

*Delivering a better railway
for a better Britain
Network Specification 2016
London North Western*



Network Specification: London North Western

Incorporating Strategic Routes:

H - Cross-Pennine - Yorks and Humber & North West (West section)

M - West Midlands & Chilterns

N - West Coast Main Line and

O - Merseyside.

This Network Specification describes the London North Western (LNW) Route in its geographical context, outlining train service provision to meet current and future key passenger markets and traffic flows for the freight business.

It identifies infrastructure changes needed to meet future growth for the medium to long term over the next ten and thirty years.

The Specification refers to Strategic Route Specifications (SRSs). SRSs cover specific sections and/or corridors of the route and are published as appendices to this document. They describe in greater detail, the current and future requirements of each SRS, to inform both internal and external stakeholders of the strategy for LNW Route.

Each Network Specification draws upon the supporting evidence and recommendations from geographical Route Utilisation Strategies (RUSs) and the second generation RUSs, which have been completed for each part of the national rail network.

For the LNW Route, the following RUSs provide a high level industry strategy that has helped to influence the overall specification:

- North West RUS - 2007
- Lancashire and Cumbria RUS - 2009
- Merseyside RUS – 2009
- Northern RUS - 2011
- West Coast Main Line (WCML) RUS - 2011
- West Midlands and Chilterns RUS - 2011

A series of second generation RUSs were produced which interact with the LNW Route. These were the Scotland RUS, the London and South East RUS, and the Northern RUS (as mentioned above).

This document also interfaces with the Network RUS. The strategies that form the Network RUS have a network-wide perspective and cross geographical RUS boundaries.

The Network RUS consists of:

- Scenarios and Long Distance Forecasts – 2009
- Electrification – 2009
- Stations – 2011
- Passenger Rolling Stock – 2011
- Passenger Rolling Stock Depots Planning Guidance - 2011
- Alternative Solutions for Delivering Passenger Demand Efficiently – June 2013.

In 2012, in line with its licence obligation to establish and maintain RUSs, Network Rail, in agreement with the Office of Rail Regulation (ORR), introduced a **Long Term Planning Process (LTPP)** which takes into account the changing industry context and looking ahead between 10 and 30 years. The LTPP has now completed the first stage and, in November 2013, produced four Market Studies:

- Long Distance
- Regional Urban
- London & South East, and
- Freight.

These were produced in conjunction with a number of key stakeholders and have been through the ‘Draft for Consultation’ process which captures feedback from the wider industry. ‘Final’ versions of the studies were published in November 2013, and then established by the ORR in January 2014.

The Market Studies looked at the predicted overall demand for transport and the role of rail within that, placing greater emphasis on optimising use of the existing network as well as on affordability and wider economic benefits. These Market Studies will inform a series of Route Studies which will follow a broadly similar pattern to RUSs and will be produced during the period of 2013 to 2016. These will then be complete in time to inform the industry’s proposition for Control Period 6.

The Network Specification aligns with the Strategic Freight Network (SFN). The SFN has built on the recommendations of the Freight Market Study which was produced in November 2013. The Freight Market study forecasts freight growth from 2019 - 2043, and identifies a network of core and diversionary routes to allow more and longer freight trains to operate.

The integration of all of these strategies is vital to the development of each Route, as collectively they outline the future requirements for both passenger and freight demand.



Route context

The London North Western (LNW) route is the biggest single route within Network Rail and covers over 24 per cent of the national rail network. It is the busiest mixed-use railway in Europe and forms the backbone of the rail network.

The LNW Route:

- operates 4,100 trains per day , carrying over one million passengers
- covers 4,500 track miles, handling 77 million train miles per annum
- accommodates the operations of six freight operators and 14 passenger operators
- handles significant freight flows across the whole Route
- is responsible for 2,500 operational buildings, 120 maintenance buildings and 159 signal boxes
- maintains 7,100 bridges, 290 tunnels, 770 level crossings and 52 sea defences
- is responsible for 567 franchised stations
- and has four ‘managed’ stations - at London Euston, Birmingham New Street, Manchester Piccadilly and Liverpool Lime Street.

The LNW Route follows the West Coast Main Line from London Euston to the Scottish borders, and incorporates a number of long distance, regional urban, commuter, branch and freight lines. These link London with; Watford Junction, Milton Keynes, Northampton, Birmingham, Manchester, Liverpool, Preston, Carlisle and Scotland.

Along the length of the WCML, lines diverge off at a number of interchanges - at Willesden Junction, Watford Junction, Bletchley and Crewe.

The Route also covers the Chilterns area from London Marylebone to Birmingham Snow Hill and the whole of the West Midlands area.

The Strategic Routes that make up the LNW Route are defined as Merseyside, North West, West Coast Main Line and West Midlands and Chilterns:-

Merseyside

The Merseyside network is predominately a third rail (DC electrified) network which is made up of two lines: the Wirral Line and the Northern Line. The Wirral line serves the Wirral area and Chester, via a loop line which serves central Liverpool. The Northern line operates from Hunts Cross/Liverpool South Parkway to Liverpool Central and Moorfields with branches to Southport, Kirkby and Ormskirk. The central Liverpool stations are located underground. The route also includes the non-electrified North Mersey Branch and lines to Birkenhead Docks. The Integrated Transport Authority (ITA), Merseytravel, has wider powers than most Integrated Transport Authorities and specifies the ‘concession’ for the Merseyside area rather than the Department for Transport (DfT).

North West

The North West urban network covers a large geographical area and has a number of city conurbations offering opportunities for employment, leisure and education. The principle locations or regional centres are Manchester, Liverpool and Preston. The area includes routes into central Manchester, Liverpool Lime Street and the various radial routes extending into Blackpool, Cheshire, Lancashire and Derbyshire. Transport for Greater Manchester (TfGM) is responsible for supporting and improving the Greater Manchester area’s public transport network. The North West rural area operates north of the line between Preston and Burnley (as far as Carlisle) with the exception of the West Coast Main Line, and the lines east of Skipton. It encompasses the routes within the county of Cumbria and a number in north Lancashire. The key routes run along the Cumbrian coast, between Settle and Carlisle, between Preston and Ormskirk and between Preston and Burnley via Blackburn (known as the ‘Roses’ line).

West Coast Main Line

The West Coast Main Line (WCML) is nearly 600km long and stretches from London Euston to Glasgow Central. For strategic

planning purposes, the route to Carstairs South Junction is included in the LNW Route, while the Carstairs to Glasgow Central section is included in the Scotland Route. The WCML connects London to Birmingham and the Midlands, Manchester and the North West, and Scotland.

The WCML is recognised as a strategic transport corridor linking Europe (through the Channel Tunnel) via London and South East England to the West Midlands, North West England and Scotland, and is the UK's busiest mixed traffic route. The WCML European and international importance is reflected in its designation as a priority Trans European Network (TEN) route.

The south end of the route is focused on long distance and commuter services to and from London, together with key freight services and flows serving more northerly destinations. The North West section of the WCML provides vital connections between major cities and towns such as Manchester, Liverpool, Preston and further beyond. The WCML diverges at Crewe, where the line runs to Chester. Chester acts as a gateway to North Wales and the Merseyside area.

West Midlands

The West Midlands rail network is located at the centre of the national rail network and consists of a number of radial routes into the three central stations in Birmingham (New Street, Snow Hill and Moor Street). The routes in the West Midlands are predominantly two-track, secondary routes, which support the busy local commuter markets into Birmingham and the Metropolitan centres of Wolverhampton, Walsall, Coventry, Sandwell, Dudley and Solihull. Electrification varies within the West Midlands area, with some of the local routes being non-electrified. Local services into Coventry, Walsall, and Wolverhampton are electrified, as are services on the Cross City lines.

The West Midlands network incorporates some sections of primary route, including the West Coast Main Line between Rugby, Birmingham and Stafford, and the cross-country route between Wichnor Junction and Stoke Works Junction. Some of these routes are electrified and have higher linespeeds of up to 125mph,

supporting high speed, long distance services to key locations throughout the UK. Birmingham New Street, Wolverhampton and Coventry stations are primary interchange stations for longer distance services on the West Coast Main Line and on the cross-country network, as well as being termini for local commuter services.

There is one line classified as rural - the Stratford-upon-Avon line, which includes the single-track branch line from Bearley Junction to Hatton Junctions.

Chiltern lines

The Chiltern Main Line runs from London Marylebone to Birmingham Snow Hill via High Wycombe, Princes Risborough, Bicester, Banbury, Leamington Spa and Solihull.

At Neasden South Junction the main line spurs off to Aylesbury Vale Parkway where services run from London Marylebone via the London Underground (LUL) Metropolitan line between Harrow-on-the Hill and Amersham.

A single branch line runs between Princes Risborough and Aylesbury. There are also two freight branches from Bicester Town to Claydon LNE Junction and Aylesbury to Claydon LNE Junction. The route between Claydon LNE Junction and Bletchley is currently out of use.



Key passenger markets and traffic flows

North West including Merseyside

There are a number of longer distance through- routes linking the North West regional centres with those in Scotland, the North East, East Midlands and Anglia, together with interchange facilities into the WCML serving London, the West Midlands and beyond.

The North West network is a mixed-use railway with a substantial and growing commuter market for rail services into the main centres of Manchester, Liverpool and to a lesser degree Preston. There are strong leisure and business flows between Manchester and Liverpool and also from the regions to London, Birmingham, North Wales and Yorkshire. Both Manchester Airport and John Lennon Airport (near Liverpool) are significant destinations for both leisure and business rail passengers.

Northern Rail operates local commuter services on the route between; Liverpool Lime Street and Blackpool North (via Preston), and Manchester Victoria and Blackpool North. They also operate stopping services on the cross-Pennine routes to Leeds via the Calder Valley and Huddersfield and the Hope Valley routes (via Rochdale and Hebden Bridge).

Services operated on the third-rail DC lines in Merseyside are operated by Merseyrail Electrics. These services serve commuter and leisure markets and link Liverpool and North Wales, Chester, Preston and Southport. Services on the Northern line operate on a number of branches, serving Hunts Cross, Kirkby, Ormskirk and Southport via Liverpool Central and Moorfields. On the Wirral lines there are branches to Chester, Ellesmere Port, West Kirkby and New Brighton via James Street, Moorfields, Liverpool Lime Street and Liverpool Central on the loop line.

Interurban services between Manchester Airport and Scotland are operated by First TransPennine Express (TPE) on an hourly basis in most hours, with eight trains a day to Edinburgh Waverley and four trains a day to Glasgow Central. TPE services also link the North West with Huddersfield, Leeds, York, Newcastle, Bradford, Sheffield and other key centres in the North East.

East Midlands Trains operate services between Derby to Crewe and (Norwich) to Liverpool Lime Street.

Arriva Trains Wales (ATW) operate services from North Wales, which serve Manchester via Warrington Bank Quay and from South Wales to Manchester via Crewe. ATW also provide an hourly service on the Crewe to Chester line and services between Wrexham and Bidston.

Rural routes in the North West are characterised by comparatively low levels of passenger demand and a relatively high proportion of leisure travel. As such, other than on a few short flows or for limited periods of the year, capacity is rarely an issue. The area is effectively split either side of the WCML, and as such, many of the lines connect to the core main line services. The Cumbrian coast services are operated by Northern Rail and TPE.

West Coast Main Line

The West Coast Main Line (WCML) is the busiest mixed traffic route in the United Kingdom (UK). It is central to the business of many UK and international passenger and freight operators.

The main service flow on the WCML is long distance, high speed services operated by Virgin Trains. The key services are operated between London Euston and Glasgow Central, Manchester Piccadilly (two services via Stoke-on-Trent and one service via Crewe per hour), the West Midlands (Coventry, Birmingham New Street and Wolverhampton), Liverpool Lime Street and Chester (with six trains per day extended to North Wales, four to Holyhead and two to Bangor). Some services have additional stops during peak times to serve intermediate stations on the route between Rugby and Stafford.

Virgin Trains also operate fast limited-stop services between Birmingham New Street and Scotland, serving Glasgow Central and Edinburgh Waverley in alternate hours.

Overnight sleeper services (operated by ScotRail) run between London Euston and Glasgow, Edinburgh, Inverness, Aberdeen and Fort William.

Semi-fast services are operated on the WCML by London Midland.



The main services operated are between London Euston and Tring, Milton Keynes Central, Northampton, Birmingham New Street and Crewe via Stoke on Trent.. These service groups combine to provide three trains an hour from London Euston to Northampton and four trains an hour from London Euston to Milton Keynes Central.

Two branches feed the southern end of the WCML, the St. Albans Abbey line which joins the WCML at Watford Junction and the Bedford to Bletchley line which joins the WCML at Bletchley. Both are designated as 'Community Rail' lines with train services operated by London Midland.

Southern operates an hourly service between East Croydon and Milton Keynes Central via Kensington Olympia although in certain hours the service begins at Clapham Junction, and only operates as far as Watford Junction.

London Overground Rail Operations Limited operates services on the DC lines between Watford Junction and London Euston.

London Underground Limited services also operate on the DC lines between Harrow and Wealdstone and Queens Park and then into Central London via the Bakerloo Line.

West Midlands & Chilterns

The rail network in the West Midlands and Chilterns area supports a range of markets including commuting into key employment and leisure destinations, interurban travel between major urban centres and long distance travel. Due to its central location, the West Midlands area acts as a hub for the national rail network with many long distance services passing through Birmingham New Street, which is a primary interchange station for many destinations across the network.

Local journeys in the West Midlands have grown substantially in recent years, with the commuter network operated primarily by London Midland. The local rail network is made up of a number of busy corridors into central Birmingham, with some services operating on a ten minute frequency. Services support commuter, shopping and leisure needs, with key flows operating from across the West Midlands into Birmingham city centre and other key

employment and urban centres such as Wolverhampton, Coventry, Solihull, Dudley and Walsall. Frequent services are also offered to Birmingham International to support passengers accessing Birmingham Airport and activities at the National Exhibition Centre.

Chiltern Railways serve the long distance market between Birmingham Snow Hill and London Marylebone. This market has grown significantly over many years and provides an alternative route to London. Services operate on a half-hourly basis between London Marylebone and Birmingham Moor Street and Snow Hill, and six trains per day between London Marylebone and Stratford-upon-Avon. There are significant interurban flows business, wider commuting and leisure travel. The interurban market between London and the surrounding areas has grown considerably in recent decades, and Chiltern Railways offer services to Warwick, Banbury and Bicester. They also serve smaller commuter markets into other towns on the route, such as High Wycombe and Aylesbury.

CrossCountry operates a network of long distance services which run through the West Midlands between cities outside of London. These include services between Plymouth/Penzance and Edinburgh via Bristol Temple Meads, Leeds and York, Bournemouth and Bristol Temple Meads to Manchester Piccadilly, and between Reading and Newcastle. All CrossCountry services call at Birmingham New Street, offering interchange opportunities for passengers to link from local and interurban services. These regional links include to Derby, Nuneaton, Leicester, Stansted Airport, Cheltenham, Cardiff and Nottingham.

London Midland also supports interurban flows from the West Midlands between Birmingham New Street and Liverpool Lime Street, and between Birmingham New Street and London Euston via Rugby and Northampton.

Arriva Trains Wales offer interurban service opportunities between North Wales, Mid Wales, Shropshire and the West Midlands. These services operate to Birmingham International station offering

passengers connectivity with Birmingham Airport, which is one of the busiest airports outside of London, and to the National Exhibition Centre and LG Arena.

Key freight markets and traffic flows

Freight Market Study

The rail industry's accepted freight forecasts were published in the Freight Market Study in 2013. These forecasts were developed in collaboration with a Working Group which included freight operators and stakeholders. The Market Study has been established by the Office of Rail Regulation. The base year is 2011-12 and forecasts are available for 2023, 2033 and 2043 which in summary show:

- substantial growth in intermodal freight from ports and, in the longer term, between domestic intermodal terminals (many of which do not currently exist but are expected to be developed in future)
- a decline in coal traffic over the long term, partly offset by a growth in biomass as coal forms a smaller part of the UK's power generation mix
- modest growth in other commodities, in particular aggregates for the construction industry.

The Freight Market Study forecast freight growth is unconstrained by rail capacity and the extent of future new terminal developments. The unconstrained forecasts form the conditional outputs which are being assessed in the Route Studies to present choices for funders for Control Period 6 and beyond.

Freight flows

Rail freight plays a vital role in the UK economy and its growth is encouraged by the Government in light of its significant economic and environmental benefits. The rail freight market is dependent on the general performance of the economy, and to varying levels on the type of rail flow. There are a number of major freight flows in the London North Western Route, operating to terminals within

the route, as well as to locations outside of the area.

There are a number of freight operators on the route including DB Schenker Rail (UK) which is the largest freight operator in the UK and Freightliner Limited which is the largest rail haulier of containerised traffic on the route, predominantly for the deep sea market. Other operators running services on the route include GB Railfreight, Direct Rail Services Limited and Colas Rail.



The main freight markets on the London North Western Route are:

Intermodal

There is a high demand for container and intermodal freight transport, and rail is increasing its modal share of this market. Intermodal traffic includes domestic intermodal (containerised goods moved within the UK), maritime intermodal (intermodal traffic moved to and from the ports) and Channel Tunnel intermodal (intermodal traffic from mainland Europe which is moved via the Channel Tunnel).

There are many intermodal terminals within the London North Western route, including Garston, Trafford Park, Ditton, Daventry (Daventry International Rail Freight Terminal), Lawley Street, Hams Hall, Birch Coppice (Birmingham International Freight Terminal), and Telford. Much of the traffic at these terminals originates from

deep sea ports, especially the East Coast ports and Southampton, and from mainland Europe via the Channel Tunnel.

Maritime intermodal

Maritime intermodal flows are container flows to and from ports. The main import locations into the UK are the Southampton and East Coast ports. Since the completion of the loading gauge clearance to W10 project from Southampton to the West Midlands in March 2011, further increases in freight traffic have been stimulated.

The major flows on the West Coast Main Line from Southampton are to the Midlands terminals at Birch Coppice, Hams Hall, Lawley Street and Daventry; to the North West terminals at Garston, Trafford Park and Ditton; and to further destinations in the North East and Scotland. The flows from Felixstowe to the Midlands and North West terminals operate via the North London Line joining the West Coast Main Line at Willesden Junction or via Peterborough joining the West Coast Main Line at Nuneaton.

Channel Tunnel intermodal

The Channel Tunnel intermodal market consists of traffic from Spain, Italy, France, Belgium, Germany and other EU countries. for onward movement via the West Coast Main Line. This traffic operates to single destinations in the UK such as Trafford Park, Daventry, Hams Hall and other terminals. In 2011, freight started to use the High Speed One line, and this has brought the prospect of larger loading-gauge traffic into the UK for onward movement via the WCML.

Domestic intermodal

Domestic intermodal traffic is the movement of containerised consumer goods within the UK. Daventry International Rail Freight Terminal (DIRFT) is the national hub of Anglo-Scottish intermodal traffic and a high proportion of traffic at DIRFT is domestic traffic. Key flows include the time sensitive supermarket traffic which operates between Daventry and Scottish terminals, Wentlog in South Wales and Tilbury. Further expansion plans continue to be developed for DIRFT 3, which could result in significant additional traffic at the terminal.

Automotives

Automotive flows transport time-sensitive high value products, for which the transit time forms part of the production process. Within the West Midlands automotive services that provide finished products operate to and from Hams Hall, Bescot and the Jaguar car plant at Castle Bromwich. There is an automobile terminal at Speke which forms a key location for imported cars. There are also automotive flows originating in the North West from Halewood near Liverpool (3 trains a day) to Southampton carrying Land Rover vehicles.

Metals

The West Midlands remains the principal UK centre for metal processing and consumption, and as a result there are significant flows of products both into and out of the region. Large volumes of semi-finished and finished steel products both from UK manufacturing sites and from a number of ports around the country are moved into terminals at Round Oak and Wolverhampton. There are significant flows of steel from South Wales to the North East and to Corby, and from the North East, and into South Wales and Washwood Heath.



There are also flows of scrap metal within the LNW Route from terminals at Handsworth, Saltley and Kingsbury for export through Liverpool and Cardiff Docks.

Coal

Coal remains a dominant fuel used for generating electricity in the UK, although Government policy is to reduce the future role of coal in the UK energy mix. There are a number of coal flows with the London North Western Route. Most coal flows from Scotland to power stations in England are routed from Gretna Junction to Carlisle and then diverted off the route and onto the Settle and Carlisle line. There are also flows between Liverpool Docks and Ellesmere Port Docks and Fiddlers Ferry, and Ratcliffe-on-Soar power stations.

The power station at Rugeley is served by longer distance coal flows from deep sea ports and loading facilities in Scotland, Liverpool, Bristol and the east coast. Ironbridge Power Station started receiving Biomass at the end of 2012.

Aggregates

Aggregate flows are highly dependant on the health of the construction industry and demand tends to be project driven. Aggregate flows within the London North Western Route operate to terminals at Northampton, Bletchley, Watford, Willesden, Walsall, Castle Bromwich, Bordesley and Banbury. There are also flows from Leicestershire to Neasden and from Peak Forest to the North East and South East. At the north end of the WCML aggregates are conveyed from the Shap quarries to Teeside, Manchester and Sheffield.

Industrial waste traffic

Within the LNW Route, domestic and industrial waste traffic is transported to the landfill site at Calvert from Cricklewood, Willesden, Bristol and Northolt. Demand at Calvert is determined by the operating hours at the landfill sites imposed due to environmental restrictions on site operators which determine the hours of rail operation. There are further planned waste flows on the route to Folly Lane (Runcorn) from Manchester terminals.

National Delivery Service

The National Delivery Service (NDS) of Network Rail operates freight services to supply infrastructure materials throughout the country to meet the needs of engineering and construction projects. There are locations at both Crewe Basford Hall and Carlisle Kingmoor which are key nodes for the traffic that services the many requirements of the NDS. The operation at Bescot in the West Midlands provides services to and from the West Coast Main Line to serve the needs of the NDS.

Other freight flows

Other freight flows within the London North Western Route include Royal Mail, china clay, oil and petroleum and nuclear power station traffic. Royal Mail freight trains operate daily between Willesden and Shieldmuir in Scotland. China clay trains operate over the West Coast Main line, some of these originate in the South West, and there is a china clay flow through the Channel Tunnel from mainland Europe, with destinations of Stoke-on-Trent and Irvine in Scotland. Within the West Midlands oil and petroleum is transported to the Kingsbury terminal near Tamworth and the Murco terminal at Bedworth. On the West Coast Main Line there are also flows of timber from Carlisle to Chirk.

There is a regular flow of biomass from Portbury to Drax via the West Midlands with a new flow from Liverpool to Ironbridge which started in 2013.

Regular nuclear traffic operates across the UK to Sellafield for processing.



Proposed infrastructure investment in Control Period 5 (2014 - 2019)

The Final Determination for funding for Control Period 5 was announced by the Office of Rail Regulator in October 2013.

There are a number of enhancement schemes and funds specified in the HLOS which affect the LNW Route. Full details are shown in each specific Strategic Route Specification.

The following schemes give details of interventions that have been confirmed as:

- HLOS funded
- those that contribute to the HLOS capacity metrics
- specific named schemes
- other CP5 schemes in development.

HLOS Funded Schemes

Birmingham New Street Gateway

The project to transform Birmingham New Street station into a modern, welcoming and accessible gateway to the city and transport hub for Birmingham and West Midlands is to be completed in 2015/16.

Walsall to Rugeley electrification

The electrification of the route between Walsall and Rugeley Trent Valley is a specified HLOS project. The HLOS recognises the scheme's regional and strategic value, including its contribution to accommodating increased commuter demand into Birmingham. The scheme is planned to be completed by December 2017. We are working closely with Centro to identify potential synergies between the electrification project and a proposed new station at Aldridge, near Walsall in the West Midlands.

Chiltern Main Line Train lengthening

Platform lengthening has been identified by operators on a number of routes in the West Midlands and Chilterns area, in order to deliver the HLOS metrics.

Train lengthening is proposed by Chiltern Railways, in order to support their operational plans in CP5. Plans involve train lengthening from 7-car to 9-car trains, resulting in the need to lengthen platforms at 5 stations. These are Bicester North, Haddenham and Thame Parkway, Beaconsfield, High Wycombe and Princes Risborough.

East - West Rail

The HLOS confirmed Government commitment to fund the East West Rail project in CP5, identifying the routes as Oxford to Bedford, Aylesbury to Calvert and links. The primary objective of this initiative is to improve east-west connectivity, providing additional capacity to accommodate growth in freight and passenger numbers.

Service patterns and rolling stock strategy is still to be defined, however the enhanced scope of the project as announced in the HLOS, and in particular electrification of the line, provide a significant opportunity for additional and extended services and the use of new and cascaded electric traction. The question of whether additional capacity will be required on the WCML to accommodate East West services to Milton Keynes Central will be examined during development of the project.

The project is split into two main packages of work:

Phase 1 : between Bicester and Oxford will deliver both the infrastructure required for Chiltern's Oxford services to London and the incremental works required for the later introduction of East West Rail services, by March 2016.

Phase 2 : which is at an earlier stage of development, will deliver the East West Rail works east of Bicester to Bletchley and Bedford (including the Aylesbury – Claydon Junction line) by the end of CP5.

Stafford Area Improvement Project

Capacity upgrade - resignalling work is underway as part of the Stafford Area Improvements Programme, a package of works designed to address existing capacity constraints on the WCML and provide enhanced reliability and frequency. The Programme is being delivered jointly by a number of organisations, known as the Staffordshire Alliance team.



The scope includes increasing speeds on the slow lines between Doxey Junction (just north of Stafford) and Crewe Basford Hall, from 75mph to 100mph, this is due to be delivered in 2015. At Norton Bridge a new grade separated Junction will be constructed which is planned for completion by December 2016. Other enhancements include linespeed improvements on the fast lines in the Norton Bridge area, linespeed improvements through Trent Valley Junction, provision of a new 775m long freight loop at Stafford, together with the area resignalling and remitted renewals in the Stafford station area.

West Coast Main Line Power supply upgrade - Phase 3b

The ongoing power supply programme, which commenced in CP4, aims to deliver an upgraded traction power supply system to support the North West Electrification programme and the operation of the Stafford service specification. The project works will renew and upgrade the remainder of the 25kV power supply equipment on the WCML between North Wembley and Whitmore (phase 3a) and Whitmore and Strickland (phase 3b). Work for phase 3b is planned for delivery ready for the December 2017 timetable. It will be an upgraded Autotransformer (AT) traction power supply and distribution system. The upgraded power supply will address the current traction power supply constraint which impacts on linespeed and capability for WCML services on the busier parts of the route.

The Northern Hub

The conditional outputs of the Northern Hub are designed to enhance the capability of the network across the North of England, specifically to provide:

- capacity for forecast passenger growth
- faster and more frequent inter-regional services, with increased direct links between Northern cities
- improved services on key commuter corridors to support sustainability of the cities
- direct journeys from a wider range of towns/cities to
- Manchester Airport
- freight capacity required to 2030.

It should be noted that the Northern Rail and TransPennine Express franchises are due for renewal during CP5 and these will help to shape the future timetable specification. The project is currently in the process of identifying recommended options for each of the proposed infrastructure interventions. It is split into

two phases of work based upon delivery of increased network capability by December 2016 and December 2018.

These are known as Phases one and two respectively:

Phase 1

- Ordsall Chord : provision of a new line in west Manchester that allows direct routeing between Manchester Victoria and Manchester Piccadilly,
- Manchester Victoria : redevelopment of Manchester Victoria station to improve the environment of the station and to address the increased passenger numbers projected. This redevelopment will provide a single transport interchange facility between Metrolink, heavy rail and the wider transport network,
- Huyton and Roby capacity (Stage 1) : first stage of a two stage project looking at four-tracking options between these stations, and is being delivered as part of the North West Electrification project. Stage 2 is being delivered within Phase 2 of the Northern Hub project.

Phase 2

- Manchester Oxford Road station : remodelling to allow longer and more frequent trains
- Manchester Piccadilly station : two additional through platforms 15 and 16
- Manchester Airport : provision of a 4th platform
- Manchester Victoria : layout alterations to increase capacity and provide operational flexibility
- Core Manchester performance : capacity and performance improvements between Manchester Piccadilly East and Ordsall Lane junction
- Chat Moss capacity : headway reductions between Liverpool and Manchester (via Newton-le-Willows)

- Huyton and Roby capacity (Stage 2) : completion of four tracking between these stations (aligning with Stage 1) Rochdale capacity : provision of a turnback facility
- Chinley capacity : provision of turnback and overtaking facilities
- Dore and Grindleford capacity : doubling of the single line between Dore West and Dore Station junction and provision of freight recessing facilities
- Infrastructure enhancements to improve journey time improvements on the following routes:
 - Earlestown and Chester
 - Salford Crescent and Euxton Junction (via Bolton)
 - New Mills and Ashburys (Marple line)
 - Dore and New Mills South Junction (Hope Valley line)
 - Manchester and Bradford (Calder Valley line).

Other projects include delivery of journey time improvements between Manchester and Liverpool, Hazel Grove and Stockport and Manchester and Leeds. The Manchester Victoria to Stalybridge element of the Manchester to Leeds scheme will be delivered in CP5 as part of the Northern Hub.

The Northern Hub interfaces with a number of other key projects in the North West area. In particular, the sponsor team are working closely with the electrification programme teams. It will also interface with the emerging rolling stock strategy to understand the implications of the deployment of EMUs (following the electrification programme in the north).



Ordsall Chord

North West electrification: (Manchester – Liverpool via Chat Moss, Huyton – Wigan, Manchester – Euxton Junction and Blackpool North – Preston)

The full programme of North West Electrification is due to be completed in CP5. The project plans to deliver a rolling programme of electrification including AC overhead electrification and associated power supplies/distribution. Other works included in the scope to deliver the electrification, include signalling immunisation, track lowering, bridge reconstructions and rolling stock clearances.

The current programme aims to deliver the project in four phases, with delivery of the phases planned as follows:

- Phase 1 (completed in December 2013 : Manchester (Castlefield Jn) to WCML (Newton-le-Willows/Lowton Jns)
- Phase 2 December 2014 : Liverpool (Edge Hill) to WCML (Earlestown), Huyton to Wigan, Ordsall Lane Jn to Manchester Victoria
- Phase 3 May 2016 : Preston to Blackpool North
- Phase 4 December 2016 : Manchester to Preston (Ordsall Lane/ Deal Street Jns to Euxton Jn).

As part of this work, the opportunity has been taken to undertake significant enhancement work to upgrade the line between Blackpool North and Preston.

North West train lengthening

A series of platform extensions are required to implement the rolling stock plan operated across the Network. This will allow the operation of longer train services, providing additional capacity on key routes in the North West.

Platform extensions are proposed along the following lines of route (subject to developing the operational plans) :-

Stalybridge – Huddersfield

Buxton - Stockport

Chester – Stockport



Eccles station

Blackburn – Clitheroe

Edge Hill – Deansgate (via Warrington)

Wigan Wallgate – Stockport

Salford Crescent – Blackpool North

Bolton – Blackburn

Preston – Colne / Burnley Manchester Road

Edge Hill – Manchester

Stockport / Belle Vue – Rose Hill / Sheffield via Brinnington / Hope

North Trans-Pennine Electrification: West

The electrification of the North Trans-Pennine West route will bring long term cost benefits and is being proposed as a means of increasing capacity between Manchester and Leeds via Huddersfield. Further benefits of electrification (using modern electric traction for local services) include shorter journey times and a reduction in the average speed differential between local and express services which in turn will create additional route capacity, compared to the continued use of diesel services. Electrification may also bring wider benefits through the conversion of inter-urban, long distance and freight services to electric traction in the longer

term. The project scope includes the delivery of AC overhead electrification and associated power supplies/distribution for the following routes:

- Manchester Victoria to Stalybridge Junction
- Guide Bridge West Junction to Stalybridge
- Neville Hill West Junction to Colton Junction
- Micklefield Junction to Selby Station
- Ashburys West Junction to Philips Park Junction/Baguley Fold Junction
- Hambleton East Junction to Hambleton North Junction
- Hambleton South Junction to Hambleton West Junction
- The project is being delivered as part of the North West Electrification programme due to synergies with timescales and power supplies.

Electric Spine Development:

The Government's strategy is to create a railway which is high capacity, with low emissions and is value for money to the tax payer. To support this, the Government plans to provide electric corridors for passenger and freight services, running from the South Coast through Oxford, Bedford and via the Midland Main Line to the East Midlands and the North West. This plan is known as the 'Electric Spine' and forms part of a wider rolling programme of electrification in CP5. The electrification programme aims to increase capacity and accelerate journey times between key cities, support commuter travel into major urban areas to expand the labour market and provide access to jobs, and improved railway links to major ports and airports. It is anticipated that this programme of work will facilitate the replacement of diesel trains on the specified routes, thereby releasing them for use to lengthen peak trains and displace older diesel trains on the remaining non-electrified routes.

Electrification of the lines above are being co-ordinated centrally within Network Rail but the following two schemes will need to be implemented to enable the delivery of the electric spine.

The areas affecting the LNW Route include:

Coventry to Leamington Spa capacity upgrade and electrification

This scheme proposes to increase capacity on the line between Coventry and Leamington Spa. The industry recommendation to address the connectivity gap between Derbyshire, Yorkshire and the North East to Coventry and Birmingham International This increased capacity will also help to address crowding issues. Early analysis has indicated that to increase capacity on the line, the single line constraints must be addressed. This enhancement will also consider expected growth on the corridor including an hourly local passenger train service between Coventry and Leamington Spa supporting a third party funded new passenger station at Kenilworth.

Electrification between Oxford and Bletchley

This scheme provides electrification of this section of the upgraded and reopened line from Oxford to Bedford. Electrification of the route between Oxford and Bletchley will be undertaken in conjunction with East West Rail project.

Electrification between Bletchley and Bedford

This scheme provides an extension of electrification of this corridor from Bletchley to Bedford completing the electrified route between Oxford, the West Coast, and Midland Main Lines. This scheme enables the conversion of passenger services on the route to electric and provides the opportunity for future electrified freight services.

Electrification between Nuneaton and Coventry and Leamington Spa to Oxford

This scheme provides for a more efficient operation of passenger and freight services on the route through electric traction.

Development of these 'Electric Spine' schemes will continue until March 2015 when the Office of the Rail Regulator reviews overall progress and will need to agree additional funding for any further development.

Other CP5 Schemes

The following schemes are being developed via a number of funding sources:

West Midlands & Chilterns area

Service enhancements are planned on the **Bromsgrove** and **Redditch** corridors during CP5. To enable three Cross City services per hour to call at Bromsgrove, the existing electrification will be extended from Barnt Green to Bromsgrove. The scheme also requires the relocation of the station increasing platform length to six cars, and provides increased car parking and improved station facilities. The station relocation project is being delivered by a third party by May 2015. Electrification to Bromsgrove is planned for completion in May 2016.

The **Redditch branch** enhancement involves the provision of a passing loop between Alvechurch and Redditch, and a second platform and footbridge at Alvechurch station. This project will increase capacity from two to three trains per hour between Redditch and Birmingham New Street and is planned for completion in August 2014.

Cannock Line - this enhancement scheme is to deliver an improved journey time on the route between Ryecroft Jn (Walsall) and Rugeley from the current 45/50 mph to 75 mph. The increase will enable a timetabled reduction in journey time for passenger services on the route. This scheme is a candidate for passenger journey improvement funding and is proposed to be delivered in alignment with the electrification of the route in CP5.

In December 2013 the DfT announced funding for a new railway station at **Kenilworth** between Coventry and Leamington Spa under the government's multi million pound New Stations Fund. The station is planned to be open by December 2016 for a new diesel service to be introduced between Coventry – Kenilworth – Leamington Spa, with an electric service introduced by the end of CP5 (March 2019)

Coventry to Nuneaton rail upgrade: there are third party plans (Coventry City Council, Warwickshire County Council and Centro) in development to enhance the transport links between Nuneaton, Bedworth and Coventry. Proposals include the upgrade of the line

between Coventry and Nuneaton, a new bay platform at Coventry station, new stations at Ricoh Arena and Bermuda Park and a longer platform at Bedworth.

West Midlands resignalling programme : plans are being developed to renew the life-expired signalling equipment in the Birmingham New Street area and transfer control to the West Midlands Signalling Control Centre at Saltley. As part of the scheme development, potential enhancements to linespeeds, junction layouts and improved performance are being investigated.

In the Banbury area (on the Chilterns line) resignalling works are planned at the beginning of CP5. This will involve renewal of life expired signalling equipment, will be aligned to track renewals work and will develop potential enhancements to maximise benefits.

With the expansion of the electrification network during CP5, there will be **additional electric rolling stock** that will need to be maintained. In the Midlands area, the current EMU maintenance depot at Soho is at maximum capacity and a further location will need to be identified. There will also need to be additional stabling facilities in the area (e.g. at Duddeston just outside Birmingham). Development work will commence on this project in CP5.

Chilterns Trains are developing the introduction of a new maintenance and stabling facility at Banbury to cater for their vehicles, and to more effectively stable and maintain their existing fleet.

West Coast Main Line

In addition to the remodelling scheme at Stafford, there are a number of major track and signalling renewal schemes planned in CP5, some of which include:

- Watford area remodelling
- Macclesfield and Motherwell resignalling
- Skew Bridge and Euxton Junctions
- Preston area and Carstairs Junction remodelling

A Major Transport scheme is being developed in the Watford area called the **Croxley Rail Link** project. This will increase capacity and improve connectivity by providing through Metropolitan line



Northampton station

underground services between Central London and Watford Junction (via the former Croxley Green branch). The line is scheduled to open in 2016.

Work continues on the rebuilding of **Northampton station** and surrounding area and is on schedule for completion by early 2015.

North West and Merseyside areas

A number of **re-signalling projects** are planned in CP5 in the North West namely, Weaver Junction to Wavertree Junction, Huyton Junction, St Helens and Ashton Moss areas. These schemes will closely align with the larger programme of works in the North West – i.e. the Northern Hub project and the North West Electrification programme.

Work is well underway to align and develop opportunities that may arise from major renewals planned at **Liverpool Lime Street** in 2016. Proposals are being developed which include additional and longer platforms, and work to increase operational flexibility to create capacity for longer trains.

With the expansion of the electrified network in the North West, there is a workstream to develop the strategy for **depot and stabling** requirements in CP5. This will concentrate on providing both capacity and functionality for the increased EMU fleet.

Freight proposals

There is a proposal for a new multi-modal freight terminal at **Port Salford** in the North West. The site is planned to be connected to the Manchester to Liverpool route (Chat Moss route), which joins the WCML at Newton-le-Willows, enabling freight services to access the terminal. It will be the only inland water served distribution park in the United Kingdom using the Manchester Ship Canal, as well as the major local motorway network in the North West.

Other freight plans include expansion plans at DIRFT. Known as **DIRFT III**, ProLogis plans to replace the existing DIRFT1 Railport with a much larger facility which will cater for 775m length trains and include warehousing and storage facilities. The aspiration is to operate a significant increase in traffic in the future.

3MG (Ditton) – The proposed expansion of the existing facilities at Ditton (Mersey Multimodal Gateway Logistics Park) could result in 16 Intermodal trains a day to and from the major ports as well as domestic traffic. The intention is to receive trains up to 775m in length at this site.

New intermodal freight terminals are also planned at **Stretton** (between Wolverhampton and Stafford), and **Parkside** (Newton-le-Willows) which could result in significantly increased traffic into the West Midlands area and along the West Coast Main Line.

Operating Strategy

Network Rail has outlined the Operating Strategy to manage, control and operate rail services on the network. The Strategy will integrate traffic management and control systems to improve performance and improve the Public Performance Measure by up to 2 per cent. It will result in cost savings by moving from over 800 signal boxes, to 12 Route Operating Centres over a timescale of around 30 years. We plan that over 80 per cent of the network will be run by the new centres by 2029, with most of the work delivered in Control Periods 5 and 6.

Route Operations Centres

Route Operations Centres (ROC) are a key component of the longer term operating strategy for Network Rail.

The operating strategy presents the opportunity to develop new, smarter, more efficient ways of working including closer co-operation between train operator staff and their Network Rail colleagues to help deliver the timetable. This shift in our approach to operating the railway is right at the heart of the vision the operating strategy seeks to deliver.

The buildings are designed to be a secure and resilient base for the vital systems contained inside. They also provide the opportunity to work more closely with train operating company (TOC) colleagues, providing a collaborative working environment for all staff.



On the LNW Route, two new ROCS are currently being built at Manchester and Rugby. These are planned to be ready and in operation by July 2014 (Manchester) and December 2015 (Rugby).



Rugby ROC

There are also a number of national funding pots available in the ORR Final Determination, which will focus on:

- Passenger Journey Improvement
- Stations Improvement
- Access for All (stations)
- Innovation
- Level Crossing improvements (safety)
- Performance Improvement
- Passenger Information
- Network Rail Discretionary Fund
- CP6 / HS2 development

These funds will be subject to the agreed railway industry national criteria for 'value for money' investment and business case justification.

Longer-term strategy (Control Period 6 and beyond)

Introduction

Government Policy has determined the strategy for creating additional capacity on the WCML is the delivery of a high speed line, which aligns with the recommendations of the West Coast Main Line RUS. Network Rail is working closely with HS2 Ltd, particularly where the high speed line interfaces with the existing network.

The LNW Route will continue to review and develop the recommendations set out in the geographical RUSs and take forward the conditional outputs being set by the Market and Route Studies, as part of the Long-term Planning Process. The Long-term Planning Process will produce Route Studies, which will follow a broadly similar pattern to RUSs. They will be produced to inform the industry's strategy for Control Period 6.

The industry continues to develop the suite of Route Study documents, which look at the national network on a holistic basis over a 30 year time horizon.

Strategic Freight Network schemes

Southampton to West Coast Main Line – train lengthening : feasibility work is being undertaken to assess the options of allowing freight trains – up to 775m long – to run on this corridor. Assessments are being undertaken on the Leamington to Coventry line to increase speeds and looping arrangements around the Bordesley Junction area (just outside Birmingham). Options include Fenny Compton Down Loop, Hatton Down loop, Dorridge Down Loop and Washwood Heath. Increasing the entry and exit speeds of these loops are also under consideration.

Capacity requirements West Coast Main Line North of Preston : this work will need to assess capacity north of Preston on the West Coast Main Line. It will need to look at what options may be appropriate to cater for the forecast increase in freight and passenger traffic between Preston and Mossend, in the periods up to 2019, and

between 2019 and 2030. Options will not be restricted to infrastructure enhancements, but may include timetabling solutions and routing options.

High Speed Two

The first phase in implementation of a national High Speed Rail network will be construction of a new railway to alleviate capacity issues on the West Coast Main Line (WCML) between London and the West Midlands. This route, which is proposed to be in operation by 2026, is known as High Speed 2 (HS2). Services running on HS2 will operate over the existing WCML to Manchester, Liverpool and Scotland. A connection to High Speed One will be provided.

Phase 2 will extend this initial route, with the creation of a 'Y' network to Manchester and Leeds by 2033.

There are several significant work streams currently being undertaken on High Speed Rail development that affect the LNW Route:-

- Continued development following successful completion of the Hybrid Bill – which provide powers to construct the new route
- the London Euston Station re-construction and staging works
- two new HS2 stations at Birmingham Curzon Street and Birmingham Interchange
- a new HS2 maintenance depot at Washwood Heath in Birmingham
- HS2 compatible trains running onto the existing WCML (and joining near Lichfield at a new junction called Handsacre Junction)
- utilising the existing spare capacity released at the south end of the WCML
- aligning planned renewals with HS2 known interventions
- HS2 maintenance depot proposals for Calvert (near Aylesbury) and a service connection to East – West Rail

- Further development of the 'Y' network (including a new station at Manchester Piccadilly, maintenance depots at Crewe Basford Hall and Golbourne Junction (near Wigan) and a connection to the existing WCML also at Golbourne Junction (near Wigan).

The HS2 Hybrid Bill for Phase 1 works is currently progressing through Parliament in order to obtain Royal Assent and gain legal approvals to allow work to commence.

Public consultation on Phase 2 works (the 'Y' network) finished on 31st January 2014. Further detailed development and planning is currently being undertaken by HS2 Ltd.

Expanding the electrified railway

There is currently an electrification programme being delivered in Great Britain which includes the Great Western and Midland Main Lines together with a number of local 'infill' schemes. The Windermere branch line will be electrified during CP5 subject to a value-for-money business case being achieved, and in December 2013 the DfT announced that the Wigan (North

Western station) to Bolton (Lostock Junction) line will be electrified, with a target completion date of 2017. The Department for Transport, in its High Level Output Specification July 2012, indicated that there would be a 'rolling programme' of electrification into the future to provide electric traction to a significant proportion of the national network.

Expansion of the electrified network will bring many benefits, including faster journey times for passenger and freight trains. Where journey time savings are sufficiently significant (and sufficient capacity is available) there is the potential to run additional services on electrified routes – for example conversion of freight services to electric traction would release capacity on the West Coast Main Line north of Preston. The simpler design of electric trains means greater reliability, lower maintenance costs and a requirement for fewer spare vehicles. Operators also benefit from lower lease costs for electric trains, and lower variable track access charges given the reduced weight of electric vehicles and consequent reduction in track wear and tear. Average carbon dioxide emissions per vehicle mile are less for electric trains compared to those that use diesel, which can improve station air quality for both passengers and staff.

Network Rail, on behalf of the rail industry, will be publishing in 2015, a 'refreshed' Network Route Utilisation Strategy (RUS) for Electrification to outline the priorities for future electrification. The strategy will prioritise routes for further development based primarily on the density of diesel-operated traffic which could be converted to electric operation through the provision of electrification. The RUS also considers options which do not perform as well in terms of the conversion ratio, but may be worthy of further investigation in light of other factors, for example whether an option would allow more efficient usage of the existing electrified network by reducing diesel traffic on the existing electrified network or by providing a diversionary route; or where there are synergies with rolling stock replacement, or other enhancement schemes.

Schemes identified for potential further development as part of the Electrification Strategy are:

- A 'Cross Country' option comprising Leamington Spa to Birmingham, Birmingham to Derby, the Camp Hill Line and diversionary routes to Lichfield and via Whitacre Junction
- A 'Chilterns, Snow Hill and Malverns' package of options including:
 - o The Chiltern Main Line including the route between Princes Risborough and Claydon Junction and Leamington Spa to Stratford-upon-Avon
 - o The Birmingham Snow Hill Lines between Tyseley and Stratford-upon-Avon and Birmingham and Droitwich Spa via Stourbridge
- A 'Chester and North Wales' package comprising two options:
 - o Crewe to Chester
 - o Warrington Bank Quay to Llandudno and Holyhead
- Wolverhampton to Shrewsbury
- The Calder Valley route between Leeds and Manchester / Preston, including routes via Brighouse and the Clitheroe, Colne and Blackpool South branches
- Hunts Cross to Trafford Park together with the South Trans Pennine route from Hazel Grove to Sheffield, including routes via Romiley

- Felixstowe to Whitacre Junction via Nuneaton including Corby to Manton Junction

In December 2013, the DfT announced the formation of an industry task force, to explore 'where next' for electrification in the north of England. An interim report will be produced by early 2015 setting out how schemes may be brought forward and their development accelerated. Specific possible schemes mentioned include:

- Crewe - Chester
- Warrington - Chester
- Sheffield - Manchester.

Electrification of the additional lines listed below has been identified as being significant by freight operators for their businesses:

- Access to West Midlands freight terminals including Birmingham International Freight Terminal (BIFT; Birch Coppice), Birmingham Freightliner Terminal (Lawley Street) and Jaguar Terminal.
- The Sutton Park Line between Walsall and Water Orton
- The Bootle Branch accessing Liverpool Docks
- Stockport to Stalybridge
- Sandbach to Northwich

Freight operators may not be able to effectively utilise any additional electrification without the ability to access terminals they serve. This might involve electrifying all or part of a terminal, modifying the terminal layout to enable the use of electric traction, or facilities for bi-mode locomotives to change to/from diesel and electric power. Given that many terminals are privately owned, joint development with terminal owners and freight operators of options for electrifying terminal connections would be beneficial to enable greater usage of electric traction. This also includes any terminals, sidings and maintenance facilities that are required by freight operators to transfer an existing service from diesel to electric traction.

The selection of routes for further development includes all options currently expected to have the strongest business cases from a national perspective. Other schemes are being developed in conjunction with regional bodies, and as demand and service patterns continue to evolve in the longer term electrification may

present an appropriate solution for other routes. For routes for which it is unlikely that a case can be made for conventional electrification, there could be an opportunity for alternative solutions to be considered in place of diesel traction, for example battery train operation.

Shorter journey times between key centres

The need to focus on improving journey times between key locations is a major focus of longer term planning, particularly with increasing road congestion. The geographical RUSs identified a number of routes where journey times could be improved and proposed that these be considered as part of planned renewals, enhancement schemes and future timetable changes. Network Rail will look for opportunities to raise linespeeds on LNW Route, in line with the capability of the rolling stock being utilised. The introduction of electric rolling stock connected with the 'Electric Spine', will reduce journey times through faster acceleration and align with linespeed improvement projects.

Accessing the network

The Network RUS: Stations recognised that each station may have its own issues and bespoke solutions; the LNW stations specifically highlighted where interventions may be required in the medium to long-term are:

- Birmingham Snow Hill
- Liverpool Central
- Liverpool Lime Street
- Preston
- Manchester Piccadilly
- Manchester Victoria
- and Watford Junction.

It is recognised that car park capacity is an issue that will intensify in the longer term. The lack of capacity at many stations is an increasing problem, and, as such, has been recognised as a legitimate gap in a number of the geographical RUSs. In order to prevent this suppressing demand, Network Rail will continue to

develop car parking solutions and improve access to stations. The industry will continue to remodel car park layouts, create multi-stories or decked car parks, and purchase land for overflow car parks.

Network Rail will also continue to be active in supporting the development of Station Travel Plans (STPs). These STPs consider innovative ways to promote 'smarter transport choices', including car sharing schemes, regenerated pedestrian routes, cycling paths and improved interchanges.

Freight capacity to 2043

Freight demand forecasts have been developed nationally to 2043 to support the development of the Strategic Freight Network, which will enable rail freight to grow without having a detrimental impact on network capacity and reliability. The requirement to support rail's role in delivering a sustainable distribution system will continue to be a key planning objective, and longer term investment in the SFN will be necessary to deliver this. The forecasts in the Freight Market Study for freight growth up to 2043 have been established by the industry and these will continue to be reviewed going forward. SFN schemes beyond CP5, will be developed as part of the network planning process and will focus on the need to support longer and heavier freight trains, improve efficient operating characteristics, increase network availability and on electrification of key freight routes. Where appropriate, W12 gauge will be implemented as the standard loading gauge for all strategic container routes including diversionary routes, as it caters for both short and deep sea container traffic.

Network Availability

Network Rail will continue to explore initiatives to best optimise network availability across the whole of the London North Western Route for both passengers and freight operators. This will focus on shorter possessions, appropriately timed possessions, productivity and efficiency gains through changes to the technology and processes used to maintain, renew and enhance the network.

LNW : Planning ahead

Improving local and regional journeys will form an important part of future strategy. Network Rail is ensuring future strategy will align national workstreams with local requirements, working collaboratively with partners, including ITAs/PTEs, LEPs and Local Authorities.

The LNW Strategy is broken down into geographic sections as follows:-

West Midlands Long Term Strategy

Network Rail is working closely with Centro and the Local Enterprise Partnerships (LEP) within the West Midlands, to better understand the link between transport and economic growth. This work will seek to produce an evidence base to inform a number of key outputs for the region. This work will feed into the Long Term Planning Process, as well as influencing the LEP economic strategies.

Centro have produced a 'West Midlands Connectivity Package' in November 2013. This contains information regarding unlocking the benefits from HS2 and also includes a number of schemes that the region is promoting.

Further electrification of the West Midlands network will be considered by The Network RUS : Electrification update. It is recognised that electrification of the Snow Hill lines should be aligned with electrification of the Chiltern Main line.

Chiltern Main Line Long Term Strategy

Building on the continuing success of the Evergreen 3 project, which increased linespeeds and provides a direct link from Bicester to Oxford, the strategy for the Chiltern main line is for electrification of the route from Birmingham to London. The electrification of the route is being considered by The Network RUS Electrification update and feed into the Long Term Planning Process.

More detailed information can be found in the individual LNW Strategic Route Specifications on the Network Rail website.

West Coast Main Line Long Term Strategy

Beyond committed interventions there is little scope to run additional or longer trains on the WCML, at the time they are most

needed. Passenger growth forecasts on the route suggest that there will be unacceptable levels of crowding on an ever increasing number of trains, with high levels of freight growth forecast.

The WCML is expected to be at capacity and become increasingly constrained in its ability to support the economy (through commuter and business travel) and to generate revenue for the industry. The most effective and best value for money way to create additional capacity will be through building a new High Speed line, aligned with Government Policy and the recommendations of the West Coast Main Line RUS.

The provision of a high speed line will help to relieve both track and rolling stock capacity, which will enable additional services to operate on the existing network. An independent company, HS2 Ltd, is progressing the new high speed lines.

HS2 Ltd, in conjunction with Network Rail, is working with key industry stakeholders to explore options to make best use of the released capacity on the existing WCML. This work will help the rail industry shape the future of the WCML.

North West Long Term Strategy

During CP5, many of the busiest routes in the North West are intended to be provided with modern, reliable, efficient and more economic rolling stock. The intention is to continue to improve journey times, connectivity and travel opportunities within the wider North West area.

Further electrification of the North West area will be considered by The Network RUS : Electrification update.

In Cumbria, Network Rail is developing proposals with the nuclear industry and the County Council to cater for the planned nine year construction programme of a new power generation plant commencing in 2018/19. This will see a significant increase in freight services associated with the construction and a high level of workforce journeys by rail.

The completion of HS2 is expected to improve journey times for trains connecting major northern conurbations with the Midlands and London.

Merseyside Long Term Strategy

The 'draft' Merseyside Long Term Rail Planning Strategy sets out the strategy for the Merseyside area to 2040. The strategy recommends phased interventions over this period with works being undertaken from CP4 through to 2040. The first two phases of work are outlined earlier in the document, with the improvements to station capacity at Liverpool Central Northern Line platforms in CP4 and the proposed Liverpool South Parkway turn back in CP5. Longer term, the changes in demand outlined the need for a larger scheme at Liverpool Central. This involves widening the station box, in order to widen the Northern Line island platform.

The draft strategy recommends an increase in rolling stock with an additional 90 vehicles in traffic by 2040. Initially this additional rolling stock would be used to allow an increase in 6-car trains in the morning and evening peaks. Once all peak trains are at six-car length there are a number of corridors where crowding is expected to continue. The strategy recommends an increase in frequency on the Southport and Ormskirk branches with up to eight trains per hour on the Southport branch and up to six trains per hour on the Ormskirk branch by 2040. It is worth noting that the current Merseyrail fleet is likely to be life expired by 2020, so the procurement of a replacement fleet may present an opportunity to increase the overall size of the fleet.

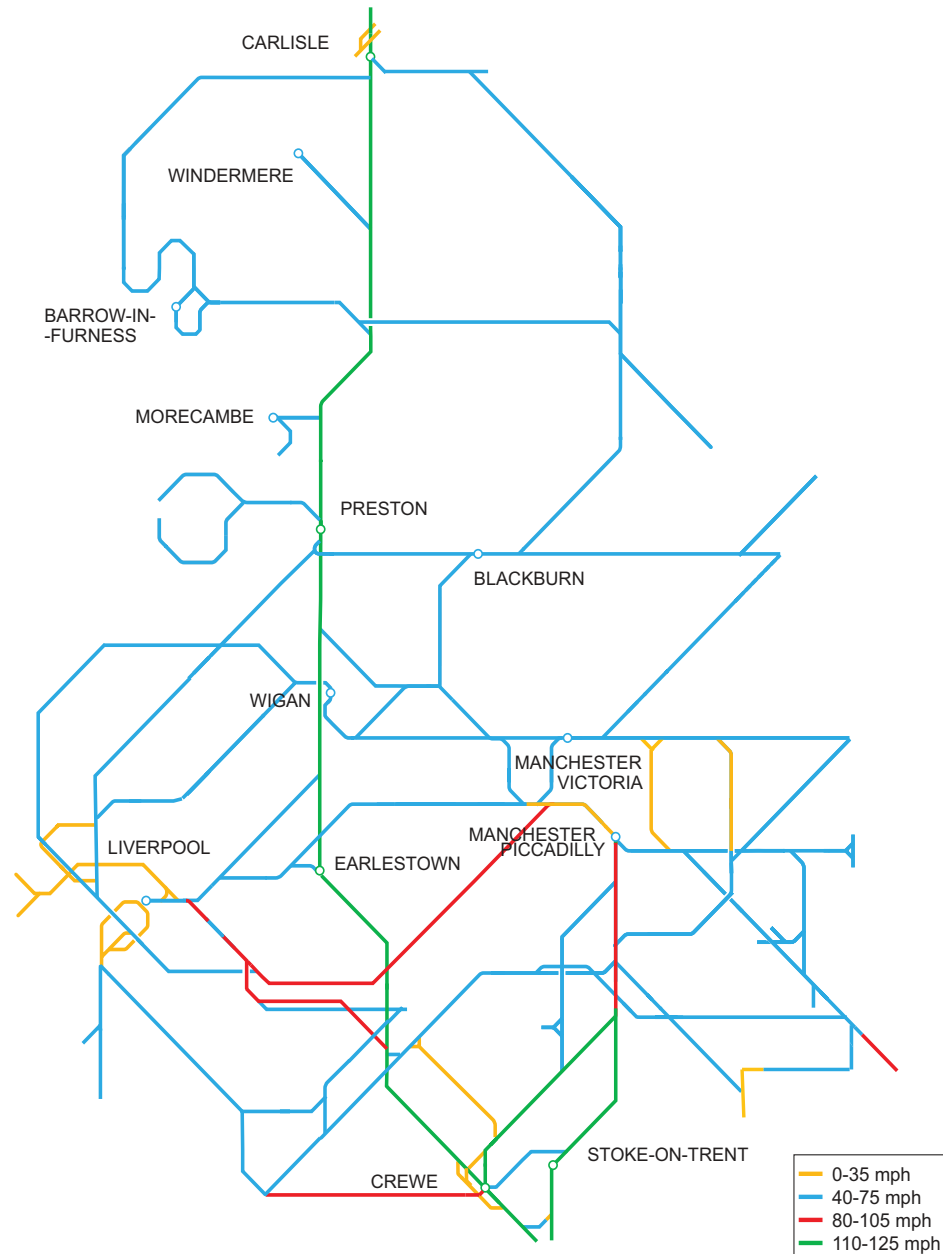
SRS	Name
Route H : North West	
H.05	[North Transpennine: Leeds – Guide Bridge] London North Eastern
H.10	[Manchester Victoria – Mirfield via Rochdale/Stalybridge] London North Eastern
H.17	[South Transpennine: Dore – Hazel Grove] London North Eastern
H.22	Manchester Piccadilly – Crewe
H.23	Manchester Piccadilly – Deansgate
H.24	Deansgate – Liverpool South Parkway
H.25	Liverpool Lime Street – Liverpool South Parkway
H.26	North Transpennine: Manchester Piccadilly – Guide Bridge
H.27	Deansgate – Euxton junction
H.28	Ashburys/Hyde North – New Mills Central/Rose Hill
H.29	Guide Bridge – Glossop/Hadfield
H.30	Guide Bridge – Chester (via Stockport)
H.31	Manchester Airport – Wilmslow/Slade Lane Junction
H.32	Blackpool North Branch
H.33	Edge Hill – Manchester Victoria (via Earlestown) / Wigan
H.34	Southport / Kirkby – Wigan Wallgate
H.35	Wigan Wallgate – Manchester Victoria
H.36	Blackpool North Branch
H.37	Buxton Branch
H.38	Haze Grove - Edgeley Junction
H.39	Cumbrian Coast
H.40	Settle and Carlisle Line
H.41	Windermere Branch
H.42	Carnforth - Long Preston
H.43	Morecambe / Heysham Port Branch
H.44	Roses Line and Branches (including Preston - Ormskirk and Blackburn - Hellifield)
H.45	Chester / Ellesmere Port - Warrington Bank Quay

SRS	Name
H.46	Blackpool South Branch
H.91	[Freight through routes] London North Eastern
H.98	[Freight trunk routes] London North Eastern
H.99	[Other freight lines] London North Eastern
Route M : West Midlands and Chilterns	
M1	Marylebone – Aynho Jn
M2	Neasden South Jn – Harrow-on-the-Hill
M3	Amersham – Aylesbury Vale
M4	Aylesbury – Princes Risborough
M5	Rugby – Birmingham New Street
M6	Birmingham New Street – Wolverhampton
M7	Wolverhampton – Stafford
M8	Birmingham New Street – Barnt Green
M9	[Barnt Green – Stoke Works Jn] Western
M10	[Birmingham – Wichnor Jn] East Midlands
M11	[Oxford - Coventry South] Western
M12	Leamington Spa – Birmingham Snow Hill
M13	Stechford – Wolverhampton via Aston
M14	Birmingham Snow Hill – Stourbridge Jn
M15	[Stourbridge Jn – Hereford] Western
M16	Stratford-upon-Avon lines
M17	Cross City North
M18	Rugeley – Bescot
M19	Redditch – Barnt Green
M20	[Wolverhampton – Shrewsbury] Wales

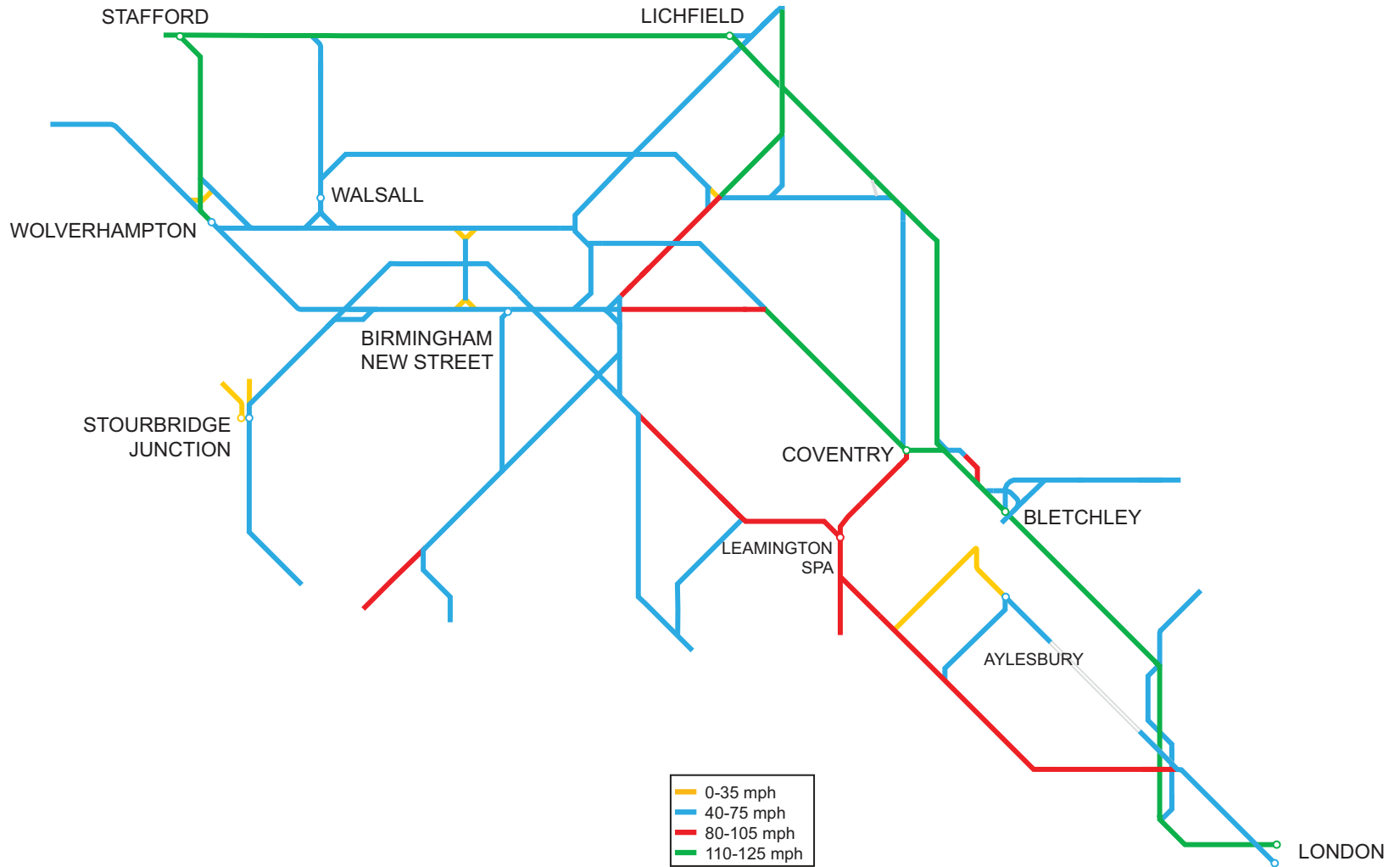
SRS	Name
M21	Camp Hill line
M22	Water Orton – Nuneaton
M23	Nuneaton – Coventry
M24	Soho Jns – Perry Barr Jns
M25	Stourbridge Town branch
M98	Freight Trunk Routes
M99	Other freight lines
Route N : West Coast Main Line	
N.01	Euston – Rugby
N.02	Rugby – Stafford
N.03	Stafford – Crewe
N.04	Crewe – Preston
N.05	Preston – Border (nr Gretna Junction)
N.06	Border (nr Gretna Junction) – Carstairs
N.07	Weaver Junction – Liverpool South Parkway
N.08	Norton Bridge/ Colwich Junction – Cheadle Hume
N.09	Crewe – Kidsgrove
N.10	Watford Junction St. Albans Abbey
N.11	Euston – Watford Junction (DC Lines)
N.12	Bletchley – Bedford
N.13	Crewe – Chester
N.99	Other freight lines
Route O : Merseyrail	
O.01	Merseyrail

Linespeed - LNW North

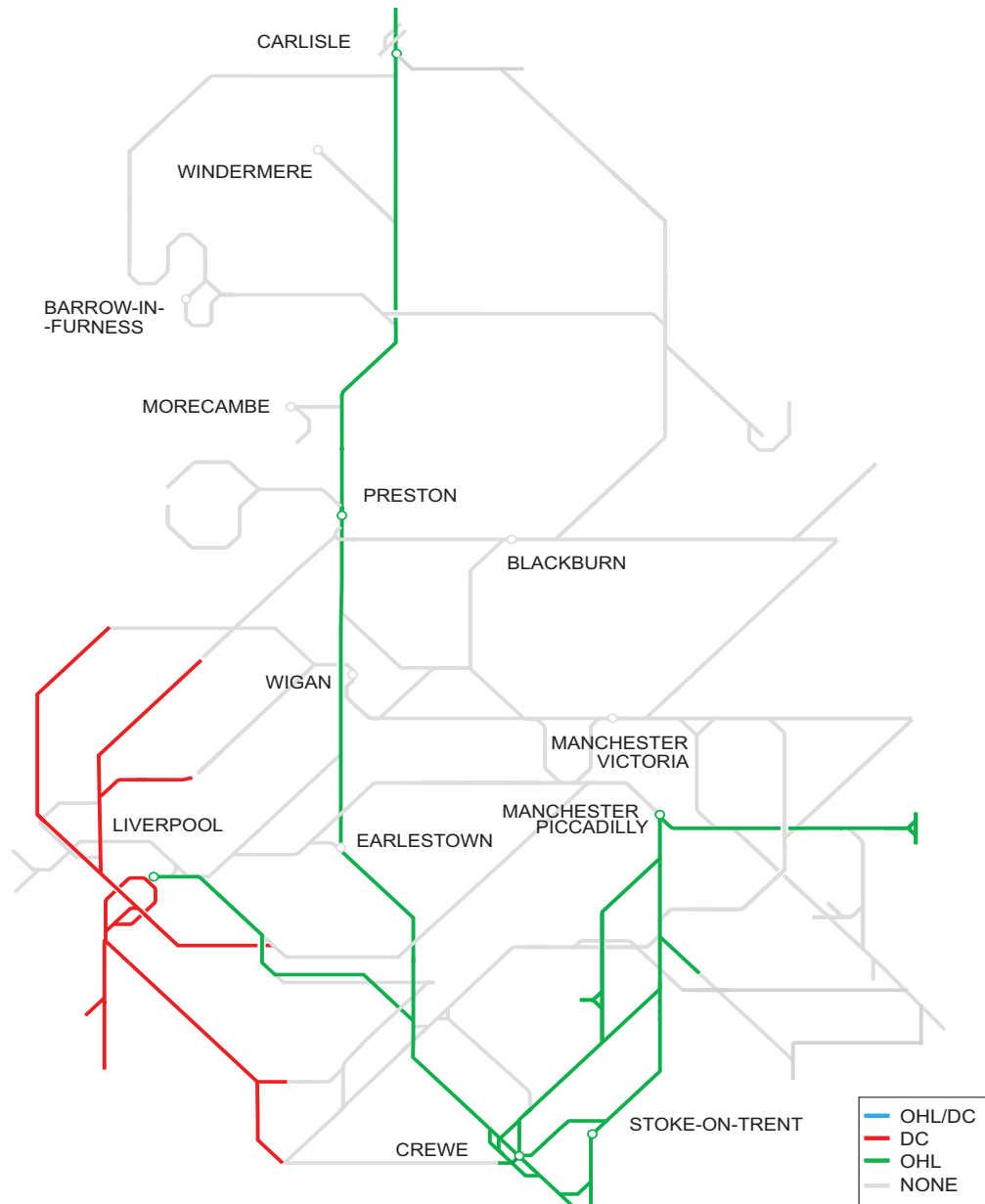
The following maps are split into LNW North and South and show the current capacity of the LNW network, with regards to linespeeds, electrification, route availability and gauge.



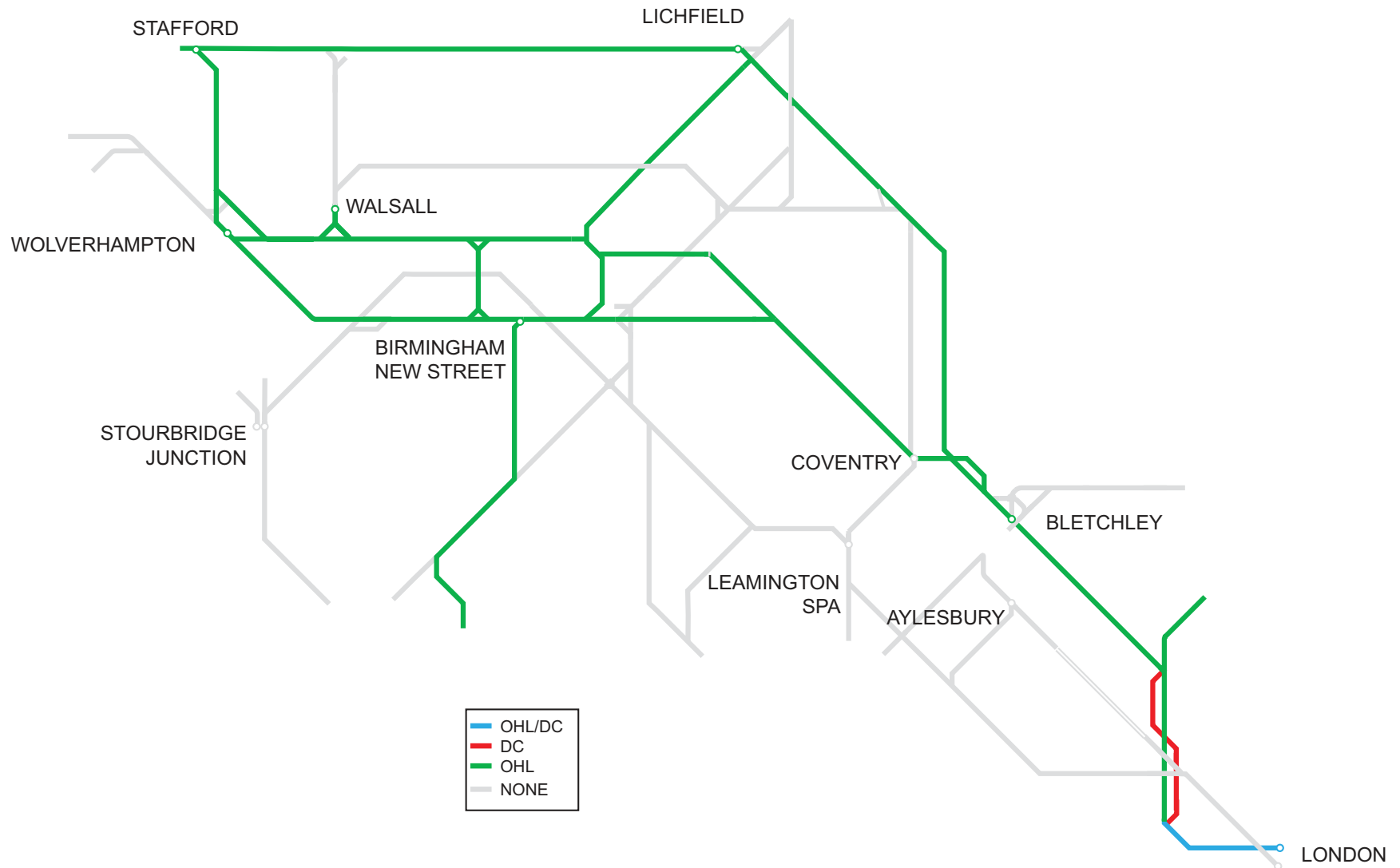
Linespeed - LNW South



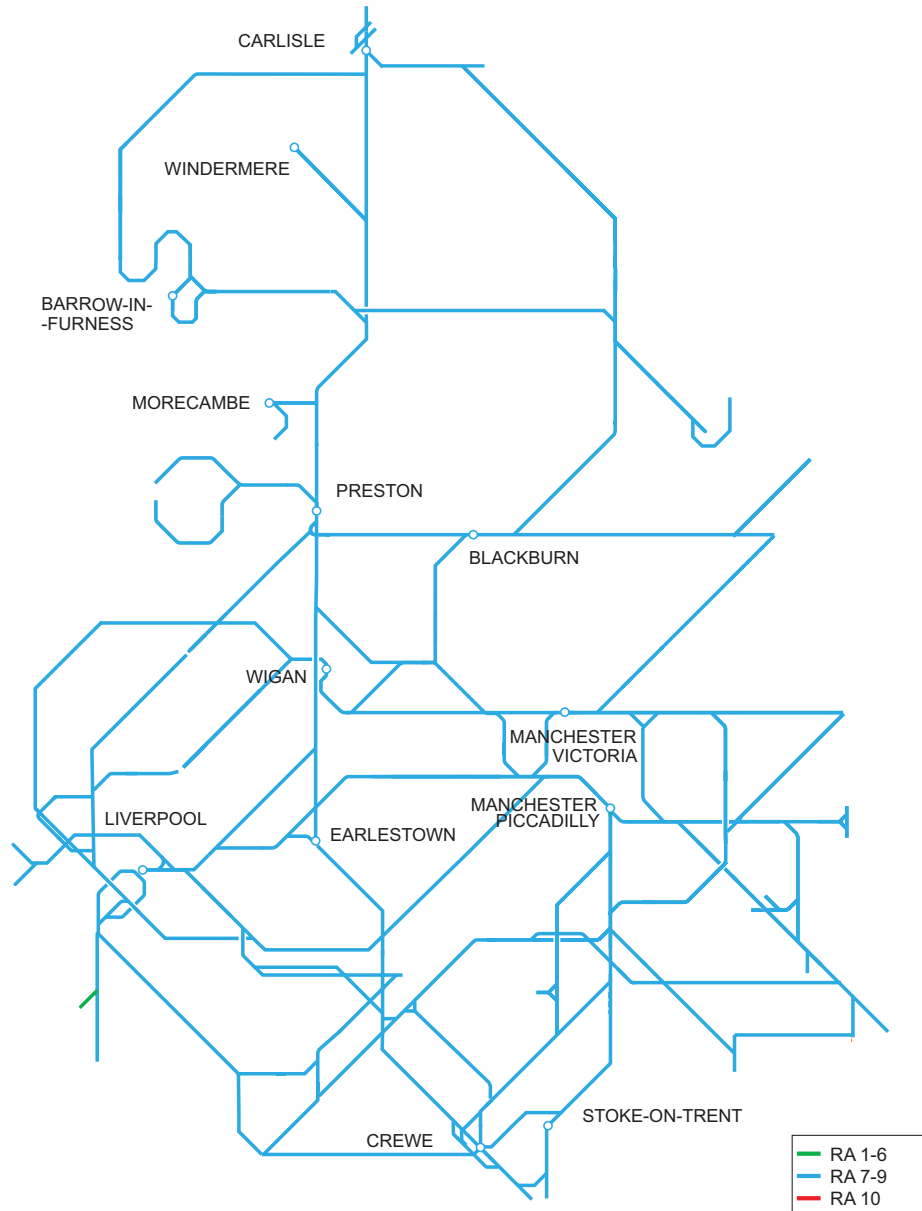
Electrification - LNW North



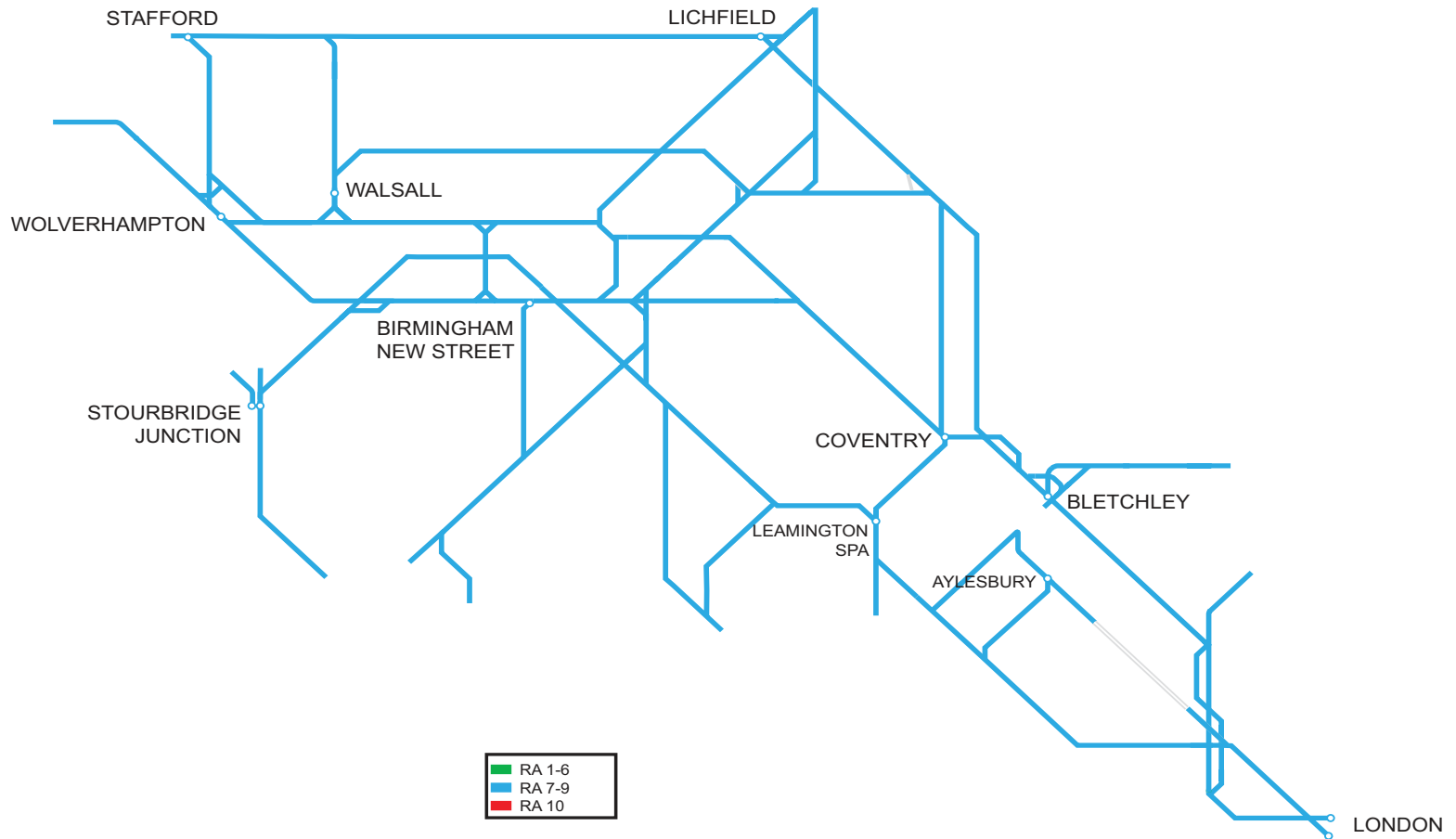
Electrification - LNW South



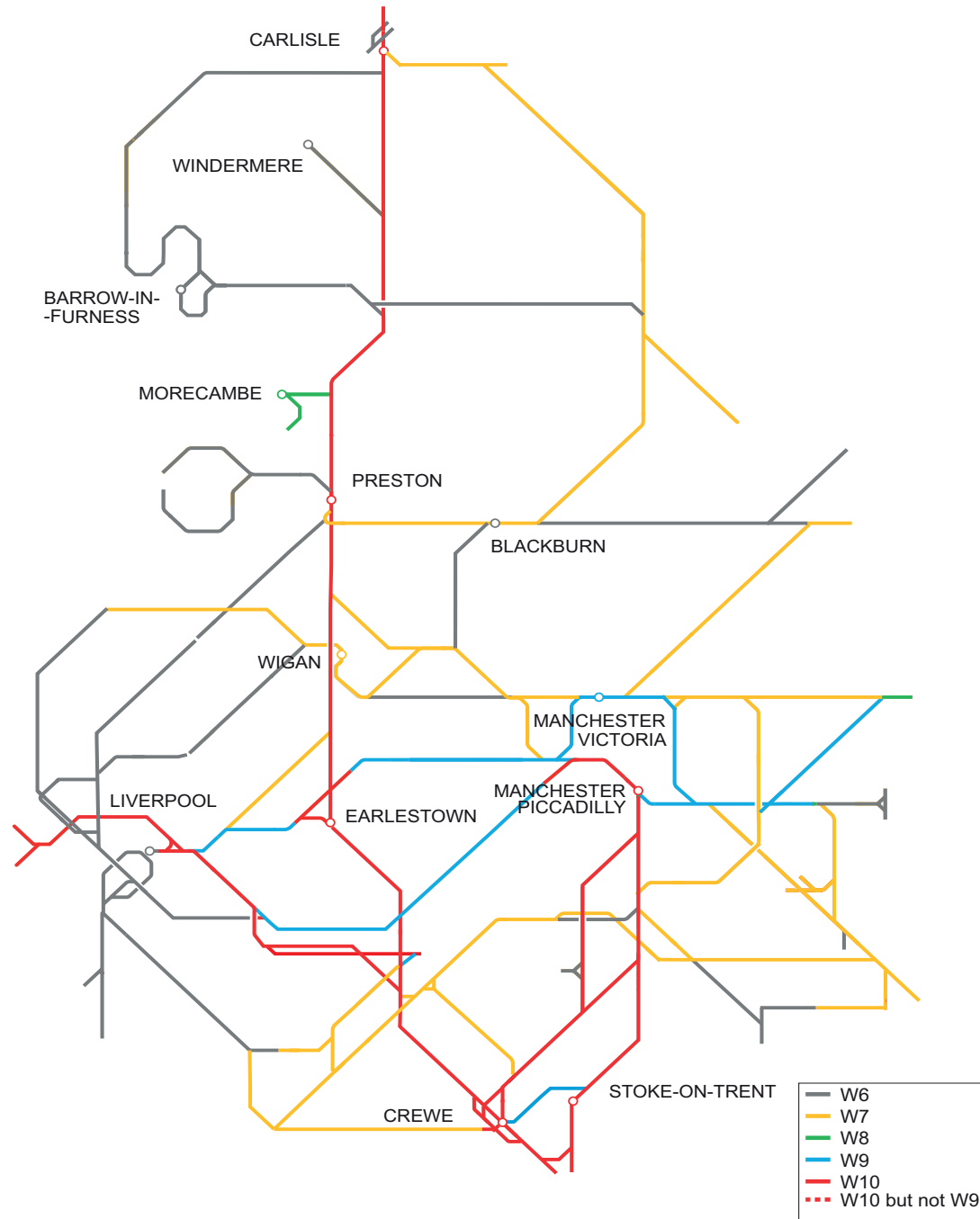
Route availability - LNW North



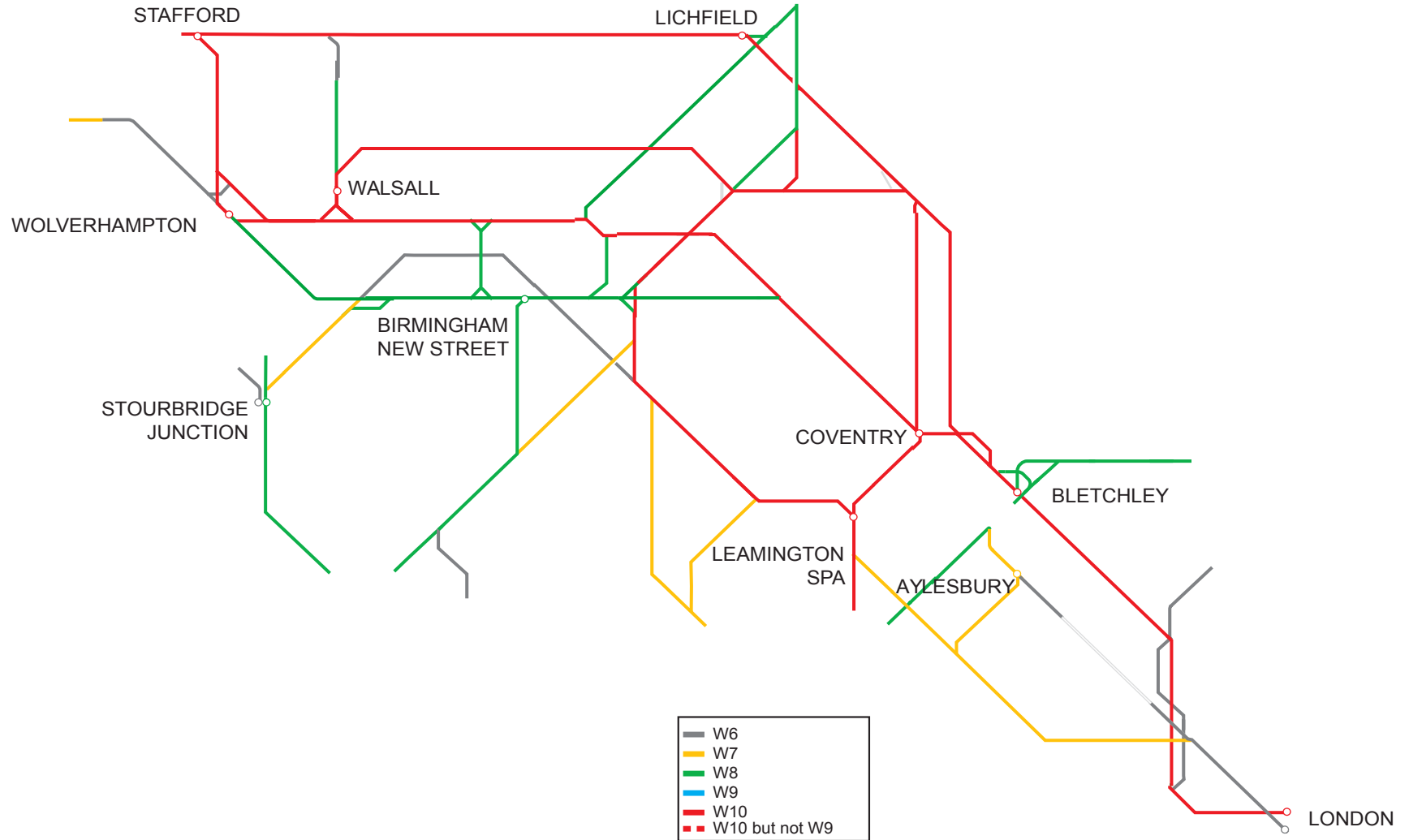
Route availability - LNW South



Gauge - LNW North



Gauge - LNW South



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