conflicts routes at Rugby – will cause significant disruption to the West Coast Route at several Bank Holidays during the year, with the West Coast Main Line closed completely at this location. During these closures, train services will be heavily revised, with road replacement services being used. The reconstruction of the southern flyover at Rugby between May and September 2007 will reduce available track capacity through Rugby, causing some service revisions. For the remainder of the year the remodelling work will limit available routes through Rugby at weekends, and the timetable has been prepared taking this into account.

Preliminary works for the re-modelling at Bletchley will commence during 2007 but without major impact on the timetable. The works at Rugby will be the dominant issue in this area and advantage will be taken of opportunities afforded by closures at Rugby to undertake works at Bletchley. This will become more apparent in 2008. Some disruption will continue throughout 2009 for full completion of the Bletchley remodelling works.

Milton Keynes remodelling project to enhance the available track facilities at Milton Keynes Central will start in earnest during 2007. Most of this year's works are confined to weekends as above, but with some significantly disruptive works being coordinated with the Bank Holiday works at Rugby.

The Crewe to Weaver Junction remodelling project to enhance the line speed and track capacity is also expected to progress towards completion during 2007 and 2008. Most of the works for this project will be carried out in non-disruptive times at weekends, but major works will be carried out at weekends between late September and early December in both years, which will result in train services being diverted either via Chester or via Manchester

Further north – particularly north of Preston – the problem of engineering access is acute because there is no diversionary route that does not import heavy time penalties. First ScotRail sleeper services and time-critical freight services are effectively the only traffic operating on the West Coast route on a Sunday night/Monday morning and as such this does offer some potential opportunities for maintenance and renewals to be carried out. In general, maintenance access in this area will be limited to Sunday and an occasional extended block on Sunday nights.

After completion of the West Coast Route Modernisation programme, significant engineering access will still be required to maintain and renew the network. In particular, parts of the route will not have been renewed and this will be done as part of our normal business. We will, however, seek to do this in a way which balances the need to improve efficiency with the need to avoid unnecessary disruption. However, it is anticipated that freight traffic could be largely segregated from the high speed passenger tracks, thus reducing the level of maintenance on the fast lines which have traditionally been required to accommodate a mixture of heavy tonnages and high speeds.

Future strategy

Reviews continue via regular industry workshops, with all stakeholders looking again at the balance between weekday night and weekend maintenance/renewal activities, and also investigating the scope for imaginative use of new technology. The overall aim is to achieve the optimal balance between passenger and freight train operator value and engineering costs.

Infrastructure that provides for the operation of tilting trains in excess of speeds of 110 mph needs a higher level of maintenance, as a more precise fixed track alignment for ride quality is required whilst extending track life and maintaining clearances. We are currently working with industry partners to develop new maintenance techniques to maintain absolute track geometry in a way that

reduces the level of intrusion by day-to-day maintenance activity. One approach under review is the use of the highly accurate EMSAT track monitoring equipment.

A further review assessing the feasibility of electrifying the route between Nuneaton and Proof House Junction is being undertaken. Currently, Virgin West Coast have to diesel haul class 390s during blockades on the Coventry corridor, thus increasing the overall journey time on London – West Midlands services by approximately 45 minutes.

Further consideration is also being given to redoubling 5km of single track between Kidsgrove and Crewe, ideally before work commences on the re-signalling/remodelling at Stafford and Crewe, early in Control Period 4.

Opportunities and challenges

If the forecast growth trends post December 2008 timetable change materialise, then accommodating further growth in the peak period on both inter-urban and intercity services will become increasingly challenging. Furthermore, population growth is expected in the Milton Keynes/Northamptonshire area (15,000 more homes in Milton Keynes alone by 2016) alongside considerable expansion in London area commuting. A project to lengthen platforms at key stations across the route is underway in preparation for the 11-car class 390s. In the longer term, as maintenance technology develops, further opportunities exist towards providing a 7 day timetable.

Further challenges exist in gauge clearing key sections of the route including diversionary routes, for example routes between Neasden and Aynho on Route 16 and the Settle and Carlisle line on Route 23. Combined with these challenges are the enhancements to lengthen and relocate loops to cater for the additional length of freight services.

The WCRM project, when complete, will have delivered substantial benefits in line with the Strategic Rail Authority's West Coast Main Line Strategy, published in June 2003. As this strategy only covered up until 2008, it will be for the WCML RUS which is scheduled to commence in late 2007, to tackle the issues around demand and other 'RUS gaps' and articulate a strategy for the next 10 years and beyond.

Delivering future requirements

Summary

The main focus for the WCRM programme is the delivery of a series of major capacity-related schemes in time for the December 2008 timetable change. These are:

- Nuneaton Phase 2 Remodelling;
- Northampton Phase 2;
- Crewe to Weaver Junction Remodelling;
- Rugby station Remodelling;
- Trent Valley Four-Tracking;
- auto Transformer and Power Supply Upgrade; and
- Milton Keynes Remodelling

The end result will be the creation of 80 % more long distance passenger paths and 60-70 % more trunk freight paths as compared with the pre-WCRM position, as specified in the former SRA's WCML Strategy. For the December 2008 timetable the fastest journey time London to Glasgow is planned to be 4hr 10min as compared with 4hr 25 min today (or 5hr 6min before September 2004), and a further challenge is to reduce this journey time to under 4 hours.

After 2008, the focus will shift to providing additional capacity by providing longer trains and related platforms. Development work will continue on major capacity enhancement schemes around Stafford and Crewe, taking advantage of the requirement for resignalling in those areas. Work will also continue to identify opportunities for smaller enhancements such as linespeed increases and operational improvements.

In the longer term, the RUS will identify future gaps between supply and demand, and will make recommendations to reduce those gaps.

Expenditure

Figure 15 shows the planned level of expenditure on renewals on this route over the next two 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 15 Forecast expenditure

£m (2006/07 prices)	2007/08	2008/09
Renewals		
Track		
Plain line	41	46
Switches and crossings	15	33
Track total	56	79
Civils		
Underbridges	5	2
Overbridges	0	1
Bridgeguard 3	0	–
Footbridges	0	1
Earthworks	6	4
Tunnels	0	1
Retaining walls	0	0
Major structures	0	1
Civils total	12	9
Signalling		
Resignalling	0	2
Minor works/other	4	8
Over-planning	(0)	–
Signalling total	4	10
Electrification		
AC systems		
HV switchgear	0	1
HV cables	0	0
Grid supply points	0	2
OLE re-wiring	–	0
OLE spanwires	0	1
OLE campaign change/refurbishment	1	1
OLE structures	0	0
Other	3	1
DC systems		
HV cables	0	0
Transformers/rectifiers	1	–
Conductor rail	1	0
Other	0	0
Electrification total	6	6
Telecoms		
Customer information systems (CIS)	1	2
Long line public address (LLPA)	1	0
Other	1	1
Telecoms total	2	3

Operational property		
Stations		
Managed	–	2
Franchised	7	9
Depots		
Light maintenance	–	2
Lineside buildings	0	–
Operational property total	7	13
Plant and machinery		
Fixed plant		
Point heating	0	1
Signal supply points	0	0
Other	3	1
Plant and machinery total	4	2
IT and other expenditure		
Other	0	0
Total	0	0
Total Renewals	91	123
Enhancements (funded by)		
Network Rail		
Planned		
Trent Valley remodelling	73	3
Rugby station remodelling	38	22
Nuneaton remodelling Phase 2	17	7
Power supply to feeder stations (ESI)	11	3
Anglo-Scottish coal signalling capacity	3	3
General management	7	3
West Coast North West LSE	4	3
TOC/FOC compensation	3	2
Signallers assistant	2	1
OLE & distribution works - Phase 2	3	–
Scotland LSP works	1	–
Projects in close out - sub totals	1	–
West Coast possession management	1	0
Other	-13	0
Total	150	48
Network Rail (RAB)		
Planned		
Wembley Central platform lengthening	3	–
Potential schemes	0	1
Total	0	1

TOC/FOC-RAB		
Planned		
Virgin WCTL car park expansion project	13	49
Tring car park extension	1	0
Total	14	49
Other third party		
Planned		
Milton Keynes (ODPM via MKP)	12	12
11 car Pendolino	0	10
Bakerloo	1	9
Milton Keynes partnership	4	4
Ditton intermodal freight facility	1	5
St Albans Abbey loop	0	2
Lockerbie footbridge	1	-
Other	0	0
Total	19	41
Potential schemes	1	4
Total	20	46
Total Enhancements	184	144

Figure 16 Forecast Volumes

	2007/08	2008/09
Track		
Plain line (km)		
Rail	52	57
Sleepers	45	59
Ballast	54	75
Total	150	191
Switches & crossings (no.)		
Complete renewal	26	68
Partial renewal/reballasting	–	3
Abandonment	7	5
S&C (equivalent units)	30	71
Civils		
Underbridges (m ²)	6,048	567
Overbridges (m ²)	–	180
Bridgeguard 3 (m ²)	80	80
Footbridges (m ² decking area)	350	150
Earthworks (m ² slope surface)	20,340	21,113
Tunnels (m ²)	20	87
Retaining walls (m ²)	–	10
Major structures (m ²)	319	449
Electrification		
AC systems		
HV switchgear (cb)	2	–
HV cables (km)	–	3
Grid supply points (no.)	1	2
OLE campaign change/refurbishment (t. length)	68	90
OLE structures (no.)	5	9
DC systems		
HV cables (km)	–	5
Transformers/rectifiers (no.)	4	–
Conductor rail (km)	3	3
Telecoms		
Concentrators		
CIS (stations)	1	2
LLPA (stations)	10	7

The planned volume of renewals is detailed in figure 16. 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.

Maintenance

Figure 17 shows the planned level of expenditure on maintenance on this route over the next two years.

Figure 17 Forecast expenditure		
£m (2006/07 prices)	2007/08	2008/09
Maintenance	94	86

Infrastructure investment

Figure 18 highlights schemes that are planned for completion in the financial year shown.

Project	Project description	Output change	Main asset type(s)	Funding	GRP stage	Completion Year
A Northampton Phase 1 (18.01)	Capacity/Performance	Improves operability of station layout, and provides 775 metre freight loop	Track	Network Rail	–	Completed
A Northampton Depot (18.01)	Connection to new EMU depot	Allows opening of new Siemens EMU depot for Silverlink fleet	Track	Siemens	–	Completed
B Euston – Northampton Linespeed Enhancements (18.01)	Slow Lines speed improvement	Provides 100 mph maximum speed	Track	Network Rail	–	Completed
C Wigan Remodelling (18.04)	Layout improvement	Improved flexibility/performance by separating Liverpool line from main line	Track and signalling	Network Rail	–	Completed
– Telecoms Renewals (Various)	National project to renew Virgin retail facilities to provide additional CIS	Improved communication and station environment	Telecoms	Network Rail	7	2007
D Weaver Junction – Liverpool Linespeed Enhancements (18.07)	Speed improvement	Higher speed for trains designated HST	Track	Network Rail	6	Part-completed
E North of Preston Linespeed Enhancements (18.05)	Speed improvement	Increased 125 mph running	Track	Network Rail	6	Part-completed

Figure 18 Planned infrastructure investment

Project	Project description	Output change	Main asset type(s)	Funding	GRIP stage	Completion Year
F	Scotland Linespeed Enhancements (18.06)	Speed improvement	Track	Network Rail	6	Part-completed
G	Trent Valley Four Tracking (18.02)	Tamworth to Armitage four track project	Track and signalling	Network Rail	6	2008
	- Auto Transformer Power Supply Upgrade (18.01-09)	Line of route power supply upgrade	Electrification	Network Rail	6	2008
H	Wembley Central station and stadium access (18.01)	Stadium access and crowding controls	Stations	Network Rail	6	2007/08
	- E&P Renewals (Various)	OLE Structure painting	E&P	Network Rail	6	2007/08
I	Nuneaton Phase 2 (18.02)	Track/signalling remodelling	Signalling	Network Rail	5	2008
J	Civils Renewals (18.01)	Brickwork repairs to Wolverton Viaduct (underbridge No.178)	Structures	Network Rail	5	2007/08
K	Civils Renewals (18.01)	Rock cutting and devegetation at Roade Cutting	Structures	Network Rail	5	2007/08
L	Buildings Renewals (18.11)	Replace staircase at Hatch End station	Stations	Network Rail	5	2007/08

Figure 18 Planned infrastructure investment

Project	Project description	Output change	Main asset type(s)	Funding	GRIP stage	Completion Year
M Buildings Renewals (18.11)	Replace staircase at Kensal Green	Renewal	Stations	Network Rail	5	2007/08
N Buildings Renewals (18.11)	Replace footbridge at Kenton station	Renewal	Stations	Network Rail	5	2007/08
O Buildings Renewals (18.11)	Canopy removal and renewal at North Wembley station	Renewal	Stations	Network Rail	5	2007/08
P E&P Renewals (18.11)	11kv Switchgear renewals on Euston to Watford DC lines	Renewal	E&P	Network Rail	5	2007/08
Q Gretna to Annan doubling (18.05)	Reinstatement of 8 miles of double track that was singled in 1973 between Gretna and Annan station.	Increased capacity for freight traffic and better performance and diversionary routes	Track	Network Rail	5	2007/08
R Rugby station Remodelling (18.01)	Complete renewal of station area, including additional platforms.	Creates greater capacity and improves line speeds in station area	Track and signalling	Network Rail	4	2008
S Civils Renewals	Brickwork repairs to Shugborough Viaduct (No.138)	Renewal	Structures	Network Rail	4	2007/08
T Buildings Renewals (18.01)	Renewal of up slow platform at Cheddington	Renewal	Stations	Network Rail	4	2007/08

Figure 18 Planned infrastructure investment

Project	Project description	Output change	Main asset type(s)	Funding	GRIP stage	Completion Year
P E&P Renewals (18.01)	3 year conductor rail renewal programme between Euston and Watford	Renewal	E&P	Network Rail	4	2009
N E&P Renewals (18.11)	Cable route renewals between Willesden and Kenton	Renewal	E&P	Network Rail	4	2008/09
U Watford Interchange (18.01)	New access road and car parking, improved passenger facilities	Increased car parking to cater for growth	Stations	Potential LTP grant	4	2010
V Civils Renewals (Various)	Earthworks planned at Nuneaton, Eithorpe, Broom Close, Norton Bridge, Low Gill and Spon Lane	Renewal	Structures	Network Rail	3-5	2009
W Buildings Renewals (18.01)	Platform lighting, emergency lighting and fire alarm upgrade at Euston station	Renewal	Stations	Network Rail	3-5	2008/09
ALU Hartford loop (18.04)	New freight loop	Increased capacity	Track and signalling	Network Rail	4	2008

Figure 18 Planned infrastructure investment

Project	Project description	Output change	Main asset type(s)	Funding	GRIP stage	Completion Year
X Bletchley Milton Keynes (18.01)	Renew life expired track, switches and crossings, and signalling equipment in the Bletchley Power Signal Box control area. It will also provide transfer of signalling control to the Rugby Signal Control Centre; a simplified layout with 12-car platform extensions and 125mph on the up-fast at Bletchley. At Milton Keynes additional capacity will be provided with a new down fast platform, and fast and slow line centre turn backs.	Additional capacity on the line, including a new fast reversible line and a new slow reversible line through Milton Keynes Central. There will also be linespeed increases through Bletchley.	Track and signalling	Network Rail	3	2009/10
Y Crewe – Weaver Junction Remodelling (18.04)	Remodelling for improved flexibility	Improved operability and replacement of life expired assets	Track	Network Rail	3	2008
A Northampton Phase 2 (18.01)	Transfers signalling control to new Rugby signalling centre	Improves co-ordination, performance, productivity	Signalling	Network Rail	3	2008
Z Mossband Junction (18.05)	S&C renewal	S&C renewals giving improved asset reliability	Track	Network Rail	3	2007
M Kensal Green (18.11)	Renew footbridge stairways	Maintains safety and availability	Stations	Network Rail	3	2008
AA Signalling Renewals (18.04 & 18.05)	Life extension works to the interlocking at Warrington, Preston and Carlisle	Renewal	Signalling	Network Rail	3	2013/14

Figure 18 Planned infrastructure investment

Project	Project description	Output change	Main asset type(s)	Funding	GRIP stage	Completion Year
AB Buildings Renewals (18.01)	Canopy roof repair at Hemel Hempstead	Renewal	Stations	Network Rail	3	2008/09
AC Buildings Renewals (18.03)	Renewal of roof covering canopy and station buildings at Stafford	Renewal	Stations	Network Rail	3	2008/09
AA Buildings Renewals (18.04)	Renewals to platform at Warrington Bank Quay	Renewal	Stations	Network Rail	3	2008/09
AD Buildings Renewals (18.11)	Renewal at Harrow DC substation	Renewal	Stations	Network Rail	3	2007/08
AE Buildings Renewals (18.01)	Re-wiring of electrics at Rugby station building	Renewal	Stations	Network Rail	3	2007/08
AF West Coast car park expansion programme (18.01)	Car park extensions at various stations along the route	Increased car park capacity	Stations	Network Rail	3	2007/08
AG Track Renewals (Various)	S&C works planned at: 2007/08: Eden Valley, Grayrigg, Walton Old Jn, Watford South Jn and Willesden Jn 2008/09: Harlesden Jn, Crewe N Jn, Northampton, Stafford and Wembley Central junctions	Renewal	Track	Network Rail	3	2009

Figure 18 Planned infrastructure investment

Project	Project description	Output change	Main asset type(s)	Funding	GRIP stage	Completion Year
AG Track Renewals (Various)	Plain line works planned at : 2007/08: Rugeley, Lowther, Mill Meece, Wavertree and Cow Coast 2008/09: Great Bridgford, Shap Beck, Whitmore, Garstang, Doxey, Brent, Low Gill and New Lane	Renewal	Track	Network Rail	3 2	2009
AH St Albans Abbey Branch (18.10)	Introduction of a branch loop to increase services on line	Increased capacity	Track & Signalling	DfT	2	2009
AX Blechley station (18.01)	Station enhancement scheme	Improved station environment	Stations	Third Party	2	2010
– Train lengthening scheme (18.01)	Train lengthening scheme along route for Pendolino stock and related infrastructure work (11 car)	Increased capacity	Stations	TOC	2	2008
AY Crewe station Roofs (18.04)	Renewal of life expired station canopies	Improved passenger environment and better maintainability	Structures	Network Rail	2	2009
– Various locations	Bridge reconstructions	Deliver Bridgeguard 3 or to maintain safety/performance	Structures	Highway Authority (where BG3)	2	2008
AI Apsley (18.01)	Reconstruct station platforms	Maintains safety and availability	Stations	Network Rail	2	2009
AJ Lockerbie station (18.06)	New DDA footbridge	Improved station accessibility	Stations	Dumfries and Galloway	2	2007

Figure 18 Planned infrastructure investment

Project	Project description	Output change	Main asset type(s)	Funding	GRIP stage	Completion Year
P E&P Renewals (18.01)	Euston station transformers	Renewal	E&P	Network Rail	2	2008/09
Z Gretha Moss band (18.06)	Up goods loop plain line track renewal between Mossband and the former Admiralty Sidings Ground Frame, and associated signalling changes	Increased capacity and performance	Track	Network Rail	2	2008/09
A Northampton Bay Platform 4 (18.01)	Platform Lengthening (Bay platform 4) to accommodate the operation of 8 car class 350's. This is required before the introduction of the Dec 2008 Timetable.	Improve capacity	Stations	Network Rail	1	2007/08
AC Stafford Remodelling (18.03)	DFT aspirations to either create a flyover or divert fast services around Stafford via a new bypass line.	Reduction in conflicting moves at Stafford.	Track and signalling	Network Rail	1	2015
AK Colwich – Armitage (18.02)	Straighten line out enabling a higher line speed.	Increased capacity and reduced journey time between London and the North West.	Track	Network Rail	1	2012
Y Crewe remodelling / resigalling (18.03 & 18.04)	Crewe remodelling / resigalling	Increased capacity and operational flexibility	Track, signalling, stations	Network Rail	1	2013/14

Figure 18 Planned infrastructure investment

Project	Project description	Output change	Main asset type(s)	Funding	GRIP stage	Completion Year
P Euston (18.01)	Renew life-expired station electrical services	Maintains reliability and safety.	Electrical	Network Rail	1	2007
AL Civils Renewals (18.07)	Renewals to Mersey Viaduct (Underbridge No.66)	Renewal	Structures	Network Rail	1-2	2007/08
H Wembley Central platform extensions (18.01)	Slow line platform extensions - to allow 8 car services to call at Wembley during events.	Increased capacity	Stations	Potential Network Rail Discretionary Fund	1	2008/09
AE Civils Renewals (18.01)	Works planned to Rugby subway (reconstruct or strengthen)	Renewal	Earthworks	Network Rail	1	2008/09
P Telecoms Renewals (18.01)	CIS, PA and Clocks renewals at Watford station.	Renewal	Telecoms	Network Rail	1	2008/09
P Station Renewals (18.01)	Major station works at Euston to renew the PA and loud speakers for safety purposes.	Renewal	Telecoms	Network Rail	1	2008/09
X Telecoms Renewals (18.01)	Renewal of CIS, PA and clocks at Milton Keynes	Renewal	Telecoms	Network Rail	1	2008/09
J Wolverton station (18.01)	New station building	Provides new ticket office and waiting area	Stations	ODPM grant	1	2011

Figure 18 Planned infrastructure investment

Project	Project description	Output change	Main asset type(s)	Funding	GRIP stage	Completion Year
AM Civils Renewals (18.07)	Strengthen Runcorn viaduct to achieve RA10 @ 65 mph and RA4 @ 85mph	Renewal	Earthworks	Network Rail	1	2009/2010
Y Remodelling/Resignalling (18.03)	Crewe station and yards area	Improve capacity/performance and centralise control	Track and signalling	Network Rail	1	2013/14
Y Crewe Gateway (18.04)	New car park and enhanced station facilities	Increased car parking to cater for growth and enhanced facilities	Stations	Network Rail	1	2012
AF Tring Station Gateway (18.01)	Station enhancement scheme including improved access and general environment	Improved station facilities	Stations	Third party	1	2009
AN Bakerloo line (18.11)	Extension of LUL services to Watford	Change of ownership of services	Track and signalling	TfL	1	2008/09
P Euston Station Masterplan (18.01)	Combined commercial development and station improvements at London Euston	Improve passenger capacity, environment and access	Track and signalling	Property Development	1	2015

Figure 19 highlights other schemes under consideration.

Figure 19 Infrastructure investment under consideration						
Project	Project description	Output change	Main asset type(s)	Funding	GRIP stage / status	
AC	Stoke-on-Trent to Etruria enhancement (18.08)	Reduce journey time London – Manchester	Track	Network Rail	0	
AP	Wembley – Watford	Improve asset reliability and centralise control	Signalling	Network Rail	0	
AE	Provision of new freight loop (18.01) Rugby	Freight capacity	Track / signalling	Network Rail	Business case under review	
AC	Linespeed increase between Stafford and Crewe enhancement (18.03)	Reduced journey time	Track / signalling	Network Rail	0	
	– E&P Renewals (Various)	Renewal	E&P	Network Rail	0	
AR	Renewal of tunnel lighting at Kilsby	Renewal	E&P	Network Rail	0	
P	Conductor rail renewal between Euston and Watford	Renewal	E&P	Network Rail	0	
AN	Reglaze canopies at Watford Jn station	Renewal	Station	Network Rail	0	
A	Accommodation renewal at Northampton Bridge Street maintenance depot	Renewal	Depot	Network Rail	0	

Figure 19 Infrastructure investment under consideration

Project	Project description	Output change	Main asset type(s)	Funding	GRIP stage / status
AS Anglo Scottish Coal – reinstatement Carlisle avoiding lines (18.05)	Reintroduce a facility to route NW/SE coal traffic around Carlisle station, avoiding a conflict with WCML. This facility was lost in 1985	Increased capacity and performance	Track, structures and signalling	Network Rail	0
AT Signalling Renewals (18.01)	Willesden shed signal box life extension works	Renewal	Signalling	Network Rail	0
AG Signalling Renewals (18.03)	Signalling renewals at Stafford Signal Boxes 4 and 5	Renewal	Signalling	Network Rail	0
AK Signalling Renewals (18.02)	Colwich lineside infrastructure renewals	Renewal	Signalling	Network Rail	0

Non infrastructure developments

Figure 20 shows potential developments which do not involve changes to the infrastructure

Figure 20 Timetable development

Description	Key issues	Actions or options being developed	Benefits	Start date
Franchise re-mapping and re-specification	Re-mapping of Central, Silverlink and Cross Country franchises.	We await further details of the new franchises.		December 2007 & December 2008
Euston – Rugby	West Coast Strategy incorporates increase in Euston – West Midlands and Manchester services on route with an already high capacity utilisation	20 minute all day frequency Birmingham and Manchester – Euston	Increased inter-city service Euston – West Midlands and North West;	December 2008
Euston – Chester/North Wales	Expansion of frequency of through services	Potential being evaluated	Improved inter city service for Chester and North Wales coast	December 2008

Figure 21 Other projects

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

Appendix

Figure 22 Strategic route sections

SRS	SRS Name	ELR	Classification	Funding	Community Rail	Freight Gauge	RA	Speed	Electrification	Signalling Type	Signalling Headway	No of Tracks
18.01	Euston – Rugby	LEC1,	Primary	DfT	No	W9 & W10	8	125 EPS (75 to 120)	25 kv (both)	TCB	3 (4)	4
18.02	Trent Valley	LEC2	Primary	DfT	No	W9 & W10	8	125 EPS (75 to 120)	25 kv	TCB	3 (5)	2 (4)
18.03	Stafford – Crewe	LEC3, LEC4, LEC5	Primary	DfT	No	W9 & W10	8	125 EPS (75 to 110)	25 kv	TCB	3 (5)	4
18.04	Crewe – Preston	CGJ1, CGJ2, CGJ3, CGJ4, CGJ5, CHW1, CHW2, WOA	Primary	DfT	No	W9 & W10	8	125 EPS (75 to 110)	25 kv	TCB	4	2 (4)
18.05	Preston – Border (nr Gretna Junction)	CGJ6, CGJ7, WCM1	Primary	DfT	No	W9 & W10 (W9)	8	125 EPS (75 to 120)	25 kv	TCB	4	2
18.06	Border (nr Gretna Junction) – Carstairs	WCM1	Primary	Transport Scotland	No	W9 & W10	10	125 EPS (100 to 120)	25 kv	TCB	4	2
18.07	Weaver Junction – Allerton	WJL1, WJL2, WJL3	Primary	DfT	No	W9 & W10	8	90 (75 to 80)	25 kv	TCB	3	2 (4)
18.08	Norton Bridge and Colwich Junction – Cheadle Hume	1, CMD2, MCH, NBS	Primary	DfT	No	W12	8	125 EPS (75 to 110)	25 kv	TCB	3 (5)	2
18.09	Crewe – Kidsgrove	KCS1	Secondary	DfT	No	W9 & W10	8	70 (60)	25 kv	TCB OTW	6	1 (2)

Figure 22 Strategic route sections

SRS	SRS Name	ELR	Classification	Funding	Community Rail	Freight Gauge	RA	Speed	Electrification	Signalling Type	Signalling Headway	No of Tracks
18.10	Watford Junction – St Albans Abbey	WSA	Rural	DfT	Yes	W6	7	50 (20)	25 kv	OTW	37	1
18.11	Euston – Watford Junction (DC Lines)	LEC1, CWJ, HNR	London & SE	DfT	No	W6	8	45 (15 to 40)	750 dc (both)	TCB	4 (6) (3)	2
18.12	Bletchley – Bedford	BBM	Rural	DfT	Yes	W8	8	60	none	AB	4 to 13	2
18.13	Freight Lines	SDJ2, CGJ1,	Freight	DfT	No	various	8	various	25 kv (none)	TCB AB	various	2 (1)

Capacity and operational constraints

- | | |
|---|--|
| A | Northampton – Rugby section: retention of three aspect signalling limits diversionary route capacity resulting in high performance risk when service has to be diverted via Northampton loop |
| B | Trent Valley line: restrictions due to two-track section Tamworth – Rugby (addressed in 2008 although Brinklow to Attleborough will remain a constraint) |
| C | Bletchley – Bedford: short single line sections at each end of the route |
| D | St Albans Abbey branch: single line with no signalling only allows one train at a time on the section, limiting service frequency to 45 minutes |
| E | Harrow & Wealdstone – Queens Park: volume of traffic limits capacity on DC lines due to LUL and Silverlink shared working |
| F | Preston – Carstairs: mixed traffic on two-track lines and low performance trains over steep gradients such as Shap and Beattock summits severely limits capacity |
| G | Wigan – Euxton: a mix of speed and crossing movements in this section severely limits capacity through Wigan and Euxton Junction |
| H | Winsford – Weaver Junction: high usage of available capacity between Winsford and Weaver Junction where trains diverge to Liverpool |
| I | Crewe station: large number of crossing moves north and south of Crewe station and existing signalling infrastructure limits capacity |
| J | Stafford – Norton Bridge flat crossings limit capacity and performance |
| K | Gretna Junction – Carlisle: high usage of available capacity by coal traffic |
| L | Carlisle station: capacity limited by restrictive layout |

Note

This Route Plan forms part of the business plan suite of documents which is produced annually and in accordance with our network licence condition 7. Our plans and the way in which we intend to achieve those plans are summarised in the Business Plan itself. This document provides further detail on the specific plans for this Strategic Route including the expenditure over the next two years to the end of Control Period 3.

This year our business plan focuses on the remainder of Control Period 3 (to March 2009). We shall provide a submission to the Office of Rail Regulation in October 2007, which will set out our view of the expenditure and activities that will be required in Control Period 4 (2009/10 to 2013/14).

The Route Plan shows in more detail how the strategies set out in the Business Plan will be delivered at a route level across the network, and how we are working with our customers and other stakeholders to improve the

performance and utilisation of the network. It presents a portfolio of activities to develop the network.

The expenditure section contains tables showing the planned level of expenditure and volumes on renewals on the route over the next two years, split by asset category. Expenditure figures are shown in 2006/07 prices, and are rounded to the nearest £1 million. An entry of £0 indicates spend of less than £0.5 million. 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.

Please note that figures in tables may not sum to the totals shown, because of rounding.

The other documents in the business plan suite can be found on the Network Rail website www.networkrail.co.uk



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