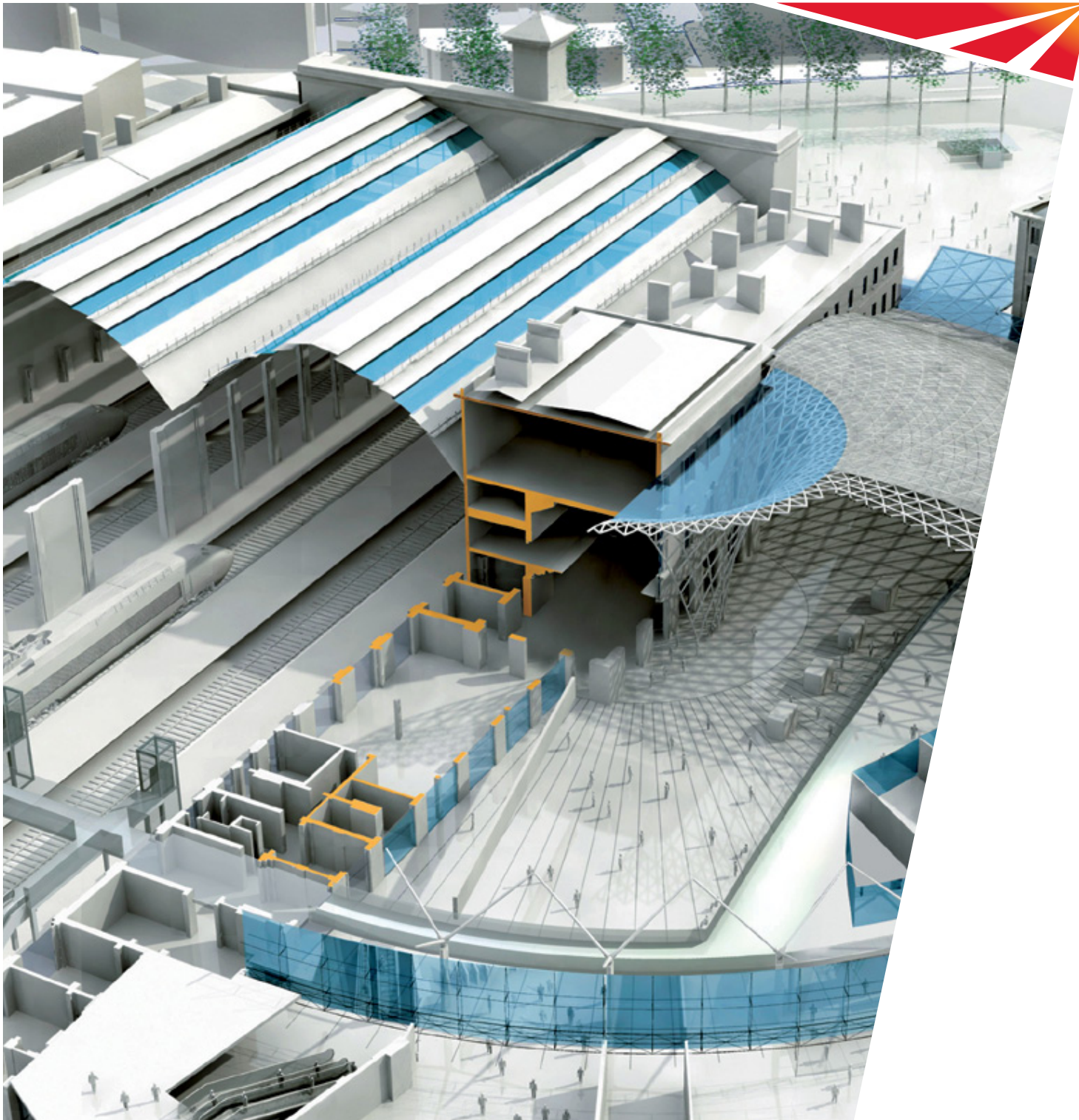


*Moving ahead
Planning tomorrow's railways*

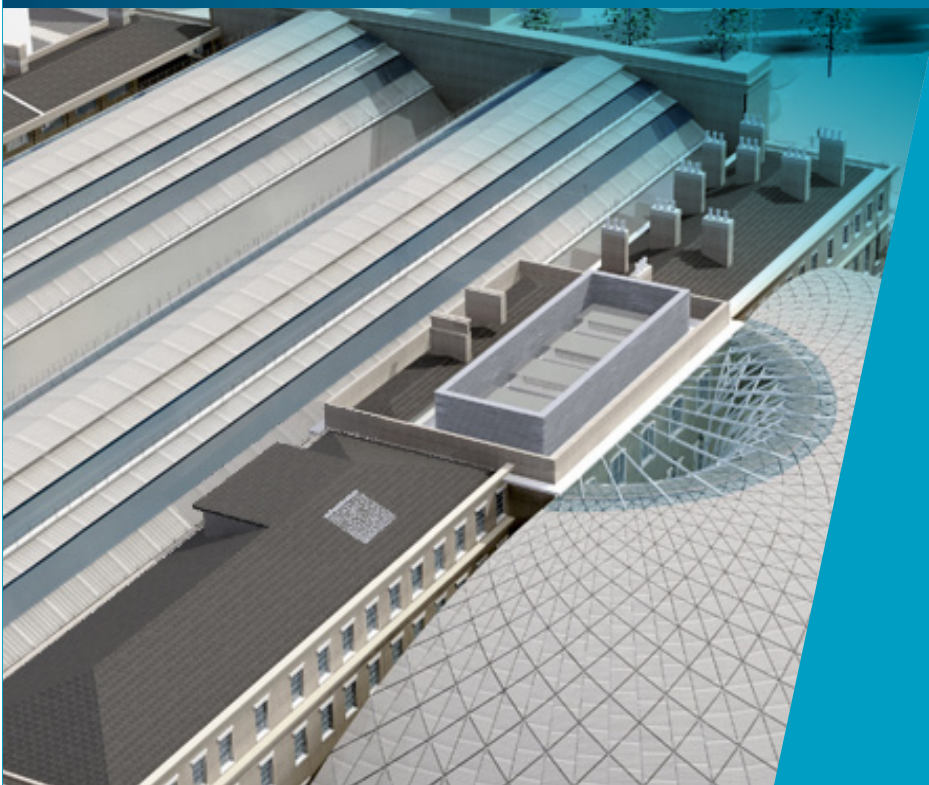
NetworkRail



*Our railways play a vital role
in building Britain's future*

Planning tomorrow's railways

Our £500 million investment in King's Cross station will transform the experience of passengers using the station. We are delivering hundreds of projects across the network to build a bigger, better railway for passengers, freight and the whole of Britain.

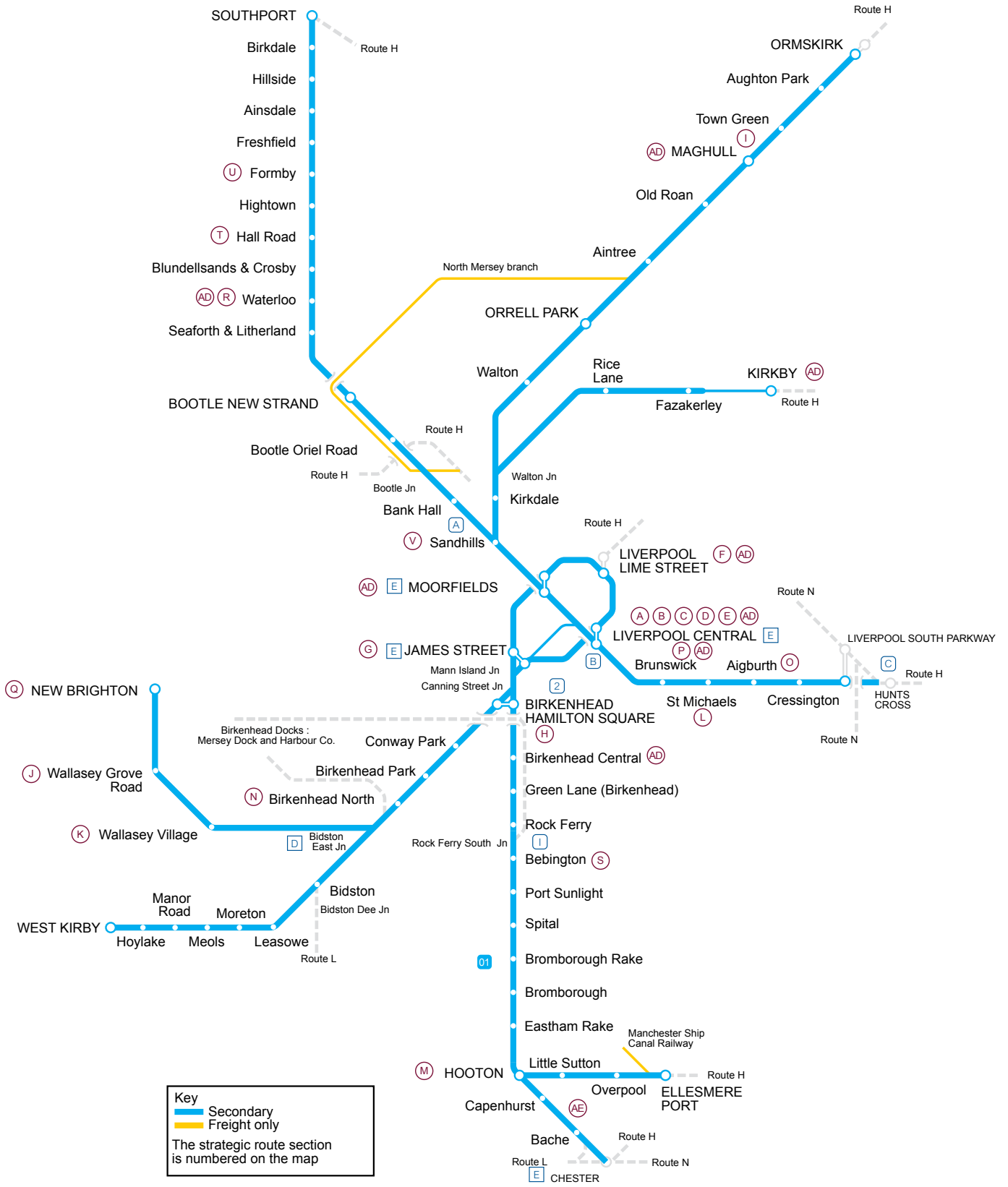


Route Plan O
Merseyside

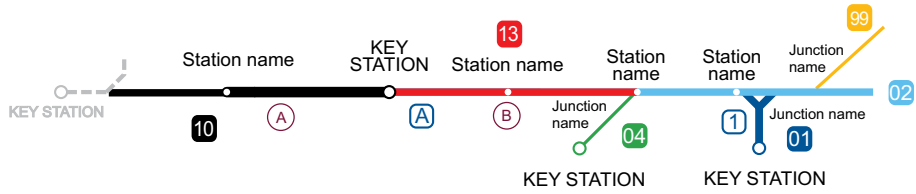


Route Plan O

Merseyside



Key to route diagrams



A Capacity and operational constraints
Location: capacity or operational constraint

1 Issues on the route
Location: issue on the route

A Key planned projects
Location: planned project on the route

01 Strategic route sections
Listed in the appendix of the route plan

Other symbols

	Key station location
KEY STATION	Key station on this route
	Key station on another route
	Other station location
Station name	Other station on this route
Junction name	Junction / other landmark

Track descriptions

The colour of the line denotes the route classification	
	Primary
	London and South East commuter
	Secondary
	Rural
	Freight only

The line shading indicates strategic route sections which are numbered on the map

The width of the line denotes the number of tracks	
	Multiple track
	Double track
	Single track

Other lines are shown as follows:

	Line on other route
	Non Network Rail infrastructure
	Non operational line

Section 1: Today's railway

Route context

The core of this route is the Merseyrail system, located in Merseyside and extending into Cheshire and Lancashire. It consists of the Wirral and Northern lines, including the loop line and the stock interchange line. These third rail electrified lines form a high capacity suburban passenger railway, playing a key role in enabling the local population to commute to work quickly, efficiently and with minimal environmental impact as part of the area's integrated public transport network.

The route also includes the non-electrified North Mersey Branch and lines to Birkenhead docks. Regular freight traffic flows are at the very edge of the route, where include trains to Ellesmere Port freight facility, which briefly pass through Ellesmere Port on the way to Fiddlers Ferry power station, and traffic to and from Liverpool Bulk Terminals via Olive Mount Chord.

Whilst geographically located on Route H, Liverpool John Lennon Airport is the main airport in Liverpool and is one of the fastest growing in Europe. Annual passengers continue to grow from the Merseyside area and beyond, using Liverpool South Parkway station as an interchange along with the frequent bus service to the airport.

Work on the Merseyrail Route Utilisation Strategy (RUS) has been completed and was formally 'established' by the ORR in June 2009.

Today's route

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

- Wirral Line (O.01) – Liverpool to New Brighton, West Kirby, Chester and Ellesmere Port; and
- Northern Line (O.01) – Liverpool to Hunts Cross, Kirkby, Ormskirk and Southport

Current passenger and freight demand Current services

The Merseyrail network provides fast, frequent, regular interval services around Merseyside and into the heart of Liverpool (the sixth largest city in the UK). There is a high level of demand from the commuter market with 15 percent of journey to work trips into Liverpool city centre being made by rail. The two busiest stations on this route, Liverpool Central and Moorfields, serve both the business district and the retail and leisure areas. Off-peak demand is substantial, with Saturdays in particular recently seeing considerable growth. Every station is used by a sizeable number of passengers every day. The services on this route provide connections to Manchester and London, as well as to other longer distance destinations, via interchange notably at Liverpool Lime Street. This improves the attractiveness of rail for longer, inter-regional journeys, helping to improve links between regional centres.

Liverpool experienced a successful 2008, having hosted the 2008 European City Capital of Culture, and experiencing major investment. Several million extra visitors came to the city, many travelling by rail, to experience the wealth of events and attractions that took place throughout the year. This is expected to have a legacy of increased visitor numbers to the City.

During recent years the network has seen sizeable growth following the opening of the new shopping and leisure district in the heart of the city centre – 'Liverpool One'. This development continues to generate demand for train travel to the three stations at Central, Moorfields and James Street as they are all ideally placed to serve the shops and the social scene.

Demand for freight paths has increased slightly following the introduction of an additional coal flow from Ellesmere Port to Fiddlers Ferry power station.

The main train operator is Merseyrail, whose services run beyond the route for a short distance at Hunts Cross and Chester. Arriva Trains Wales runs into Bidston and Northern Rail into Southport, Kirkby, Ellesmere Port and Ormskirk. There is also some interaction with TransPennine Express (TPE), Northern Rail and East Midlands Trains services at Hunts Cross West.

The network has one of the highest frequency services outside London, with the central sections of the route conveying up to 16 trains per hour in each direction from Monday to Saturdays. Frequency generally reduces in the evening, with the last services around midnight. Passenger services then restart around 0600 hours.

The system can be split into two sections, with interchanges for passengers at Liverpool Central and Moorfields. The Northern line serves stations to Southport, Ormskirk, Kirkby and Hunts Cross, with each of these end points seeing a 15 minute service in the core of the day. The Southport line and the line to Hunts Cross enjoy this level of service throughout the whole day. In the case of the Hunts Cross service this provides improved access to Liverpool Airport by way of Liverpool South Parkway. The Wirral line extends to New Brighton, West Kirby, Chester and Ellesmere Port. New Brighton and West Kirby have a 15 minute service, while Chester and Ellesmere Port have a 30 minute service over a common route section between Birkenhead and Hooton. In both peaks the service frequency to Chester and Ellesmere Port increases, providing a 15 minute service interval.

A regular freight flow exists from Ellesmere Port to Fiddlers Ferry power station, with two to three coal trains per day operated by Freightliner Heavy Haul Limited.

Figure 1 represents numbers of trains in the morning peak hour.

Figure 1 Current train service level (peak trains per hour)

Route section	Peak tph
James Street – Birkenhead Hamilton Square (Wirral line)	16
Liverpool Central – Sandhills (Northern line)	14

Figure 2 shows the total annual tonnage levels on the route.

Traffic volumes are summarised in Figure 3.

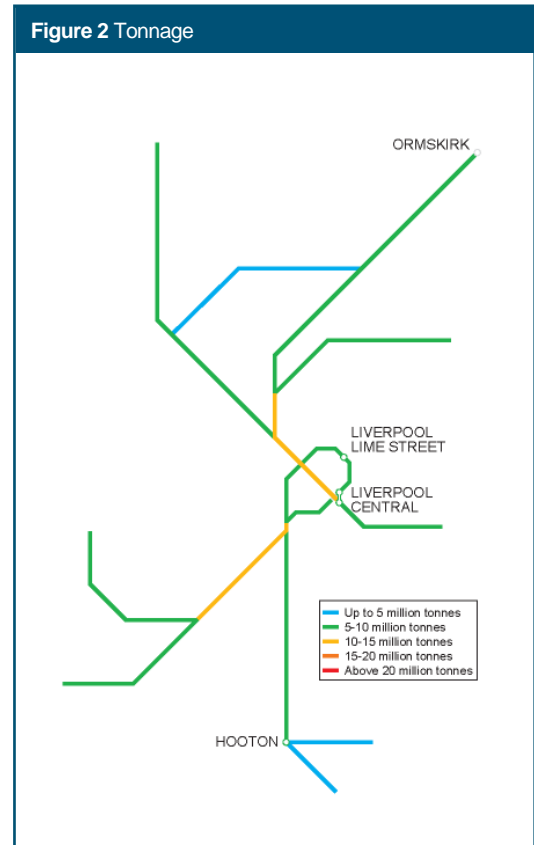


Figure 3 Current use

	Passenger	Freight	Total
Train km per year (millions)	6	0	6
Train tonne km per year (millions)	855	1	856

Current infrastructure capability

The following maps provide an indication of the predominant capability on each section of the route.

As part of the Infrastructure Capability Programme a number of Network Changes to Route Availability and Gauge, which may affect some of the detail of these maps, have been issued for consultation. Details of the Network Changes being consulted can be found on the [Network Rail](#) website and details of Network Changes established can be found on the [Network Rail](#) website.

Current capability is shown in the Network Rail Sectional Appendix.

Figure 5 Electrification

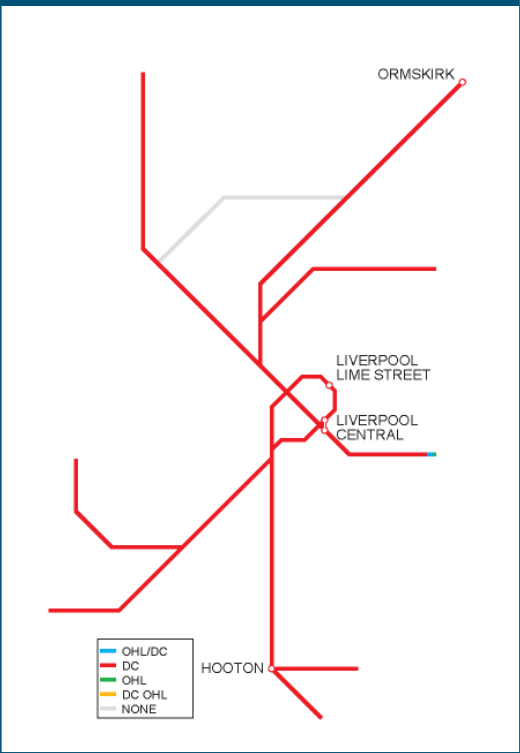


Figure 4 Line speed

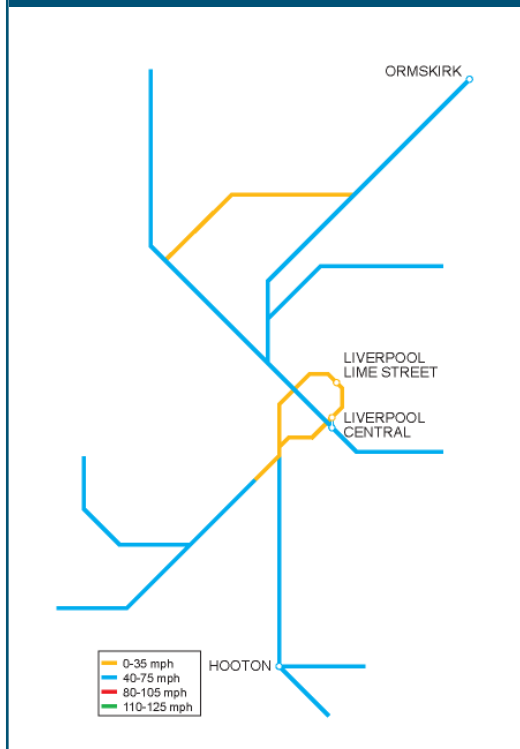
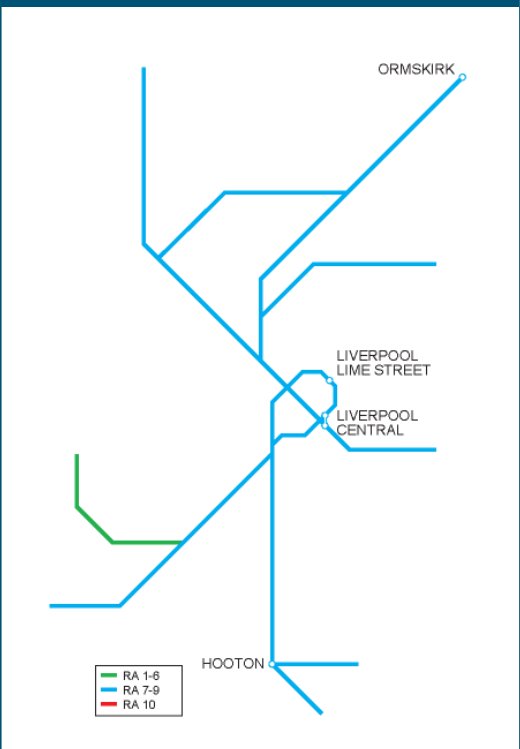


Figure 6 Route availability





Current capacity Passenger services

The high service frequency is possible due to the homogenous performance characteristics of the rolling stock and calling patterns. However, this level of frequency, combined with a number of flat junctions on the route, means that the network is operating close to capacity at a number of key locations. For example, the route is operating close to capacity from Sandhills Junction on the Northern line and from Hamilton Square on the Wirral line into Liverpool City Centre.

This means that it would be unrealistic to accommodate any additional services into the centre during the peak, without a significant restructuring of the services. Additional off-peak services would be possible but could impact on performance. Therefore, the most realistic capacity improvement is to lengthen more trains to six-car formations providing additional passenger capacity.

The constricted nature of the tunnels and underground stations in the central sections of this route means that that train width is limited, and train length is restricted to 120m (six-car formations)

In terms of passenger numbers, **Liverpool Central** is operating close to capacity during the busy peak hours, and on weekends, particularly Saturday afternoons. Passenger congestion is exacerbated at platform level by the narrow platforms, particularly around either side of the escalators on the Northern

Line. In order to relieve this crowding, the RUS process recommended a number of short to long term options that may address this constraint. We are continuing to explore a number of options with Merseytravel and Merseyrail and the partners have produced a multi phase development plan.

A quick win that was identified during the RUS process was to move the stop boards for three-car trains to the wider part of the platform and this has been delivered.

Freight services

The ability of the majority of this route to carry freight is constrained by the high frequency passenger service, the limited route availability and gauge over large sections, and the constricted tunnels in the central sections. The attractiveness of the route for freight is limited by the lack of freight terminals and its self-contained nature; in order to access it, trains must travel long, circuitous routes. The only sections that could accommodate freight in the foreseeable future without major alterations are between Ellesmere Port and Warrington (via Helsby) or Chester (via Hooton) and between Birkenhead Docks and Bidston via Birkenhead North.

It has been demonstrated however, that trains operating between Wrexham and Liverpool via Borderlands line could be accommodated within the current peak services.

Stations

A continued programme of investment work at numerous stations within the Merseyrail area is being undertaken. Some of the projects that have been successfully delivered include:

- **Liverpool Central** – construction of new Travel Centre/ Booking Office/ M2GO. Forms Phase 1 of the Liverpool Central Development Plan.
- **Bootle Oriol Road** – an extensive rebuild and refurbishment project provided improved station facilities and step free access for all passengers.
- **Southport** – included a new upgraded concourse, new roof and improved CIS facilities.
- **James Street** – the station received £1.6million of improvements to the station entrance and booking office.
- **Sandhills** – a successful major reconstruction of the station costing, £6.7million was completed in 2009. Work included a new lift access, new ticket office, booking hall and two fully enclosed heated waiting rooms. A new access subway and DDA compliant ramp, new glazed canopy works together with new customer information and PA systems, improved lighting and upgraded CCTV equipment were also installed. A new power

Figure 8 2009/10 PPM

TOC	MAA	As at period
Merseyrail	96.4%	11

substation was installed to adequately meet the needs of the new assets.

- **Moorfields** – improvements made to station facilities and provision of new toilets.
- **Ormskirk** – became the first station (in July 2009) to be completed with funding from NSIP. The Grade II listed station used new eco-friendly design techniques to refurbish the buildings

In February 2010, Merseyrail became the first fully secure rail network in the U.K. with all 66 stations (and 36 car parks) accredited by the British Transport Police. The Merseyrail network is now one of the safest in the country with all 'secure' stations having to be regularly re-assessed to ensure that high standards are maintained. Tough industry standards evaluate safety measures such as CCTV, design standards of buildings and facilities and the quality of customer services.

Depots

- The key depots on the area are:
- Birkenhead North – which focuses on major overhauls of the Merseyrail electric fleet ,and
- Kirkdale TMD – which undertakes minor repairs and cleaning activities and is the main location for the stabling of the Merseyrail electric fleet.

In October 2009 Birkenhead depot had a new £2.5million roof installed. Work also included a new roof access system to make future maintenance inspections easier.

Current performance

Figure 8 shows the current PPM for Merseyrail, the principal operator on this route.

Performance on this route is very good with Merseyrail continuing to be one of the top performing operators on a regular basis.

For example, in Period 7, PPM was 97.23 percent. This was the third highest period PPM figure ever delivered on the DC network and increased the MAA to an all-time record high of 95.68 percent.

As the Merseyrail network is virtually self-contained, performance problems on the route do not tend to propagate to other routes and performance problems on other routes have minimal impact. The two exceptions to this are at Hunts Cross West Junction and at Bidston Dee Junction.

At Hunts Cross West Junction, Merseyrail trains interact with services on the line between Liverpool and Manchester. The high frequency of train

services in the central sections of the route means that any knock on delays arising from disruption in this area can be considerable.

At Bidston Dee Junction, Merseyrail trains (4 per hour) interact with the hourly Arriva Trains Wales services on the Wrexham to Bidston line at Bidston station which only has two platforms. Any small delays to either service can be quickly compounded by the restrictions of the layout at Bidston.

A number of initiatives are identified on an ongoing basis to tackle specific issues through the Joint Performance Improvement Plan. The long term performance plan has also been developed, taking a five year view on the best way to deliver further performance improvements.

The completion of re-fencing works over the Merseyrail network continues to play a significant part in reducing instances of route crime, which was historically a cause of significant delay in certain areas. Overbridges are being fenced, and crime hotspots have been identified to enable proactive policing of these areas, including sniffer dogs and metal detectors. However, route crime originating at stations has increased. We are continuing to work closely with the British Transport Police, Carlisle Security and other members of the rail industry to address this issue.

In May 2009, phase five of the Merseyrail tunnel work project was successfully completed. This £4.4 million scheme involved the renewal of like expired track slab with a new track slab between Liverpool Lime Street and Moorfields railway stations. The work was completed following a seven week blockade of the line. The project makes the successful completion of over £20million of work undertaken over four years on the curved sections on the Liverpool loop line.

The re-instatement of the Olive Mount chord (near Broad Green) took place in December 2008. This chord provides an additional link between the Chat Moss line and the Bootle line. This allows freight trains originating from the West Coast Main Line to enter Liverpool docks without reversing and conflicting with services in the Edge Hill area. This scheme has delivered capacity benefits by enabling more trains to serve Seaforth, performance benefits by minimising conflicting movements across passenger lines, and increased the loading gauge to W10 which allows larger containers to be transported.

Section 2: Tomorrow's railway: requirements

HLOS output requirements

Figure 9 Total demand to be accommodated by Strategic Route

Routes	Annual passenger km (millions) in 2008/09	Additional passenger km (millions) to be accommodated by 2013/14
Merseyrail	337	18

In July 2007 the DfT published a White Paper which included the HLOS for CP4. The Merseyrail network is included within the wider targets outlined in this document. However, Merseyrail were excluded from the capacity related targets set. As a consequence the capacity related station improvement schemes proposed by ourselves and Merseytravel (both at James Street and Liverpool Central) did not qualify for Government funding through this process.

Liverpool Central station is reaching critical levels in terms of passenger handling capacity and the Merseyside RUS has identified the station as the key priority for the Merseyside area. Without work to the station, the other recommendations from the RUS would be difficult to implement. The RUS recommended investment at Liverpool Central station and alternative funding streams will have to be explored.

Future demand in CP4 Regeneration

The redevelopment of Liverpool city centre is expected to continue, and this is likely to lead to a corresponding increase in passenger demand. The retail core in particular is beginning to reap the benefits of recently opened developments. The biggest of these is Liverpool One – a 1.6 million square feet retail development which opened through 2008.

The Kings Waterfront development has delivered an arena and conferencing facility as well as hotels, residential apartments and retail units and is likely to produce significant event driven demand in CP4 and beyond.

The Central Village development is located above and around Liverpool Central station. This mixed use scheme will deliver a mix of leisure and retail uses as well as hotel accommodation. As part of the development the Atrium will deliver natural light to concourse level which will improve the station environment. Part of this scheme will see the

Network Rail depot relocated onto land under the new multi storey car park.

The proximity of these centres to the central Liverpool stations passenger growth suggests a growth in demand as rail is attracting a considerable market share.

Airports

The development of John Lennon Airport outlined in the Government's White Paper, 'The Future of Air Transport' will also lead to further passenger growth. The airport itself is planning for passenger throughput to increase from less than four million in 2004 to over 12 million by 2030. Additionally, the airport has a target to increase the percentage of people using public transport to access the airport to 14 percent in 2011, and 24 percent in 2030.

These targets are being driven by a number of initiatives, a reduction in the number of car parking spaces per passenger at the airport, an increased frequency bus service to Hunts Cross, and the opening of a new station at Liverpool South Parkway in June 2006 and the development of bus services between it and the airport including a dedicated bus link, the 501. It had been thought that the opening of Liverpool South Parkway might abstract demand from Hunts Cross, however, this has proved not to be the case, with figures compiled by Merseyrail showing steady demand at Hunts Cross.

Freight

The freight RUS was published by Network Rail in March 2007 and established by the Office of Rail Regulation in May 2007. A key input into the strategy was a set of ten year demand forecasts that were developed and agreed by the industry through the RUS Stakeholder Management Group. The forecasts indicate that the majority of freight growth in the area is linked to the high demand for coal for electricity generation. This likely to mean that the number of trains per day from Ellesmere Port to Fiddlers Ferry will continue to increase and may act as a catalyst for new freight flows from Ellesmere Port to begin.

We are also working with Sellafield Ltd regarding a new freight connection at Capenhurst (near Ellesmere Port).

Land Planning

In order to understand where there may be changes in demand on the network it is important to understand where future housing will be located. Nationally and locally there are a number of policies and initiatives in place designed to deliver more housing. A key initiative in the Merseyside area is the government Market Renewal Pathfinders.

In April 2002 the Government announced the creation of nine Market Renewal Pathfinders in the North of England and the Midlands. All exhibited housing market weaknesses, evident through high vacancy rates, low sales values/low demand and, in some cases, neighbourhood abandonment.

In Merseyside there are three areas of housing renewal, under the umbrella brand of NewHeartlands. These are Liverpool, Sefton and the Wirral. It was established in 2003 and the programme is expected to last for 10 to 15 years. It covers around 130,000 properties in some of Merseyside's most disadvantaged communities.

NewHeartlands will deliver major investment and regeneration to Merseyside, which is estimated to reach £2.85 billion over the lifetime of the programme. The vision is to ensure communities and neighbourhoods are transformed to meet the needs of local people. The programme will support economic growth, combat areas of decline, encourage a sense of community and create new opportunities for residents.

Future demand beyond CP4

The rail passenger market in Merseyside is highly dependent on the economic performance of Liverpool at the centre of the city region. There is an ongoing modal shift from car to rail. It is forecast that overall passenger numbers will grow by around 39 percent by 2020, which is equivalent to 2.4 percent per annum.

Regeneration

There are likely to be further regeneration proposals given current planning policy to locate and focus growth in the Major Urban areas. There are already a number of large scale long term proposals in the Merseyside area.

The Wirral Waters development submitted the largest planning application in the UK in December 2009 for an ambitious mixed use redevelopment of the Birkenhead docks area. This development is potentially worth £4.5 billion and will be delivered over the next couple of decades.

The Liverpool Waters development is proposed as part of a large scale scheme to improve Liverpool Docks. This mixed use scheme over 150 acres will be worth up to £5.5 billion and will be constructed over a 30 year period.

Freight

The Freight RUS predicted the number of freight services will continue to steadily increase particularly in inter-modal traffic from deep sea ports. Any increase in flows will be dependent on the gauge clearance (W10) of key sections of route. The predicted freight growth is also stated in the 2007 White Paper – 'Delivering a Sustainable Railway' which predicts a doubling in rail freight demand over the next 30 years.

Section 3: Tomorrow's railway: strategy

Figure 10 summarises the key milestones during CP4 in delivering the proposed strategy for the route. Further explanation of the key service changes and infrastructure enhancements are set out in the following sections.

'Liverpool One' together with the continuing plans for new commercial and retail developments. It is also likely to impact on James Street, which does not currently experience difficulties, due to its having predominantly lift-only access to platform level. It is anticipated that passenger crowding/access

Figure 10 Summary of proposed CP4 strategy milestones

Implementation date	Service enhancement	Infrastructure enhancement	Expected output change
2010 – 2014	Increased passenger capacity	Liverpool Central station upgrade	Improved train performance, increased passenger numbers, improved platform capacity
2010 – 2014	Increased passenger capacity	Liverpool James Street and Moorfields	Improved station capacity, improved passenger throughput and flows between platform and street level

The current capacity of the route will allow the total additional passenger KM to be accommodated.

problems will therefore need addressing at James Street within CP4.

Some of the more important investment schemes for CP5 and beyond include:

- 2015 or later– introduction of new rolling stock in the Merseyrail area see discussion below
- 2017 – Liverpool (Allerton and Speke area resignalling
- 2019 - Liverpool Lime Street area resignalling
- 2020 – Liverpool Edge Hill area resignalling
- 2022 – Merseyrail area resignalling

Recent analysis from the Merseyside RUS confirms that Moorfields also has emerging passenger capacity issues that will need addressing in CP4. The Merseyside RUS has identified a number of options and locations where there are benefits in journey times or performance from some targeted interventions. We would expect to carry out these interventions during CP4 and CP5.

Strategic direction

The service provision is expected to remain broadly unchanged throughout CP4, with train lengthening as required. The network is built for six-car operation, and many services currently operate as three-car. Consequently, within CP4, train lengthening is not expected to drive a need for any infrastructure interventions – such as lengthening of platforms. However, more and more services will need to move from its current three-car operation towards six-car formations, particularly during the peak hours. The Merseyside RUS has forecast that by 2014 an additional 12 three-car units will be required in traffic diagrams to cater for the increased growth.

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

The key issue for this route is the need to accommodate increasing passenger numbers at the central Liverpool stations. The increased numbers can be dealt with in terms of train capacity by lengthening more services to six-car operation for a greater part of the day. However, there are times when Liverpool Central struggles to handle the existing level of passenger use and this issue is expected to escalate following the opening of

Future train service proposals

Figure 11 indicates the forecast percentage change in tonnage to 2019.

Currently service provision beyond Hooton is two trains per hour to both Ellesmere Port and Chester in the off-peak and four trains per hour in the peak direction serving both routes. In future, service provision will be varied within CP4. This provision is likely to see the inter-peak service frequency from Chester to Liverpool being increased from half hourly to quarter hourly, matching the peak frequency. In addition, the stopping pattern of services will be adjusted to increase the turnaround time at Chester Station, currently a major performance risk. There are also proposals to undertake line speed improvements between Hooton and Chester when the track is due for renewal later in CP4.

Arriva Trains Wales have aspirations to extend its Wrexham to Bidston services to Birkenhead North. This would allow better connections with Merseyrail services (whose frequency is twice that at Bidston). However, infrastructure changes would be required to the layout at Birkenhead North to cater for this proposal.

Future rolling stock

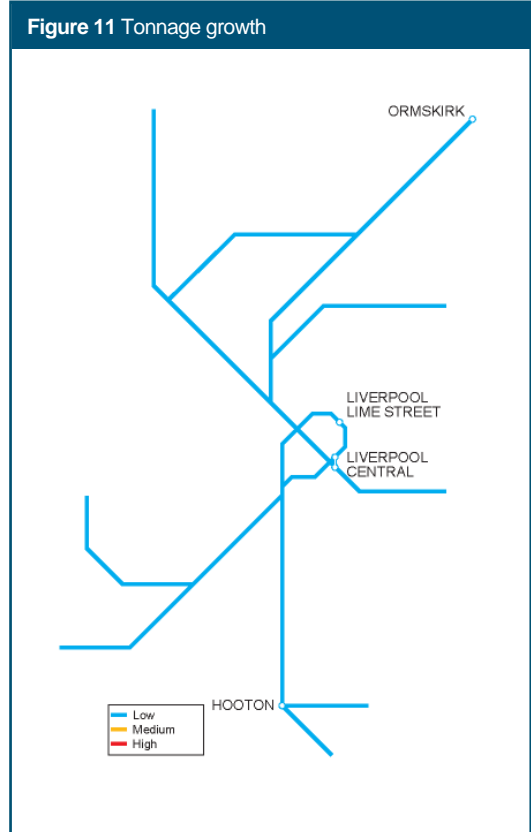
The Merseyrail DC electric rolling stock fleet is due to be replaced in the next decade and Merseyrail are currently considering options. Additional units are being sought from the south east to assist with easing overcrowding.

Procuring a new fleet of vehicles will require a range of issues to be considered including:

- the vehicles' dimensions and carrying capacity
- power supply requirements
- platform lengthening requirements particularly within the tunnels,
- pulse-loading of underground stations by trains able to carry more passengers
- the ability of the new units to go beyond the existing boundaries of the DC network, either by extending the DC network or by using dual voltage units.

Future capability

In the short to medium-term, we do not expect the physical characteristics of the network to change. The bridges and narrow tunnels mean that any changes to gauge would not be cost effective. As there is little prospect of freight on the main sections, enhanced route availability will not be required. However, it may be possible to increase



the linespeed in certain sections away from the centre, in order to reduce journey times.

The Merseyside RUS recommended that a GRIP 3 study should be undertaken to develop a proposal for a new electrified chord to Skelmersdale – the second largest conurbation in the North West without a rail connection.

Merseytravel has aspirations to increase the extent of the electrified DC network where there is an economic case to do so. Extensions being considered include services towards Wrexham (see Route L), Wigan, and Burscough and beyond. It is possible that the extension of electrification beyond Kirkby to a new station at Headbolt Lane may occur in CP4 as a scheme fully funded by outside parties. Other potential extensions of electrification such as beyond Headbolt Lane to or towards Wigan, or beyond Ormskirk to or towards Preston may be developed in CP4, with implementation dependant on funding availability. The extension from Bidston to or towards Wrexham, if authorised and funded, is not expected to be implementation until CP5.

Future capacity

An additional six units were refurbished and brought into regular service in 2008 to allow busy trains to be lengthened from three-car to six-car lengths. We believe that the high frequency of services on this route (combined with additional six-car trains) is sufficient to cater for predicted growth. The

Merseyside RUS highlighted that up to an additional 12 three-car units may be required to cater for future growth, by 2014.

Stations Facilities

All Merseyside stations are staffed, and we are working with Merseytravel and local authorities at numerous stations on the route to provide better station facilities as well as improved passenger access (see figures 14 and 15 later in the plan).

'Step free' access will be introduced at five Merseyrail stations in the near future, including Fazakerley, and a programme of development for improved access at other stations is ongoing.

Action Stations

Action Stations is a new Network Rail initiative aimed at addressing the future of stations. The initiative includes a ten point guidance plan to help to deliver better stations and facilities for passengers over the next 20 years.

The Action Stations document, published in November 2009, aims to gauge passenger views to create and implement the right vision. The document outlines the progress made since 2002 to improve Britain's railway stations, and the outputs will draw upon expertise and experience to inform the vision. The plan going forward is to host a series of focus groups to test the vision, establish priorities and responsibilities and debate how to collectively achieve it.

The findings will be compiled and analysed ahead of the publication of the Action Stations report in 2010.

Station Champions Report

The 'Station Champions' report, published in November 2009, is aimed at improving the end to end travelling experience of passengers, and attracting more passengers onto the railways. The report recommends 'Minimum Station Standards' for each station category and that these should be recommended as part of all future franchise specifications.

As an output of this report the DfT announced a new fund of £50 million to spend on improving the ten 'priority' stations in England, identified in the report. Of the ten stations identified Liverpool Central is on this route and will qualify for a portion of this fund.

Network Rail will work closely with stakeholders to develop a programme of improvements.

National Stations Improvement Programme (NSIP)

The Government is funding a £150m programme during CP4 to support the modernisation of a range of stations. The criteria selecting stations includes footfall and current facilities. The NSIP has been established to ensure that this money is invested in the most effective way by leveraging in third party funding. This programme is being developed within the industry through Local Delivery Groups (LDGs). On this route the stations that have been delivered as part of the first tranche of NSIP funding are Hall Road, Hooton, Rice Lane, Rock Ferry, Walton, Waterloo, Kirkdale and Liverpool Central.

It is hoped that further funding in 2010 is secured as part of the tranche two allocations. This funding will include a portion based on the successful delivery of tranche one schemes. Stations submitted for improvements include Kirby, Brunswick, Lime Street and Moorfields. Some of these schemes are contributing to a larger project.

Access for All

This programme is designed to improve the accessibility of stations. The main objective is to provide an unobstructed and obstacle free 'accessible' route, from at least one station entrance and all drop off points associated with that entrance to each platform and between each platform served by passenger trains. The stations on Route O selected by the DfT for this programme of works are: Liverpool Central, Hooton, Orrell Park and Waterloo.

Programme Extension

The government is looking at extending both the NSIP and Access for All programmes for ten years from 2014 to 2024 to ensure investment with simpler, modern buildings with better facilities and interchanges. Ideally programmes should be extended into a major station investment programme.

Liverpool Central

The RUS recommended a number of options be taken forward over three time scales. In the short term some small scale interventions were recommended around passenger demand management to be implemented as soon as possible.

The medium and longer term options are being developed and a dynamic passenger modelling exercise has been commissioned. These will feed in to the Liverpool Central Development Plan which aims to address the capacity issues as well as improving the facilities and general appearance of

the station. The plan will be used as evidence for a submission for funding from the DfT Station Champions fund and other funding sources. This would be in addition to funding identified through the NSIP and Access for All programmes.

The development plan envisages six phases of work:

Phase 1: The construction of the new travel centre, booking office and M2Go, which has been completed.

Phase 2: Concourse and facility improvements.

Phase 3: Provision of additional lift to improve access from the concourse to the platforms.

Phase 4: Wirral Line – replacement of ceiling, wall and flooring surfaces.

Phase 5: Enhancements to Moorfields station to facilitate additional passengers during upgrade of Northern Line platform.

Phase 6: Northern Line Platform Capacity Improvements to remove equipment rooms from between existing escalators to maximise the usable platform area.

Liverpool James Street

James Street is one of the major city centre stations on the Merseyrail network. The Merseyside RUS identified that the ticket barriers and concourse area are likely to be over capacity within the next few years and recommends that a study into a concourse upgrade is taken to GRIP 3.

Moorfields

Moorfields station serves a more commuter orientated passenger flow than Liverpool Central and is therefore busier in the peak hours in the week than at weekends. The Merseyside RUS identified that there were no capacity issues at the station. However, the proposed upgrade of Liverpool Central will require the station to accommodate the Northern Line passengers that would normally use Liverpool Central. This is likely to mean that there will need to be some enhancements to Moorfields as part of any Liverpool Central project.

New stations

There are a number of proposals for new stations in the Merseyside area. The potential for a new station at Headbolt Lane (one kilometre beyond Kirkby) is being investigated as part of the proposed electrification project, previously noted in the Strategic Direction section. This scheme would

depend on suitable funding being found within CP4. This would help serve the Tower Hill area, which is adjacent to the Kirkby to Wigan line.

A proposal for a new park and ride station at Maghull North on the Northern line is being progressed to outline design with the intention of delivery in CP4.

The Merseyside RUS recommends further investigation (GRIP 1-3 study) into a potential new station at Skelmersdale (between Rainford and Upholland).

There are a number of stakeholder aspirations for other new stations around the route. These proposals will be filtered and assessed through the normal 'Investment in stations' procedures.

Cycle parking

Merseyrail has been nominated as a Cycle Demonstration TOC and will be providing secure cycle parking facilities at stations on the Southport and Chester lines.

Car parking

There are currently just over 3,000 parking spaces at stations on this route. The majority of these are filled at busy times, a number of them before the end of the morning peak. This is likely to act as a constraint to growth, and can cause problems with on-street parking around stations. Merseytravel are currently working with other industry partners on developing a strategy to address this.

Integrated Station Plans

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

Level Crossings

There are plans to renew CCTV camera equipment at 11 level crossings over the next three years, this includes new encoding equipment and monitors. Ten of the crossings are located on the Southport line with the remaining one (Maghull) on the Ormskirk line. This will improve reliability of the asset and general picture quality for recording of incidents.

There has also been numerous 'Safety Awareness' days held at several high profile locations in Merseyside to promote good user discipline at level crossings. These include Hoylake, Ainsdale and Birkdale. Regular pro-active controls are also carried out.

Depots

The current depots and stabling arrangements have reached their design capacity and it is not possible to accommodate any additional units or any new fleet vehicles procured. Additional stabling facilities are needed in order to cater for the predicted future growth. There are already difficulties and operational constraints in shunting and preparing units. The space currently used for train cleaning at the Birkenhead North maintenance depot is sufficient to maintain the additional units. However, it is proposed that the cleaning activity is moved to Birkenhead Central sidings and also initially reinstating the shed at Birkenhead Central followed by reinstating the 'out of use' sidings at Birkenhead North maintenance depot. These two specific elements would resolve the capacity problems at Birkenhead North by enabling the train cleaning operation to return to Birkenhead Central (where it used to take place until the late 1990s) and increase the stabling ability at this strategic location.

It is therefore proposed that ahead of any new rolling stock procurement a detailed review of depot capacity and stabling is undertaken.

Future performance

Figure 12 sets out the planned forecast PPM MAA for Merseyrail. The PPM figure quoted represents the expected contribution of the TOC to the sector-level regulatory outputs in the CP4 delivery plan.

Merseyrail

The performance of Merseyrail is currently 96.0 percent PPM MAA which is significantly ahead of both the HLOS and the JPIP Targets.

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

- line speed improvements/train service changes especially between Hooton and Chester to create a performance buffer for the Chester services;
- improved asset reliability through full installation and deployment of remote condition monitoring;
- resilient timetables including changes to station dwell times;

- autumn management – increased back to boundary de-vegetation;
- reduction in the impact of cable theft, trespass, vandalism and fatalities;
- right time railway initiatives
- reduction in sub-threshold delays;
- improvement in track quality – replacing jointed track with CWR;
- extreme weather mitigation through enhanced drainage; and
- use of the Performance Fund to develop new improvement initiatives.

The route plan is being developed around these key points and currently suggests that performance on Merseyrail by April 2014 will be around 95.2 percent. This includes an allowance for passenger/traffic growth and an increase in engineering work. This figure has been discussed with Merseyrail and is in line with their aspirations. Future performance issues will continue to be addressed through the JPIP process.

The other operators on this route are Arriva Trains Wales and Northern Rail. The future performance section for Arriva Trains Wales can be found in the plans for Routes L, and Northern Rail can be found in the plans for Routes G and L.

Network availability

We continue to work closely with Merseyrail to identify the least disruptive ways in which to carry out renewal work. Generally, we will carry out work when services are least heavily used, such as late at night and on Sundays. We also aim to avoid major events such as the Grand National, Southport air show, Chester race weekends, Open Golf and the Matthew Street Festival.

In consequence, this means that exact times and dates are liable to alteration. Additionally, it is sometimes necessary and prudent to undertake larger items of work over a longer period of time.

A six week blockade is planned in the summer of 2010 between Liverpool Central and Hunts Cross to install new slab track on the route.

Figure 12 Forecast PPM MAA – CP4 Plan

	2010/11	2011/12	2012/13	2013/14
Merseyrail	94.9%	95.1%	95.2%	95.2%

Long term opportunities and challenges

The short to medium term challenge on this route is to meet the growing passenger demand whilst sustaining the performance improvements that have been made. Further increases to the peak service frequency will be required. Continued progressive lengthening of rolling stock will continue until all services are operating at their maximum length.

Once the network is operating with six-car formation trains throughout, significant capital expenditure will be needed to enhance the railway any further. This could include widening existing tunnels, construction of new platforms and the reopening of disused lines and tunnels.

Liverpool Central

Major investment will be required at Liverpool Central station, which will be a critical location for coping with the increased passenger demand over the coming years.

Improved access to stations and the general rail network will also be a key challenge to ensure access opportunities are maximised.

A case would also need to be made for reinstating the freight lines between Canning Street and Hooton if freight traffic out of Birkenhead Docks continues to grow to an extent that it became impossible to path it between the Merseyrail services at Bidston.

Regeneration

The large scale proposals at Birkenhead and Liverpool Docks if realised will create considerable demand for travel. From a rail perspective this presents a challenge as neither of these areas are currently rail served. The Wirral Waters development at Birkenhead Docks could be accessed by rail if the freight lines were re-opened.

The Liverpool Waters development at Liverpool docks presents more of a challenge. This area is not rail served and there are no former lines that could be reopened. Therefore other methods of serving the development including light rail or Tram/train will need to be investigated.

Resignalling

Around 2020, the signalling equipment throughout the area will be due for renewal. This will present an opportunity that occurs once in every 25 years, for the remodelling of several key junctions to take place so as to allow improvements to be made when all the equipment is renewed.

Merseyside RUS

The Merseyside RUS has examined when the core of the network is likely to be unable to sustain demand, and what options are available to address this. The Merseyside RUS became 'established' by the ORR in June 2009.

We are currently working with Merseyrail and Merseytravel to understand the long term requirements for the Merseyside area.

DaSTS

The Department for Transport published its formal consultation document 'Delivering a Sustainable Transport System' (DaSTS) in November 2008. It sets out long term transport priorities for the period to 2019 and beyond and reflects conclusions from the Eddington Study and the Stern review.

The document sets out five clear transport goals for the network these are:

- To support national economic competitiveness and growth by delivering reliable and efficient transport networks.
- To reduce transports emissions of carbon dioxide (CO₂) and other greenhouse gasses, with the desired outcome of tackling climate change.
- To contribute to better safety and health and longer life expectancy by reducing the risk of death, injury or illness arising from transport, and by promoting travel modes that are beneficial to health.
- To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society, and
- To improve quality of life for transport users and non transport users, and to promote a healthy natural environment.

Rail has potential to help meet these objectives and Network Rail will continue to engage with the Regions and Local Authorities at all levels of the process. There are four stages in the process. In stage one each Region was invited to propose a number of strategically relevant studies to take forward which they believe will meet the DaSTS objectives. The DfT then selected the studies that would progress into stage two to generate options for appropriate interventions. All studies are currently in stage two and need to produce a long list of options by the end of March 2010 for further review. Stage three will involve the sifting and packaging of options, while stage four will see the completion of an overall programme, with all studies complete by 2012.

As part of the DaSTS programme there are both National and Regional studies, the national studies are led by the DfT and the local studies are led by the Regions. There are a number of joint studies with the involvement of both the DfT and the Regions.

There is a national **Freight Modal Choice** study looking to confirm the economic, social and environmental benefits of current freight movements by non-road modes on national network corridors and to identify where changes in future modal choice, from road to rail or water, could address issues on the network and deliver against the five DaSTS goals. This includes consideration of the capacity and capability of the national infrastructure to accommodate these changes in modal choice.

On this route the studies that may affect long term opportunities and challenges are:

City Region Connectivity – The three city regions of Manchester, Liverpool and Central Lancashire will be the key drivers for the future growth of the regional economy. Evidence available to the region identifies a number of issues related to connectivity between the city regions, and this study is intended to assess current and future problems in the three corridors leading to the identification of specific measures for more detailed investigation. These corridors include intermediate towns such as Bolton, Runcorn, St Helens, Warrington, Widnes and Wigan. Reflecting Cheshire's role as a major contributor to national and regional Gross Value Added (GVA), links between the regional gateways of Chester and Crewe and Manchester/Liverpool will also be a key element of the study. Whilst other studies will include connectivity issues related to the international gateways of Manchester Airport and the Port of Liverpool, there will need to be close interface between the studies to ensure consistency.

Access to the Port of Liverpool – The Port of Liverpool is the North West's key international seaport and is of great importance to both the national and regional economies. Access by road and rail to the port has the potential to become a significant constraint given planned growth. The purpose of this study is to build on previous work undertaken to form a clear understanding of current and future transport requirements, including the potential for modal shift from road to rail for freight.

New lines Programme

In August 2009, Network Rail published the Strategic Business Case for 'New Lines'. This document proposed the provision of new capacity through a new line itself; and the associated release of capacity on the existing WCML.

The New Lines Programme has demonstrated that there is a good value for money case for New Lines including a spur to Liverpool.

Electrification

It will be necessary to continue to improve and enhance services and also strengthen 'connectivity' between major conurbations. One such way this could be achieved is to expand the Merseyrail network (i.e. either extend using DC or AC electrification, or have units capable of operating beyond the electrified network). The opportunity for much of this will depend on the decisions to be made over the replacement fleet. The list of opportunities to extend the electric network that are currently under consideration are Bidston to or towards Wrexham; Kirkby (potentially Headbolt Lane) to or towards Wigan; and Ormskirk to or towards Preston and or Southport.

Infrastructure investment in CP4

Figure 14 Infrastructure Investment in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2010/11	(A) Liverpool Central Development Plan: Phase 2	Concourse and Passenger Facilities improvements	Improved Facilities	Third Party	3
2011/12	(B) Liverpool Central Development Plan: Phase 3	Additional lift to Northern Line platforms	Improved accessibility	Third Party	1
2011/12	(C) Liverpool Central Development Plan: Phase 4	Replacement of ceilings, walls and flooring surfaces on Wirral line platform	Improved facilities	Network Rail	2
2010/11	(D) Liverpool Central Development Plan: Phase 5	Upgrade to Moorfields to accommodate passengers during Central Station upgrade	Improved facilities	Third Party	2
2011/12	(E) Liverpool Central Development Plan: Phase 6	Northern Line Platform Capacity Improvements removing equipment rooms from between existing areas to maximise the usable platform area.	Improved platform capacity	Third Party	2
2011/12	(F) Liverpool Lime Street Underground	Resurface platforms and renew tunnel linings	Improved facilities	Network Rail	2
2011/12	(G) Liverpool James Street	Resurface platforms and renew tunnel linings	Improved facilities	Network Rail	2
2013/14	(H) Hamilton Square Station	Resurface platforms and renew tunnel linings	Improved facilities	Network Rail	1
2010 – 2012	(I) New station at Maghull North	New station at Maghull North with 200 space park and ride facility	Improves accessibility to the rail network	Third party	3
2013/14	(J) Access for All at Wallasey Grove Road	Step free access to platforms	Improved access	Third party	2
2012/13	(K) Access for All at Wallasey Village Station	Step free access to platforms	Improved access	Third party	2
2010/11	(L) Access for All at St Michaels Station and facilities upgrade	Passenger facility upgrade and new lifts	Improved facilities and improved accessibility	Third Party	2
2010/13	(M) Access for All at Hooton	Disabled access improvements	Improved access	Third party	4
2010/11	(N) Access for All at Birkenhead North	Disabled access improvements	Improved access	Third party	2
2010 – 2014	(O) Upgrade of station facilities at Aigburth	Upgraded canopies	Improved facilities	Third Party/ Network Rail	2
2010/11	(P) New waiting rooms at Brunswick	Improved waiting facilities	Improved facilities	Third Party	2


Infrastructure investment in CP4

Figure 14 Infrastructure Investment in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2011/12	Q Station upgrade at New Brighton	Upgraded station building	Improved facilities	Third Party	2
2010/11	R Access for All at Waterloo	New lift	Improved accessibility	Third Party	3
2012/13	S Bebington car park extension	Improvements to car parking at Bebington.	Improved car parking facilities	Third party	2
2010/11	T Hall Road new car park	Improvements to car parking at Hall Road	Improved car parking facilities	Third party	2
2010/11	U Access for All at Formby	New lifts at Formby	Improved accessibility	Third Party	2
2013/14	V Signalling Renewals	Merseyrail IECC Signalling Renewals	Signalling Renewals	Network Rail	0
2010 – 2011	W E&P Renewals	Merseyrail tunnel lighting renewal	E&P Renewals	Network Rail	3
2010 – 2012	X E&P Renewals	Renewal of 11kV feeder cable renewal and vacuum switchgear renewals	E&P Renewals	Network Rail	3
2010 – 2012	Y Telecoms systems renewals	Long line PA system renewals on the Northern Line and City lines	Telecoms Renewals	Network Rail	2
2010 – 2012	Z CCTV equipment renewal at Level Crossings	Renewal of CCTV equipment at 10 Level Crossings on the Southport line at Waterloo, Brook Hall Road, Eccles, Freshfield, Ainsdale, Birkdale, Aughton Road, Duke Street and Portland Street. One level crossing on the Ormskirk line at Maghull.	Telecoms Renewals	Network Rail	1
2013 – 2014	AA Merseyrail sub-surface PA renewals	Renewals to PA system that links to fire alarm evacuation announcements	Telecoms Renewals	Network Rail	1
2013 – 2014	AB Merseyrail sub-surface PA renewals	Renewals to PA system that links to fire alarm evacuation announcements	Telecoms Renewals	Network Rail	1
2010 – 2014	AC Track Renewals Programme	Major S&C renewals planned at: several key junctions.	Track Renewals	Network Rail	3
2010 – 2014	AD NSIP - various stations	National Station Improvement Programme (NSIP), Tranche 2 proposals include: Liverpool Central, Moorfields, Kirkby, Lime Street, Brunswick, Maghull, Birkenhead Central, Waterloo	Improved station facilities, increased passenger numbers	Third party	Various

NRDF candidate schemes in CP4

Figure 15 Candidate NRDF schemes in CP4

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2011 – 2014	 Merseyrail LSI	Line speed improvements between Hooton and Chester	Improved passenger journey time, increased passenger numbers	Network Rail Discretionary Fund	0

GRIP stages: 1 Output definition, 2 Pre-feasibility, 3 Option selection, 4 Single option selection, 5 Detailed design, 6 Construction, test and commission, 7 Scheme hand back, 8 Project close out

Renewals activity

Figure 16 shows the estimated renewals costs and activity volumes.

The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible consistent with the reasonable requirements of operators and other stakeholders.

It should be noted that in order to manage the deliverability of our Civils, Signalling & Electrification plans we have included an element of over planning in our work banks. As a consequence the sum of our route plans exceeds our plan for the network as a whole. It is likely that a small proportion of the activities in these areas will slip to subsequent years.

Figure 16 Summary of estimated renewals costs and activity volumes

£m (2010/11 prices)	2010/11	2011/12	2012/13	2013/14
Renewals				
Track	2	4	3	3
Signalling	5	5	5	6
Civils	4	4	1	-
Operational property	7	5	5	5
Electrification	2	2	3	3
Telecoms	4	8	8	5
Total renewals	24	28	25	22
Renewals volumes				
Track				
Rail (km)	3	5	5	5
Sleepers (km)	2	4	5	5
Ballast (km)	2	4	5	5
S&C (equivalent units)	0	1	0	0
Signalling				
Conventional (SEU)	0	0	0	0
ERTMS (SEU)	0	0	0	0
Level crossings (no)	0	0	0	0

Appendix

Figure 17 Strategic route section

Predominant aspect recorded (secondary aspects recorded in brackets). ELR is Engineers Line Reference, RA is Route Availability

SRS	SRS Name	ELR	Classification	Funding	Community Rail	Freight Gauge	RA	Speed	Electrification	Signalling Type	Signalling Headway (mins)	No of Tracks	SRS
O.01	Merseyrail	HXS2, BEN, CRR1, CRR2, CWK1, CWK2, CWK3, HHJ, HXS1, HXS2, HXS3, MIR2, MIR2, SJO1, SJO2, WJK	Secondary	DfT	No	W6 (W8)	8 (7) (10)	60 (35)	DC	TCB	3 (2) (5)	2	Merseyrail

Capacity and operational constraints

- A Sandhills – Walton: flat junction
- B Liverpool Central: platform capacity
- C Hunts Cross West Junction: crossing moves
- D Bidston East Junction – flat junction
- E Limited platform access/egress at Liverpool Central, James St & Moorfields stations
- F Walton Junction – flat junction
- G Chester station – only one dc electrified platform

Other issues on the route

- 1 Birkenhead Docks branch: access for freight
- 2 Tight curvature in tunnel causing significant track deterioration
- 3 DC power supply issues for any new rolling stock
- 4 Limited maintenance & stabling facilities for both additional and new rolling stock

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