



## Route 20 North West Urban

Along the Liverpool to Manchester corridor, there are motorway and major road alternatives to all routes, but these can be heavily congested.

The route is the subject of the North West Route Utilisation Strategy, which is likely to inform the revision to the specification of the Northern franchise, and expected to be put out to consultation July.

### Today's route

This route covers the main urban areas in North West England and is located either side of the West Coast Main Line (WCML). The principal elements of the route are described below with the relevant Strategic Route Section shown in brackets:

- branches off the WCML from Crewe to Manchester Piccadilly via Stockport (22.01), the Styal line including the branch to Manchester Airport (20.11) and the Allerton to Liverpool Lime Street line (20.04);

- the main routes between Manchester and Liverpool including both the CLC (20.03) and via Chat Moss line and the branch through St Helen's Central (20.13);
- Manchester Piccadilly through Salford Central and Bolton to Blackpool (20.02, 20.07 and 20.12);
- lines between Stockport and Buxton (20.17), Stockport and Chester and Guide Bridge (20.10);
- lines between Manchester Victoria through Wigan to Southport and Kirby (20.15, 20.14);
- Manchester Victoria to Stalybridge and Rochdale (20.16) including the Oldham Loop (20.19);
- east Manchester including Transpennine routes from Piccadilly to Diggle (20.05 and 20.06);
- lines from Guide Bridge to Hadfield and Glossop and lines to the Hope Valley via Brinnington and Hyde (20.08);
- Bolton to Blackburn (20.18); and
- various freight and empty stock lines (20.20).

### Route context

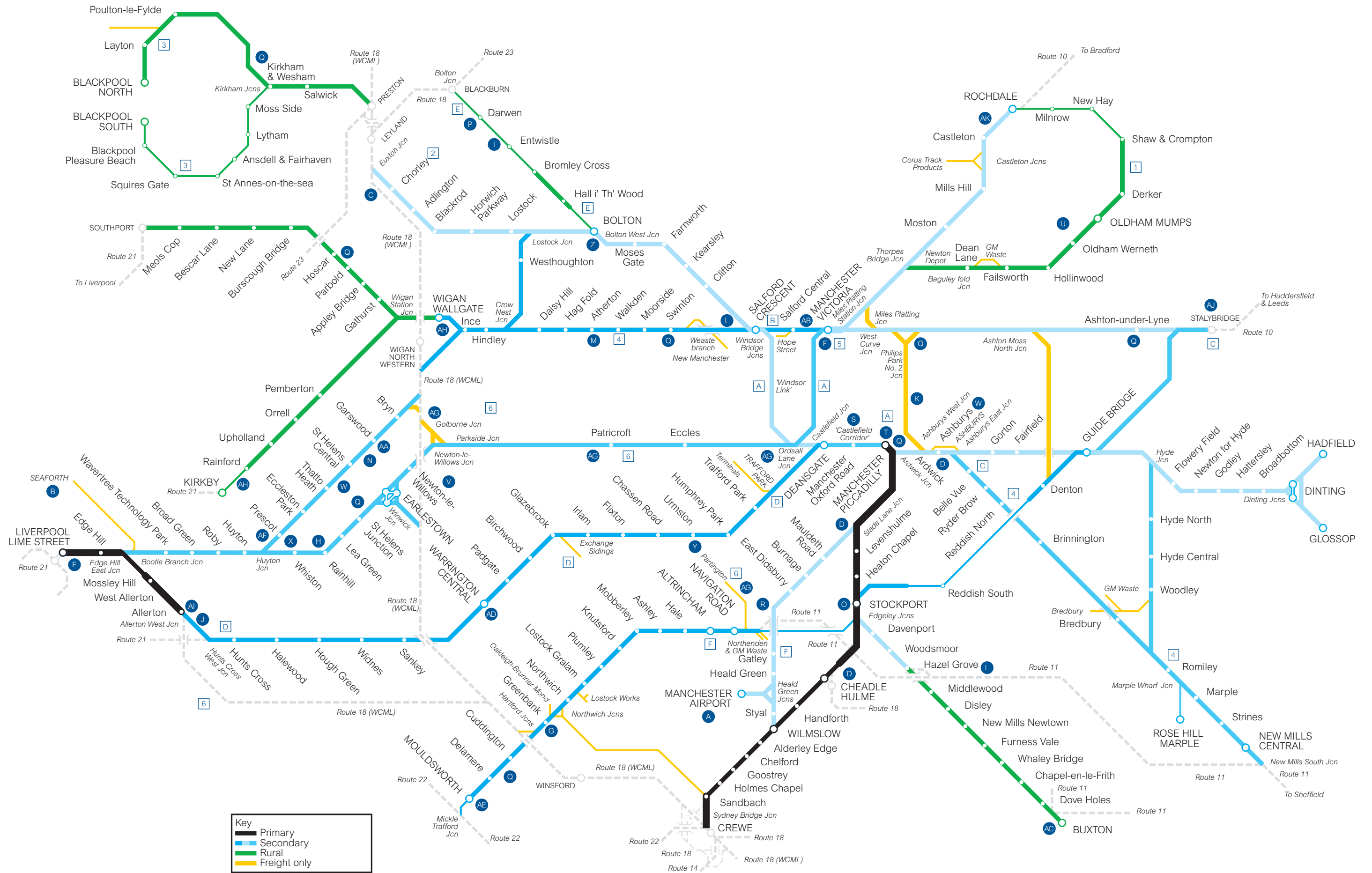
This route covers the main urban areas in North West England and is located either side of the West Coast Main Line (WCML) – Route 18. It is focused on the penetrating routes to central Manchester and Liverpool Lime Street. It also covers the neighbouring parts of Cheshire, Derbyshire, Warrington, Halton, Blackburn with Darwen, and Lancashire, including resorts at Blackpool, Southport and Buxton.

Rail plays a key role in the transport system of North West England. This route comprises the northern end of the long distance national rail markets into both Manchester and Liverpool, particularly the important West Coast flows from London and cross country/interurban routes from the West Midlands, South Wales and the south. It also forms the western end of important

Transpennine routes from the North East. Other key services operate to Cumbria, North Wales, north Lancashire and the Fylde. The route includes the suburban and commuter rail network in Greater Manchester and the City Lines into Liverpool, supported by Greater Manchester Passenger Transport Executive (GMPTE) and Merseytravel. Rail has a major role in providing surface access to Manchester Airport, and is expected to play an increasing role for Liverpool John Lennon Airport.

Although some lines have no freight services, overall this is a mixed-use railway. There are substantial freight flows on long distance routes to Manchester Trafford Park, to Seaforth/Liverpool Bulk Handling Terminal and on the North and South Transpennine routes.

# Route 20 North West Urban



Line Type	Color
Primary	Black
Secondary	Light Blue
Rural	Green
Freight only	Yellow

### Passenger and freight demand

There is a substantial commuter market for rail services into the centres of Manchester, Liverpool and to a lesser degree Preston, and a similar market for off peak travel to those cities. There are strong leisure and business flows between the Northwest and London, Birmingham, North Wales and Yorkshire. Manchester Airport is a significant destination, serving mainly leisure passengers from the whole of the north of England.

There has been significant growth in demand over the past ten years, although several factors have distorted recent trends. Over the period from 1999/2000 to 2002/03, demand for journeys within the route remained broadly steady, while demand for journeys to and from other parts of the country actually declined. This was due to a combination of factors, including route blockades for West Coast Route Modernisation work; the rebuilding of Manchester Piccadilly from October 2000 to June 2002; poor train performance in the aftermath of the Hatfield accident in October 2000; and strikes by train operator staff during the second half of 2002. These factors masked the underlying growth for several years.

Since 2002/03, however, there has been substantial growth, as demand has recovered from these setbacks. Between 2002/03 and 2004/05, there was a growth of between 15% and 20% in demand both for journeys within the route, and for journeys to destinations outside the route other than London. More recently, the new Virgin West Coast timetable was introduced in September 2004, and this has generated significant growth in journeys to and from London.

The RUS work highlighted (from surveys carried out in 2005) that there is a sharp morning peak at both Lime Street and the central Manchester stations at which there is overcrowding on a number of services.

Freight intermodal terminals are an important driver for freight traffic on the route. In addition a substantial quantity of aggregates traffic from the Peak district either traverses the route or has a destination within it. The presence of Alexandra Dock and Seaforth at the docks end of the Bootle Branch also generates considerable freight traffic.

### Current services

The train operating companies that provide services on the route are Virgin West Coast, Virgin Cross Country, Transpennine Express, Central

Trains, Northern Rail, Arriva Trains Wales, Merseyrail, EWS, Freightliner Ltd, Freightliner Heavy Haul Ltd and DRS.

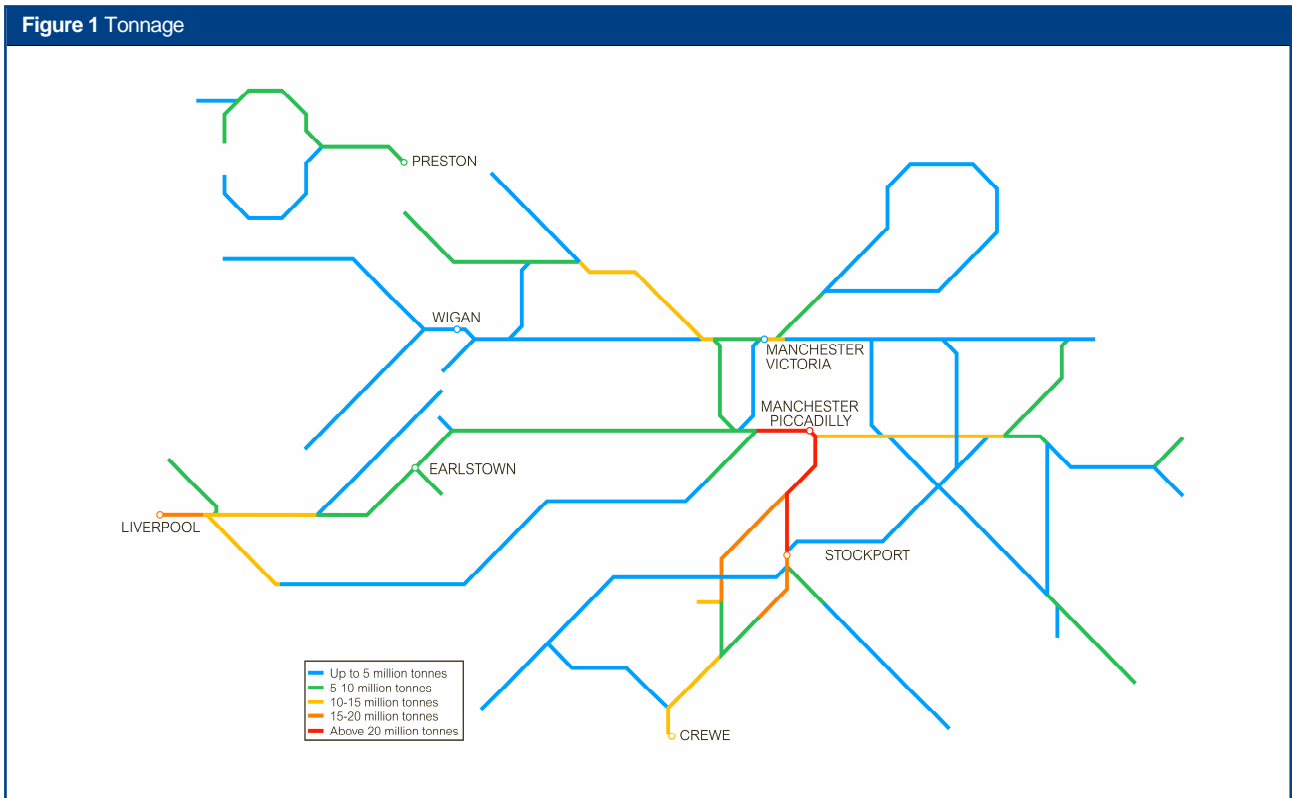
Most services on the route are hourly. Notable exceptions to this are services that operate at two an hour such as the long distance services, Manchester – Euston, Manchester – Birmingham, and Manchester Victoria to Leeds via Rochdale. There are some local routes that also operate at two trains an hour such as Liverpool Lime Street to both Manchester Oxford Road, and Wigan; Manchester Victoria to Wigan, to Shaw, and to Rochdale via Oldham; and Piccadilly to both Marple and Glossop. There are also some services less than hourly, such as the slow train to Sheffield, and the second train in the hour between Liverpool and Birmingham. In addition, some of the hourly services work in combination for parts of their route to give a better frequency, such as two fast trains an hour between Manchester Piccadilly and Liverpool Lime Street, and between Manchester Piccadilly and Sheffield, and four trains an hour between Manchester Piccadilly and Leeds, and between Blackpool North and Preston.

### Current traffic

There is a mix of three broad types of passenger service: long distance services with destinations that include Scotland, London and the south coast; regional express services, with destinations such as Llandudno, Barrow in Furness, Newcastle, Cleethorpes and Norwich; and local services, covering local destinations out of Liverpool and Manchester. Apart from trains to London, services are a mix of 2, 3, 4, and 5 car multiple units, with 2 and 3 car trains being the main rolling stock formation.

There are a number of significant freight flows: stone from the Peak District, which either traverses the route or has destinations within it, such as Northwich, Ashburys and Hope St in Salford; coal from Liverpool Bulk Terminal (LBT) which is the primary source for Fiddlers Ferry Power station; and container traffic to and from the WCML. Other smaller flows include waste trains to and from various terminals around Manchester, and the Northwich stabilisation scheme, which involves bringing in flyash to Northwich and then taking the output brine to Middlewich. Traffic and the demand for capacity at the associated terminals, is expected to continue to grow steadily. The location of the freight terminals adds to the operational complexity of this route.

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)	21	1	22
Train tonne km per year (millions)	2,498	958	3,456

**Current infrastructure capability**

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

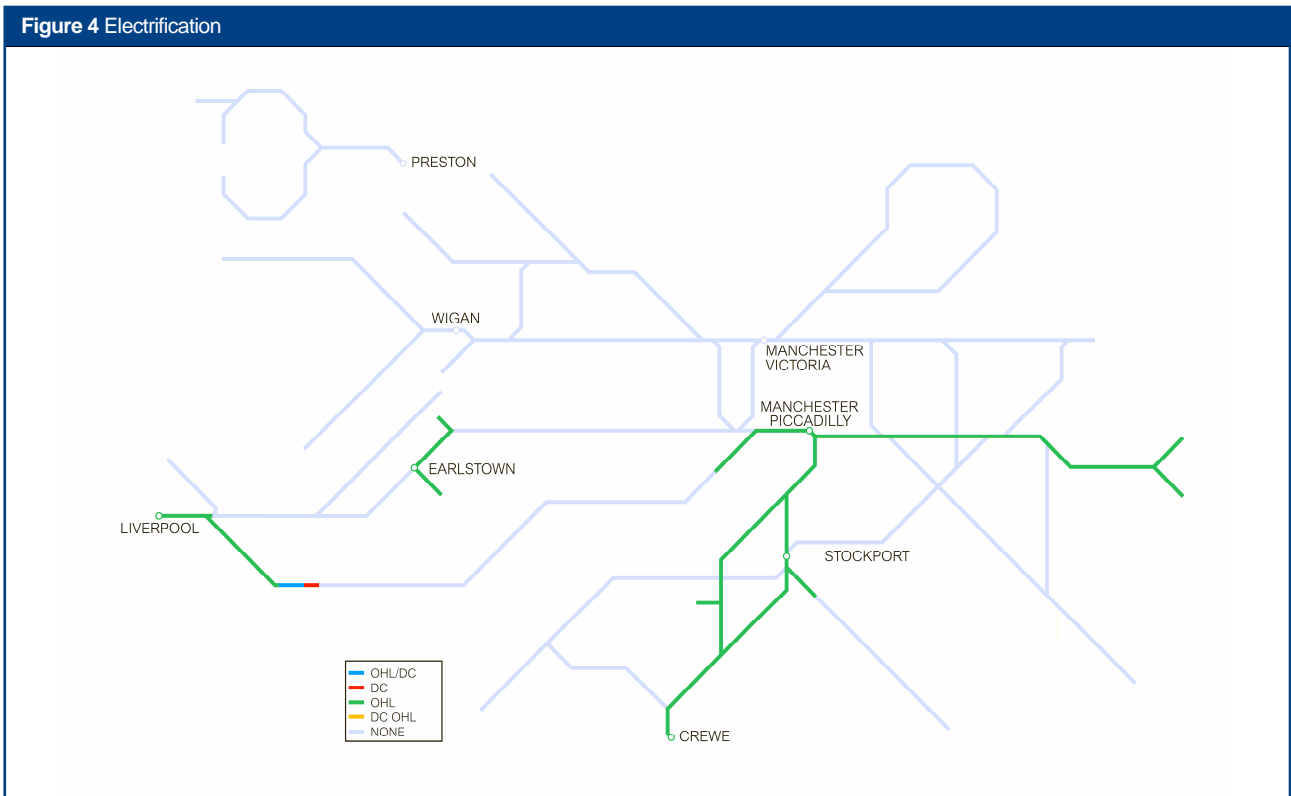
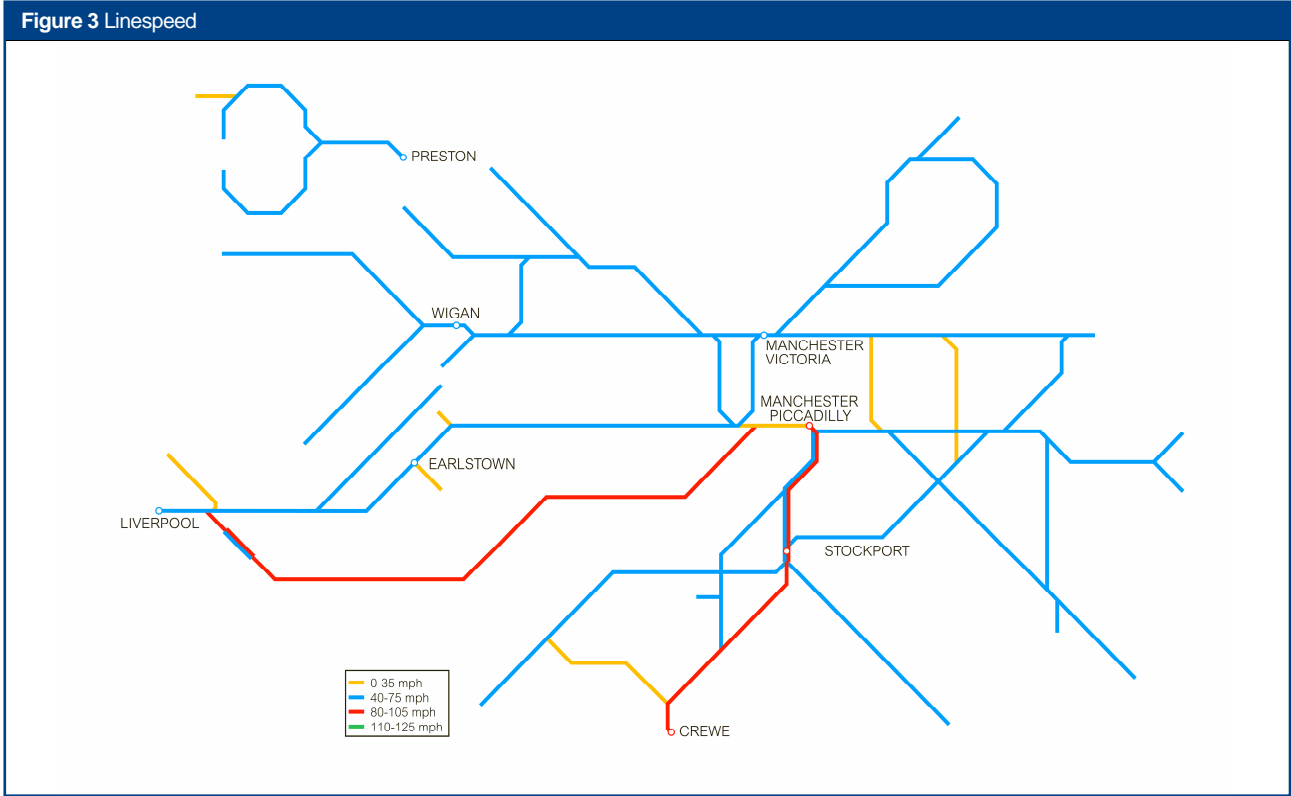


Figure 5 Route availability

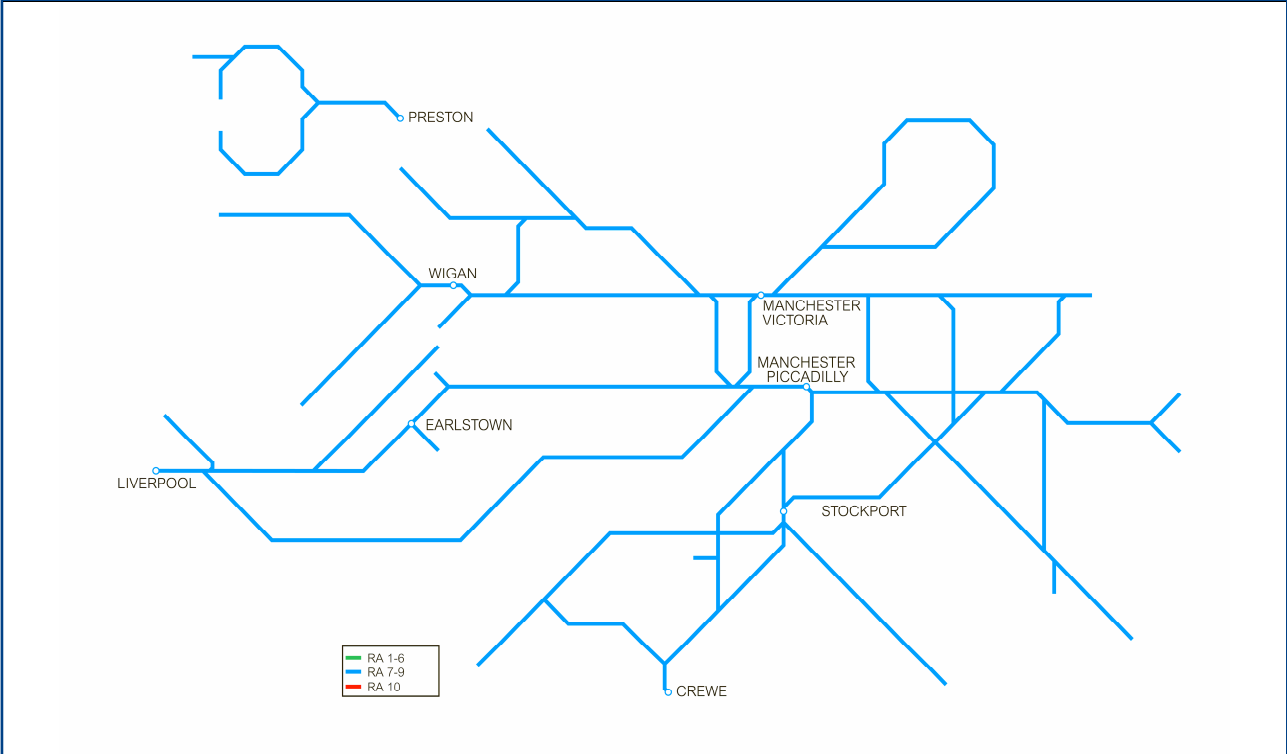
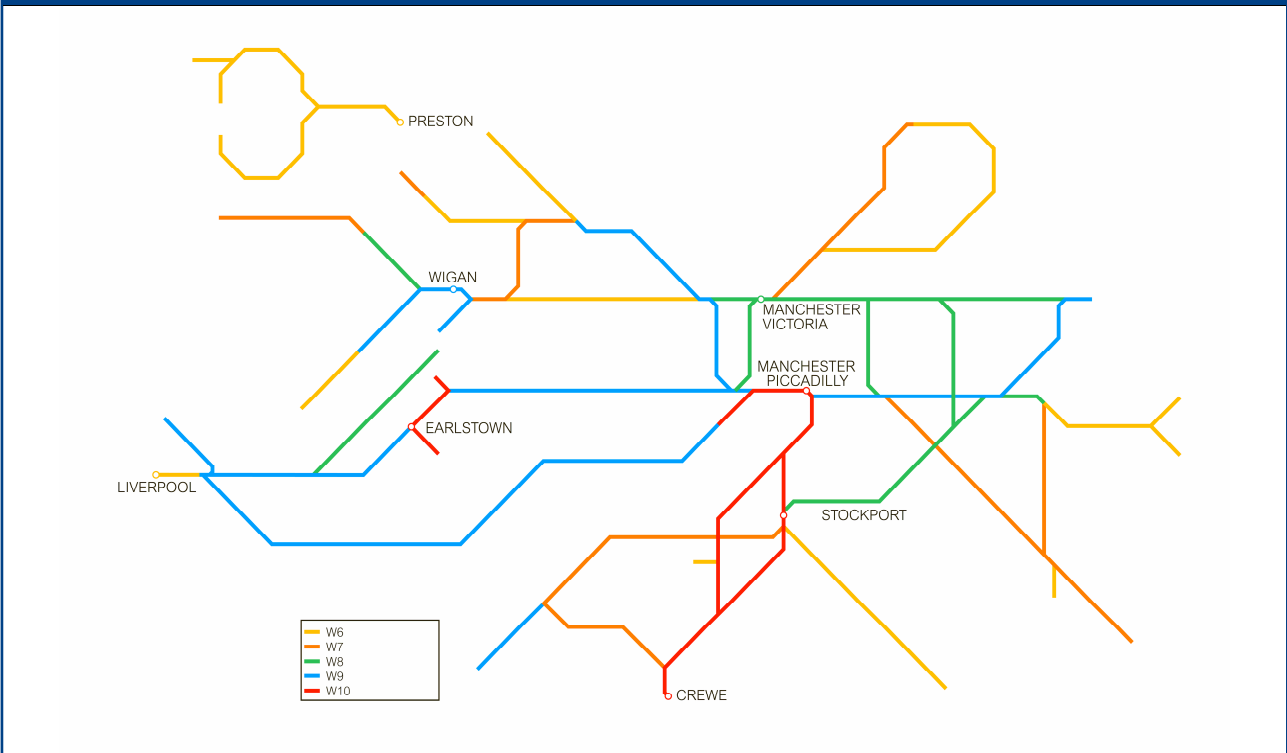


Figure 6 Gauge



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

Route Section	Fast Lines	Slow Lines
Manchester Piccadilly – Slade Lane Jn	14	13
Slade Lane Jn – Stockport	13	5
Slade Lane Jn – Manchester Airport	9	–
Manchester Piccadilly – Deansgate	10	–
Salford Crescent – Bolton	10	–
Ardwick – Ashburys	14	–
Liverpool Lime Street – Edge Hill	7	7

**Current capacity**

The nature of the services through the Manchester hub is highly complex, with a wide range of stopping patterns, destinations and linkages between services across the hub. The existing mix of fast and stopping trains means that capacity is fully utilised at a number of key sections, such as: from Manchester Airport into and through Piccadilly; at Ordsall Lane; between Manchester and Liverpool via Warrington; and in the peak between Salford Crescent and Euxton Junction. The train working in Manchester Victoria station is constrained by the number of turn round moves that can take place and also by restrictions governing levels of permissive working. The greatest constraint is at Manchester Piccadilly, exacerbated by the large number of through services that cross the station throat or use the busy through platforms (13 and 14).

At the pinch points on the route, tradeoffs have already been implicitly made between performance and the number of trains. The high utilisation is due to the number of trains using the same piece of railway (as in the case of the throats at Piccadilly and Lime Street) or the same platforms (as in the case of Lime Street, Salford Crescent, Piccadilly and Manchester Airport). Capacity is also constrained due to the mix of slow and fast traffic, particularly on the line to the Airport, the line through Warrington Central and the line from Salford to Bolton.

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

**Current performance**

Figure 8 shows the current PPM for each TOC running along the route.

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

TOC	MAA	As at period
Arriva Trains Wales	80.4%	10
Central Trains	76.8%	10
Merseyrail	92.6%	10
Northern Rail	86.1%	10
TPE	77.4%	10
Virgin Cross Country	80.2%	10
Virgin West Coast	80.3%	10

An industry-wide group has been looking at performance issues associated with the timetable. An area of focus has been on those places where the Rules of the Plan will need to be amended in order to make the timetable more resilient. It is likely, however, that recommendations will involve a trade-off between timetable reliability and number of available train paths.

Recent timetable changes have resulted in an increase in train services. Both Manchester – London and Manchester – Birmingham services now operate on a 30 minute frequency, with reduced journey times. In addition to this, services to and from South Wales, operated by Arriva Trains Wales run on a standard hour pattern and the Transpennine Express franchise operates 4 services per hour to and from Leeds, also on a standard hour pattern.

Despite this increase in traffic, performance has continued to improve in 2005/06. The delays in the General Manager, Manchester area, which represents the majority of the route, are currently 14% ahead of target and 19% ahead of 2004/05 figures.

Autumn delays have been reduced again in 2005/06, even judged against the 82% improvement recorded in the previous year. This has been achieved by further significant investment in equipment and manpower resources, and also by working in close collaboration with our customers. Key elements include agreeing autumn timetables; targeting proactive rail treatment at problem sites and responding promptly to drivers concerns in respect of 'on the day' rail conditions.

The closure of the Crewe – Manchester route from December 2005 for major engineering work, has enabled extensive track renewals and modernisation of signalling equipment. The latter resulted in the closure of Wilmslow and Sandbach signalboxes, and transfer of control for the whole route to Manchester South signalling centre. The entire route will be provided with full bi-directional signalling, and suitably positioned crossovers which should allow improved regulation and enable a near normal service to be operated in the event of one line being blocked for any reason.

Other West Coast Route Modernisation work along the Stockport – Manchester corridor, including the provision of the new platform at Stockport, continues to bring improvements to performance.

The track renewals programme is designed to improve performance by targeting the main TSRs on this route and by working towards renewing jointed track with CWR. In particular, temporary speed restrictions on the Buxton line have been a concern for sometime, both for their effect on performance on the routes and also for the delay

imported into the Manchester urban area as a result of late presentation of through services such as Buxton – Blackpool. We have recently carried out significant renewals on the route to remove the majority of the speed restrictions. This is some 18 months earlier than originally planned.

The combination of the mix of traffic and stopping patterns on the Styal line and the need for many of the services to cross the throat at Piccadilly, makes the services to Manchester airport very fragile. The fact that the airport only has 2 platforms also acts as a capacity constraint. Management intervention by Network Rail and TOC controls minimise the spread of delay by terminating trains at Piccadilly where necessary.

### **Future requirements** **Strategic direction**

This route is currently the subject of a RUS, and hence discussion of route strategy and strategic options is deferred until the RUS public consultation, which is planned to be published in July 2006.

A number of schemes are nevertheless outlined in the sections below. As always, the early development of such schemes involves an assessment of the business case, fundability, strategic fit and operational considerations before a decision to proceed can be made. As the RUS unfolds, some of these initiatives may be aligned to the RUS gap analysis, and hence be considered within the RUS optioneering process. Those that are not aligned to the RUS, but are nevertheless demonstrably worthwhile and fundable, will be progressed through 'business as usual' processes.

The future of the Oldham Loop has not yet been decided. In the meantime, we are assuming that it remains a heavy rail railway in Network Rail's ownership and are maintaining it accordingly. Our strategy is that, where appropriate, renewals that could give rise to abortive or redundant assets will be deferred until the situation clarifies.

We continue to work with GMPTE in exploring the opportunities to convert some lines to tram-train operation, with particular emphasis on east Manchester and the Atherton Line.

### **Future demand**

We expect passenger numbers to continue to rise over the coming years as regional economic growth – and in particular the continuing development of Manchester and Liverpool city centres – encourages increased demand for rail travel. In addition to this underlying effect, there are expected to be some specific sources of additional passenger growth.

There will be ongoing redevelopment of Liverpool, including at Paradise Street, a proposed city centre shopping development that is larger than the

Birmingham Bull Ring, and culminating in 2008 when Liverpool becomes the European City of Culture.

The Government's White Paper, 'The Future of Air Transport', predicted passenger numbers at Manchester Airport to double between 2000 and 2015 and, depending on the scenario used, double or triple at Liverpool John Lennon Airport. Both airports have a policy to increase the mode share of public transport for surface access by staff and passengers, and hence it is anticipated that rail demand will develop in accordance with this increasing proportion of a growing base. Furthermore, both airports' own predictions of future passenger numbers exceed those in the white paper. Even these predictions may be superseded if growth continues at the same rate as in the past two years, where at Liverpool John Lennon, passenger numbers have increased by 50% and rail share has gone from 9% to 10%. Rail journeys to Liverpool John Lennon Airport will become easier when Liverpool South Parkway opens later this year, providing a frequent and direct bus link from the station to the airport. This new station will be served by trains to Liverpool city centre, providing the users of the growing business park on the former site of Liverpool Airport with a viable alternative to cars and taxis.

We expect to see further induced growth from recent and planned service upgrades, particularly on services to London and Birmingham where there is already evidence of strong growth since the West Coast service improvements in September 2004. This growth is anticipated to increase further with the completion of the four tracking of the Trent Valley and completion of the work between Wilmslow and Sandbach. There is also an expectation that the improved quality of rolling stock between Liverpool and Birmingham, including the option of First Class travel, will see an increase in business travellers, as rail becomes more competitive with road transport.

We are expecting local authorities to commission a study into the corridor between St Helens Junction and St Helens Central, to demonstrate whether or not there is a case for reopening this line.

In summary, therefore, we expect there to be continued long term growth. The rate of growth,

however, is not easy to forecast. Recent growth rates of 8% – 10% per annum cannot be expected to continue, as they have been driven in part by recovery from earlier problems. The long term growth rate will depend to a considerable extent on the specific locations of business, leisure and housing development, and on the degree to which road congestion continues to grow, both of which are influenced by government policy, national and local. Whilst it is difficult to predict the interaction of these various factors, government forecasts and other agencies provide estimates of the key drivers that help to determine future rail demand. These are: economic (Gross Value Added): employment and population growth. For the period between 2005 and 2015, current estimates predict an economic growth rate of around 2.3% p.a. for the North West region. Economic growth in specific areas, such as Liverpool and Manchester city centres, may increase more quickly than the average estimated for the region as a whole. For employment, growth rates for Greater Manchester are forecast to range between 0.4% and 1% p.a. and between 0% and 0.5% p.a. for Merseyside. Population growth is predicted to change very slowly over the period and to reduce in some areas.

Demand for freight paths is expected to increase on the core routes, in particular with regards to domestic automotive and intermodal traffic. Currently, terminal capacity is limited, but there are proposals for 4 separate new intermodal terminals in the Liverpool – Manchester belt, on Routes 18 and 20. It is estimated that the development of one or more new intermodal terminals in the northwest may result in an increase in traffic equivalent to 32 additional daily services by 10 years' time. In addition to these 4 potential terminals, there is interest in opening up an intermodal terminal near Northwich on the mid-Cheshire line.

The market for coal traffic on rail is expected to grow in excess of GDP, as power stations start to use more imported coal. The main port facility on this route capable of handling coal is the Liverpool Bulk Terminal at Alexandra Dock, and this is conveniently located for power stations at Fiddlers Ferry, Ironbridge and Ratcliffe.

Figure 9 Tonnage growth

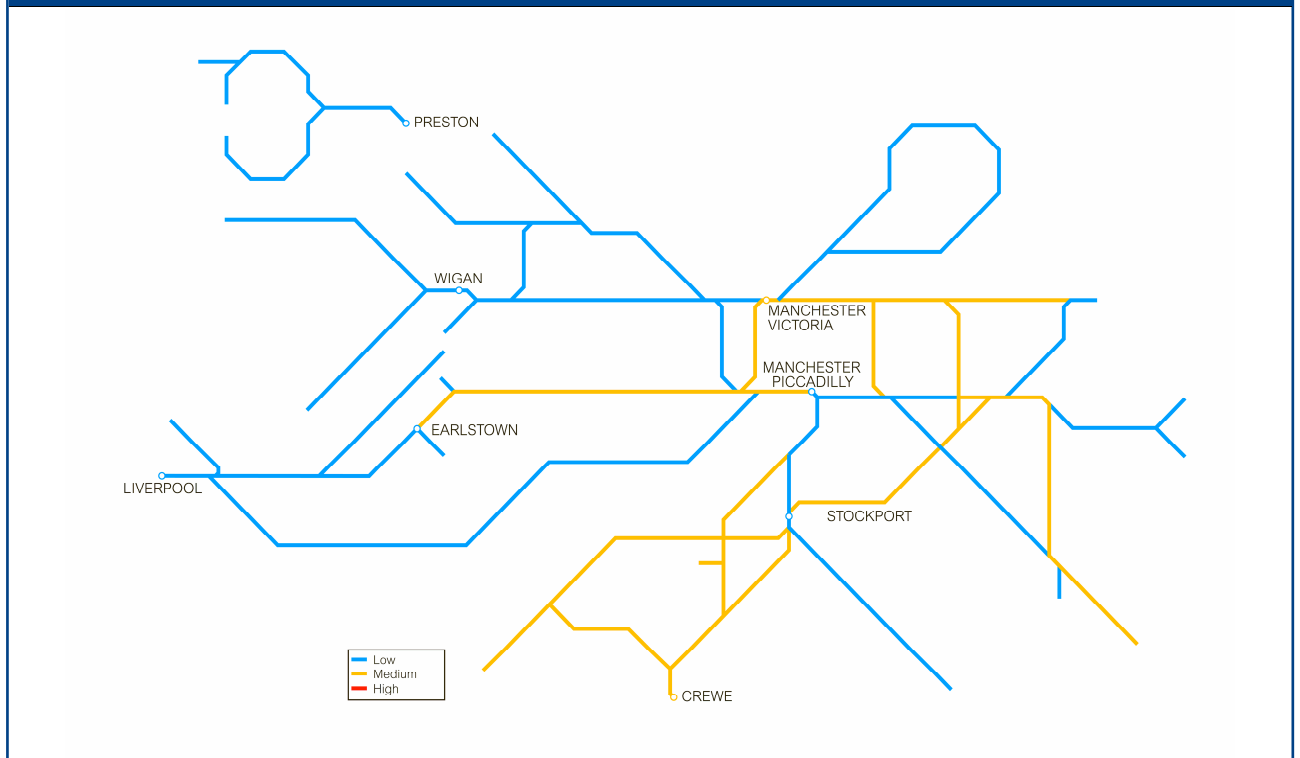


Figure 9 indicates the forecast percentage change in tonnage in 2015.

#### Future capability

Potential changes to capability are summarised in Figure 10.

#### Fragile routes

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

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

#### Platforms

The case for a third platform at Manchester Airport is being evaluated. At a much earlier stage of development, another scheme is looking at a third platform at Salford Crescent. Both of these would increase capacity at those stations and improve performance.

#### Gauging

A proposal for widening the gauge clearance on the Bootle Branch and access to the WCML to W10 gauge is being investigated. This would allow the docks to handle the largest sized container via

the railway without recourse to specialist wagons. Included in the scheme is consideration for providing W10 gauge to the WCML via Earlestown, allowing the larger gauge to use their usual route to access the Bootle branch. A further scheme is being developed to reinstate the Olive Mount Chord. This would allow trains to access the Bootle Branch directly from the Earlestown direction without the need for a run-round move.

We are investigating the case for making the line from Sandbach through Middlewich to Northwich and Hartford Junctions clear for W10 gauge.

#### Electrification

The business case for extending electrification is being assessed by regional partners. The scope of the evaluation includes the Chat Moss, Huyton to Wigan, and Hunts Cross to Trafford Park, and will also consider the merits of individual elements. If this scheme were progressed, it would allow electric passenger services an alternative route to Liverpool from the WCML and allow electric services to run from the south through Manchester and back to the WCML. It would also provide the facility to enable electric services from Liverpool northwards, and allow electric services to operate between Liverpool and Manchester. It is most likely that any such scheme would be aligned with the replacement of the Merseyrail fleet, which is expected to be in about 2013.

#### Stations

There are two station improvement schemes planned at Liverpool Lime Street. The first is known

as Liverpool Lime Street Gateway which looks to improve the front of the station, in particular opening up the frontage area and replacing the existing Concourse House. This scheme is being funded by Liverpool Vision, English Partnership and a third party developer. The second improvement scheme is being funded by Merserytravel, who are planning works on the internal area of the station. This will concentrate on the south concourse, including its resurfacing and establishing retail outlets on the old cab road. Improvements to the short stay car park, including relocation of the taxi rank are also planned as part of this scheme. We are investigating the case for improving retail facilities at the station.

Merseytravel has further plans to improve other stations in their area, especially in terms of car parking, access and station facilities. Although too early to give a firm indication of the RUS recommendations, we think it is nevertheless likely

that the RUS will recommend a similar plan for the rest of the route, tied in with the local authorities' aspirations for park and ride and quality bus corridor schemes.

#### Future capacity

The signalling renewals that would open up the realistic possibility of alterations to headways or layouts for most of the route are not expected until 2014 or later.

We are investigating whether (jointly with renewals) it is worthwhile to develop a scheme to convert absolute block signalling to track circuited operation and reduce headways to 4 minutes whilst improving performance, both between Huyton and Earlestown and also between Huyton and St Helens Central (see Figure 11). We are also working closely with Chorley Borough Council and Lancashire County Council to examine a proposal for a new station at Chorley Buckshaw Village on the Bolton to Euxton Junction line. Issues over signal sighting, signal locations and platform locations means that the exact site location has yet to be confirmed. Strategic fit issues, especially which trains would be expected to stop there, are also still being discussed.

**Figure 10** Potential capability changes

Route section or location	Capability measure	Current value	Future value	Date
Seaforth to Edge Hill	Gauge	W9	W10	2010
Edge Hill to Earlestown	Gauge	W9	W10	Not yet known
Olive Mount Chord	Reinstated railway	none	2 track	Not yet known
Manchester Airport 3rd Platform	New railway	none	1 track	Not yet known
Salford Crescent 3rd Platform	New platform face	none	1 platform	Not yet known
Edge Hill to Castlefield Jn, to Springs Branch Jn, and/or to Trafford Park	Electrification	none	25kV OHLE	Not yet known

**Figure 11** Potential headway changes

Route section	ROTP planning headway	Future headway
Huyton to St Helens Junction	8½ minutes	4 minutes
Huyton to St Helens Central	10 minutes	4 minutes

**Figure 12** Forecast reduction in delay minutes

	2006/07	2007/08	2008/09
% reduction in delay minutes	8%	16%	22%

**Future performance**

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

Figure 13 shows the forecast PPM for each TOC running along the route.

In January 2005, a major cross industry project was launched, with the objective of examining the accuracy of the timetable rules for the Manchester area and the resilience of the base timetable. This is seen as a key to significant future performance improvements. The project is examining rules relating to junction margins, headways, sectional running times and station dwell times. This is the first time the timetable rules have been examined in such depth, in the Manchester area. Any major timetable changes as a result of this work are unlikely to be seen before December 2007, in line with the RUS timescales. This will allow stakeholders to be consulted on the optimum balance of service levels and performance in the event of the new rules failing to support the current level of train services.

Within a route with such an intensive level and complex mix of train services, regulation of services by signallers is key to producing good performance. The GM Manchester team has been working closely with customers to improve regulation and promulgate best practice to signallers. This work continues and will be further supported by the adoption of the new national regulation policy from April 2006.

The Manchester area will also benefit over the next 18 months by being included in the first stage of the National Bridge Strike Initiative. This work is

based on a successful trial carried out on the Chilterns route and involves engineering assessments being carried out on every rail over-bridge. At present train services are stopped completely in the event of the bridge being struck by a road vehicle, pending an examination of the structure by a competent person. The assessments will allow dispensations to be applied to specific bridges, to allow train running to continue in the event of a 'bridge strike'. A number of bridges already have such dispensation, but this is the first time that every bridge on a route or routes will have been assessed.

We plan from December 2006 to have created a co-located control centre with Northern and TPE, from which we expect to see benefits in performance including better reaction times to incidents.

As mentioned earlier, the works on the Crewe – Wilmslow – Cheadle Hulme line, will provide signalling with facing and trailing crossovers and bidirectional signalling. This new equipment will be less prone to fail and will be more able to cope with the disruptive effects of failures. We will continue the work on converting the secondary railway on the route to CWR, and expect to complete this task in the next five years.

Whilst it will not solve all the problems with the route to Manchester airport, the scheme to build a third platform (should it go ahead), will remove the need for two trains at once to occupy the same platform, and hence remove some of the risk of propagating knock-on delay and reduce the number of trains that are stopped short at Piccadilly.

**Figure 13** Forecast PPM MAA

TOC	2006/07	2007/08	2008/09
Arriva Trains Wales	83.6%	84.5%	85.2%
Central Trains	83.8%	84.5%	84.5%
Merseyrail	94.1%	94.4%	94.6%
Northern Rail	86.7%	87.5%	88.3%
TPE	88.7%	90.5%	91.4%
Virgin Cross Country	81.6%	83.5%	84.3%
Virgin West Coast	85.5%	87.8%	88.6%

### Engineering access

Our strategy on this route is to liaise with the train operators, to find the least disruptive ways in which to carry out the required renewals. This tends to mean disruption to Sunday services, but can also result in blockades when major work is required, with diversionary routes or bus replacements.

On the Crewe – Cheadle Hulme line there is currently a blockade to carry out WCRM signalling work, including the installation of switches and crossings and commissioning works. This work is now expected to be complete in June 2006. There will also be severe capacity restrictions and diversions during Period C (June to August) in connection with WCRM work in the Slade Lane – Longsight area.

There has again been heavy renewals work on the Hope Valley route during January to March this year and this will be repeated in subsequent years.

We intend to continue the regime of Sunday blockade at appropriate times of the year. For example, we are closing the line from Preston to Blackpool on Sundays in February and March in 2006, to coincide with times of least demand for services. Between June and September, we will be carrying out work on sections between Northwich and Edgeley also affecting Sunday services, between Chester and Manchester.

There are a number of longer possessions planned this year. For four days over Easter, we will close the line between Thorpes Bridges Junction and Todmorden, affecting services from Manchester

towards Rochdale. In autumn 2006, the Buxton area will be closed to trains for 4 days for the rewiring of Buxton signal box. Some weeks later, major track work between Furness Vale and Buxton will close this part of the line for 9 days.

### Opportunities and challenges

The route has a complex hub topology supporting a complicated mix of services and sharply peaked passenger demand. The RUS is approaching current and future demand, capability, capacity, performance and stakeholder issues and aspirations via an established and systematic process. An important element of this work is the gap analysis, which identifies where important issues exist or are likely to emerge over the RUS 10 year time horizon. The gap analysis provides the challenge for the optioneering process.

As mentioned earlier, this route plan outlines a number of schemes that are being developed in line with asset policies and/ or stakeholder aspirations. Due to timing, these are obviously currently being developed outside the broader framework of the RUS. As the RUS unfolds, some of these schemes may turn out to be aligned to the gap analysis, and hence will be considered further under the auspices of the RUS. Others may be neutral to RUS objectives, but could be progressed via normal business processes, assuming a sound and fundable business case.

The gap analysis and an outline of the associated options will be discussed in the RUS consultation, scheduled for publication mid 2006.

### Delivering future requirements

#### Expenditure

Figure 14 shows the planned level of expenditure on renewals on this route over the next three years. However, the precise timing and scope of

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

<b>Figure 14 Forecast expenditure</b>			
<b>£m (05/06 prices)</b>	<b>2006/07</b>	<b>2007/08</b>	<b>2008/09</b>
<b>Renewals</b>			
<b>Track</b>			
Plain line	14	11	11
S&C	9	10	8
Drainage	0	0	0
<b>Track Total</b>	<b>26</b>	<b>24</b>	<b>21</b>
<b>Civils</b>			
Underbridges	7	10	6
Overbridges	1	2	2
Bridgeguard 3	1	1	3
Footbridges	1	0	1
Earthworks	1	1	1
Tunnels	1	0	0
Culverts	–	1	0
Retaining walls	0	1	1
Other	1	0	0
<b>Civils Total</b>	<b>11</b>	<b>16</b>	<b>14</b>
<b>Signalling</b>			
Resignalling	2	1	0
Minor works/other	6	8	9
<b>Signalling Total</b>	<b>8</b>	<b>8</b>	<b>9</b>
<b>Electrification</b>			
<b>AC Systems</b>			
HV switchgear	2	–	3
OHL campaign changes/refurbishment	1	0	1
Other	5	6	1
<b>Electrification Total</b>	<b>8</b>	<b>6</b>	<b>5</b>
<b>Telecoms</b>			
Telecoms cables	0	0	0
Other	–	0	0
<b>Telecoms Total</b>	<b>0</b>	<b>0</b>	<b>0</b>

<b>Plant and machinery</b>			
Fixed plant	0	0	0
Signal supply point	0	1	–
Mobile plant/vehicles	0	0	0
Point heating	1	0	0
<b>Plant and machinery Total</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>Operational property</b>			
Stations	11	0	1
Light maintenance depots	–	–	0
Lineside buildings	0	0	0
<b>Operational property Total</b>	<b>11</b>	<b>0</b>	<b>2</b>
<b>Total Renewals</b>	<b>63</b>	<b>53</b>	<b>50</b>
<b>Enhancements (funded by)</b>			
<b>Network Rail</b>			
West Coast Route Modernisation	3	2	0
<b>Network Rail Total</b>	<b>3</b>	<b>2</b>	<b>0</b>
<b>Network Rail (RAB)</b>			
Manchester Airport third platform	–	5	–
<b>Network Rail (RAB) Total</b>	<b>–</b>	<b>5</b>	<b>–</b>
<b>Other Third Party</b>			
Chorley ROF new station (Buckshaw)	0	1	1
Olive Mount Chord	1	9	–
Partington branch reinstatement	3	–	–
Salford Central	4	1	–
SEMMS	1	1	0
St Helens Central	4	1	–
West Coast Route Modernisation – TENS Funding Enhancements	0	0	0
Other	2	1	1
<b>Other Third Party Total</b>	<b>14</b>	<b>12</b>	<b>3</b>
<b>Total Enhancements</b>	<b>17</b>	<b>19</b>	<b>3</b>

**Figure 15 Forecast volumes**

	2006/07	2007/08	2008/09
<b>Track</b>			
Rail (km)	25	24	24
Sleepers (km)	24	23	23
Ballast (km)	24	23	23
<b>Switches &amp; crossings (no)</b>			
Complete renewal	32	36	43
Abandonment	7	8	8
Fencing (km)	0	0	0
Drainage (km)	2	2	2
<b>Civils</b>			
Underbridges (square metres)	2,743	5,869	2,920
Overbridges (square metres)	328	886	230
Footbridge (square metres)	151	77	295
Embankments (square metres)	324	319	–
Tunnels (square metres)	168	259	–
Culverts (square metres)	–	92	70
Retaining walls (square metres)	45	384	210
<b>Electrification</b>			
<b>AC Systems</b>			
HV switchgear (CBs)	12	–	19
HV cables (km)	20	10	–
Booster transformers (no)	–	9	–
Grid supply points (CBs)	–	1	–
OHL re-wiring (tension length)	53	–	25
OHL spanwires (no)	–	–	–
<b>Telecoms</b>			
<b>Other</b>			
Long line PA systems (stations)	–	–	10
<b>Plant and machinery</b>			
Signal supply point (no)	2	2	–
Point heating (point end)	48	18	26

The planned volume of renewals is detailed in Figure 15.

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

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

#### **Maintenance**

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

**Figure 16 Forecast expenditure**

<b>£m (05/06 prices)</b>	2006/07	2007/08	2008/09
Maintenance	40	37	34

## Infrastructure investment

Figure 17 highlights committed schemes that are planned for completion in the financial year shown.

Project	Scope	Enhancement or output change	Main asset type(s)	Third party funding	GRIP Stage	Completion Year
<b>A</b> Manchester Airport (20.11)	Provision of additional (3 <sup>rd</sup> ) platform at Manchester Airport station	Additional platform creating increased capacity. Project will have performance benefits associated	Station	Manchester Airport Potential NRDF	2	2008/09
<b>B</b> Bootle Branch gauge clearance (20.01, 20.13 & 20.20)	Enhancement to gauge along Bootle Branch between Seaforth and Edge Hill	Increased gauge to W10 allows larger freight containers to run on this line	Track/Civils	Mersey Docks and Harbour Company	3	2007
<b>C</b> Chorley Buckshaw village (20.07)	New station proposal	New asset: Improved access to the rail network and capacity for growth	Station	Chorley and Lancashire Councils and third party developer	2	2008
<b>D</b> E&P Renewals (20.01, 20.09, 20.11 & 20.20)	Switchgear 25kv renewals at Slade Lane, Ardwick and Cheadle Hulme	Renewals	E&P	None	6	2006/07
E&P Renewals	Traction transformer renewals	Renewals	E&P	None	6	2006/07
<b>E</b> E&P Renewals (20.04)	Contact wire renewals on approach to Liverpool Lime Street	Renewals	E&P	None	5/6	2006/07
E&P Renewals	Points heating renewal (in modern equivalent form)	Renewals	E&P	None	6	2006/07

Project	Scope	Enhancement or output change	Main asset type(s)	Third party funding	GRIP Stage	Completion Year	
F	Telecoms Renewals (20.07, 20.15 & 20.16)	Replacement of retail comms at Manchester Victoria and associated minor stations (e.g. CIS)	Renewals	Telecoms	None	4	2006 – 2008
G	Telecoms Renewals	Small telephone concentrator replacements at various stations e.g. Greenback	Renewals	Telecoms	None	4	2006/07
H	Signalling Renewals (20.13)	Signalling renewals at Rainhill (includes moving signals)	Signalling improved headways	Signalling	Potential NRDF	4	2006/07
I	Civils Renewals (20.18)	Earthworks and Drainage at Entwistle	Renewals	Earthworks	None	6	2006/07
J	Civils Renewals (18.07)	Three year programme to strengthen and refurbish Runcom Viaduct	Renewals	Structures	None	2	2006 – 2009
K	Civils Renewals (20.20)	Reconstruction of Underbridge 14, 'West Derby Road' on the Bootle Branch	Renewals	Structures	None	4	2006/07
L	Civils Renewals (20.20)	Programme of strengthening and heavy maintenance to three underbridges on the Ardwick Branch Line	Renewals	Structures	None	3	2006/07
M	Civils Renewals (20.07, 20.15)	Renovation of New Baily Street bridge in conjunction with work at DSE/146 Salford Crescent	Renewals	Structures	None	4	2006/07
N	Civils Renewals (20.15)	Programme of strengthening and heavy maintenance to underbridges on the Pendleton to Atherton Line (Bridges 69, 48 & 67)	Removal of restrictions and continued capability for current traffic on the route	Structures	None	3	2007/08

Project	Scope	Enhancement or output change	Main asset type(s)	Third party funding	GRIP Stage	Completion Year
F Civils Renewals (20.03)	Renewal of spans four and five of the viaduct on the western approach to Manchester Victoria	Renewals	Structures	None	1	2008/09
N Civils Renewals (20.07, 20.15)	General repairs, cleaning and painting of Carr Mill Viaduct and recladding on Kings Street Bridge	Renewals	Structures	None	3	2007/08
O Civils Renewals (20.01, 20.10)	Bridgeguard 3 Programme – major reconstruction work on Wellington Road bridge (nr Stockport)	Ensuring sufficient strength of bridge to carry appropriate load	Structures	Local Authority	3	2007/08
P Civils Renewals (20.10)	General repairs, cleaning and painting to CDM 2/Bridge No.38 at King Street	Renewals	Structures	None	1	2008/09
O Track Renewals (20.16)	Plain line works are planned at 2006/07: Ashton-under-Lyne 2007/08: Cuddington, Chapel Lane, Kirkham North and Swinton	Renewals	Track	None	3	2006 – 2008
O Track Renewals (20.01, 20.12, 20.16 & 20.20)	S&C works are planned at: 2006/07: Baguley Fold Jn, St Helens, Longsight South Junction and Poulton-le-Fylde 2007/08: Longsight Middle and Philips Park West Junction	Renewals	Track	None	3/4	2006 – 2008
R Stations Renewals (20.11)	Styal line stations – this scheme is a single project being managed in different phases. Including rebuilding of 4 stations in particular, reconstruction of up and down platforms at Gatley, East Didsbury, Burnage and Mauldeth Road and the renewal of access ramps at Burnage	Renewals	Stations	None	4	2006/07

Figure 17 Planned infrastructure investment

Project	Scope	Enhancement or output change	Main asset type(s)	Third party funding	GRIP Stage	Completion Year
F Stations Renewals (20.07 & 20.15)	Renewal of roof covering at Manchester Victoria	Renewals	Stations	None	3	2006/07
S Stations Renewals (20.07)	Steelwork repairs at Deansgate	Renewals	Stations	None	2	2006/07
T Stations Renewals (20.01)	Resurfacing of long stay car park, including structural and drainage works at Manchester Piccadilly	Improved environment in car park	Stations	None	1	2006/07
F Stations Renewals (20.07 & 20.15)	Renewal of platform lighting at Manchester Victoria	Improved lighting and environment on platform	Stations	None	3	2006/07
E Liverpool Lime Street Gateway (20.04)	Improvements to the front of the station including opening up the frontage and replacing the existing concourse	Improved environment and access to the front of the station	Stations	English Partnership/3 <sup>rd</sup> Party developer	3	2008
E Liverpool Lime Street Station (20.04)	Improvements to the short stay car park, including relocation of the taxi-rank. Improvements are also planned to the south concourse, including resurfacing and establishing retail outlets on the old cab road	Improved internal environment and facilities at the station	Stations	Mersey travel	4	2006
U Metrolink Phase 3 (20.19)	Funding issues awaiting resolution. GMPTe in discussions with Government	Extension of metro system onto Oldham Loop. Heavy rail associated works to separate the systems	Stations/Track/Signalling	GMPTe	6	-
V Newton le Willows (20.19)	Station revitalisation scheme looking at a new car park facilities	Improved station facilities and environment	Stations	Merseytravel	3	2009

Project	Scope	Enhancement or output change	Main asset type(s)	Third party funding	GRIP Stage	Completion Year
W St Helens (201.3)	Station revitalisation scheme improved booking office, CCTV, CIS, lifts and new footbridge	Improved station facilities and environment	Stations	Merseytravel	6-8	2006
X Prescott (20.13)	We are working with Merseytravel to improve car park and road access facilities at the front of Prescott station	Improvements to station access	Stations	Merseytravel	3	2006/07
H Rainhill (20.13)	We are working with Merseytravel and Northern Rail on the feasibility of level access at the Eastern end of the Manchester bound platform	Improvements to station access	Stations	Merseytravel	3	2006/07
V Partington Freight Terminal (20.03)	Upgrade of rail lines from Skelton Jn to terminal in conjunction with EWS	Refurbished freight route	Track/Signalling/Level Crossings	Joint third party/Network Rail	3	2006
D Ardwick Depot (20.05)	Provision of new depot for maintenance of Class 185s for TPE	New asset	Depots	Third party	6-8	2006
Z Bolton Interchange (20.07, 20.18)	We are working with Northern Rail on redeveloping the high level station buildings at Bolton station. This scheme is now on site	Improved station facilities	Stations	TOC	6	2006/07
GA Garswood (20.13)	Station access scheme involving improved access to station platforms (new footbridge)	Improved station facilities	Stations	None	6	2006
AE Salford Central (20.15)	We are working with GMPTE to develop the existing station (inc. new station concourse)	Improved station facilities	Stations	GMPTE	5	2007
LC Buxton Up Relief Sidings (20.17)	Extension of sidings to improve capability	Extended sidings	Track	Third party	1	TBC

Figure 17 Planned infrastructure investment

**Figure 17 Planned infrastructure investment**

Project	Scope	Enhancement or output change	Main asset type(s)	Third party funding	GRIP Stage	Completion Year
1 TPE Warrington Central (20.03)	TPE are keen to improve passenger access at Warrington Central. NR is in discussions regarding possible installation of two passenger lifts and platform improvements	Improved station facilities	Stations	TOC	3-4	TBC
Class 185s gauging (20.01, 20.02, 20.03, 20.04, 20.06, 20.07 & 20.11)	Provision of gauge information for route clearance of Class 185 DMUs across TPE's franchise routes and implementation of gauge clearance works	New class of rolling stock introduced on the route	Civils	None	3	2006
Class 350s gauging (20.01, 20.04 & 20.11)	Provision of gauge information for route clearance and engineering acceptance across WCML and branches	New class of rolling stock introduced on the route	Civils	None	6	2006
1 Signalling Renewals (20.10)	Abolition of Mouldsworth signal box and rewiring of Mickle Trafford	Renewals and removal and rationalisation of assets	Signalling	None	6	2006/07

The following table highlights uncommitted schemes under development.

**Figure 18** Infrastructure investment under consideration

Project	Scope	Enhancement or output change	Main asset type(s)	Status
AF Olive Mount Chord (20.13)	Reinstate Olive Mount Chord	Direct access between Liverpool Docks and Earlestown	Track and signalling	Business case and scope under development
L Salford Crescent (20.07)	Salford Crescent Third Platform	Create 3 <sup>rd</sup> platform face on through line	Civils	Business case and scope under development
TC New intermodal terminals (20.13 & 20.20)	Options of new intermodal terminals at: Port Salford, and at Parkside on the Chat Moss, and Trafford Park	New freight terminal capacity	Signalling	Awaiting approach from third parties to progress
T Signalling Renewals (20.01, 20.02 & 20.05)	Route-wide programmed to replace electronics systems e.g. systems within the control panel equipment at Manchester Piccadilly	Renewals	Signalling	GRIP Stage 0, case under consideration
X Signalling Renewals (20.13)	Huyton and Prescott	Improved headways	Signalling	Potential contribution from NRDF
AF Signalling Renewals (20.13 & 20.14)	Rainford onto Wigan Wallgate PSB	Renewals	Signalling	GRIP Stage 0, case under consideration
A Signalling Renewals (20.04)	Allerton resignalling	Renewals	Signalling	GRIP Stage 0, case under consideration

**Figure 18** Infrastructure investment under consideration

Project	Scope	Enhancement or output change	Main asset type(s)	Status
Ⓐ Signalling Renewals (20.06)	Renewal of equipment at Stalybridge	Renewals and making it fit for future remote control	Signalling	GRIP Stage 0, case under consideration
Ⓐ Signalling Renewals	Rewiring of Rochdale Interlocking	Renewals	Signalling	GRIP Stage 0, case under consideration

### Non-infrastructure developments

The following significant timetable schemes for the route are under development

**Figure 19** Timetable development

Description	Key issues	Actions or options being developed	Benefits	Target timetable implementation
Central re-mapping and re-specification	Re-mapping of central, Silverlink and Cross Country franchises	Could result in Liverpool – Nottingham services to be operated by TPE	Single operator of fast services along the CLC line, and along the Hope Valley.	December 2007 and December 2008
Resilient timetable	Comparing the parameters for planning trains around Manchester with what is achieved in practice	Locations where timing allowances are inadequate or over generous to be identified, and the consequence of correcting them established.	A more robust timetable with achievable timings	Most likely vehicles for implementation: RUS recommendations, Northern franchise respecification

## Appendix

Figure 20 Strategic route sections

SRS	SRS Name	ELR	Classification	Funding	Community Rail	Freight Gauge	RA	Speed	Electrification	Signalling Type	Signalling Headway	No of Tracks
20.01	Manchester Piccadilly – Crewe	CMP1, CMP2	Primary	DfT	No	W9 & W10	8	100 (75)	25 kv	TCB	3	2 (4)
20.02	Manchester Piccadilly – Deansgate	COL	Secondary	DfT	No	W9 & W10	8	35	25 kv	TCB	2	2
20.03	Deansgate – Allerton	MAJ, AHX, WJL2, WJL3	Secondary	DfT	No	W9 (W9 & W10)	7 (8)	85 (75)	none (25kv)	TCB (AB)	4 (2) (8)	2
20.04	Liverpool Lime Street – Allerton	WJL3, WJL4	Primary	DfT	No	W9	8	80	25 kv	TCB	3	4
20.05	NTP: Manchester Piccadilly – Guide Bridge	HAJ	Secondary	DfT	No	W8	8	60	25 kv	TCB	4 (2)	2
20.06	NTP: Guide Bridge – Stalybridge	SAJ	Secondary	DfT	No	W8	8	40	none	TCB	4	2
20.07	Castlefield Jn – Euxton Jn	MVE1, MVE2, OLW, COL	Secondary	DfT	No	W9 (W7) (W6)	8	75	none	TCB	3 (4)	2
20.08	Ashburys/Hyde Jn – New Mills Central/Rose Hill	TTA1, TTA2, MRH, RHY1, RHY2	Secondary	DfT	No	W7	8	60	none	TCB	4	2
20.09	Guide Bridge – Glosop/Hadfield	DSD, HAJ, GDW	Secondary	DfT	No	W6	8	60	25 kv	TCB (AB)	12½	2 (1)

Figure 20 Strategic route sections

SRS	SRS Name	ELR	Classification	Funding	Community Rail	Freight Gauge	RA	Speed	Electrification	Signalling Type	Signalling Headway	No of Tracks
20.10	Guide Bridge – Stockport – Mouldsworth	HNS, EJN, WJP1, CDM2	Secondary	DfT	Yes	W7 (W9) (W8) (W6)	8	90 (60)	none (1500 dc)	TCB (AB)	12 (4)	2 (1)
20.11	Slade Lane Jn – Manchester Airport – Wilmslow	MIA, STY, SMS	Secondary	DfT	No	W9 & W10 (W6)	8	75	25 kv	TCB	3	2
20.12	Blackpool North and South Branches	PBN, KBS1	Rural	DfT	Yes	W6	8	75 (70)	none	AB (OTW)	4 (6) (23)	2 (1)
20.13	Edge Hill – Victoria plus Springs Bank – Broad Green plus Earlstown	EEE, DSE, NGJ, WEE, SBH1, SBH2, SBH3	Secondary	DfT	No	W9 (W8)	7 (8)	75	none (25kv)	TCB (AB)	4 (5) (8½) (10)	2 (1)
20.14	Southport/Kirkby – Wigan Wallgate	WKL1, WKL2, WBS3	Rural	DfT	Yes	W9 (W8) (W7) (W6)	8 (7)	70	none	TCB (AB) (OTS)	14 (17½)	2 (1)
20.15	Wigan Wallgate – Manchester Victoria	MVE1, WBS1, WBS2, LCN	Secondary	DfT	No	W7 (W6)	8	60(40)	none	TCB (AB)	14 (6) (4)	2
20.16	Manchester Victoria – Rochdale/Stalybridge	MVL1, MVN2, MVM, MPR1, BPP,	Secondary	DfT	No	W7	8	70	none	AB (TCB)	2 (4) (5)	2
20.17	Buxton Branch	BEJ	Rural	DfT	Yes	W6	8	60 (40)	none (25kv)	AB (TCB)	12½	2

Figure 20 Strategic route sections

SRS	SRS Name	ELR	Classification	Funding	Community Rail	Freight Gauge	RA	Speed	Electrification	Signalling Type	Signalling Headway	No of Tracks
20.18	Bolton – Blackburn	BBB	Rural	DfT	Yes	W6	8	60	none	TCB	19(4)	1 (2)
20.19	Oldham Loop	MPR2, MPR3	Rural	DfT	No	W6	8	60	none	AB	9(4)	2 (1)
20.20	Freight Lines	PPP1, CMP1, SYC, GMC, PPA1, SCT1, SNJ, HCN, DJO1, PPA2	Freight	DfT	No	various	8 (7)	20 (60)	none (25kv)	TCB (AB)	various	2 (1)

**Capacity and operational constraints**

- A Manchester hub: capacity constraint
- B Salford Crescent – Euxton Junction capacity constraint
- C Ardwick Stalybridge: busy 2-track section with a mix of traffic, flat junctions and limited overtaking
- D Piccadilly – Hunts Cross: busy 2-track section with mix of traffic, flat junctions and limited overtaking
- E Bolton – Blackburn: single line sections
- F Stockport – Altrincham: single line sections

**Other issues on the route**

- 1 Oldham Loop Metrolink issues
- 2 Chorley Buckshaw Village – siting of new station
- 3 Fylde Coast tram proposals
- 4 GMPTE tram proposals
- 5 Manchester Victoria – former Manchester Exchange development
- 6 Potential intermodal freight terminals