Liverpool City Region Long Term Rail Strategy

"Converting Strength to Lasting Long Term Economic Growth"

Summer 2014

(01/08/2014 Issue)

1. Foreword

Economic Vision

Liverpool City Region (LCR) has undergone a significant renaissance over the past 10 years. With confidence in the city region rising, the recently published Strategic Economic Plan (SEP) provides the strategic framework for interventions to drive new job creation and growth in the area. In this context the LCR Long Term Rail Strategy (developed by Merseytravel in collaboration with Network Rail) is a vital and timely vision of the role that an expanded rail offer can play in facilitating the proposed accelerated economic growth of the LCR.

Rail Investment

Across the country, confidence from passengers, politicians, and businesses in the value of the national rail network has also seen an unprecedented renaissance in recent years. Growth in passenger numbers continues to far outstrip expectations, and in recent years investments in a modernised network have increased at pace. The enhancements delivered through inter-regional electrification in North West England have already begun to deliver substantial benefits in terms of both journey quality and journey times, and proposed investment in High Speed 2 (HS2), and High Speed 3 (HS3) promises significantly enhanced national connectivity. The understanding of the contribution that good rail connectivity can make to a thriving city region economy has never been stronger.

Asset Strength

At a local level the Liverpool City Region is fortunate in having the Merseyrail network at the heart of its transport provision. In 2012/13 carrying approximately 40 million passengers, the network consistently tops the performance tables for reliability and customer satisfaction. However, the network has seen limited investment over the past 35 years and substantial infrastructure and rolling stock renewals are likely to be needed in the near future. These renewals need to take account of tightening capacity constraints on the network which threaten to stifle the vital connections between people, and employment and leisure opportunities, which are critical to the vision of the SEP. Also vital are the enhancement of national passenger links to re-connect Liverpool with London and other Northern cities with 21st century service quality, and of provision of sufficient rail freight capacity to cater for the aspirations of the SEP for the SuperPort.

Facilitating Economic Growth

There is undoubtedly a significant opportunity for an enhanced rail offer in the Liverpool City Region to build upon the strengths of its existing assets and to help facilitate the investment and growth envisioned. Without substantial investment the rail network threatens to stifle, rather than facilitate, the economic growth potential of the City Region. This is best illustrated with reference to Liverpool City Centre. Named as the first transformational priority of the Local Growth Plan and SEP, the City Centre is expected to play a dynamic role as a strengthening and anchoring economic and tourist hub. At present the limitations of the infrastructure (which in part dates back from the earliest beginnings of the railway age) provide a considerable barrier to the successful connection of the wider travel-to-work catchment to the expanded employment and cultural offer proposed for the City Centre.

Growing Travel Requirements

The LCR Long Term Rail Strategy set out in this document presents an ambitious vision of a network that meets future passenger needs, and opens up economic opportunity. Where good service levels exist, the network is already a success story, but more must be done to spread these benefits to a wider travel-to-work geography and to provide the capacity and frequencies required to support projected economic growth. The scale of investment required is significant, but without it the fulfilment of the SEP is likely to be compromised.

A Bold and Evolving Strategy

The strategy contained within this document (the fourth of four reports produced) proposes 12 packages with an indicative timeline for potential implementation over the next 30 years. From shorter term facilitation works to longer term connectivity aspirations the vision is necessarily bold and compliments and enhances the current proposals for HS2. Critically, the analysis undertaken to underpin this strategy in 2014 supports this bold vision - it is vital that short term barriers and short term thinking are not allowed to constrain the longer term economic potential of the city region. Considerable work will be needed to develop the detailed case for each of the packages and schemes and, realistically, it is acknowledged to be improbable that all of the proposals could come to fruition (indeed in some cases the strategy contains options which are mutually exclusive) but this should not detract from the clear benefits of major investment. The strategy has been designed to offer flexibility through regular review and whilst economic circumstances evolve and the business case for interventions will correspondingly fluctuate, the vision remains unchanged that rail should play a key role in helping deliver the economic vision of the LCR.

"Converting Strength to Lasting Long Term Economic Growth"

The long term vision for the Liverpool City Region rail network is to be "converting strength to lasting long term economic growth".

2. The Study Process

The development of the long term rail strategy has encompassed the four main stages shown in Figure 2.1.

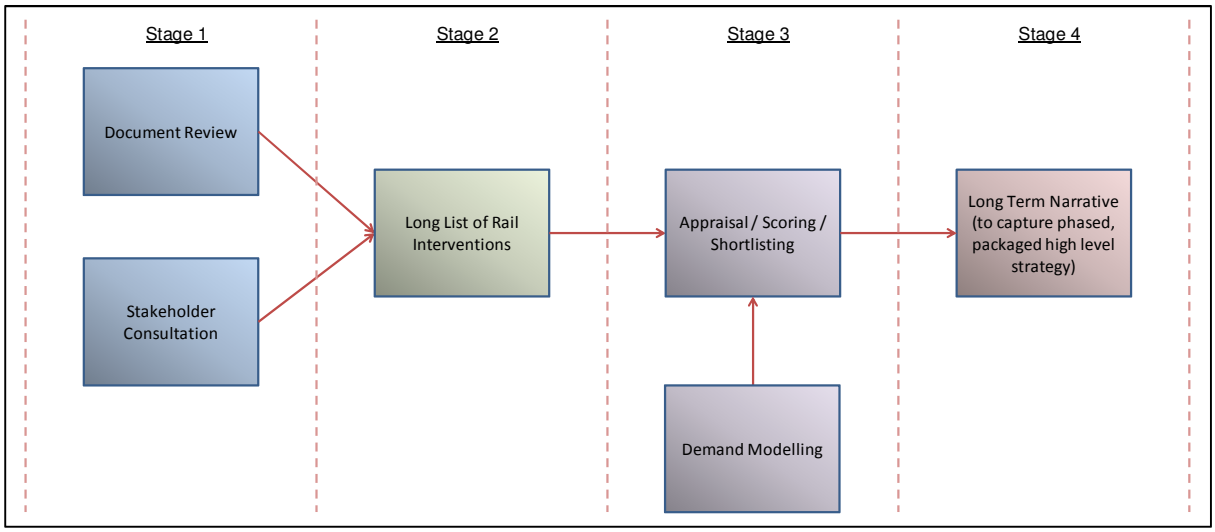


Figure 2.1: Long Term Rail Strategy Process

Early stages of the project focused on a comprehensive document review and selective stakeholder engagement process. Since the publication of the last local rail strategy (Merseyside Rail Strategy 2006, Merseytravel) there have been significant changes in local, and national context as well as some notable investments in infrastructure. During the intervening period rail industry structures and governance have continued to evolve and a large number of studies were reviewed to identify the common themes of previous work and to extract the aims, objectives, network gaps and potential remedial measures previously identified. The review allowed a long-list of previously considered schemes that have not yet been implemented to be assembled for consideration during later stages of this study. The report "Document Review Report_Final" provides a full record of the document review. Whilst some aspects of the stakeholder engagement were confidential, a record of the input that these conversations gave to the definition of options is recorded in the detailed report "Issues, Constraints and Opportunities Report".

Following the document review and stakeholder work, a considerable work programme to develop suitable tools to understand the current and future transport demands of the City Region was undertaken. The resultant, validated, and significantly improved version of rail assignment model MOIRA was used in conjunction with DfT, Network Rail and Local Enterprise Partnership based forecasts to understand potential long term pressures and requirements from the local rail network.

The output of the above strands was a clear definition of the requirements (the "asks") of the local rail network over the next 30 years. These are set out in Section 4, before section 5 presents the shortlisting process and the resultant packages which together are proposed to execute the vision of the strategy. Firstly, Section 3 presents a brief summary of key elements of the evidence compiled.

3. Evidence

3.1 Liverpool City Region Aspirations for Growth

As part of the development of the LCR Growth Plan and SEP, in March 2014, the Local Enterprise Partnership released a series of forecasts of changes in population, employment and GVA across the six districts of the LCR over the following sixteen years. These represent a critical underpinning narrative of the requirements of the city region's transport networks as population, GVA, and employment growth increase demands for travel.

For each case, two scenarios were considered, a baseline scenario based on current levels of background growth, and a 'policy-on' scenario in which a number of large developments across the City Region at various stages of the planning process are delivered.

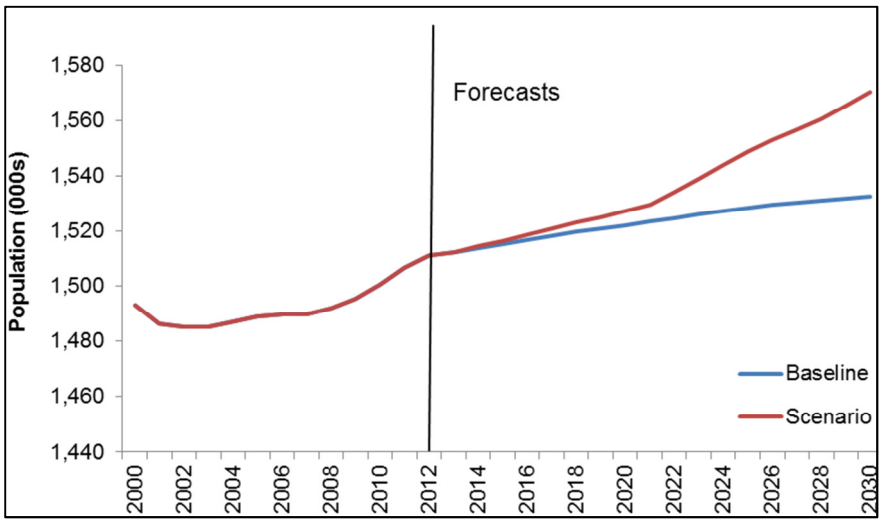


Figure 3.1: LCR Population Projections (Source: Liverpool LEP, Oxford Economics, March 2014)

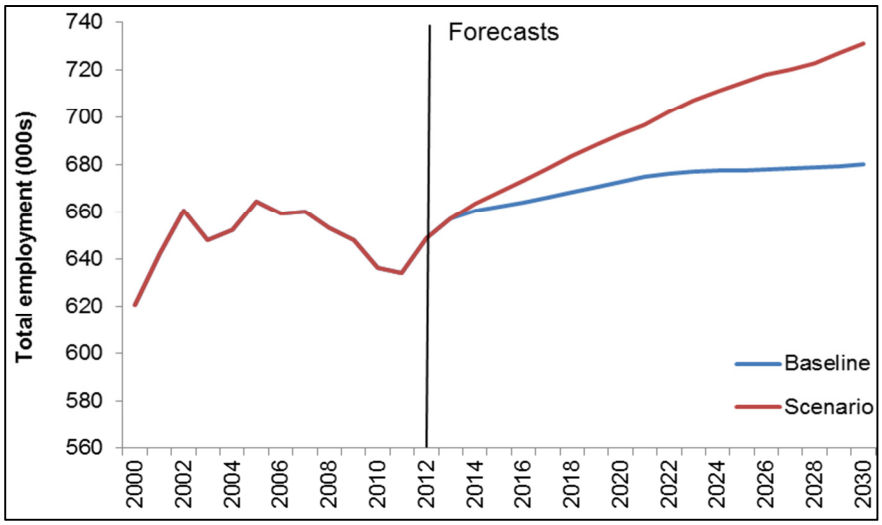


Figure 3.2: LCR Employment Change (Source: Liverpool LEP, Oxford Economics, March 2014)

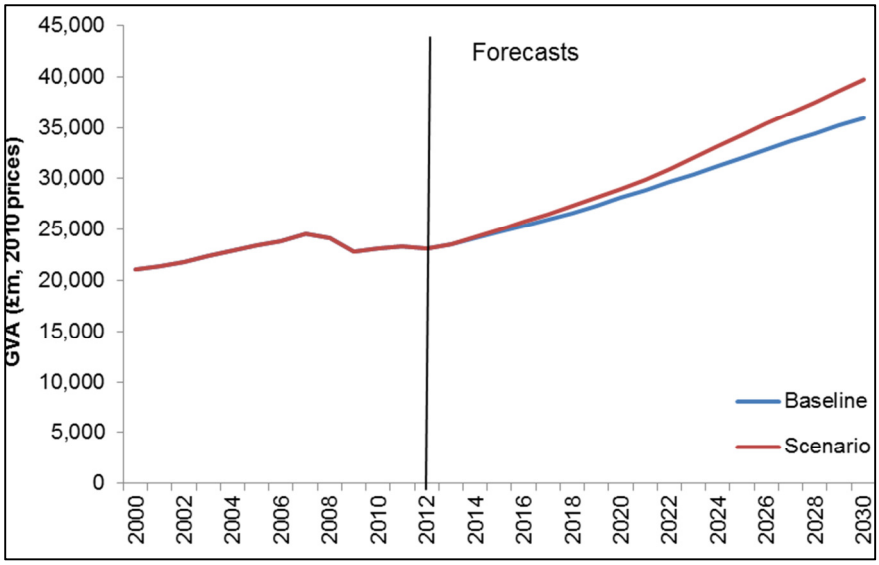


Figure 3.3: LCR GVA Increase (Source: Liverpool LEP, Oxford Economics, March 2014)

Whilst the city region population is considered likely to increase by between 1% and 4% according to these forecasts, employment is likely to rise even faster – between 3% and 10%. This is likely to generate an increasing propensity for travel into the city region to access employment opportunities, particularly within the City Centre. It is also clear that, regardless of scenario, the productivity of the city region is likely to continue to increase over the next few years.

Whilst the LEP forecasts concentrated predominantly on the six districts of the city region itself, the zone of influence of the area is felt significantly more widely with commuters, business travellers, leisure seekers and shoppers travelling from further afield. A fuller scenario of development potential across the area, including intelligence from neighbouring LEPs, developers and local knowledge was used to establish a clearer picture. This highlighted significant trip generating potential developments along the route between Liverpool, Warrington and Manchester; to the south of Preston in the Cuerden / Leyland area; to the south west of Wigan and in Skelmersdale town centre; and within the Chester and West Cheshire area spilling over into North Wales.

3.2 The Liverpool City Region Rail Network Today

Liverpool's national rail connectivity is now less comprehensive than many of its comparators and it is identified in this strategy as important to redress this shortfall. In contrast, the local network is well established and increasingly successful. The existing network was substantively shaped in the 1970s by the decision to reduce the city's three mainline termini to one at Lime Street, and to connect the rail networks to the north, south and west across the City Centre via a high frequency electrified link and loop network to be known as Merseyrail. The Merseyrail network provides high frequency services to the north and west (cross-river) of the City Centre, a single corridor to the south, but does not serve local stations to the east. The City Line with its terminus at Lime Street provides these connections, although services are generally run at lower frequency, on lower quality diesel trains. The impact of this can be seen in Figure 3.4 which highlights rail mode share for Travel-to-Work at a ward level from the 2011 census with red, orange and yellow colours indicating higher mode shares.

Figure 3.4 clearly highlights the success of Merseyrail lines at attracting higher mode shares, with the City Line and other lines into and around the city region attracting significantly lower mode shares of travel.

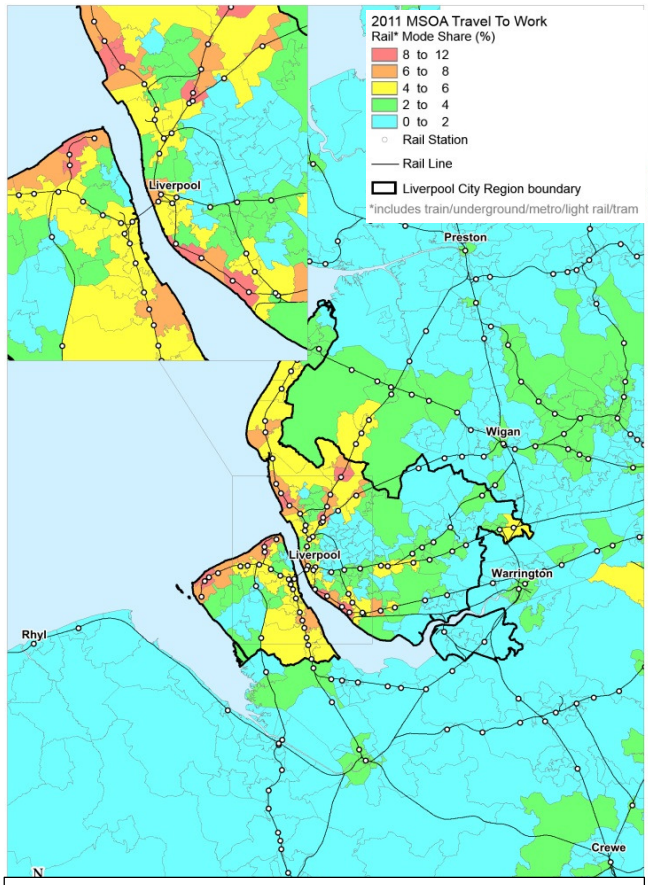


Figure 3.4: Travel to Work Rail Mode Share (2011)

Further analysis of latent passenger demand derived from modelling work reveals that the greatest potential for capturing future mode shift to rail is from sectors neighbouring the city region particularly to the south and east (Figure 3.5). This raises the prospect of better rail provision to these areas to secure higher rail mode shares. Warrington is a particularly strong example given the large number of commuter car trips into and out of the city region each day. South Wigan and Skelmersdale are similarly good candidates for future rail growth if provision is improved. In addition South Flintshire (Deeside), East Cheshire including Macclesfield, Blackpool and Lancashire are also potentially significant future markets too. Schemes (discussed as part of the strategy packages below) such as Borderlands line improvements, a Skelmersdale link, Warrington Central line electrification and Halton Curve have the potential to make a significantly positive difference for these locations.

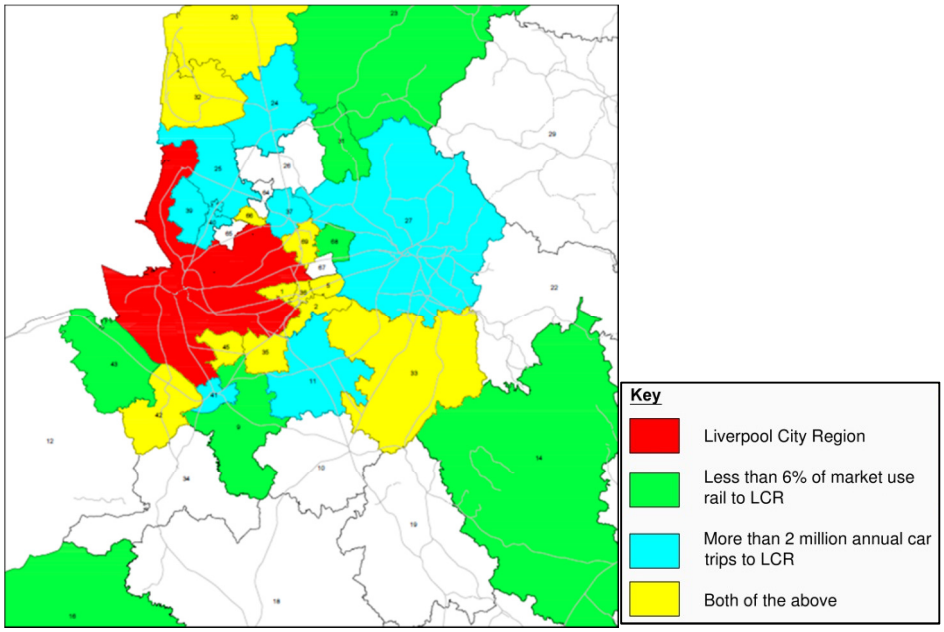


Figure 3.5: Potential Sectors of Latent Demand to Liverpool City Region

3.3 Forecast Growth in Travel

Demand forecasts derived from Network Rail, DfT and LEP/Rail North data were used to understand the extent at which passenger demand is forecast to grow with no additional rail network enhancement. The use of MOIRA allowed full line by line analysis of pressures and highlighted key forecast pressures on the network. All three scenarios examined contained significant levels of passenger growth, with all scenarios demonstrating major pressures within the 30 year horizon of this study. The following chart utilises the highest growth forecast as used by Network Rail to understand the full potential scope of market requirements. Figure 3.6 highlights the expected impact of growth at Central Liverpool stations over the next 20 and 30 years in terms of the daily profile of boarders.

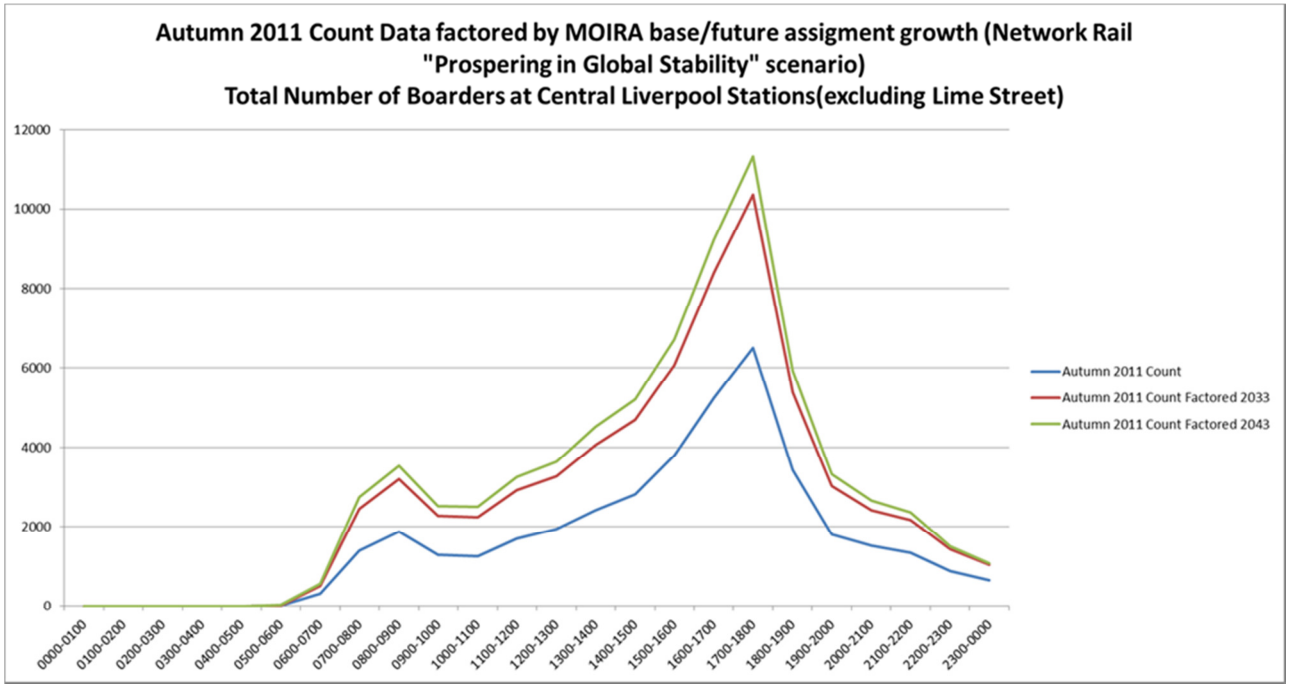


Figure 3.6: Profiles of Boarders at Central Liverpool Stations in 2011, 2033 and 2043 (Merseyrail Station Counts with Growth Applied)

The analysis assumes only committed rail schemes are delivered, and that there is no 'crowding off' of passengers due to heavy use. This highlights that a further 4,000 boarders may be expected at peak times at central stations by 2043, representing a potential capacity issue – particularly at Liverpool Central (the busiest station in the Liverpool City Region, with already identified present day problems with passenger platform capacity).

On a line by line basis, the highest growth scenarios show capacity issues on all of the lines into central Liverpool within the next 30 years. Seating capacity is already regularly exceeded on the busiest services and on routes with less peak time strengthening. Services on several lines are, in fact, expected to approaching 90% to 100% of total (seating and standing) capacity within the next 10 years assuming current service patterns and train configurations.

Whilst committed schemes to electrify parts of the City Line and replace existing diesel rolling stock with higher capacity electric vehicles are likely to have a positive impact, our work shows that this is

unlikely to be enough by itself. This indicates that doing nothing extra to what is already programmed is not an option in relation to capacity of either trains or central stations, and that the rail strategy must seek to alleviate capacity issues if it is to meet demand and help to secure lasting economic growth for the region.

With respect to freight, reference was made to pre-existing available information on likely train path requirements. This limited analysis highlighted an important potential shortfall in paths and infrastructure, however soon after this study's inception, a parallel Northern Ports rail study was initiated by Network Rail and Merseytravel. Upon publication of this study in late 2014 further analysis will be required to understand freight requirements and their interactions with passenger requirements.

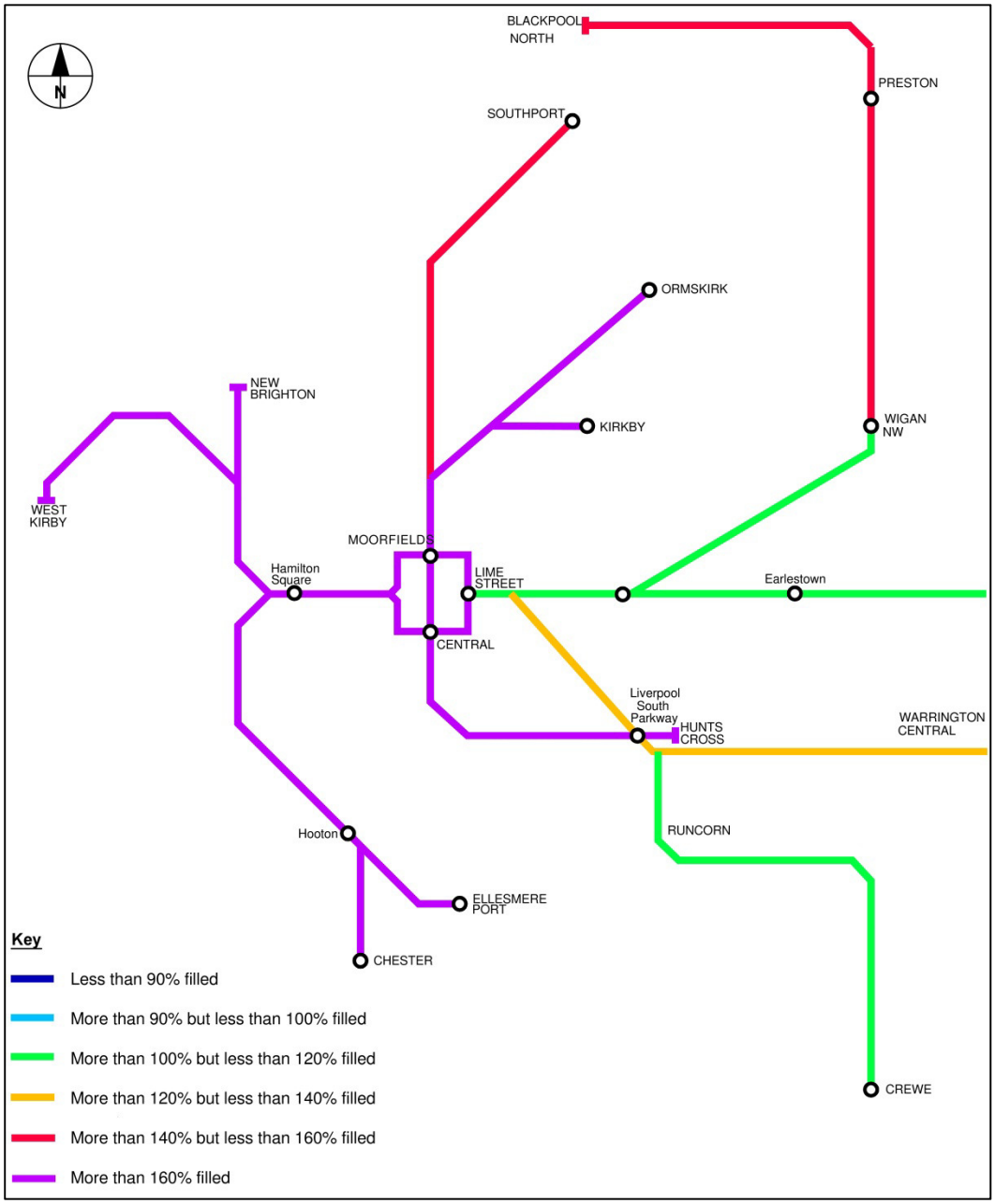


Figure 3.7: 2043 AM Peak Demand vs Seating Capacity for Rail Services on Arrival into Liverpool (Source: MOIRA, Network Rail 'Prospering in Global Stability')

4. Identified Issues and Strategic Outputs

4.1 The Issues to Resolve

One of the most important outcomes of the Long Term Rail Strategy has been the identification of existing and future constraints on the rail network. Informed by present day evidence and understanding, and forecast future demand, it is clear that there are significant issues to address. These are the issues that could yet hinder the economic growth of the region and the realisation of the aspirations of the LCR Strategic Economic Plan as that plan must rely on the robustness, suitability and flexibility of its transport network to connect people and places. The aim of the Long Term Rail Strategy will be to address these issues in the most efficacious and efficient way, whilst maximising the economic benefit to the City Region.

The identified network constraints have been sorted into themes relating to capacity, connectivity, infrastructure, facilities and rolling stock, and funding. They are summarised in the following table.

Capacity Constraints – ***restricting the ability to run extended services to meet demand***	
1	Merseyrail suffers from passenger capacity problems at certain times and locations that will substantially constrain future passenger growth, especially at Liverpool Central Station and on trains into central Liverpool, due to limited platform space, and the need to turn-around services.
2	Services into Liverpool Lime Street, particularly two and three-car configurations, are often overcapacity during peak periods.
3	Constraints on the network limit the number of trains per hour that can be used on busy sections of the line, for instance the required future maximum of 18-20 trains per hour on the Northern Line between Sandhills and Liverpool Central, and the ability to provide additional cross-river services (for instance from Wrexham) cannot currently be readily accommodated.
4	Related to constraint 2, the throat on the approach into Liverpool Lime Street acts as a constraint on the number of services per hour that can access the station. This is due to the limited number and the current location of cross-over facilities on the Lime Street approach.
5	Platform lengths pose a significant capacity issue at several locations, particularly on the City Lines, with six-car trains unable to call at a number of locations.
6	The West Coast Mainline between Weaver Junction and Crewe is heavily utilised at present with a lack of available rail paths. This limits the number of services per hour that can run between Crewe and Liverpool Lime Street.
7	Single-end termini create significant capacity issues on the Merseyrail network, with Chester, Ormskirk, Kirkby and Hunts Cross identified as particular constraints. Single-end terminals create longer turnaround times and create conflicts between inbound and outbound services on single-track sections.
8	The combination of extra freight trains plus a parallel growth in passenger services, driven by the Northern Hub passenger service expansion (service upgrade complete by 2018) and HS2 Phase 1 (opening in 2026), could prove difficult to accommodate on both the Chat Moss and West Coast Mainline routes.

Connectivity Constraints - *lack of geographical coverage of network*	
9	The rail network does not always link places where people live to employment sites effectively and does not always offer sufficient service frequencies to allow seamless commuting where it does;
10	There is evidence that transport networks either side of the border are developed partially in isolation from each other, leading to gaps in service provision and difficulties in seamless cross border journeys. For example, there are no through-trains between Liverpool and North Wales Coast Line /Wrexham despite a desire to create a link between Liverpool John Lennon Airport and the area (i.e. through Liverpool South Parkway);
11	There are no direct services between Liverpool and Scotland, Liverpool and South West England, or Liverpool and South Wales;
12	There is a poor frequency of services (when compared to other cities of a similar size and population) between London and Liverpool;
Infrastructure, Facilities and Rolling Stock Constraints	
13	The existing Merseyrail Electrics fleet will become life expired before 2020, and could be replaced with new higher capacity rolling stock. Further additional rolling stock is likely to be required prior to 2040 to cope with additional demand;
14	The lack of a coherent long-term rolling stock strategy for the North of England has created a significant rolling stock constraint on services, with many local services utilising older units with capacity and quality limitations. In addition, plans to increase services between North West England and Wales are limited in number due to a shortage of available rolling stock;
15	There are operational conflicts at Hunts Cross West Junction between Merseyrail services and Cheshire Lines services, at Wavertree junction due to the merging of routes, and at Sandhills due to the confluence of Northern lines; There are also line-speed constraints on the Chester line. This can perpetuate delay and limits the number of services per hour that can currently run through these areas;
16	There is no connectivity provision for services from the Cheshire Lines Committee (CLC) rail line between Liverpool, Warrington and Manchester, to use platforms 3 or 4 at Liverpool South Parkway, limiting flexibility in platform assignment;
17	The mix of (semi-fast and stopping) services on the CLC constrains timetabling options and restricts some stations to a single service per hour. This is due to a lack of passing loops and constraints at the Manchester end of the railway;
18	There is a lack of Park and Ride capacity at a number of stations on both the Merseyrail and City Line networks. As an example, the car park at Liverpool South Parkway is full by 08:00 and this is suppressing demand.
19	A lack of electrification on key routes has led to inefficient operation of passenger services (relating to routes between Liverpool, Manchester, and Wigan via St Helens, and between Chester and Crewe, Warrington, North Wales and Wrexham). This will be partially addressed by the electrification of the Chat Moss and St Helens routes later this year, however it remains an issue on lines with no identified electrification programme including the CLC;

20	Infrastructure constraints exist on some of the key diesel lines that serve parts of the City Region not associated with the City Centre. Southport to Wigan, Preston to Ormskirk, and Wigan to Kirkby all have sections of single track or otherwise constrained running that limits the number of services that can effectively run on each route; and
21	There is a significant capability gap for W10 gauge container freight between the Port of Liverpool and the West Coast Mainline, limiting rail freight growth in light of SuperPort proposals.
Funding Constraints	
22	Government funding is constrained at present due to the current austerity measures. This places a requirement on sound economic cases for investment in order to stimulate potential funding source opportunities. In some cases this has hindered the progression of schemes whose main benefits are social or strategic rather than economic;
23	The current prevalence of split-ticketing as a result of the availability of cheaper advance purchase singles can lead to a significant skewing of demand data obtained via the Lennon database. This in turn can cause issues in planning effective services and meeting demand.

Table 4.1: Constraints for the Strategy to Resolve

4.2 Developing Proposals to address the constraints

In addressing the constraints noted above, twelve key aspirational outputs for the strategy, emerging from the study's aims and objectives, and the findings from the document review, stakeholder engagement, latent demand analysis, and demand forecasting work, have been produced. The twelve packages of schemes contain many shortlisted schemes drawn from an initial pool of more than 150. The packages aim to bring about the changes noted above and to address the particular constraints, whilst addressing the capacity issues discussed, and serving areas of current latent demand.

The schemes that form each package have been shortlisted via an appraisal process that assessed each in terms of its fit with strategic aims and objectives, ability to engender mode shift, environmental benefits, and estimated level of deliverability including affordability.

It is important to note that the Long Term Rail Strategy is expected to evolve considerably as feasibility work is progressed, economic circumstances unfold, and funding opportunities open, or close. The strategy assumes an ongoing flexibility through regular review to re-prioritise and adjust focus, but a clear vision that recognises the need to start work now to address these long term issues. The realisation of these proposals represents a considerable challenge, but one that at the present time is evidently very important to the future economic health of the City Region.

4.3 Freight Considerations

It should be noted that the strategy has taken a pragmatic view on freight path requirements on the Bootle Branch and other key lines within the city region based upon the findings of the LCRFreight

Study Stage 1 (MDS Trans-Modal 2013), the appendices of which present detailed forecasts for freight path requirements on each line, and a meeting with Warren Marshall of Peel Ports to understand aspirations of the Port of Liverpool. The MDS Transmodal Study assumes the following committed service levels for freight on each line by 2020:

- **Bootle Branch** – An additional 9 freight trains per day in each direction leading to a total of 25 trains per day in each direction (19 from Chat Moss and Olive Mount, and 6 from West Coast Mainline and Edge Hill);

- **Chat Moss Line between Earlestown and Olive Mount** – An additional 7 freight trains per day in each direction leading to a total of 19 freight trains per day in each direction;

- **West Coast Mainline Liverpool Branch between Garston Docks and Edge Hill** – An additional 2 freight trains per day in each direction leading to a total of 6 freight trains per day in each direction;

- **West Coast Mainline Liverpool Branch between Ditton and Garston Docks** – No additional freight trains leading to a total of 21 freight trains per day in each direction on this section of line, 15 of which travel to and from Garston Docks;

- **West Coast Mainline Liverpool Branch between Weston Point junction and 3MG (Ditton)** – An additional 7 freight trains per day in each direction leading to a total of 34 freight trains per day in each direction on this section of line, 13 of which travel to and from 3MG;

- **West Coast Mainline Liverpool Branch between Weaver Junction and Runcorn (Weston Point Terminal)** – An additional 11 freight trains per day in each direction leading to a total of 39 freight trains per day in each direction on this section of line, 4 of which travel to and from Weston Point; and

- **Ellesmere Port to Helsby Line** – A reduction of 1 freight train per day leading to a total of 3 freight trains per day in each direction.

The strategy refrains from putting forward significant numbers of specific freight schemes due to a cognisance of the ongoing Northern Ports Trans-Pennine study work which will assess the requirements of the area as a whole in more detail. Nevertheless, the strategy has identified a potential conflict between passenger and freight traffic particularly on the Chat Moss line and its junction with the Bootle Branch and recommends a scheme in Package 1 to reduce this conflict i.e. a grade separated solution.

It is proposed that, following the findings of the Northern Ports study, further work be undertaken to integrate the Long Term Rail Strategy with the derived future freight requirements. This revisiting of the strategy could potentially form one of the first strategic reviews recommended as part of the ongoing review process discussed earlier.

5. The Strategic Packages

A headline description of each of the identified key study output strategic packages is provided below before a fuller explanation on the following pages. The packages represent coherent targets for the realisation of the long term vision but individually and collectively will be subject to the results of feasibility work, and the identification of appropriate funding.

In addition, each package, and the schemes that form their main components, will require significant additional work alongside partners including Network Rail and neighbouring authorities that are affected by proposals. At the time of writing, only limited consultation has been undertaken with Liverpool City Region districts, and no consultation has been carried out with authorities outside LCR but within the Travel to Work area including Warrington, Greater Manchester, Lancashire and Cheshire West and Chester. These parties will clearly become key partners in delivering the strategy and will be engaged at the earliest opportunity to ensure their own needs are fully recognised.

The Packages

1. Improving National Passenger and Freight Connections – Making the case to the rail industry for improvements to service levels, new routes and enhanced provision for freight.

2. Merseyrail Growth Enabling - Enabling growth and extension of the Merseyrail network with Rolling Stock, and capacity improvements.

3. Liverpool City Centre Passenger Capacity - Resolving Liverpool Central capacity constraints, preparing Lime Street for HS2, and making best use of assets.

4. City Line Enhancements - Improving inter-line connectivity and replicating Merseyrail success.

5. Cheshire Lines Committee Line (Liverpool – Warrington – Manchester) - Facilitating a more frequent and high quality level of service.

6: Halton Curve - Connecting LCR with West Cheshire, North and South Wales.

7. Improved Connections from Chester and Ellesmere Port - Linking Wirral Line and Chester to proposed Crewe HS2 Hub and national destinations.

8: Ormskirk – Preston Enhancements - Serving new development in West Lancashire and South Preston.

9: Kirkby – Wigan Line Improvements - Connecting to Skelmersdale, and new development in Wigan.

10: Borderlands (Wrexham – Bidston) Line Enhancements - Bringing Wrexham, Deeside and West Wirral into the Merseyrail network.

11: Conversion of Freight Lines to Mixed Passenger and Freight Usage - Converting existing and disused freight lines to passenger usage to serve new markets.

12: Selected New Stations - Responding to new developments, new markets and areas of latent demand.

The following pages provide for each package a description of the components, concept and rationale of each package, and the next steps that should be undertaken in order to realise the vision. The packages are presented in approximate priority order based upon the analysis of capacity and forecast demand undertaken as part of the study. In addition, each package has been phased to correspond to a best case delivery or lead-in time. Whilst it is unlikely that every package will be delivered according to this timeline, the placing of each package according to phase and priority allows an understanding of the approximate order in which each scheme within the packages should be tackled so as to maximise the benefit of the strategy in tackling the identified issues.

It should also be noted that *'Improving National Passenger and Freight Connections'* and implementation of *'Selected New Stations'* are not prioritised since these represent a continuous process of lobbying and station business case development that sits outside of the main strategic prioritisation process.

The table below highlights the envisaged phasing and priority of the various packages as described. The timescales suggested for each package correspond to the complete timeline for implementing every component of each with the coloured squares representing points at which new components are likely to come on-stream. As an example, whilst Halton Curve itself is a relatively simple short-term scheme, interdependent components such as new services between Liverpool and Cardiff via Shrewsbury are likely to be longer term etc. In this way, each package contains a number of 'early wins' which can bring about lasting change within the next few years, however each also has its own longer term components which may not be realised until a point further into the future.

Sub-Package	Priority	CP5: 2014-2019	CP6: 2019-2024	CP7: 2024-2029	CP8: 2029-2034
National Connections	-				
Merseyrail Enabling	1				
Liverpool City Centre Capacity	2				
City Line	3				
Cheshire Lines Committee	4				
Halton Curve	5				
Chester and Ellesmere Port	6				
Ormskirk - Preston	7				
Kirkby - Wigan	8				
Borderlands Line	9				
Conversion of Freight Lines	10				
Selected New Stations	-				

Table 5.1: Phasing and Prioritisation of Packages

In this way, the schemes are all phased so as to be delivered within the four industry Control Periods (CP's, 5 year planning blocks as shown in table 5.1) that make up the next 20 years.

Note: The information presented here is in summary form – more detail is included in the underpinning "Long Term Strategy Development Report".

(1) Improving National Passenger and Freight Connections (CP5 – CP7)

Components

- Increasing inter-peak frequency of Liverpool - London services and extending the Crewe - London interurban services to operate to Liverpool;
- Extending platforms 3 and 4 at Liverpool South Parkway to allow longer trains to call;
- Resolving conflict between passenger and freight services including grade separated junctions between the Bootle Branch, West Coast Mainline and Chat Moss route; and
- New direct routes between Liverpool and Glasgow Central / Edinburgh Waverley, Stoke / Derby / Leicester, and Bristol / Cardiff.

Concept and Rationale

The creation of enhanced and new direct passenger services to core cities is considered essential since it is now recognised that the economies of the nation's largest cities are inextricably linked together and to the national economy as a whole. In terms of freight, the aspirations of the SuperPort masterplan to more than double the rail freight handling capacity of the city region is a vital scheme for the economic future of the area, but is likely to result in conflict with increased passenger services.

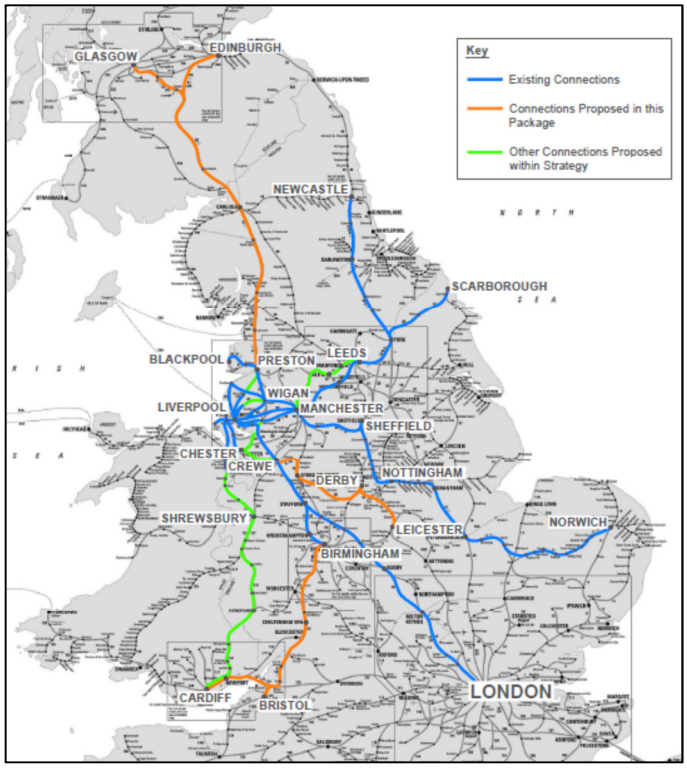
The package therefore aims to:

- Address the existing shortfall in national connectivity by rail from Liverpool in comparison with other core cities; and
- Resolve conflicts between passenger and freight services to ensure that the rail freight carrying aspirations of the region are realised (more detailed requirements in this regard will be known later in the year following the publication of the Northern Ports study).

Action Plan

To progress this package, Merseytravel plans to:

- Lobby the rail industry to incorporate proposed new and extended services within new franchising arrangements;
- Support the above with business cases and evidence of demand where appropriate that justifies an increased frequency of rail services;
- Undertake work on the design and business case for platform extensions to platforms 3 and 4 at South Parkway to allow Pendolinos and 6 car plus trains to call; and
- Await the findings of the Northern Ports Freight Study (currently ongoing) to understand better the future requirements. for freight and to allow planning of infrastructure schemes.



(2) Merseyrail Growth Enabling (CP5-CP8)

Components

- Replacing Merseyrail Rolling Stock with higher capacity, high quality heavy rail units with provision for dual voltage units;
- Future proofing the power requirements of the Merseyrail network by undertaking a full power upgrade;
- Reducing operational constraints at Liverpool Central by introducing a turnback facility at Liverpool South Parkway;
- Increasing rail capacity across the network;
- Increasing Merseyrail depot capacity with a new facility at Birkenhead Central; and
- Introducing operational efficiencies.

Concept and Rationale

Merseyrail Growth Enabling is one of the highest priority packages, and one on which many of the other packages rely. It contains the schemes necessary to introduce new higher capacity trains onto the network and to expand the network onto adjacent lines including the signalling and rail capacity enhancements this requires. Ultimately the package is considered essential to most of the other components of the strategy and is therefore recommended as one of the highest priorities. It includes:

- Replacement of the Merseyrail rolling stock with high quality metro-like vehicles with significantly higher standing capacity than the existing stock and future provision for dual voltage units to allow an efficient means of extending the reach of the Merseyrail offer;
- Creation of capacity to run a mixture of semi-fast and stopping services to improve end-to-end journey times and maximise capacity on some of the longer corridors;
- Enhancing the train carrying capacity on the Northern Line to allow 18-20 tph to run between Sandhills and Moorfields as is likely to be required, and to allow trains to be turned back at South Parkway rather than Liverpool Central to remove a significant operational constraint; and
- Improvements to accessibility, including for those with mobility impairments, and ticketing integration

Action Plan

To progress this package, Merseytravel plans to:

- Procure new DC Merseyrail Rolling Stock ensuring that there is provision for future compatible dual voltage units to facilitate network extensions;
- Engage with Network Rail to understand requirements for power and signalling upgrades – lobby to undertake this work during CP5 and to include works loosely programmed for CP7/8;
- Progress plans to design and construct a turnback at Liverpool South Parkway and associated signalling and capacity works; and
- Work with Merseyrail to provide improved ticketing solutions at stations, and for cross-boundary journeys incorporating the ongoing SmartCard project.

(3) Liverpool City Centre Capacity (CP6 – CP8)

Components

- Optimising passenger use at James Street and Moorfields stations;
- Full implementation of the Liverpool Central Station passenger capacity enhancements scheme;
- Improving rail capacity at Lime Street Station (to accommodate additional services including HS2 proposals) as part of a wider multimodal interchange scheme for the station and a large-scale redevelopment of the area; and
- Assessing requirement for a new station in Liverpool City Centre.

Concept and Rationale

Limited platform capacity at Liverpool Central is a significant constraint on the network's future growth. With passenger numbers set to grow in coming years, potentially facilitated by increased capacity on trains, platform capacity is a key concern and a long term strategy is required to ensure that Central can accommodate the demand. In addition, significant work is required at Lime Street to ensure that it can accommodate additional services and ideally the potential of 400m High Speed trains to London, Birmingham and potentially across the north of England should a northern High Speed Line be constructed at some point in the future. Lime Street is the subject of a significant multimodal regeneration drive currently and there is the opportunity to merge the projects to create a truly iconic station and multi-modal interchange-based development that serves all purposes. The package includes:

- Making significantly better use of other City Centre stations including Moorfields as the only alternative existing Northern Line station, due to its location in the business district, and its relatively low usage out of peak time (when Central can be at its busiest);
- Encouraging use of James Street as a Liverpool One and waterfront station with a dedicated waterfront entrance on the western side of the Strand;
- Implementing the full Liverpool Central capacity enhancements scheme to realign the southbound track to the north under the Central Village development, creating more room for the island platform and relieving the passenger pressure;
- Extending platforms and enhancing Lime Street as part of a wider redevelopment of the area; &
- Reviewing the 2009 Merseyside RUS recommendation for a new station in Liverpool City Centre should demand continue to grow beyond currently considered levels.

Action Plan

To progress this package, Merseytravel plans to:

- Undertake masterplanning and design work associated with station improvement schemes at Moorfields and James Street;
- Refine designs for Liverpool Central Capacity Enhancements scheme in light of Central Village ongoing development, and continue to seek funding for this scheme; and
- Progress plans for a combined regeneration and multi-modal capacity enhancement scheme at Lime Street to accommodate HS2, improve environmental quality, and facilitate additional services.

(4) City Line Enhancements (CP5 – CP7)

Components

- Re-use of Wapping Tunnel and new underground connections into burrowing junctions south of Central on the Northern Line to allow trains to run between Central and Edge Hill and beyond;
- Increasing capacity at Wavertree Junction for services between Mossley Hill and Edge Hill;
- Extending Merseyrail services between South Parkway and Airport / Speke / Runcorn;
- Connecting the Wirral, Northern and City Lines via the Stock Interchange and Wapping Tunnels;
- Creating new stations serving the Universities and Smithdown Road corridor; and
- Capitalising on the opportunities of substantially enhanced services between Liverpool, Manchester, and Wigan as a results of Northern Hub and electrification investment.

Concept and Rationale

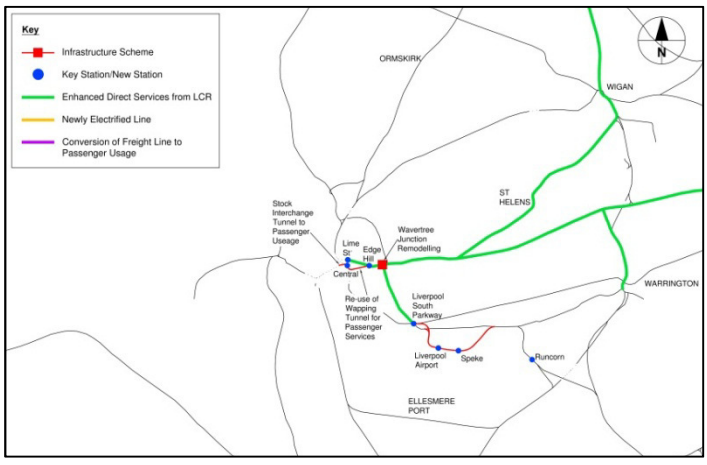
It is clear from Travel to Work mode share analysis, and work to identify areas of latent demand for rail, that destinations along the City Line are not as well served as equivalent destinations along the Northern and Wirral Lines. The main aim of this package is to build upon the Northern Hub and electrification improvements, and replicate the main factors of Merseyrail success including the ability to run frequent, high quality electric services on parts of the City Line. It is also considered important to create cross-city connectivity on the City Line, providing as a by-product operational relief at Liverpool Central, by linking the Northern and City Lines via Wapping tunnel. It proposes to:

- Stimulate a level of rail mode choice in locations served by the City Line equal to that observed in Merseyrail Electrics served areas;
- Provide alternative terminus locations for southbound Northern Line services, reducing the operational capacity issues at Liverpool Central;
- Promote cross-city connectivity by connecting the Wirral, Northern and City Lines, facilitating direct journeys between Wirral and South Liverpool for example; and
- Create a direct fixed rail link to Liverpool Airport, Speke and beyond, served by Merseyrail-type trains and with connections at Liverpool South Parkway.

Action Plan

To progress this package, Merseytravel plans to:

- Using influence as part of Rail North, lobby the rail industry to include proposed service level enhancements to Chat Moss and St Helens Line as part of new franchising arrangements;
- Undertake survey work on Wapping Tunnel and existing Northern Line junction to better understand requirements for electrification and return to passenger use;
- Review Rolling Stock Replacement options to safeguard ability to procure dual-voltage trains;
- Engage with Network Rail to prioritise capacity upgrade for Wavertree junction;
- Undertake optioneering and demand studies to look at the potential for a new rail link to Liverpool Airport and Speke.



(5) Cheshire Lines Committee (CLC, Liverpool – Warrington – Manchester) Route Enhancements (CP5 – CP8)

Components

- Electrification and Capacity Enhancements on the CLC line to facilitate increased frequency, regular clock-face stopping services as well as higher quality semi-fast trains;
- Extension of Merseyrail services via the CLC to Warrington Central and beyond;
- New connection between CLC and West Coast Mainline (Liverpool Branch) to provide capacity relief at Hunts Cross junction; and
- New stations at Tarbock Interchange (or Halewood South) and Warrington West.

Concept and Rationale

As the only component of the City Line that has no committed electrification programme, the CLC lags behind other parts of the network in terms of a strategy for increased growth and capacity. Timetabling constraints due to a lack of passing places, and a need to integrate stopping services with fast services on the line have led to an irregular timetable with a requirement for skip-stopping and hourly (or lower) service levels at some stations.

This package aims to:

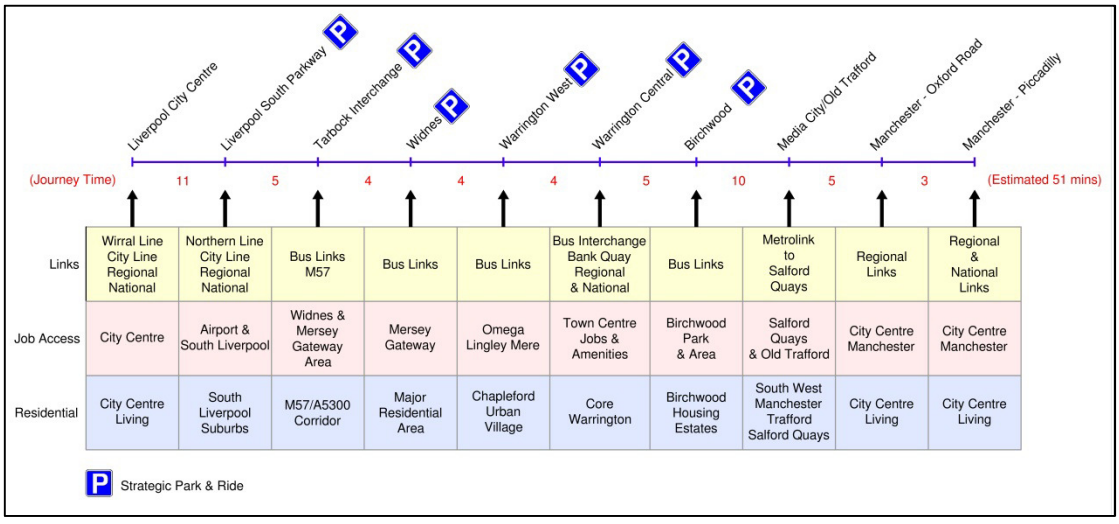
- Increase capacity on the CLC with passing loops to allow the slow services to operate a metro-like timetable of frequent services to key stops without impeding faster services;
- Electrify the line and extend Merseyrail services to Warrington and beyond; and
- Resolve conflicts at Hunts Cross West junction.

Action Plan

To progress this package, Merseytravel plans to:

- Lobby the rail industry to include proposed additional semi-fast service to Sheffield and beyond as part of new franchising arrangements;
- Lobby the Electrification Taskforce to prioritise electrification for the CLC in next control period;
- Provide support (in partnership with neighbouring authorities)for new station aspirations including Warrington West and Tarbock Interchange if deliverable without negatively impacting journey times and calling patterns for stations in LCR; and
- Undertake feasibility study work on plans to resolve the conflicts at Hunts Cross West Junction.

Early Concept for Potential Enhanced CLC Services



(6) Halton Curve (CP5 – CP7)

Components

- Provision for Halton Curve in upcoming resignalling of Wavertree – Weaver Junction line section;
- Reinstatement of two-way frequent running on Halton Curve;
- New routes between Liverpool and Chester, Wrexham, North Wales and Cardiff / South Wales; and
- Provision of a new halt on the Halton Curve itself at Beechwood in Runcorn to serve a key area of growing employment.

Concept and Rationale

Halton Curve is a scheme with potentially large benefits both for the LCR and its wider travel to work area, that is relatively straightforward to implement, and has recently been awarded funding for progression via the Local Growth Fund. Whilst previous demand studies have struggled to develop a strong business case, it is considered that the inclusion of wider factors such as the direct linkage of employment with residential areas in North Wales and West Cheshire, and the reduction of journey times between North Wales and Liverpool (including employment in South Liverpool and Liverpool Airport) will provide a much stronger level of justification for the scheme.

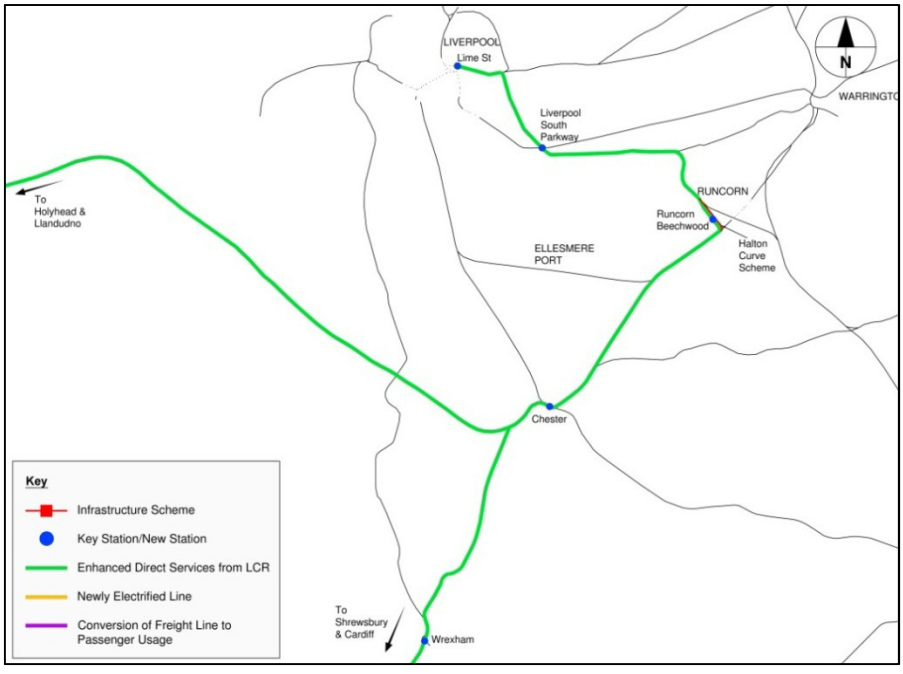
This package aims to:

- Restore direct connectivity to Wrexham and North Wales from Liverpool and Liverpool Airport;
- Provide faster journey times and increased frequencies to Chester;
- Provide direct linkage to Frodsham and Helsby; and
- Create an alternative route between Liverpool and Cardiff via Shrewsbury.

Action Plan

To progress this package, Merseytravel plans to:

- Ensure Network Rail makes provision for preliminary scheme works within Wavertree – Weaver junction signalling works circa 2016;
- Review findings of upcoming Halton Curve Demand study in light of recent announcement of funding for the scheme;
- Lobby rail industry to invest in complimentary electrification schemes on Chester – Shrewsbury and Chester – Warrington rail lines; and
- Undertake early feasibility work for potential rail station at Beechwood in Runcorn.



(7) Improved Connections to Chester and Ellesmere Port (CP6 – CP8)

Components

- Electrification of Chester - Crewe line and extension of Merseyrail services from to Crewe;
- New stations at Ledsham and potentially on Chester – Crewe Line;
- Electrification of the North Wales Mainline providing the potential to run electric Pendolinos between London, Chester and North Wales;
- Electrification of the Chester – Warrington line, and Ellesmere Port - Helsby line allowing regular electric services to run on these lines;
- New route between Chester and Leeds via Newton-le-Willows; and
- Increased service frequencies.

Concept and Rationale

Whilst much of the LCR will be best served by direct connections to the proposed HS2 scheme at Lime Street and Runcorn, for residents and businesses located in east Wirral, Ellesmere Port and Chester, a connecting route via Chester might offer the best access to HS2. This would provide excellent national connections at Crewe's HS2 hub with high frequency direct services towards London. Replacing the existing Crewe – Chester shuttle with extended Merseyrail services through Chester also carries operational benefits including Chester turn-backs.

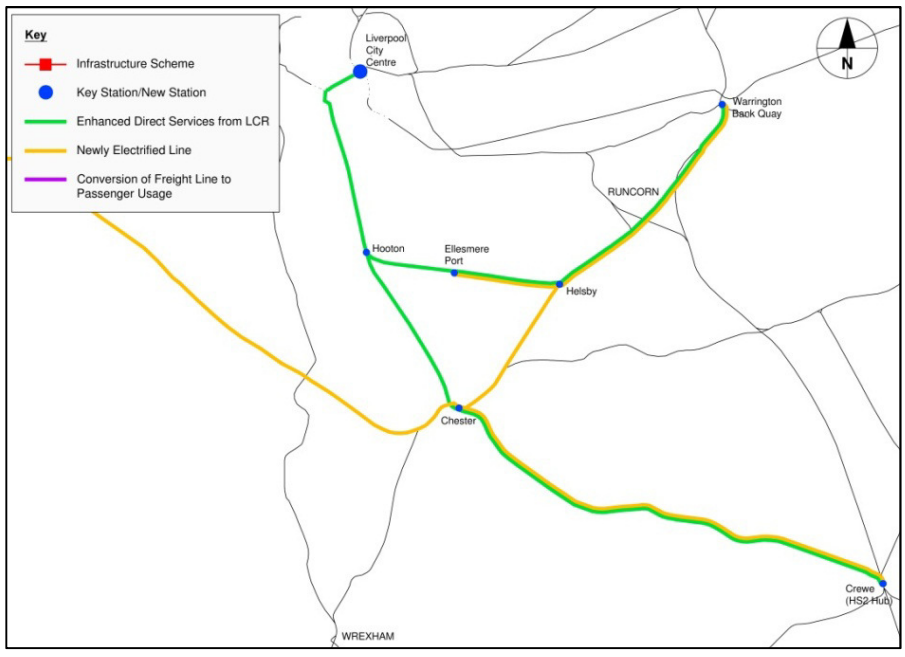
This package aims to:

- Connect locations in East and South Wirral with national and proposed HS2 services at Crewe;
- Allow increased frequencies along the North Wales Mainline, strengthening links between Liverpool and these destinations;
- Build the rail market along the Ellesmere Port – Helsby corridor and beyond towards Warrington as development aspirations along this route are progressed and potentially realised; and
- In the longer term, enhanced connections from Ellesmere Port might also be required as a result of large scale development in the area.

Action Plan

To progress this package, Merseytravel plans to:

- Lobby rail industry and electrification taskforce to invest in electrification of Chester-Crewe line, and other linked electrification schemes; and
- In the longer term, undertake demand study and feasibility work related to increasing frequencies and service levels on the Ellesmere Port – Helsby line.



(8) Ormskirk – Preston Enhancements (CP6 – CP7)

Components

- Electrification of the Ormskirk – Preston line, with required remodelling, resignalling and line speed improvements, and extension of Merseyrail operations to Preston;
- Reinstatement of Burscough curves between Ormskirk / Preston and Southport directions; and
- Creation of a two-level interchange station at Burscough Bridge allowing connections between Ormskirk / Liverpool services and Southport / Wigan services.

Concept and Rationale

Enhancements to the Ormskirk – Preston line are proposed to improve connections between northern areas of the City Region and areas of West Lancashire, South Ribble and Preston with large planned employment and housing growth over the next 30 years. In particular, the package aims to improve connectivity between Liverpool and large development sites at Cuerden, Leyland and Preston, and new housing in Burscough, and to better serve the intermediate Liverpool – Preston market, allowing faster trains to run between Liverpool and Preston on the St Helens line.

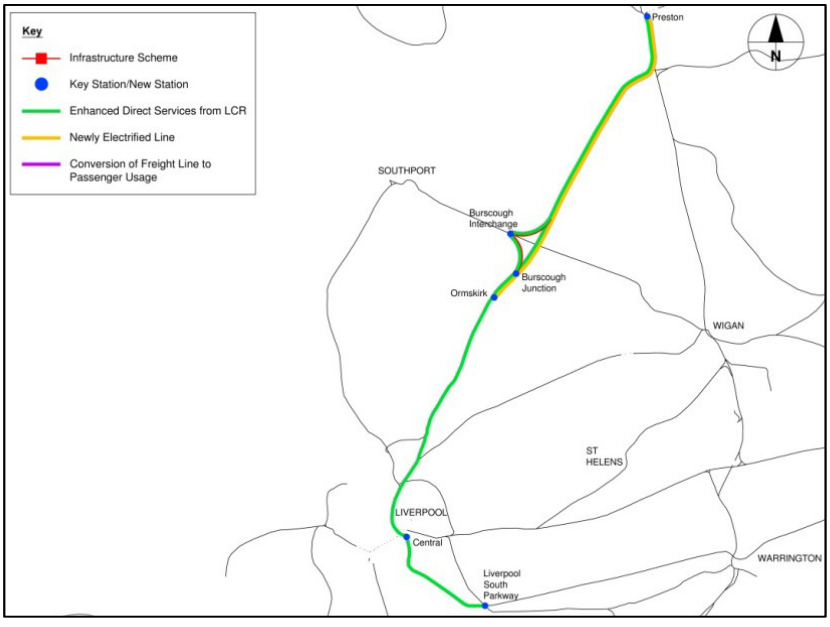
This package aims to:

- Create direct connectivity from South Liverpool to Preston via Liverpool City Centre and Ormskirk, to new development and employment opportunities to the city region's residents;
- Provide better linkage to and from Liverpool for users of the Southport – Wigan / Manchester line;
- Review options for improvement to Southport – Wigan / Manchester line;
- Provide residents of new housing in Burscough with access to opportunities within Liverpool City Region and surrounding areas; and
- Deliver significant journey time and quality benefits for its users through electrification of the Southport – Wigan Line.

Action Plan

To progress this package, Merseytravel plans to:

- Commence feasibility and early GRIP process for design and construction of electrification and capacity enhancements scheme for the Ormskirk – Preston line including dualling and line speed improvements;
- Undertake further business case work on Burscough Curves in light of development proposals and journey time savings; and
- Review Rolling Stock Replacement options to safeguard future ability to procure dual-voltage trains; and
- Review options for improvements to journey time and services levels on Southport-Wigan / Manchester line.



(9) Kirkby - Wigan Line (CP6)

Components

- Electrification of the line between Kirkby and Wigan Wallgate including new electric spurs between Rainford and Skelmersdale, and between Upholland and Skelmersdale;
- New stations at Headbolt Lane (Kirkby) and Skelmersdale; and
- Increased service frequencies between Kirkby and Manchester Victoria / Rochdale line with potential through-services to Liverpool.

Concept and Rationale

Skelmersdale has strong cultural links with the LCR due to widespread population migration to the town from Central Liverpool in the 1960s and 1970s. A direct electric link, forming an extension of the existing Kirkby Merseyrail line, would allow the rail network to mirror this connection for the first time and provide strong journey opportunities. The link to Skelmersdale should be considered as the first phase of a wider electrification of the entire Kirkby / Wigan line (and potentially onwards towards Manchester), given the large scale of proposed development to the south west of Wigan town centre, and the recently boosted service levels between Wigan and Scotland.

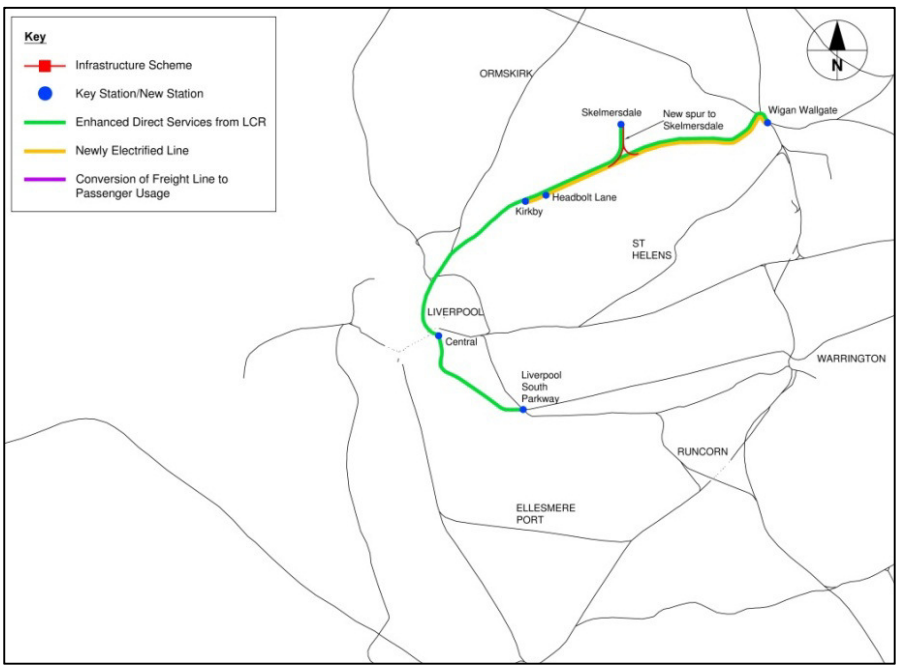
This package aims to:

- Provide direct rail connectivity between Skelmersdale and the LCR;
- Enhance service levels and quality between Kirkby and Wigan / Manchester with potential through-services to Liverpool;
- Improve accessibility to Wigan for connections to Scotland; and
- Support aspirations to increase rail freight handling at Knowsley Industrial Park (Potter Rail Freight Terminal) by upgrading the Wigan – Kirkby line.

Action Plan

To progress this package, Merseytravel plans to:

- Commence GRIP process for design and construction of new spur and electrification between Kirkby and Skelmersdale, including construction of new stations at Headbolt Lane and Skelmersdale;
- Investigate the potential long term savings and benefits that could be made by electrifying both this route and the remaining line between Wigan and Rainford concurrently, with an electric spur between Upholland and Skelmersdale;
- Review Rolling Stock Replacement options to safeguard future ability to procure dual-voltage trains.



(10) Borderlands (Wrexham – Bidston) Line Enhancements (CP5 – CP7)

Components

- Service level enhancements on the Wrexham – Bidston Line;
- Line electrification and direct connectivity and integration with the Merseyrail Wirral Line; and
- New stations at Beechwood, Woodchurch and Deeside Industrial Park

Concept and Rationale

Electrification of the Borderlands line between Wrexham and Bidston, and incorporation into the Merseyrail Electrics network to better connect areas of population and employment on this route with bi-directional peak demand. For this package, it is proposed that the demand for the line be built up incrementally in stages, with the first of these to be an increased frequency of service between Wrexham and Bidston. A new station at a key employment location (Deeside Industrial Park) would then follow to attract a new catchment for the services, with a full electrification of the route, incorporation into Merseyrail, and additional new or upgraded stations coming after this.

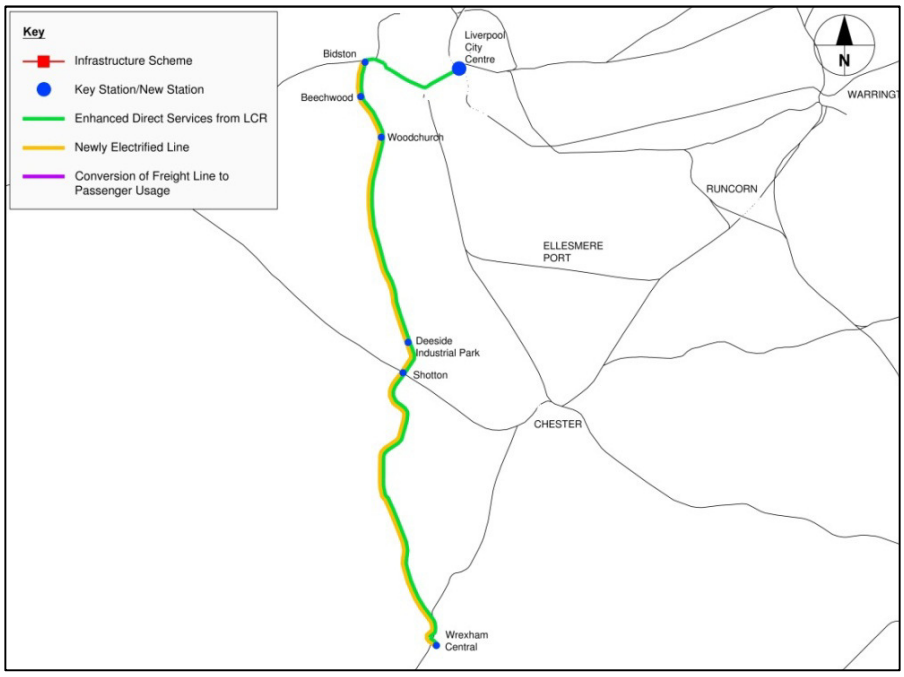
This package aims to:

- Improve service levels, quality and frequency on the Borderlands Line between Wrexham and Bidston;
- Incorporate the line into the Merseyrail Wirral line to provide direct connectivity with Liverpool City Centre; and
- Connect the city region with emerging employment markets at Deeside and outside Wrexham.

Action Plan

To progress this package, Merseytravel plans to:

- In partnership with the Welsh Government, Network Rail and Cheshire West and Chester Council, lobby the rail industry to include an enhanced service specification in the franchise specification for the Wales and Borders franchise;
- Undertake further business case work on electrification of the route in light of enhanced employment opportunities at Deeside and the potential for overhead electrification and dual voltage trains; and
- With Network Rail undertake early feasibility and initial GRIP stage work to design and construct new and upgraded rail stations on the route.



(11) Mixed Passenger & Freight Use on Current Freight-Only Lines(CP7 – CP8)

Components

- Upgrade of North Mersey Branchline and Bootle Branchline to passenger services;
- New routes between Liverpool and Ormskirk via North Mersey Branch, and between Edge Hill and Bootle via Bootle Branch; and
- New stations at Anfield, Tuebrook and Edge Lane.

Concept and Rationale

Usage of these lines for passenger services have different primary purposes and the ultimate network might include either, both or neither depending on demand and freight requirements to be determined by the ongoing Northern Ports Study. The North Mersey Branch provides an alternative route between Ormskirk and Central Liverpool avoiding Orrell Park, Walton and Kirkdale. In contrast, usage of the Bootle Branch by passenger services would provide a direct rail connection to parts of North Liverpool unserved by the rail network.

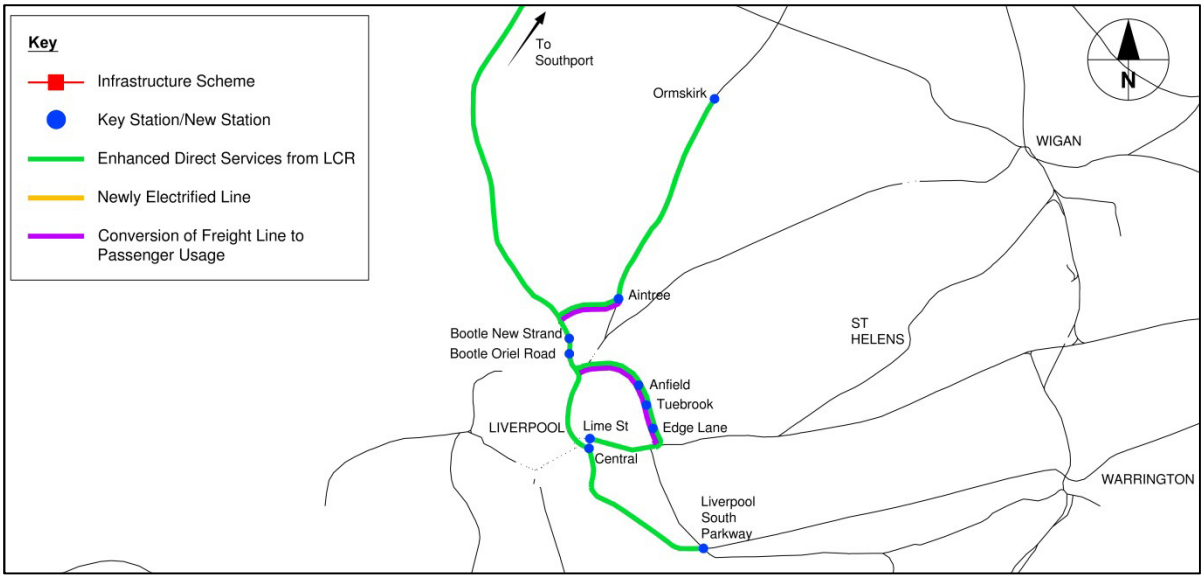
This package aims to:

- Allow Ormskirk services to be divided between two routes freeing up capacity for Liverpool – Skelmersdale / Wigan services, and provides an enhanced service to Bootle and Bank Hall stations;
- Provide direct connections to parts of North Liverpool including Fairfield, Newsham Park, Tuebrook and Anfield; and
- Provide an additional mode of travel for access to Anfield and Goodison Park football stadia on matchdays.

Action Plan

To progress this package, Merseytravel plans to:

- Review findings of Northern Ports study to better understand the requirements for freight access to Port of Liverpool; and
- If feasible, undertake business case work to support conversion of lines to passenger usage, incorporating the potential capacity release and access to latent markets of demand.



(12) Selected New Stations (CP5 – CP7)

Components

- New stations at Carr Mill, Ditton, Maghull North, St James, Vauxhall, Town Meadow, and other locations (mentioned in the other packages above).

Concept and Rationale

Package 12 is intended to present the other proposed new stations across the city region that made the shortlist of schemes, but which do not conveniently fit into other packages. Aside from the stations proposed as part of the other packages, a further six stations are proposed with varying lead-in timescales and levels of priority.

For each station, including those listed in other packages, a Network Rail GRIP stage process is required that leads from scheme inception, to optioneering, through option selection and business case analysis to eventual detailed design and construction. In time for the first strategic review of the Long Term Rail Strategy envisaged in late 2014 / early 2015, it is intended that a new station evaluation exercise is undertaken to better understand the rationale behind each proposed station, the likely catchment it would serve and the impact upon the respective lines in terms of journey time and passenger demand etc. This is envisaged as a proforma-based paper undertaken in co-operation with the relevant scheme promoters including neighbouring local authorities, and will form the basis of the new station recommendations that are progressed through to the various GRIP stages. Outcomes would be subject to review in the future as understanding evolves.

This package aims to:

- Provide new stations that respond to new development, serve new markets, and address areas of existing latent demand.

Action Plan

To progress this package, Merseytravel plans to:

- Commence the GRIP process of design and construction for Maghull North station;
- Undertake demand modelling and business case work for Carr Mill and Town Meadow stations; and
- Commence survey work to understand the requirements for construction of new or replacement stations at St James and Vauxhall.

6. Summary and Concluding Thoughts

A clear case for investment

The LCR rail offer **must not** stand still. With the LCR's population growing and aspirations for significant economic expansion the rail system needs to play an enhanced role in connecting people to places. There is substantial evidence that to avoid investment in the coming years would only serve to stifle the local economy, undermining the aspiration to develop the area as an economic, leisure, tourism and cultural hub, stunting the growth driven by the SuperPort plans, and limiting the ability of the region to capitalise on its great wealth of assets.

A bold but necessary vision

The strategy presented on these pages is necessarily bold and radical since it represents a 30 year vision to equip the City Region with a modern railway providing a necessary step-change in terms of quality, accessibility and journey speed. The new infrastructure associated with the measures suggested is costly but not deemed to be outright prohibitive, with the opportunity for significant long term savings and benefits with careful advance planning and phasing. The strategy provides a pathway which ensures that projected levels of future demand are accommodated, but more than this it explains how new areas of latent demand can be opened up to the railway, accessing untapped markets, reducing the overall impact of car travel on the regions roads and supporting economic growth.

Realism?

Although challenging in terms of delivery, the aspirations of the Long Term Strategy are not simply 'pie in the sky'. With huge rail infrastructure schemes such as the proposed HS2 railway (with mooted Northern Connectivity components and early discussion of HS3), ongoing and wide-spread electrification, large-scale expansion of the Metrolink network in Manchester, and many other current schemes there is a strong precedent for the LCR to seek significant investment in its rail infrastructure. The scale of the proposals in this strategy are not out of proportion with the needs of a growing city region and comparable investment being made elsewhere.

Opportunity

An analysis of the current policy and funding environment makes clear that there is now an opportunity unrivalled in a generation for rail in the City region to drive forward economic growth.

The **funding** environment is currently much more conducive to delivering rail schemes with, for example, monies potentially available through the City Deal and the LEP's Local Growth Fund, supported by the LCR economic growth mandate, and national government and Network Rail taking a bolder more strategic approach to investment.

As discussed above the **policy** environment is equally supportive for LCR proposals with HS2, HS3, electrification and a pro-rail "can-do" attitude increasingly prevalent in the industry, and demonstrative of confidence in the value of rail investment.

In combination with the above there are also a 'once in a lifetime' set of crucial **local opportunities** that have arisen. The potential Merseyrail Rolling Stock Replacement scheme, the current market

leading strength of the Merseyrail asset, local developments including SuperPort, Liverpool Waters and Wirral Waters, and local population growth, all combine to present considerable local opportunity at this time.

Flexibility

The strategy has been designed with an expectation of regular review. In this way it is envisaged as staying relevant, and able to respond to changes to the physical, policy and economic context. The packages are formed of schemes deemed most deliverable and beneficial at the present time, whilst the original long list of schemes has been retained for regular review, providing the opportunity for previously sidelined measures to re-emerge in the future as a result of circumstantial changes.

A key example of the use of this flexibility is in the consideration of freight schemes. Whilst the notion of ensuring that the freight aspirations of the city region, particularly related to SuperPort, are clear the packages presented here are predominantly passenger service related at present. The publication of a comprehensive Northern Ports study in late 2014 is programmed to be the first point of strategic review and will allow evidence based packages of freight measures to be developed which are compatible and complimentary to the passenger rail strategy.

"Converting Strength to Lasting Long Term Economic Growth"

The strategy is presented as the means by which the railway can support and enable the continuing growth of the LCR, ensuring that we do not accept the status quo, but rather that we respond to passenger growth, road congestion, and the other constraints that might limit economic development in the future. The strategy provides a blueprint as to how we, as a city region, can increase the prosperity of Liverpool, providing better connections and reducing barriers to travel. It will ensure that the area is truly able to excel as the primary port of Northern England, and as a strong cultural, tourism and economic centre.

The strategy presented in this document provides a clear direction of travel and highlights the types of solutions that are going to be required to bring about the desired outcomes. The Long Term Rail Strategy acknowledges the huge asset to the LCR that the rail network already provides, and presents a blueprint for "converting strength to lasting long term economic growth".

Appendix A: Envisaged Best Case Timeline for Rail Strategy

To illustrate the Long Term Rail Strategy and provide a picture of how the rail network could look at the end of the 30 year strategic process, an approximate and indicative best-case timeline of key schemes has been produced. This includes industry milestones based on the latest understanding of timescales. It also includes some of the major changes that are proposed for the network within the next four Control Periods and shows how these fit into the bigger picture.

The timeline is shown in Figure A.1 overleaf:

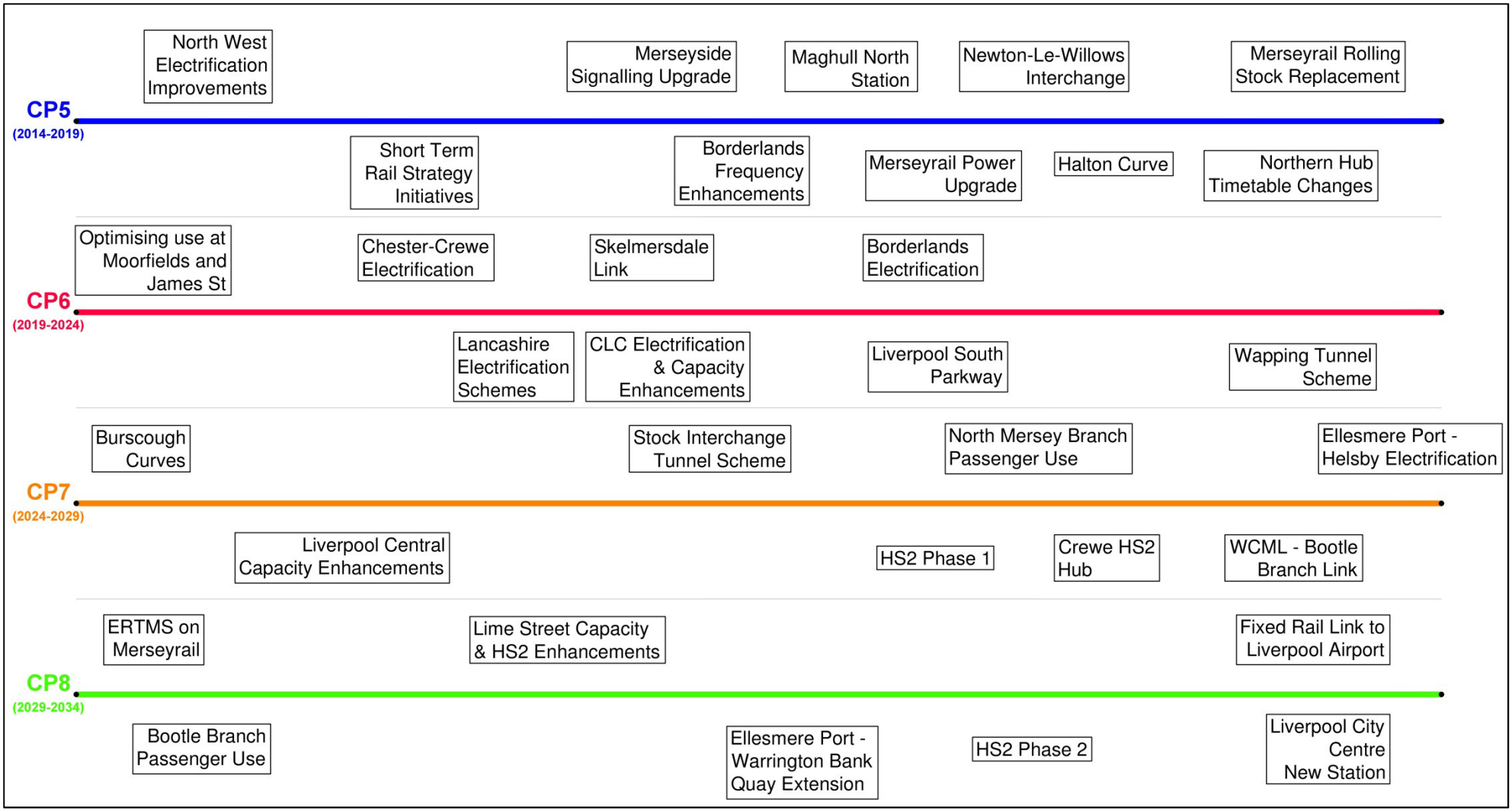


Figure A.1: Indicative Timeline of Rail Strategy Enhancements (subject to development of business cases and evolution of demand requirements