
Lancashire and Cumbria

Route Utilisation Strategy

August 2008







Foreword

I am delighted to present Network Rail's Route Utilisation Strategy (RUS) for Lancashire and Cumbria, which considers issues affecting the railway in this part of the country over the next decade and gives a view on longer-term issues in the years beyond.

Getting to this stage has involved following a now well-established process. However, there are two key differences with this strategy. The first is that no part of the area it covers is the responsibility of either a Passenger Transport Executive or a regional body with public transport responsibilities. Secondly, the challenge usually faced when producing a RUS, that of insufficient capacity to meet current or future demand, is not a major problem here. As a result, this strategy focuses on how to make the best use of what is already available.

A range of factors have influenced this strategy's development. Notable among these is the development of the December 2008 timetable on the West Coast Main Line, which presents real opportunities for improvements, particularly in terms of some of the physical and timetabling interchanges. In addition, there are the aspirations of stakeholders and the responses received to the consultation.

Overall, the RUS looks to move timetables towards a more regular pattern with good connections and better station facilities. As an example, it recommends a number of small investments at Preston, Carlisle, Ormskirk, Blackburn and Burscough Junction to improve interchanges.

There are currently aspirations for a service between Southport, Preston and Ormskirk. This is partly facilitated by work to enhance track and signalling between Preston and Ormskirk, which will allow a standard hourly service pattern with improved journey times but without the need for more rolling stock.

Services into Sellafield during peak hours suffer from overcrowding, though Northern Rail's anticipated service from December 2008 will address that to a degree. It is important services on this route firstly cater for peak traffic at Sellafield and Barrow, with services outside the peak being on as close to an hourly pattern as possible.

A number of consultation responses were received regarding a direct service between Manchester and Burnley, including a report carried out on behalf of Lancashire County Council and Burnley Borough Council.

As a result of that report, and potential options for delivery of High Level Output Specification peak capacity requirements in Manchester, we have identified that there could be a case for a direct service, although further work is needed to confirm the impact of issues affecting the business case and sources of funding.

This RUS was initially published as a Draft for Consultation in April 2008, and I would like to thank all those who responded. Its production has been led by Network Rail, but it has been developed by the whole industry. A large number of organisations, including our customers, the passenger and freight operators, have been fully involved and I would like to thank them all for their efforts.

Iain Coucher
Chief Executive

Executive summary

Introduction

This Lancashire and Cumbria RUS has followed the now well-established RUS process, which includes extensive involvement of stakeholders. However, it differs from previous RUSs in two important ways. Firstly, the RUS geography is not covered by a Passenger Transport Executive (PTE) or regional body with specific transport responsibilities. Secondly, the familiar RUS gap of 'insufficient capacity to meet current or future demand' is not a major problem facing rail in Lancashire and Cumbria. By comparison, services typically have low patronage and the infrastructure is relatively expensive (eg. due to the numerous viaducts and sea defences). This RUS is hence mainly focussed on making the best use of the available network and resources. Nevertheless, there are a number of minor investment options that have a reasonable business case.

Scope and background

The Lancashire and Cumbria RUS adjoins the infrastructure covered by the recently published North West RUS and a number of the Stakeholder Management Group (SMG) are common to both RUSs. It has been recognised that many of the issues in Lancashire and Cumbria are relatively minor when compared with Manchester and surrounding area, especially in terms of capacity. It has hence been useful to treat Lancashire and Cumbria separately, as it has allowed us the opportunity to adjust the zoom lens to see this piece of railway in the appropriate context and scale.

The RUS broadly covers the railway north of the line between Preston and Burnley as far as Carlisle, with the exception of the West Coast Main Line (WCML), and lines east of Skipton. It considers issues over a 10-year time period from 2008 whilst giving a view on issues that could arise within a 30-year horizon.

The geography of the RUS is bisected by the WCML, the RUS for which is now being scoped, and adjoins routes covered by the Scotland and North West RUSs which have been established, and the Merseyside and Yorkshire and Humber RUSs which are still underway.

Process

The RUS primarily considers the next 10 years, but has also taken account of the Government's 2007 White Paper "Delivering a Sustainable Railway" to give a 30-year context. The RUS has examined the current and future freight and passenger markets and assessed the predicted growth in each. It has sought to accommodate this growth effectively and efficiently, in accordance with the route utilisation objective specified in Licence Condition 7. It has also looked at stakeholder aspirations, particularly those of local authorities and regional bodies, and has taken account of responses to the RUS Draft for Consultation.

Development work on the December 2008 timetable, Northern Rail's view of how to address High Level Output Specification (HLOS) metrics in Leeds and Manchester, and option analysis for the Yorkshire and Humber RUS, have all evolved in parallel as this RUS was being developed. Consequently, some of the recommendations in this RUS are conditional or cross-referenced to other planning activities.



The Lancashire and Cumbria RUS process is overseen and directed by the SMG which comprises representatives from passenger operators, freight operators, the Department for Transport (DfT), Network Rail, ATOC, Passenger Focus and the Office of Rail Regulation (ORR) (as observers).

Gaps

The RUS identified seven generic gaps which the recommended options address. These are:

Inter/intra regional links are typically poor. Rail links between some of the main conurbations in the RUS area, and links between these conurbations and other sizeable destinations in the North West and beyond are poor relative to other broadly equivalent parts of the UK network. Specific problems include infrequent services, short operating days and a lack of direct journey opportunities.

The rail service is unattractive to commuters. There are a number of areas where the potential commuter market may be suppressed. Reasons for this include lack of direct rail services, infrequent or poorly timed services, last trains not late enough to provide a reliable return journey, slow journey times, insufficient on-train capacity (in a limited number of cases), lack of car parking provision and poor access to railway stations.

Rail may be able to play a bigger role in alleviating social deprivation. The RUS area includes a number of deprived areas. These typically have low levels of rail patronage per head of population. A number of deprived communities on the route have an infrequent rail service to a limited number of destinations, as the potential for a sizeable rail market is unclear. This means that the accessibility of

key social infrastructure and major economic centres is generally more limited than in other parts of the RUS area.

Rail services are not well integrated with the local tourism market. In conjunction with colleagues from Passenger Focus, the RUS has identified the main tourist markets and attractions on the route. Despite a number of these being situated in close proximity to a railway station, they are generally on lightly used parts of the route where rail services are typically infrequent and not on a regular interval. As a consequence rail is unattractive to tourists, particularly at popular times such as weekends.

The capability of the network in some areas constrains service improvements and future needs. Slow maximum line speeds and permanent speed restrictions are spread throughout the route and are a serious constraint to improved journey times, increased service frequencies and better train performance. In many instances the constraint on improvement is infrastructure capability rather than rolling stock capability. Some of these restrictions are freight specific, or load specific. Parts of the RUS area have restrictive loading gauge clearance, which reduces the suitability of lines as diversionary routes for the West Coast Main Line. Key capacity pinch-points on the network, such as single lead junctions, single line sections and long signal sections, make increasing the frequency of passenger and freight services difficult and expensive. Carlisle has a rather restrictive layout and is the point where West Coast traffic and Ayrshire – Yorkshire/Midlands coal traffic interact and is hence a significant constraint on capacity. On certain route sections, regular and lengthy possessions

for maintenance and renewals are required to keep the infrastructure fit for purpose. This can be disruptive to passenger and freight operations.

Performance of a number of train services is poor. Similar to the previous gap, parts of the network exhibit poor train performance. This can be a result of outdated or inadequate rail infrastructure, particularly on longer distance service groups with frequent stopping patterns; or from timetables with historically tight turnarounds as a result of high unit utilisation.

Interchange facilities are not fit for purpose. A number of key stations in the RUS area have poor interchange facilities and where the number of passengers wishing to interchange is increasing. This can lead to specific problems such as platform crowding and long transfer times between platforms. In addition, in some cases car parking, bus interchange or waiting facilities are insufficient and this is a deterrent to passengers even when the other gaps are addressed. The interchange time between services can be sufficiently long as to deter passengers from making the journey by train.

Strategy

Due to the relatively simple nature of the recommended options the strategy is heavily loaded in Control Period 4 (CP4), but delivery in this period is dependent on the availability of (a) funding and (b) rolling stock.

It has been judged that although additional DfT funding through HLOS is minimal in the Lancashire and Cumbria area, the individual small sums required for many of the interventions may reasonably be expected to become available from other sources such as the Regional Funding Allocation or the Transport Innovation Fund. Where funding does not materialise, the recommendations are mostly not time-sensitive and could be implemented at a later date.

Many of the recommendations are reliant on additional rolling stock being available in order to provide longer or more frequent trains. Consequently the practicality of taking forward these recommendations will be dependent on the process for deploying rolling stock, taking into account the priority likely to be given to meeting the specified capacity outputs in CP4.

Control Period 4 (2009 – 2014)

A number of relatively small performance improvement schemes are recommended and some are already in hand. In particular, a line speed improvement between Burnley Manchester Road and Hebden Bridge would provide some valuable performance benefits to the Leeds – Blackpool North service, whilst some improvements on the Colne branch would bring performance benefits to the Colne – Blackpool South service. Freight and passenger services on the Settle and Carlisle line would benefit from a redoubling of London Road Junction at Carlisle and substantial civil engineering renewals works at Kirkby Thore to remove a PSR. There are other opportunities to enhance renewals to improve performance. It is recommended that the identified and potential performance improvement opportunities are pursued.

Peak services into Sellafield suffer from overcrowding, and there is a business case to strengthen this service with additional units. Northern Rail's anticipated service from December 2008 will partially address this gap within the existing resource base, so it is more difficult to generate value for money from additional resources on the Cumbrian Coast line. However, if the December 2008 pattern – which is dependent on WCML connections at Carlisle and Lancaster, and the pattern of First Keolis TransPennine Express (TPE) services to Barrow-in-Furness – becomes undeliverable in future years then extra resource may be required and can be justified. In any case, services will require review if/when employment patterns change at Sellafield (less shift work, more office hours). The key message in the strategy is that services on

this route should cater first for peak traffic at Sellafield and Barrow, and the rest of the pattern should be made as close to a regular hourly pattern as possible within the peak resource base.

It is recommended that the existing three per day each way Sunday service between Carlisle and Whitehaven is expanded to four per day if that can be accommodated within the existing resources.

On the Settle and Carlisle line, an hourly passenger service between Leeds and Carlisle cannot operate with the existing level of freight traffic without a substantial level of investment in infrastructure – for which there is no economic case. The existing level of freight traffic is expected to remain for the foreseeable future, and could potentially grow. Operating a greater number of passenger services on the Settle and Carlisle line where paths exist on current infrastructure would give medium value for money, including rolling stock lease costs, but is subject to rolling stock availability. The case would be made stronger if the service were operated with marginal time of peak units. It is hence recommended that the base passenger service is a two-hourly pattern, designed to give connections at Carlisle and meet commuter needs, and that this is augmented with additional services where the likely passenger market and space in the timetable coincide and rolling stock is available.

In combination with WCML work, the maintainer believes that steady state maintenance of the Settle and Carlisle line can be achieved within agreed midweek night possessions. The strategy for renewals work on the Settle and Carlisle line can only be established in conjunction with a strategy for the Glasgow and South West Line (GSW), the WCML and the East Coast Main Line (ECML) and will need to be developed within the West Coast Main Line RUS and the Seven-day railway workstream.

The proposal in the consultation draft of this RUS to increase frequency between Lancaster and Skipton at the expense of through services to Leeds was broadly opposed in consultation responses. As the value for money case was at best marginal, this recommendation has been withdrawn.

The North West RUS identified that train (and platform) lengthening was required on the Manchester – Clitheroe services, although delivery of this will depend on funding as the CP4 draft determination did not provide funding for all the capacity measures sought on Manchester radial routes. In addition, this RUS recommends that the additional peak services between Manchester and Blackburn should all be extended as far as Clitheroe.

The consultation draft of this RUS identified that a service linking Manchester and Burnley/Accrington via a new curve at Todmorden would not justify the operating and infrastructure costs. However, potential options for delivery of HLOS peak capacity requirements in Manchester may improve the incremental case for a further extension of the service to Burnley or Accrington. Consultation responses included a report carried out on behalf of Lancashire County Council and Burnley Borough Council which proposed a limited-stop service, above the existing quantum between Todmorden and Manchester. This pattern of service appears to have a stronger business case than simple extension of the stopping service providing suitable rolling stock and timetabling paths are available, although the value for money is still likely to be lower than the level typically required for DfT funding for rail infrastructure. It is therefore recommended that stakeholders work together to further develop the business case and sources of funding for this option.

Enhancements to track and signalling will allow a standard hourly service pattern between Preston and Ormskirk without the requirement for additional rolling stock. This improved journey time and regular service facilitates (but does not fully deliver) the local

stakeholders' aspirations for a service between Southport, Preston and Ormskirk. Merseytravel has begun a demand study for consideration with the rail industry to identify the preferred long-term solution, with a view to implementing in CP5 if a case can be made. The lesser scheme to provide an hourly patterned Preston – Ormskirk service is recommended to be delivered in CP4, as it has a positive financial case.

A number of minor investments are recommended at Preston station (platforms 1 and 2), Carlisle, Ormskirk, Blackburn and Burscough Junction to improve interchange facilities. These are consistent with the overall thrust of the RUS, which is to move the timetables towards a regular pattern with good connections and improved station facilities.

Control Period 5 (2014 – 2019)

Resignalling and remodelling is planned for the Whitehaven – Maryport area for implementation in early CP5. Some value-for-money enhancements are already identified, others will be dependent on the timetable resulting from Northern Rail's discussions with Sellafield Ltd about future work patterns, and further enhancements will depend on the long term view of traffic volumes. Development of the resignalling scheme will take all these into account.

There will be demand for more Sunday services in the future and for those not to bring significant associated operating costs, the number of manual signal boxes will need to have been reduced, and revisions made to access regimes for maintenance and renewals.

The preferred long-term solution (from three options) at Burscough should be implemented allowing rail passenger journeys between Southport and Preston.

Should the tram-train trial, currently planned for Sheffield, Barnsley, Penistone and Huddersfield prove successful, it is recommended that some of the services in the RUS area be examined to see if transfer to tram-train operation is beneficial.

Control Period 6 and beyond (2019 – 2029)

The Government White Paper suggests a doubling of freight traffic and passenger numbers in the next 30 years.

For many passenger services in the RUS area a doubling of passenger numbers would merely mean more seats on existing trains are filled. Other services would require lengthening. A few might justify an increase in frequency to half-hourly, for which there might be a requirement for some limited additional infrastructure.

If overall freight traffic across the network is to double, it is likely that container traffic would grow faster than other commodities. This traffic is naturally routed via the WCML rather than Settle, but with high growth in this sector a review of the capability and use of all Anglo-Scottish routes would be required.

In a scenario of high mode-shift from road to rail, additional sources of investment funds could become available, in which case the route between Colne and Skipton could be a candidate for addition to the network. As long as doing so is affordable, the alignment should be protected for future railway use.



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1. Background

1.1 Introduction to Route Utilisation Strategies

1.1.1

Following the Rail Review in 2004 and the Railways Act 2005, the ORR modified Network Rail's network licence in June 2005 to require the establishment of RUSs across the network, simultaneously, publishing guidelines on RUSs. A RUS is defined in Condition 7 of the network licence as, in respect of the network or a part of the network¹, a strategy which will promote the route utilisation objective. The route utilisation objective is defined as :

“the effective and efficient use and development of the capacity available, consistent with funding that is, or is reasonably likely to become, available during the period of the Route Utilisation Strategy and with the licence holder's performance of the duty.”

Extract from ORR Guidelines on Route Utilisation Strategies, June 2005

1.1.2

The “duty” referred to in the objective is Network Rail's general duty under Licence Condition 7 in relation to the operation, maintenance, renewal and development of the network. ORR guidelines also identify two purposes of RUSs, and state that Network Rail should balance the need for predictability with the need to enable innovation. Such strategies should:

“enable Network Rail and persons providing services relating to railways better to plan their businesses, and funders better to plan their activities; and set out feasible options for network capacity, timetable outputs and network capability, and funding implications of those options for persons providing services to railways and funders.”

Extract from ORR Guidelines on Route Utilisation Strategies, June 2005

¹ The definition of network in Condition 7 of Network Rail's network licence includes, where the licence holder has any estate or interest in, or right over a station or light maintenance depot, such station or light maintenance depot.



1.1.3

The guidelines also set out principles for RUS development and explain how Network Rail should consider the position of the railway funding authorities, the likely changes in demand and the potential for changes in supply. Network Rail has developed a RUS Manual which consists of a consultation guide and a technical guide. These explain the processes we will use to comply with the Licence Condition and the guidelines. These and other documents relating to individual RUSs and the overall RUS programme are available on our website at www.networkrail.co.uk.

1.1.4

The process is designed to be inclusive. Joint work is encouraged between industry parties, who share ownership of each RUS through its industry Stakeholder Management Group (SMG). There is also extensive informal consultation outside the rail industry by means of a Wider Stakeholder Group.

1.1.5

The ORR guidelines require options to be appraised. This is initially undertaken using the DfT's appraisal criteria and, in Scotland, the Scottish Executive's STAG appraisal criteria. To support this appraisal work RUSs seek to capture implications for all industry parties and wider societal implications in order to understand which options maximise net industry and societal benefit, rather than that of any individual organisation or affected group.

1.1.6

RUSs occupy a particular place in the planning activity for the rail industry. They utilise available input from processes such as the DfT's Regional Planning Assessments and Wales Planning Assessment, and Transport

Scotland's Scotland Planning Assessment.

The recommendations of a RUS and the evidence of relationships and dependencies revealed in the work to reach them in turn form an input to decisions made by industry funders and suppliers on issues such as franchise specifications, investment plans or the High Level Output Specification.

1.1.7

Network Rail will take account of the recommendations from RUSs when carrying out its activities. In particular they will be used to help to inform the allocation of capacity on the network through application of the normal Network Code processes.

1.1.8

ORR will take account of established RUSs when exercising its functions.

1.2 Document structure

1.2.1

This document starts by outlining, in **Chapter 2**, the geographical scope and timescales of the RUS, and the planning context within which it has been developed. It also describes the linkage to associated workstreams and studies, together with links to other RUSs.

1.2.2

Chapter 3 describes the railway today, covering passenger and freight demand and the capability and capacity of the infrastructure to meet that demand.

1.2.3

Chapter 4 covers the planned and proposed schemes within the RUS area, including a summary of what renewals are due to take place within Control Period 4.

1.2.4

Chapter 5 describes the strategic context of the RUS area and the potential drivers of change.

1.2.5

Chapter 6 highlights the gaps and options that were identified and options appraised in the Draft for Consultation (published in April 2008).

1.2.6

Chapter 7 covers the consultation process, including a summary of the responses received to the Draft for Consultation and how these have been taken into account in developing the strategy.

1.2.7

Chapter 8 describes the recommended strategy for the period 2008 – 2019.

1.2.8

Chapter 9 outlines the strategy for the longer-term view (30 years).

1.2.9

Chapter 10 explains the mechanisms for implementing the recommendations of this RUS.

1.2.10

Supporting data are contained in the appendices to this document, most of which, owing to their size, are only available electronically from Network Rail's website at www.networkrail.co.uk.



2. Context and scope

2.1 Objectives

2.1.1

The Lancashire and Cumbria RUS is required for a number of reasons. The primary drivers are to inform:

- the identification of ways in which capacity could be used more efficiently, in the context both of the railway and wider public transport issues, consistent with the Department for Transport
- the development of the government's current and future High Level Output Specifications (HLOS), as applicable to the Lancashire and Cumbria RUS area
- the development of a future service specification and timetable structure for Lancashire and Cumbria
- solutions to the gaps in the Lancashire and Cumbria RUS area which were identified in the Freight RUS and North West RUS
- the development of an informed rail infrastructure renewals, maintenance and enhancements programme
- establishment of an optimum engineering access strategy, taking into account industry efficient maintenance and passenger/freight operators requirements.

2.1.2

The Lancashire and Cumbria RUS will therefore:

- propose options to achieve the most efficient and effective use and development of the rail network for both passenger and freight services
- ensure that capacity and capability are optimised to best meet passenger and freight demand, performance requirements and journey time aspirations
- enable Network Rail to develop an informed renewals, maintenance and enhancements programme in line with the Department for Transport's and Transport Scotland's aspirations and the reasonable requirements of train operators and other key stakeholders
- enable Local and Regional Transport Plans and freight plans to reflect a realistic view of the future rail network.



2.2 Stakeholders

2.2.1

The Lancashire and Cumbria RUS Stakeholder Management Group (SMG) met on several occasions at each key stage during the development of this RUS, chaired by Network Rail. The following organisations were represented (in alphabetical order):

Train Operating Companies (TOCs)

- First Keolis TransPennine Express (TPE)
- Northern Rail (Northern)

Freight Operating Companies (FOCs)

- Direct Rail Services Ltd (DRS)
- English Welsh and Scottish Railway (EWS)
- Freightliner Ltd (Freightliner)

Association of Train Operating Companies (ATOC) representing

Virgin Trains

Others

- Department for Transport (DfT)
- Network Rail
- The Office of Rail Regulation (attended as observers)
- Passenger Focus

Sub-groups were set up alongside the main SMG to focus on some of the key gaps within the RUS.

- A timetable sub-group met on two separate occasions and included members of Network Rail's Strategic Access Planning team, Passenger Focus, ATOC, EWS and Performance Planning teams from the main TOCs.

- A Tourism sub-group met on two separate occasions and included tourism representatives from Lancashire and Cumbria, Passenger Focus and the North West Development Agency.

The sub-group approach was favoured as it allowed smaller groups with the required knowledge and expertise to come together to decide the best options to take forward. The outcome of each sub-group meeting was fed back into the main SMG to ensure ongoing alignment.

2.2.2

Wider stakeholder briefings have been held in Preston and Carnforth at which the context, scope and gaps and options were outlined, and input on local issues was obtained. These briefings were attended by representatives from local authorities, statutory bodies, Passenger Focus, Community Rail Partnerships, the Rail Freight Group, rail user groups and other stakeholders.

In addition, at the behest of Passenger Focus, Lancashire County Council and Blackburn with Darwen Council, briefings on the progress of the RUS were included in meetings arranged by these bodies, and a number of one-to-one meetings were held with various stakeholders to elicit their views.

Figure 2.1 – Geography of RUS area

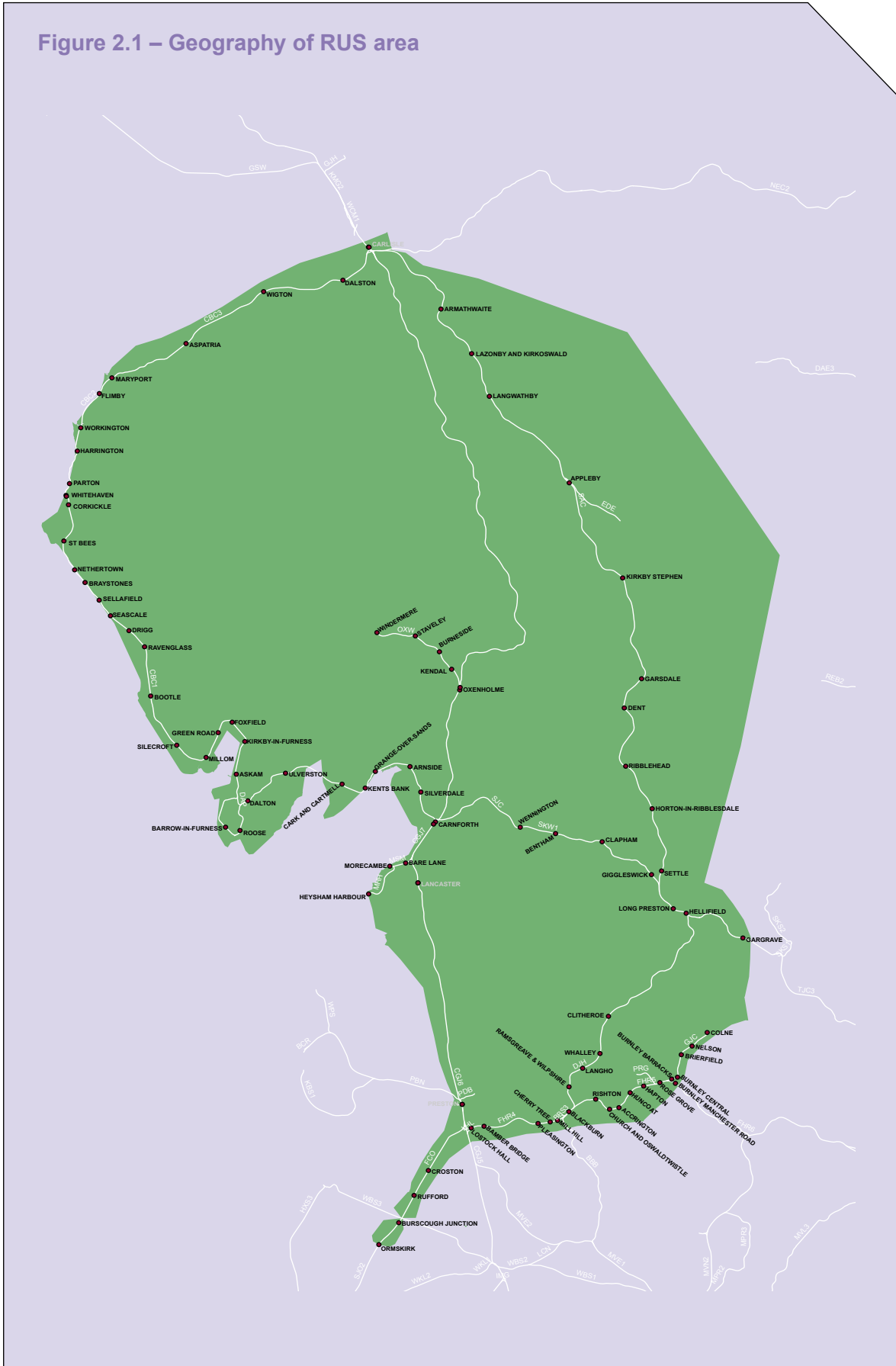
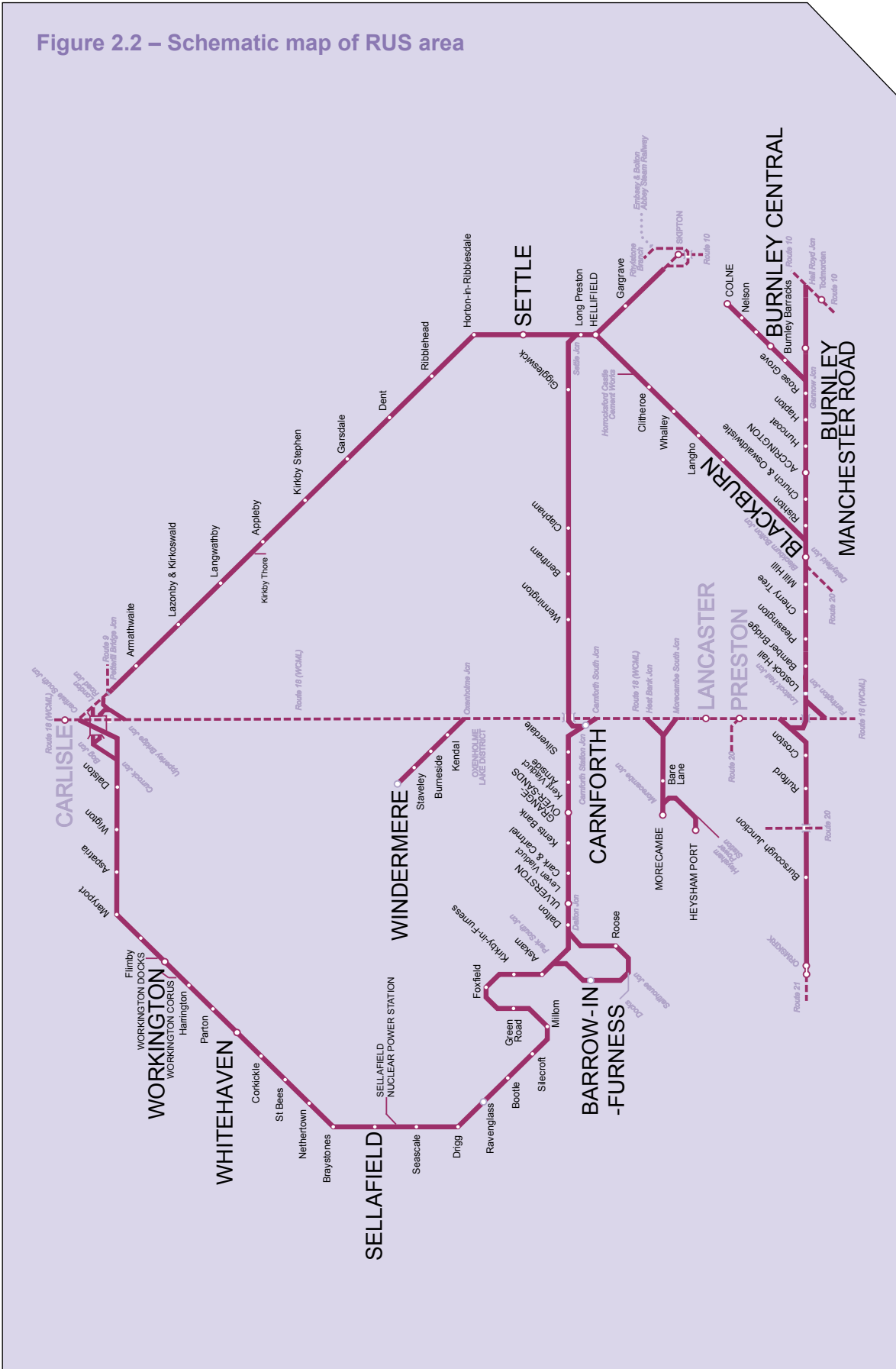


Figure 2.2 – Schematic map of RUS area



2.3 Geography

The Lancashire and Cumbria RUS covers the railway network defined by Network Rail's Strategic Route 23. This is depicted in geographical and schematic format in Figures 2.1 and 2.2 respectively. The RUS area encompasses the rail routes within the county of Cumbria and most of north Lancashire. It includes the route into Carlisle from Skipton via Settle, the Cumbrian coast line from Carnforth to Carlisle via Sellafield and Workington, the Roses line from Preston to Hall Royd Junction via Burnley, and Blackburn to Hellifield via Clitheroe. It also includes various branch lines including Oxenholme to Windermere, Morecambe South Junction to Morecambe and Heysham, and Gannow Junction to Colne.

2.4 Scope of services

The RUS considers all passenger and freight services that spend all or part of their journey within the RUS geography, with the exception of services on the West Coast Main Line. The study will therefore consider services that come into the RUS area which have a significant impact on the pattern of demand within it. These include services between Liverpool and Preston, Bolton and Blackburn, Leeds and Lancaster and Carlisle to Dumfries and Newcastle.

2.5 Linkage to other RUSs

Network Rail is working through a programme of Route Utilisation Strategies, which is intended to cover the whole of Great Britain. The Lancashire and Cumbria RUS draws on input and analysis from other RUSs which have already been established. The Freight RUS, which was established in May 2007, has been used as the source of freight growth. A number of cross-boundary issues that were raised and partly analysed by the North West RUS, which was established in June 2007, are developed further in the Lancashire and Cumbria RUS. In particular, it will consider services between Manchester and Blackburn/Burnley, and between Liverpool and Preston.

The Lancashire and Cumbria RUS is being produced at broadly the same time as a number of neighbouring RUSs, including: Yorkshire and Humber; Merseyside and Wales (in consultation stage). The West Coast Main Line RUS is currently being scoped, allowing the analysis to follow the introduction of the new December 2008 timetable. The Lancashire and Cumbria RUS identifies interfaces with these neighbouring RUSs to facilitate the gradual assembly of the national picture. A high-level network-wide RUS is also being progressed, which will consider long-distance services, generic station issues, depots and rolling stock and efficient operation practice and network availability.

The WCML passes through the RUS geography, and although it is not directly within the scope of the study, it has a fundamental influence on operations and train services. Within the Lancashire and Cumbria RUS area, Carlisle, Preston, Lancaster and Oxenholme are the interfaces with the West Coast Main Line (albeit that strictly they all fall within the scope of the West Coast Main Line RUS). Although the West Coast Main Line RUS is only at the scoping stage, the Strategic Rail Authority (SRA) published the 'West Coast Main Line Strategy' in 2003, and this was most recently updated by the DfT in May 2006. Under this strategy, the fruits of extensive investment in the WCML in recent years, and opportunities emerging from the refranchising of West Midlands, East Midlands and Cross Country services, culminate in the December 2008 timetable. This timetable was being developed at the same time as this RUS and informed judgements about the general timetable structure based on the modelling processes that were taken into consideration.

2.6 Linkage to other studies and workstreams

A number of regional strategy documents have provided valuable context for the RUS. Strategies addressing regeneration,

inter-regional economic activity, sustainability and tourism issues are particularly significant, and the following documents were referred to during the planning process:

The Draft Regional Spatial Strategy

Regional Economic Strategy

Joint Northern Regional Development Agencies' Northern Way

Lancashire Local Transport Plan
2006 – 2010

Lancashire Local Transport Plan
2006 – 2011 – rail services in Lancashire

Cumbria Local Transport Plan 2006/07
– 2011/12

Cumbria Economic Plan 2008 – 11

Cumbria Destination Management Plan
2007 – 08

The North West Regional Planning Assessment (RPA), which was published in October 2006, informed the development of the RUS in relation to regional rail priorities. The RPA provides a medium to long-term planning framework for rail, and is the result of extensive engagement between key planning and development bodies in the North West of England. The Lancashire and Cumbria RUS is intended to provide a more detailed strategy over the 10-year horizon. During development of this RUS, meetings were held with the DfT to ensure broad alignment between these related studies.

The work on this RUS has happened in parallel with the development of the December 2008 timetable, and the Strategic Business Plan. This has led to ideas originating in one workstream feeding into others.

2.7 Timeframe

The RUS will predominantly cover a 10-year period from 2008. As this strategy was already in progress at the time the government published the 'Delivering a Sustainable Railway' White Paper in July 2007, it includes a brief overview of any significant issues affecting the passenger and freight network that are expected to arise within the next 30 years.

In early April 2008, Network Rail submitted an update to its Strategic Business Plan (SBP) to the Office of Rail Regulation. This document is an important part of the Company's regulatory review for the period 2009 – 2014 and the emerging strategy of this RUS was used to inform its findings.

3. Baseline

3.1 Introduction

3.1.1

The Lancashire and Cumbria RUS covers most of the railway in North West England that lies north and west of Preston to Burnley, excluding the WCML. This spans a large geographical area, ranging from the large conurbations around Preston and Carlisle, to the relatively sparsely populated areas in rural Cumbria and Lancashire. The infrastructure reflects this, with modern signalling, multi-platform stations and four-track sections in the larger centres, contrasting with

single-line sections with single-platform stations and elderly mechanical signalling in some rural areas.

3.1.2

The RUS baseline exercise considers current passenger and freight demand, infrastructure capability, capacity and performance. A more detailed treatment of this exercise is presented in Appendix A.

The RUS area has been divided into a number of route sections, which are defined as follows:

Route section	Details
Cumbrian Coast	Carlisle – Whitehaven Whitehaven – Sellafield Sellafield – Barrow-in-Furness Barrow-in-Furness – Carnforth Dalton Loop (Dalton Jn – Park South Jn)
Settle – Carlisle	Skipton – Carlisle (Petteril Bridge Jn) [Petteril Bridge Jn – London Road Jn – Carlisle South Jn : technically a part of the East Coast RUS, but included for completeness]
Roses line	(Preston) – Farington Curve Jn – Blackburn – Hall Royd Jn Blackburn – Hellifield Farington Jn – Lostock Hall Jn Gannow Jn – Colne (this section is designated as a Community Rail line and service)
Ormskirk – Preston	Ormskirk – Farington Curve Jn – (Preston)
Branch lines	Windermere Branch (designated a Community Rail line) (Lancaster) – Morecambe South Jn – Morecambe Morecambe – Heysham Hest Bank Jn – Morecambe Carnforth – Settle Jn
Miscellaneous	Carlisle Avoiding lines <ul style="list-style-type: none"> ■ London Road Jn – Currock Jn ■ London Road Jn – Upperby Jn ■ Upperby Jn – Bog Jn Preston station – Platforms 1 and 2 only Blackburn station Carlisle station Ormskirk station

3.1.3

The principal infrastructure capability and capacity characteristics considered are:

- signalling headway (which is a measure of the minimum time gap between trains)
- line speeds
- junction speeds
- electrification
- loading gauge (which defines the size of vehicles (and loads or wagons) that can be carried)
- route availability (which defines the axle weight of vehicles that can be carried)
- loop lengths
- platform lengths
- station facilities – including issues such as passenger information and cycle storage
- car parking
- integration with other public transport modes
- capacity utilisation index (which is a measure of the extent to which available plain-line capacity is consumed by the services that operate in an hour period).

3.2 Current train operators

3.2.1 Northern Rail

Northern Rail operates the majority of the passenger services and stations in this area. They provide the core passenger railway services across the RUS area, including commuter services, and services to local communities (with the exception of the Windermere branch). In addition, Northern Rail provides key long-distance services between Blackpool and Leeds on the Roses line, and Carlisle and Leeds on the Settle and Carlisle

line. The current Northern Rail franchise, which runs until September 2013, was formed in December 2004 with the merger of franchises previously operated by First North Western and Arriva Trains Northern. The final two years of the franchise (2011 – 2013) are subject to performance targets being achieved.

3.2.2 First Keolis TransPennine Express

TransPennine Express (TPE) operates mainly long-distance inter-urban services with limited stops, notably on routes between Manchester Airport and Barrow-in-Furness, and to Glasgow and Edinburgh. In addition, TPE provides the local service on the Windermere branch. The current franchise was awarded in February 2004 and runs until February 2012 with an option for a further five-year extension dependent on performance.

3.2.3 Virgin Trains

Virgin Trains operates services on the West Coast Main Line from London Euston and Birmingham New Street, which serve Preston, Lancaster, Oxenholme and Carlisle in the RUS area. They also operate diverted services over the Carlisle – Hellifield – Blackburn – Preston section. The franchise was awarded for a 15-year period from March 1997 to March 2012.

3.2.4 First ScotRail

First ScotRail operates local services between Dumfries and Carlisle and overnight sleeper services on the West Coast Main Line. The current franchise was awarded in October 2004 and runs until October 2011.

3.2.5 Freight operators

Six freight operators currently operate services within the RUS area. They are listed below:

- English Welsh and Scottish Railway Limited (EWS) operates the following traffic: coal between Ayrshire and

Yorkshire/Midlands, gypsum between Yorkshire and Kirkby Thore, containers between Workington and Teesport, oil between Carlisle and Dalston, cement from Clitheroe to Mossend via the Settle and Carlisle route, general merchandise traffic to and from Blackburn (PG Fogarty) and MOD traffic from Carlisle and Blackburn.

- Freightliner Heavy Haul operates bulk (predominantly coal) on the Settle and Carlisle line to power stations in Yorkshire and the East Midlands.
- Freightliner Limited operates intermodal traffic from ports to Scottish terminals.
- Direct Rail Services Limited (DRS) operates nuclear traffic to and from Sellafield and Drigg from both north and south (including Heysham power station) and along the WCML.
- GB Railfreight operates gypsum traffic to Kirkby Thore.
- Colas Rail operates timber traffic from Scotland and Carlisle to Chirk.

Note that these refer to loaded flows.

There are equivalent empty workings in the other direction.

3.3 Current passenger market profile

3.3.1 Background

The railway within the Lancashire and Cumbria RUS area plays an important role for the local communities. It provides a transport link to local travel markets serving commuter flows into the major conurbations of Preston, Manchester and Merseyside, and into other key destinations including Leeds, Carlisle, Barrow, and Blackburn. Much of the route operates as a means of accessing the wider network via interchange at Preston, Lancaster, Oxenholme, Carlisle, and to a lesser degree, Skipton and Leeds. The links to the WCML

provide connectivity with London and other major cities. Many of the stations in the RUS area act as gateways to tourism, be that a specific site, or access to the hills. Interchange with the national network makes rail a viable option for seasonal visitors accessing these tourism and leisure attractions within the RUS area.

The area covered by the RUS has a population of around 1.6 million, with the most densely populated areas located within Central Lancashire in the districts of Burnley, Preston, Hyndburn and Blackburn. The remainder of the RUS area, and Cumbria in particular, has a sparse population, due largely to its rural nature.

Lancashire and Cumbria have experienced similar economic trends in recent years. Since the 1970s the British economy has undergone a significant and long-term change, with traditional sectors like agriculture, coal mining, and industrial manufacturing suffering decline due partly to structural shifts in the economy and the transfer of local production overseas. Both counties have experienced downturns in their economies as a result of these trends, evident in the high levels of unemployment and poor economic performance in local centres. The remoteness of these areas, particularly Cumbria, is considered to be a key factor in this economic decline as communities were isolated from the large towns in the north of England, which had benefited from the rise of new urban economy within the UK. Poor transport infrastructure reduced employment opportunities and is believed to have deterred inward investment. There is still a degree of social deprivation in parts of the RUS area, particularly West Cumbria, Burnley, Nelson, Colne and some areas on the Settle and Carlisle line.

In recent years there has been a reversal of this historical trend and both counties have

experienced a period of relative economic stability and reasonably sustained job creation. The growth in alternative sources of employment, particularly public sector jobs, advanced engineering and construction work, has boosted this recovery. The nuclear site at Sellafield on the Cumbrian Coast also continues to play a significant role in the local economy. Following decommissioning, the government has indicated its aspiration for Sellafield to build on its nuclear heritage and develop as a world leader in advanced energy and environmental technology.

In order to boost productivity and enterprise in other regional locations there is currently a concerted effort being made by local authorities aimed at regenerating Lancashire and Cumbria. This has focussed on the social deprivation that has developed in some areas, and plans are being progressed to increase the availability of affordable housing, improve the education and skills base of the working population, and encourage economic growth, innovation and inward investment. It is recognised that an efficient and accessible transport infrastructure will be a key factor in achieving successful regeneration and sustainable economic growth within the RUS area. Rail is an important mode of transport for areas which are poorly served by bus and have limited car ownership.

Historically Cumbria has not had a university. This has meant that students have had to move away to attend university. It is likely that there is suppressed demand for a Sunday service for students returning to university from home on the coast. In 2007 the University of Cumbria was created with six campuses and sites in the RUS area.

3.3.2 Passenger demand¹

A comprehensive understanding of passenger demand for these different types of market provides the basis for determining the optimal combination of services and infrastructure investment.

The passenger demand baseline for the Lancashire and Cumbria RUS has been produced using 2005/06 LENNON ticket sales data, which was the most recent data available at the time. The RUS area is not covered by a PTE, and hence the LENNON data is fairly comprehensive in terms of journeys made. The analysis includes all trips made to, from and between stations in the RUS area, and is believed to be a reasonable reflection of total current demand.

The rail network in the RUS area currently carries around 32,400 passengers per day, which is equivalent to around 10.2 million passengers per year. Around 29 percent of these trips are made between stations in the RUS area, 40 percent are made between the RUS area and the rest of the North West region, and the remaining 31 percent are made between the RUS area and other regions. Figure 3.1 illustrates this split.

There is a belief that the level of maintenance on the Settle and Carlisle line in recent years and the lack of a Sunday service on many lines, means there is an unquantified level of suppressed demand on some sections.

The Roses line route section accounts for around a third of the total rail usage, predominantly through sizeable passenger flows to and from Manchester, West Yorkshire and Preston. Trips to, from and within the Ormskirk – Preston route section comprise the next highest proportion of the total usage (23 percent), predominantly through trips between Ormskirk and Liverpool.

The remaining passenger demand is spread across the RUS area with the Branch lines, Cumbrian Coast and Settle – Carlisle route sections accounting for 20 percent, 18 percent and 7 percent respectively. Figure 3.2 details the split of passenger demand by route section.

¹ For the purposes of the baseline demand assessment Preston has been classified as part of the rest of the North West region rather than as part of the RUS area. This is because it is a key West Coast Main Line station and will be included in the West Coast Main Line RUS. For the purposes of this analysis trips made between Preston and the Lancashire and Cumbria RUS area have been included, whereas trips made between Preston and elsewhere have not. Gaps and options pertaining to Preston station have been addressed in later chapters because a significant number of key services in the RUS area call at the station.

Figure 3.1 – Split of passenger trips per day (2005/06)



Figure 3.2 – Daily passenger trips by route section (2005/06)

Route section to/from	Within section	Rest of RUS Area	Rest of North West Region	Other	Total
Cumbrian Coast	2,100	1,200	800	1,700	5,800
Settle – Carlisle	300	200	200	1,500	2,200
Roses (Pennine Lancashire)	700	1,700	3,500	4,500	10,400
*Ormskirk – Preston	1,300	<100	6,000	<100	7,400
Branch lines	1,000	900	2,400	2,300	6,600
Total					32,400

* NB. Includes Merseyrail network

3.3.3 Passenger services and frequencies

Passenger services are mainly operated by Northern Rail and TransPennine Express, offering local and longer-distance services across the whole of the RUS area. Figure 3.3 shows the frequency of service on the various route sections. Apart from the Roses line – which is on a regular clock face pattern – it is notable that most of the services are off pattern (non-clock face) and less than hourly. Selected service frequencies and key journey times are shown later in Figure 3.10.

Figure 3.3 – Passenger services (no. of trains per day)

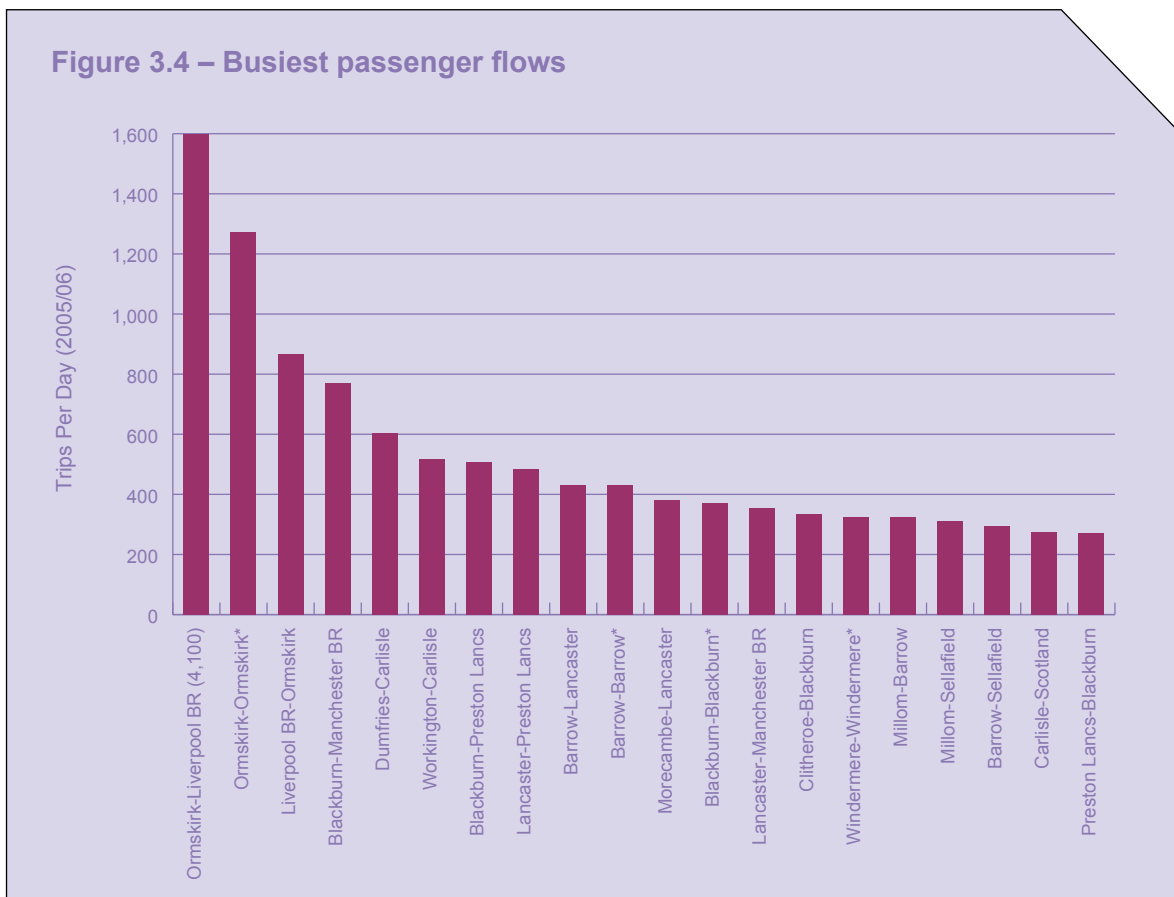


* NB timetable at baseline in Spring 2007

3.3.4 Passenger flows

Figure 3.4 presents the 20 busiest passenger flows with at least one trip-end in the RUS area. Analysis of these flows indicates the importance of rail services for commuters, as the largest flows are predominantly between residential areas and either larger city centres in the rest of the North West region, notably Liverpool, Manchester and Preston, or economic centres in the RUS area such as Barrow-in-Furness, Carlisle and Sellafield.

A number of the busiest flows occur on inter- and intra-regional links including Ormskirk – Liverpool, Blackburn – Manchester, and Dumfries – Carlisle. This highlights the strategic importance of these lines and is particularly noteworthy given that inter-/intra-regional services are less frequent than in many other RUS areas. Further analysis of key regional links is presented in Section 3.3.8.



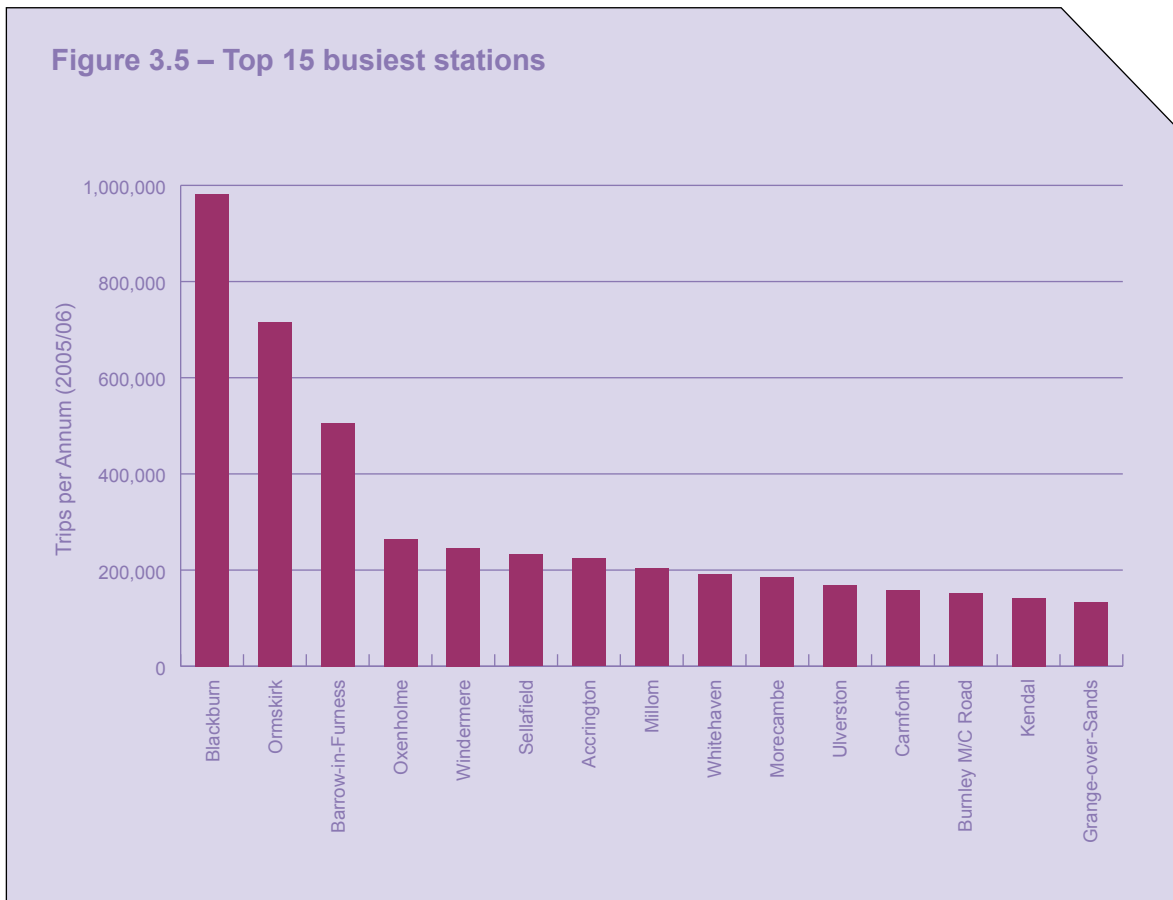
* The RIFF-Lite database groups trips to and from several stations as a single station "zone"

3.3.5 Most and least used stations

Passenger usage is heavily concentrated around a small number of stations in the larger conurbations and economic centres. Around a third of all passenger trips start or end at Blackburn, Ormskirk or Barrow-in-Furness stations, and the 15 busiest stations in the RUS area, including Windermere, Sellafield, and Accrington account for around 68 percent of all trips. Figure 3.5 presents the 15 busiest stations in the RUS area.

The remaining 18 percent of demand is made up of trips that start or end at the remaining 70 stations. On average, this is fewer than 100 passengers per station per day. The three least used stations are Netherton, Burnley Barracks and Braystones, with each serving fewer than 10 passengers per day. It is thought that in the case of Burnley Barracks, some passengers are using tickets to/from Burnley Central, causing an under-reporting of patronage.

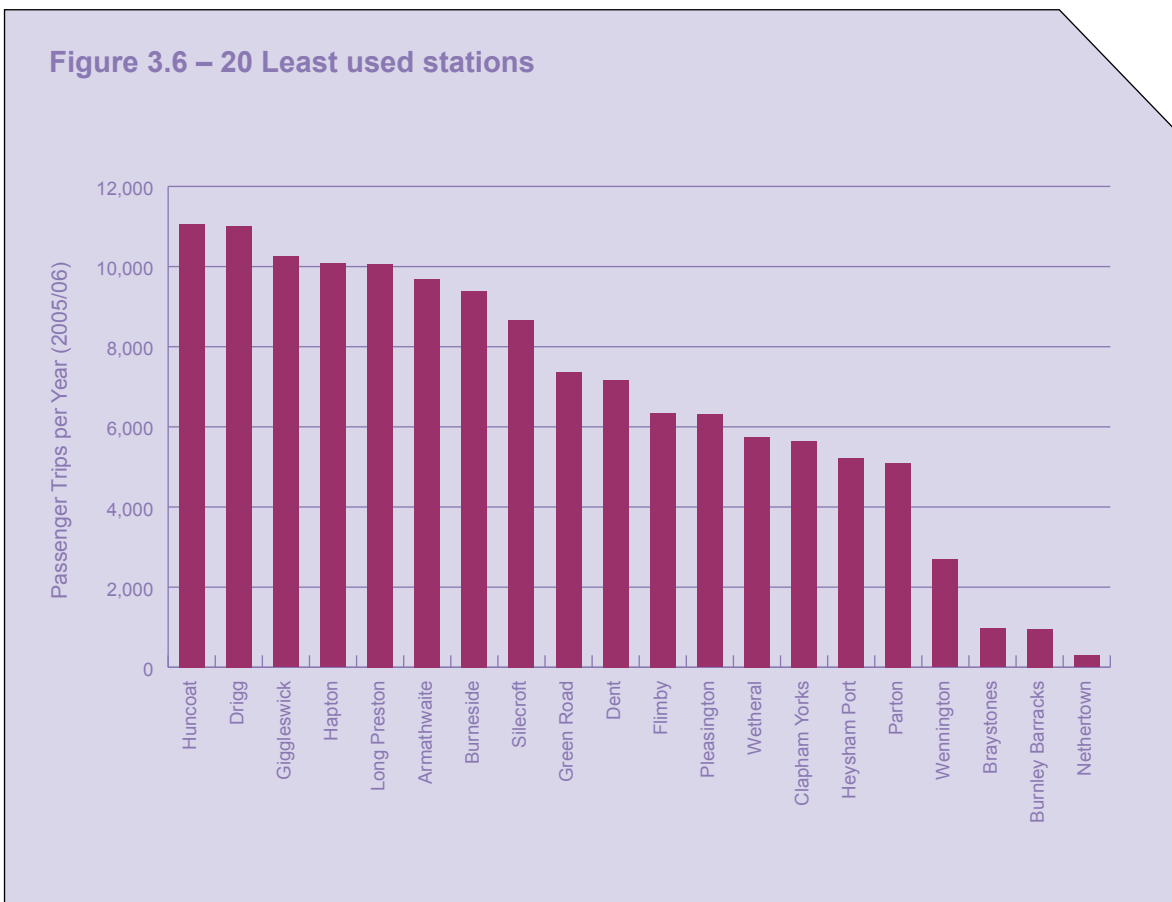
Figure 3.5 – Top 15 busiest stations



* WCML stations excluded

Figure 3.6 details the 20 least used stations in the RUS area.

The uneven spread of trips is more pronounced than in most other routes and is a result of the varied demographic and geographic characteristics of Lancashire and Cumbria. This presents a challenge to deliver the appropriate mix of investment in rail services and infrastructure, whilst maximising the attractiveness of a number of lightly used stations.



3.3.6 Historical growth

Figure 3.7 details the historical time series of the daily number of passenger trips made to, from and within the RUS area. For the eight-year period from 1998/99 to 2005/06, the number of passenger trips in the area has increased by around 22 percent which is equivalent to 2.5 percent per annum.

It is likely that the stagnation and decline in rail patronage from 1999/00 to 2002/03 was caused by the rail performance impact

following the Hatfield disaster, and more locally the impact of the engineering works on the WCML and the Settle to Carlisle route. Thereafter it is thought that a marked improvement in rail performance and a number of sizeable service and infrastructure enhancements produced the sharp recovery in passenger numbers.

Figure 3.8 shows the 1998/99 – 2005/06 growth for the route sections in the RUS. The Roses line section has experienced

Figure 3.7 – Historical passenger demand



the highest increase in passenger numbers with a total growth of 35 percent over this period. This is largely as a consequence of a rapidly increasing number of Manchester commuters, and a strongly growing passenger market between Pennine Lancashire and West Yorkshire.

The Settle – Carlisle route section has experienced the next highest level of growth at 26 percent over the seven-year period. This has been largely driven by an increase in the number of longer-distance trips into Leeds, and to a lesser extent into Carlisle. This level of growth is particularly notable in the light of research from Passenger Focus which suggests that the regular block closures for engineering work have suppressed demand.

Passenger numbers on the Ormskirk – Preston section have increased by 22 percent over the seven-year period. This is almost completely driven by Ormskirk – Liverpool journeys.

Growth on the Cumbrian Coast and Branch line sections has been moderate at 11 percent and 15 percent respectively. It is likely that a number of factors have discouraged passenger use in these sections, particularly a disparate service frequency and pattern, and the number of journey opportunities available. Despite a significant number of tourist destinations in close proximity to a railway station, the rail mode share for visitor attractions in Cumbria is only five percent.²

2 Cumbria visitor survey 2006 report, Cumbria Tourism, QA Research, November 2006

Figure 3.8 – 1998/99 – 2005/06 Passenger growth by route section

Route section to/from	Within section	Rest of RUS Area	Rest of North West Region	Other	Total
Cumbrian Coast	3%	12%	24%	15%	11%
Settle – Carlisle	27%	13%	37%	27%	26%
Roses (Pennine Lancashire)	11%	18%	41%	42%	35%
Ormskirk – Preston	9%	n/a*	26%	n/a*	22%
Branch lines	9%	30%	40%	-6%	15%
Total					22%

* Small number of trips means analysis is not possible

3.3.7 Crowding

A relatively small number of rail corridors within the RUS area are operating at or beyond capacity during peak periods. Based on the RUS growth forecast it is unlikely that crowding will spread to other parts of the route.

The most severe crowding currently occurs on commuter lines into Manchester from both Preston and Blackburn (Clitheroe). This was identified during the production of the North West RUS and the subsequent Strategic Business Plan. Both documents recommended additional peak capacity and appropriate platform lengthening on these corridors to mitigate an expected worsening of future crowding levels. Although this is not within the remit of the Lancashire and Cumbria RUS, aspirations to increase the number of destinations in the RUS area with a direct peak service to Manchester cannot be recommended until additional capacity and rolling stock have been provided.

The heaviest levels of on-train crowding contained wholly within the RUS area occur on the Cumbrian Coast line at Sellafield. This is driven by the shift pattern of the major employer at the site, with two northbound services in the am peak and two southbound services in the pm peak operating close to or beyond capacity. Government energy policy, and an initiative to increase the percentage

of employees accessing the site by public transport, means that the crowding is likely to worsen, and without provision of additional capacity it will not be possible to accommodate further growth.

Sporadic crowding on individual trains also occurs as a result of a disparate pattern and frequency of services. This is particularly an issue on the Cumbrian Coast line at the Carlisle end, and occasionally on the Carlisle – Leeds and Morecambe – Leeds lines.

3.3.8 Regional links

Strong regional transport links are important to the RUS area as they provide an essential means of accessing employment and educational opportunities. The key city regions for passenger travel to and from the RUS area are Central Lancashire (Preston), Liverpool, Manchester, Leeds, and Newcastle. Figure 3.9 shows these city regions, some of their significant constituent urban centres, and the rail links between them (as well as indicating some “missing” ones, and weak ones with only a few trains a day). North Lancashire and Cumbria are not treated as a concentrated city region due to the geographic spread.

Figure 3.9 – City regions and other centres

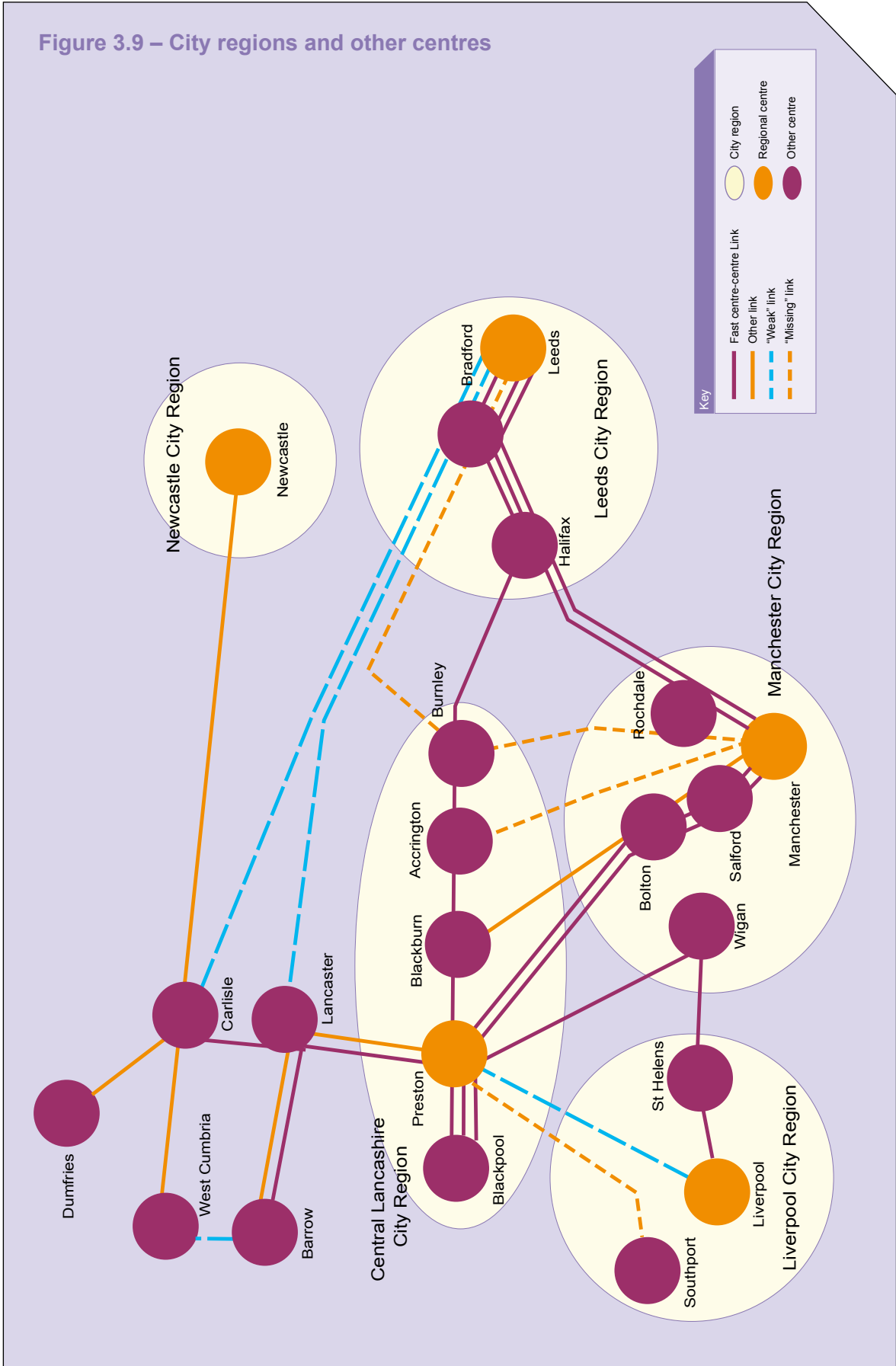


Figure 3.10 shows the strength of the link in terms of frequency pattern and journey time of the key links.

Figure 3.10 – Selected service frequencies and journey times		
Link	Pattern	Generalised journey time
(Blackpool) – Preston – Liverpool (via Wigan)	Hourly	1hr 02m
Preston – Liverpool via change at Ormskirk	Hourly	1hr 05m
Blackburn – Manchester	Hourly (half-hourly in the peak)	51 min
Burnley – Manchester via Hebden Bridge	Hourly	1hr 12m
Burnley – Manchester via Blackburn	Hourly	1hr 37m
Leeds – Manchester via Rochdale	Half-hourly	1hr 34 m
Lancaster – Leeds	4 daily trains	1hr 52m
Preston – Leeds	Hourly	1hr 42m
Barrow – Carlisle	7 daily trains	2hr 25m (typical)
Carlisle – Leeds	6 daily trains	2hr 46m
Carlisle – Dumfries	Worse than hourly with some large gaps	40 mins (typical)
Carlisle – Newcastle	Hourly	1hr 30m

Regional plans, such as the Regional Spatial Strategy (RSS) and the Regional Planning Assessment (RPA), emphasise the importance of improving inter-regional links. Improving the connectivity of the RUS area to key urban centres will contribute to regeneration of socially deprived areas by providing greater employment, educational and leisure opportunities. It is also considered essential for attracting inward investment and facilitating the development of strategic employment sites.

It is recognised that some existing rail links between the main centres and city regions are inadequate due to journey time, poor interchange and service pattern and frequency. Issues relating to journey time and service frequency have been raised on services between Preston and Leeds, Burnley and Leeds, and Liverpool and Preston. The need for earlier and later trains has also been specifically identified on services from Lancaster to Leeds and Carlisle to Leeds.

The desire to improve the links between Manchester and Central Lancashire, and Leeds and Lancashire is currently constrained by capacity issues on the Roses line, which are a result of the traffic mix and service pattern.

There are certain regional links which were identified in the North West RUS (chapters 5 and 6) as being more appropriately tackled within the Lancashire and Cumbria RUS.

These are:

- improving the link between Preston – Ormskirk so that the service between Liverpool and Preston can be enhanced
- extending local Manchester services to Accrington and Burnley
- enabling services to run between Southport and Preston.

There are a number of instances where the train service frequency is low, and where there is a question over whether such a low frequency is suppressing demand.

These include:

- Carlisle – Barrow (over the Millom – Whitehaven section)
- Lancaster – Leeds
- Carlisle – Leeds.

There are three sections for which there has been strong local support for reinstatement of infrastructure and services:

- Burscough Curves – there is strong local support for running services between Southport and Ormskirk, and between Southport and Preston, by reinstatement of one or other of the former Burscough Curves. The reinstatement of the south curve would align with Merseytravel’s long-term aspirations for the area.
- Todmorden Curve – there is also strong local support for running services between Burnley and Manchester, by reinstating Todmorden Curve. Running Burnley – Manchester services via Todmorden Curve would give journey times of about 51 minutes which compares well with the existing journey either

by changing at Hebden Bridge (1hr 12 minutes) or by changing at Blackburn (1hr 13 minutes peak, 1hr 37 minutes off-peak). Northern’s recently introduced direct train from Colne via Burnley Central and Blackburn takes 1hr 19 minutes. The equivalent journey by bus is 1hr 31 minutes in the peak and 1hr 11 minutes in the off-peak, with a 10-minute frequency. The equivalent car journey is estimated to take 47 minutes in the peak and 37 minutes in the off-peak.

- Colne – Skipton – there is a former railway trackbed between Colne and Skipton which, if reinstated, would allow services from Burnley Central to go to Leeds – either direct or with a change at Skipton, thereby significantly reducing journey time by public transport between Nelson and Colne and Leeds. A local group of stakeholders has raised the profile of this potential reopening and has procured consultants to work on the business case.

3.3.9 Rail interchanges

Passengers using Preston station as a means of accessing the greater network are often faced with additional interchange issues. Platforms 1, 2, 5 and 6 at Preston station are relatively narrow and are prone to congestion at peak times due to lack of circulation space. This congestion often makes exiting or interchanging onto other platforms more difficult. These platforms have little in the way of facilities compared with the main island platform. Platforms 1 and 2 will be addressed within this RUS. Other issues at the station will be dealt with in the West Coast RUS.

The interchange at Carlisle is adequate in terms of facilities and access, albeit that the lift access is not particularly modern. In terms of making connections it is difficult to align all local and main line services in the timetable.

At Blackburn, Platform 4 has only a waiting shelter whilst the other platforms are protected by a canopy. Platform 4 is where both Manchester and Preston bound trains depart.

Ormskirk station has a single platform face, a station building, a canopy, a booking office and small entrance hall with a shop. The toilets are locked out of use. In order to be considered as a suitable interchange station for passengers between Preston and Liverpool, it needs toilet facilities and a waiting room.

3.3.10 Tourism

Reviving tourism within both counties is considered to be a significant element in regenerating the area and increasing growth and wealth. The RUS area benefits from having a vast natural and unique landscape, and hosts a number of key tourist destinations. These include areas of natural beauty such as the Lake District National Park and the Yorkshire Dales, and other popular attractions, including wildlife centres, historic railways and RSPB reserves. In recent years, however, these destinations have encountered competition from both national and international tourism and have suffered a decline in their popularity levels. To encourage a revival, local authorities and other interested parties are developing new and improved visitor focussed products and are promoting targeted marketing activity. A key objective in the effort to deliver an enhanced visitor experience is to develop sustainable transport networks to secure further community and environmental benefits. The safety and environmental benefits of the railway in comparison to other forms of transport strengthens the case for its promotion. Where a station is within a reasonable walking distance of the tourist attraction it can be a viable stand-alone choice for access. Where the attraction is some way away from a station or is itself dispersed, rail is only really viable in conjunction with other public transport modes such as buses.

3.4 Current freight market profile

3.4.1 Background

Within the UK, rail transport has historically had a small share of the total freight market. However, rail's market share is growing year on year, up from 8.5 percent to 11.5 percent of total freight tonne kilometres (weight of

freight multiplied by distance carried) in the 11 years following privatisation. Traffic has grown 70 percent since privatisation and is continuing to grow as the Working Time Directive together with other cost drivers take effect on the economics of longer-distance lorry journeys. Growth in coal traffic is identified as an issue in both the Freight and Scotland RUSs, as capacity is constrained on both the Settle and Carlisle and Glasgow and South Western routes.

3.4.2 Major flows

The RUS area carries substantial and increasing volumes of freight traffic. The heaviest flows are concentrated on the Settle and Carlisle line and are of imported and opencast coal from Scotland to power stations in Yorkshire, Trent Valley and the East Midlands. Coal is also transported to power stations in the West Midlands (Rugeley and Ironbridge) and the North West (Fiddlers Ferry). Gypsum is carried between Yorkshire power stations and Trent Valley to Kirkby Thore. Other freight movements include a variety of flows between the WCML and Hebden Bridge, traffic to and from Workington docks, Sellafield, Drigg and Barrow docks. Flows also include traffic to terminals at Blackburn and Clitheroe and chemical traffic between Lindsey Oil Refinery and Preston Docks. Figure 3.11 highlights the number of freight flows per day by route section.

Coal

Coal remains the predominant fuel used for generating electricity throughout the UK. With the continuing uncertainty in gas and oil prices and the time lag to build nuclear power stations, coal looks set to remain in demand for the foreseeable future. Coal represents the dominant tonnage over this RUS area, and is set to increase further. Coal services along the Settle and Carlisle route are expected to rise from the current level of approximately 12 trains (each way) per day to 16 (each way) per day by 2008. This is due to the re-routing of coal traffic from the WCML.

These additional trains cannot be accommodated by the current capability of the affected sections and therefore two projects are being progressed to increase capacity. Firstly, the redoubling of track between Gretna and Annan and introduction of intermediate block sections (IBs) on the GSW (Scotland RUS) and secondly, the introduction of additional IBs on the Settle – Carlisle section. Both these schemes will increase capacity to allow extra services to run, and in the case of the extra IBs, the headways will be reduced by half (nominal 30 minutes down to nominal 15 minutes)³. In addition works are currently planned to make the routes fit for the expected additional tonnage. These schemes are due for completion by the end of 2008.

For services to be re-routed along the Blackburn – Hellifield section (following the diversion of certain services off the WCML), a scheme is presently being implemented to renew the track, introduce enhanced signalling capacity and complete necessary structures work, which will reduce headways and increase capacity.

Intermodal

Large intermodal containers are increasingly favoured by shipping companies, with the percentage of 9 ft 6ins high containers increasing from 28 percent of deep-sea containers arriving in UK ports in 2002 to 35 percent in 2004.

Existing services link Mossend and Coatbridge to ports at Southampton, Felixstowe and Tilbury via Carlisle and the WCML. The gauge of this traffic restricts its operation to the WCML between Carlisle and Preston. An intermodal flow also operates between Workington Dock and Tees Dock.

Aggregates

There are currently no connected sites transporting aggregate in this RUS area; however, a regular cement flow from Clitheroe to Mossend commenced in spring 2008.

The Settle – Carlisle route is also used on a “campaign” basis for the conveyance of sand between Middleton Towers (King’s Lynn) and Ayr Harbour. When in operation this traffic typically generates two or three services per week. Aggregate traffic will also be required to support the further development of the Drigg repository, although the source point of this traffic may well be off the RUS area. In addition to this, potential exists to construct new connections to serve quarries in the Millom and Ribbleshead areas. A new freight connection is currently being developed at Workington for a paper plant company.

³ Exact value depends on train and load

3.5 Infrastructure capacity and capability

Each of the topics in this section is explored in more detail in Appendix A.

3.5.1 Headways

The headway is a measure of how closely (in time) one train can follow another. Signalling headways are the times between trains that the signalling system would allow: planning headways are the slightly more generous time that timetable planners use allowing for signallers to clear the route and for the temporary speed restrictions that are in force from time to time. The form of headway referred to hereafter is planning headway. Headways within the RUS area vary considerably. A good portion of the route has four-minute headways, but there is a considerable quantity of absolute block sections, some with long headways, the longest being 45 minutes between Settle Junction and Carnforth Station Junction. The common occurrence of long headways within the RUS area, is due in part to the large number of single line and absolute block sections, and a historical British Rail policy of reducing signalling capability to the level required for the service.

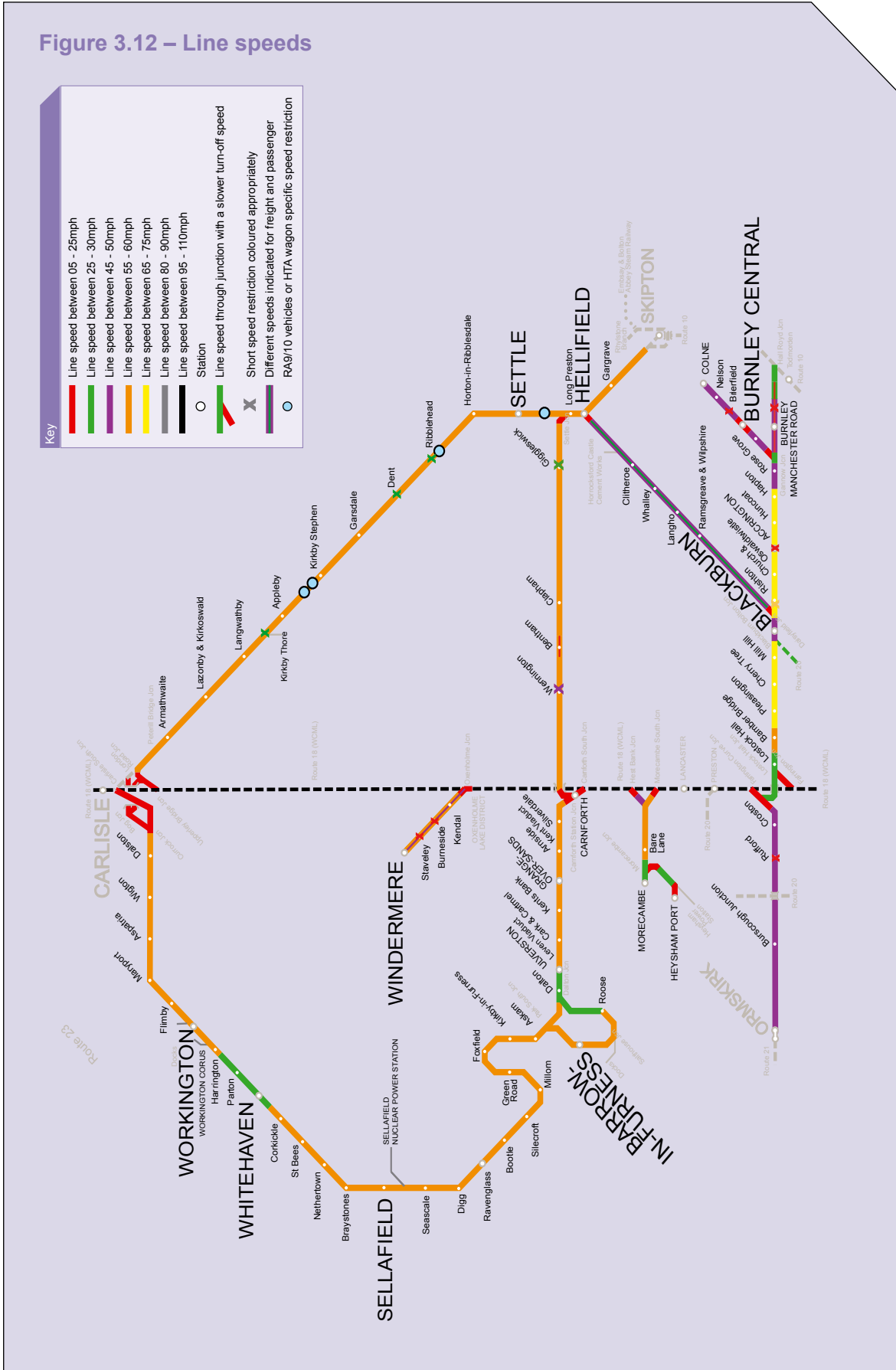
A number of interventions detailed in Network Rail's business plan will reduce the extent of absolute block within the RUS area. Network Rail's long-term resignalling strategy for the RUS area will be developed in the next Control Period. This strategy will be guided by the policy to concentrate signalling control in single locations. The current plans propose that the northern part of the Cumbrian Coast will migrate into a single control point at Maryport, prior to migrating control to Carlisle in the long term. The southern part of the Cumbrian Coast will migrate to a single point of control in the Barrow area, prior to moving to Preston in the long term. The resignalling of Barrow is planned for 2014, and resignalling schemes for West (Workington) and South Cumbria are planned for 2015 and 2020 respectively.

The main factor affecting capacity on the Blackburn to Hellifield section is the length of the absolute block sections. The single lead junction at Daisyfield is also a constraining factor on capacity. Another issue is when one passenger train terminates at Clitheroe, it is still in section, which means that the next train is prevented from entering the section until the empty stock move reaches Horrocksford. There is a further detrimental impact when shunting at Horrocksford because a train has to occupy both Up and Down sections to Hellifield. The issue of inadequate headways on the Settle and Carlisle, and Blackburn – Hellifield lines as well as the issues around Horrocksford are being addressed in Control Period 3.

Growth in coal traffic has been identified as an issue in both the Freight and Scotland RUSs, and the December 2008 timetable will see some coal traffic currently pathed over the West Coast Main Line being sent via Settle, Hellifield and Blackburn in order to free up capacity on the WCML. This growth in freight traffic in addition to the rerouted freight traffic from the WCML, means the long signalling headways between Settle and Carlisle, in particular at Horton in Ribblesdale, Long Meg and Mallerstang are a constraint on capacity and performance. The long sections between Blackburn and Horrocksford are similar constraints on capacity for that section of the route. As mentioned earlier, Network Rail is currently installing Intermediate Block Signals to provide eight additional signalling sections on the Settle and Carlisle route, and two more on the Blackburn – Hellifield route, which will generate additional paths and improve passenger and freight performance.

The single line branches to Colne and Blackpool South limit timetable flexibility, and the Roses line is constrained by the mix of traffic and stopping pattern, in combination with the lack of opportunity for trains to pass each other and flat junctions at Gannow, Daisyfield and Blackburn. The single line section between Gretna and Annan is currently being doubled to meet the needs of increased freight traffic on the GSW and Settle and Carlisle routes. Other notable single lines within the RUS area are between Sellafeld and Bransty signal boxes, between Farington Curve Junction to Ormskirk (with a loop at Rufford), between Carlilse South Junction and London Road Junction and between Colne and Gannow Junction.

Figure 3.12 – Line speeds



3.5.2 Line speeds

Figure 3.12 shows that the current prevailing line speed for the majority of the RUS area is between 55 and 60mph. There are also a number of lower speed limits and speed restrictions on the route. In the light of current rolling stock capability, there are some locations where the line speed is inappropriately low and inefficient in terms of capacity and journey time.

The lower line speeds and the number of temporary speed restrictions within the RUS area are partly due to track condition and gradients. In addition to line speed restrictions, there are other factors which impact negatively on journey time which should be taken into consideration. Checks such as approach release on signals, and fixed distant signals, for example, increase the journey times for certain services. Network Rail aims to address these issues in future renewal programmes. The opportunity for line speed increases is progressed where there is a business case, and often this means addressing the issue during resignalling schemes.

The Settle and Carlisle and the Blackburn – Hellifield lines have several locations where speed is restricted for heavy axle weight traffic. These relate to restrictions applicable to all RA9 and RA10 vehicles and to HTA wagon specific restrictions only, both of which are detailed in Figure 3.12. Speeding up the slower trains on these lines will also improve overall capacity.

In addition to improving line speeds, there is potential to improve the generalised journey time on some lines. This can involve increasing service frequency, altering calling points and bringing the timetable onto a regular pattern. This may be achievable through a rationalisation of the services on the Roses line and Cumbrian Coast, following the implementation of the West Coast 2008 timetable.

3.5.3 Junction speeds

The majority of the junction turnout speeds are 30mph and below, as can be seen in Figure 3.13. Some of the lower junction speeds are a direct result of track geometry and curvature. Of particular note are the 10mph turnout speeds at Carnforth station junction and Currock Junction. Deceleration from line speed and subsequent acceleration back to line speed after crossing a junction costs time and capacity. In some cases, the requirement for approach control on the signals impacts journey time and decreases capacity further. An example of this is the approach to Barrow-in-Furness from the south where, as a result of the junction beyond the station, services are brought almost to a stop before going on to enter the station.

3.5.4 Electrification

There is no electrification in the RUS area, except the electrified WCML running through the middle. This has overhead line electrification operating Virgin Trains' Pendolino services from London to Glasgow and electric-hauled freight. Virgin services can be diverted off the WCML onto the Blackburn – Hellifield – Carlisle section by way of being loco hauled, or substituting the Pendolino with tilting Voyagers.

3.5.5 Loading gauge

The loading gauge of a specific route is determined by the maximum height and width of the traffic able to run over it. In the RUS area, the gauge ranges between W6 to W8, with a small section of W10 running off the WCML to Heysham power station (see Figure 3.14). W10 allows the carrying of 9ft 6ins intermodal boxes on standard deck height. Small gauge enhancements are planned on the route between Sellafield and Carlisle which will allow British Nuclear Fuel to run W6a traffic northbound. The route from Farington Junction to Carlisle via Blackburn and Hellifield is the diversionary route of the WCML north of Preston. This diversionary route lacks the gauge clearance of the main route. Determining the diversionary routes strategy for the WCML is for consideration within the West Coast Main Line RUS.

Figure 3.13 – Junction speeds

Key	
	10mph
	15mph
	20mph
	25mph
	30mph

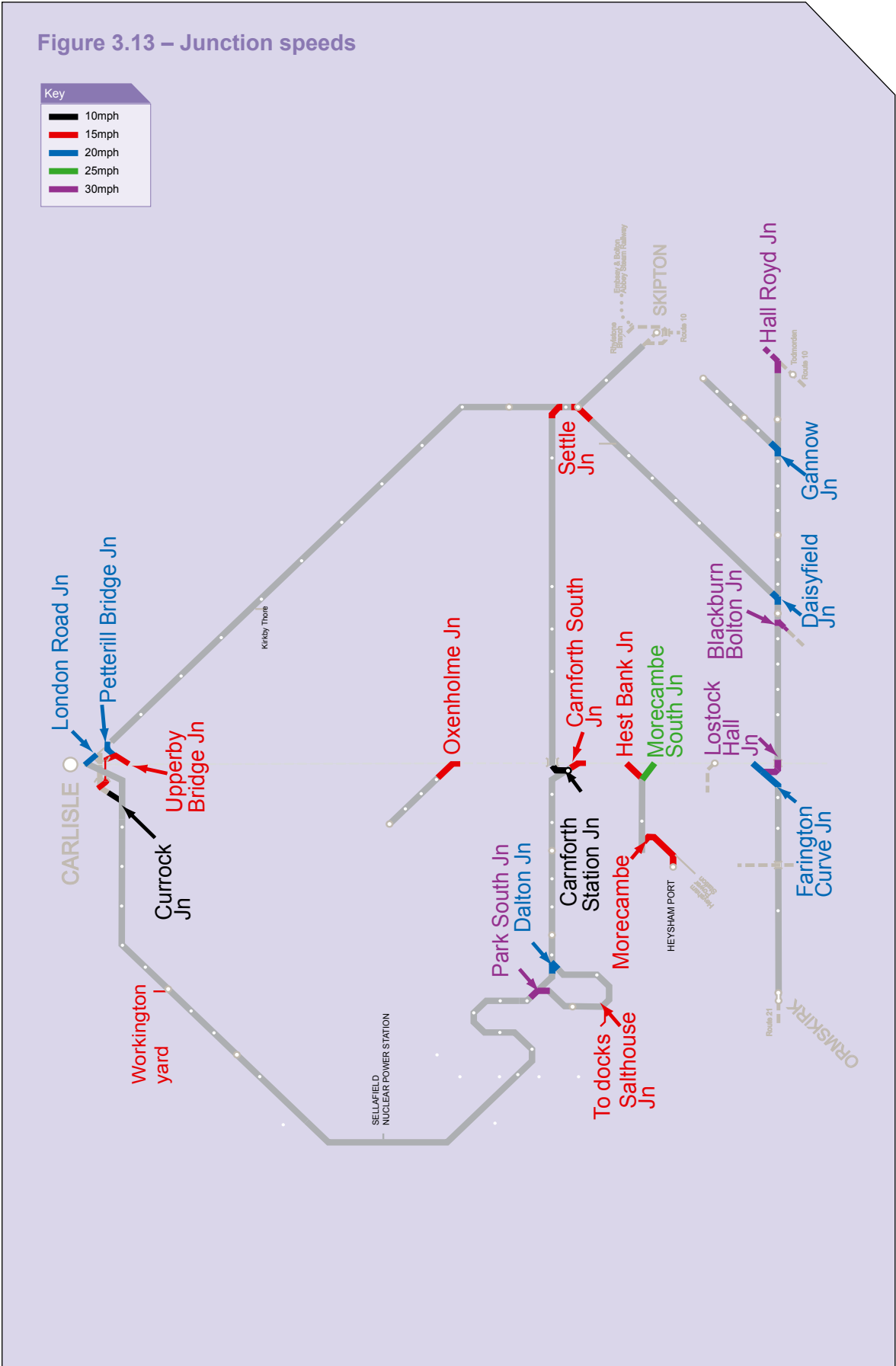
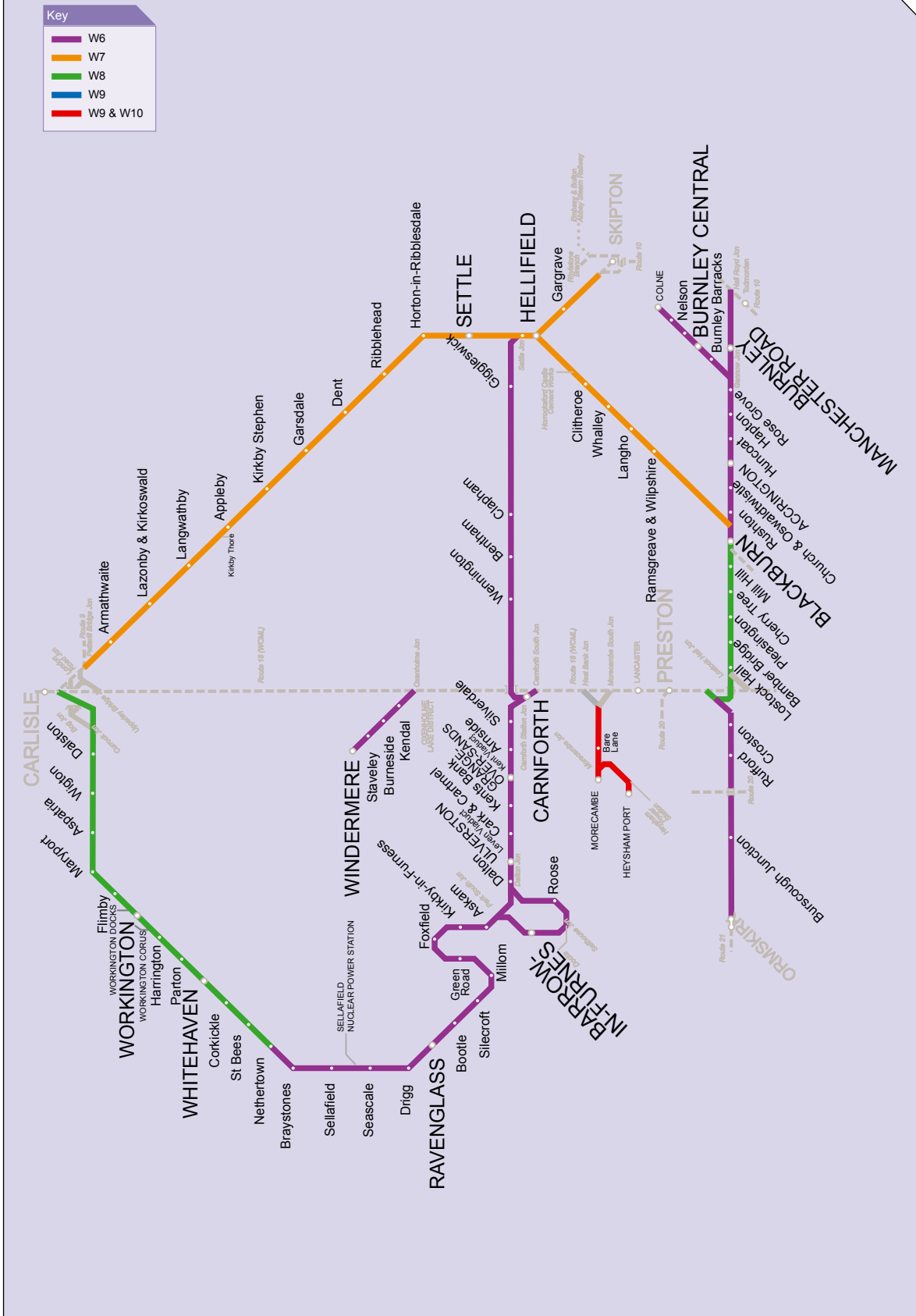


Figure 3.14 – Loading gauge



3.5.6 Route Availability

The Route Availability (RA) determines which types of locomotive and rolling stock can travel over any particular route. The RA is determined by the carrying capability of both its structures and its track. Criteria include strength of underline bridges in relation to axle loads (weight) and speed. Most of the RUS area is RA8, with a small section between Maryport and Whitehaven being RA7. RA9/10 traffic operates on certain parts of the route, and requires special authorisation, often accompanied with a speed restriction over specific structures. The Settle and Carlisle coal trains usually weigh 2,100 tonnes and are over 400 metres in length.

3.5.7 Loop lengths

The length of coal trains has increased to over 400 metres in recent years, particularly on the Settle to Carlisle line, in order to make best use of available capacity. The majority of loops in the RUS area are less than this and hence this can be a real issue. This is particularly the case between Carlisle and Skipton (in both directions) where very few loops are able to accommodate the longest freight trains. In order to address this, the following schemes are being planned: a new loop at Carlisle London Road Junction, the potential extension of Howe & Co sidings and the introduction of tail lamp cameras at Hellifield.

3.5.8 Platforms

Platforms across the RUS area are largely a mixture of two, three and four-car lengths. The shortest platforms are mainly located at the stations on the Cumbrian Coast and at a number of stations in East Lancashire, particularly on the Blackburn to Hellifield line and the line between Burnley and Colne.

On the Cumbrian Coast (due to historical reasons), there are a number of stations that have low platforms. This has led to impractical stepping distances.

The resignalling scheme at Workington (in 2012) provides an opportunity for changes to the infrastructure in the area, and the provision

of a second platform at Maryport will be considered as part of this scheme.

3.5.9 Station facilities

The facilities at stations in the RUS area vary significantly due to their size and purpose. The larger stations, eg. Blackburn and Barrow-in-Furness, provide a variety of services including toilets, waiting rooms, and cycle facilities. A number of stations, however, currently have limited facilities, and this is thought to discourage rail use. A recent passenger survey carried out by Passenger Focus (specific to this RUS area) indicates that this is the case. The particular areas highlighted are disabled access, car parking and customer information systems. This is not only an issue confined to the smaller, rural stations. It is also recognised as an issue at Preston, which is significant given its key role as an interchange station.

Network Rail is currently working with TOCs and local authorities to improve station facilities at a variety of locations, including Windermere, Colne, Ormskirk and Rishton (some of which have now been completed). Network Rail is also working closely with stakeholders on the National Stations Improvement Programme. Although funding for the programme is subject to ORR approval as part of Network Rail's regulatory settlement for the period 2009 – 2014, the industry has made good progress in terms of identifying the station portfolio. In terms of the RUS geography Kendal, Burneside, Staveley, Ulverston, Arnside, Accrington, Burnley Central, Burnley Barracks and Barrow-in-Furness are identified as needing improved facilities, and further works are planned at Windermere.

3.5.10 Parking

There are a large number of stations within the RUS area that currently have no car park, or a very limited number of spaces. The lack of suitable car parking facilities can lead to suppressed demand and on-street parking problems. The number of car parking spaces at each station is shown in Figure 3.15. A national car park expansion programme on the WCML

is being developed by the DfT in conjunction with Virgin Trains. This will involve provision of additional spaces and upgrading of existing facilities at Oxenholme station.

3.5.11 Depots and stabling

Northern Rail has depots at Leeds, Blackpool North and Barrow-in-Furness, all of which are also used by TPE. There are stabling locations at Skipton, Workington and Carlisle. These are adequate in terms of capacity and have some headroom to accommodate additional vehicles.

3.5.12 Integration with other public transport modes

The RUS area has low levels of car ownership in comparison with overall national trends, so enabling alternative modes of accessing stations and completing journeys from the destination rail station is important both in terms of commuting and alleviating social deprivation. Improving public transport integration is also important in the current economic and environmental climate.

It is recognised that improvements are required to mode-change facilities, including ramps, signage to bus stops, waiting area location and information on passenger bus and rail networks being readily available.

Network Rail is currently working with local authorities and local partners to develop bus/rail interchange schemes at Nelson, Workington, Whitehaven, Wigton and Maryport. Network Rail's signalling and track renewals at Workington and Barrow are being aligned to the County Council's transport interchange scheme.

3.6 Current network utilisation

The Capacity Utilisation Index (CUI) is an indicative (and somewhat limited) measure of how much of the planning capacity of a section of railway is being utilised by the current timetable.

In general, 50 percent means there is room for growth, 75 percent upwards means that growth is increasingly at the expense of performance.

Figure 3.16 maps the CUI for each section of the RUS area from 08:00 – 09:00 am using the December 2006 timetable. It should be noted that this type of diagram does not reflect capacity constraints at junctions. The highest levels of CUI are shown in orange on the map. Much of the capacity does not exceed 60 percent utilisation, except for the Blackburn to Clitheroe line, part of the Settle and Carlisle line and Carlisle to Workington section which experience high utilisation.

3.6.1 Blackburn – Clitheroe/Hellifield

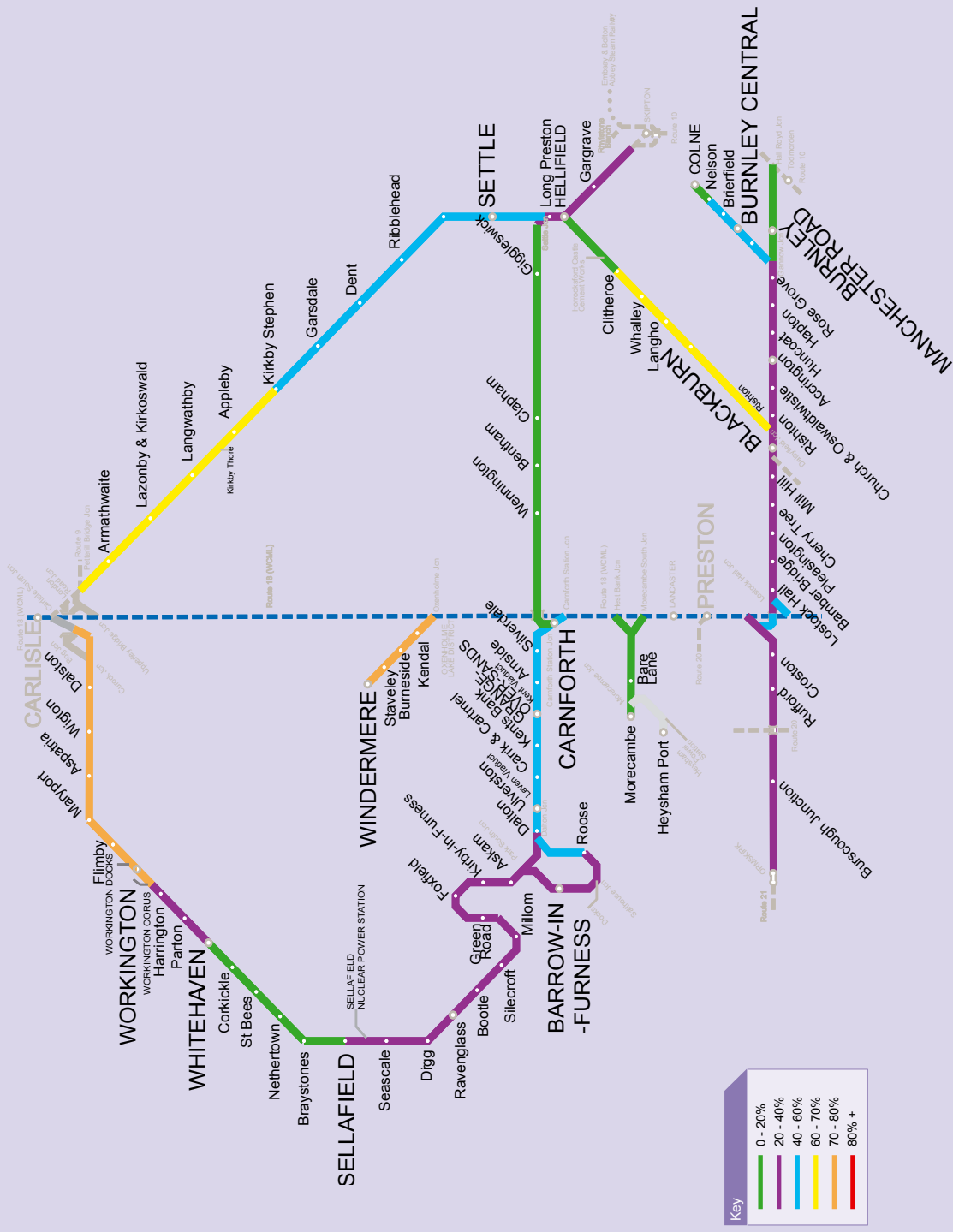
Capacity utilisation on this line is a reflection of the long absolute block sections. The high utilisation is from the long transit time of those sections. The current transit time for the block sections is of the order of 25 minutes. The new intermediate block signals being introduced at Langho, between Horrocksford and Hellifield, as well as modification of the currently restrictive signalling arrangements at Horrocksford Junction signal box, will reduce that time to 15 minutes. This will help unlock capacity on the route which in the longer term may facilitate additional services.

The current signalling acceptance arrangements at Horrocksford Junction signal box (east of Clitheroe) also create capacity and performance problems, as they require the sections between Horrocksford Junction and Hellifield to be “blocked back” every time a passenger service turns back at Clitheroe.

3.6.2 Carlisle area

The single line between Carlisle South Junction and London Road Junction has high utilisation. This is due to all Settle and Carlisle traffic and Carlisle to Newcastle services running over it. Combined with the layout at Carlisle station, this is a real capacity

Figure 3.16 – Current capacity utilisation Index



constraint. The anticipated growth on the WCML in coal traffic will also compound the constraint at Carlisle station.

3.6.3 Settle – Carlisle

Headways on this section are currently very long (up to 35 minutes). Utilisation is high due to the long transit times of these sections – especially in the case of loaded coal trains going uphill. These headways are to be reduced by introduction of additional IB sections, which will increase capacity, reduce utilisation and improve performance. This scheme is aligned to the Gretna – Annan track doubling project, which will improve the headways to a nominal 15 minutes or less along the route from Kilmarnock to Skipton.

3.6.4 Carlisle – Workington

The Workington resignalling scheme is planned within the timescales of the RUS and will be developed to increase capacity and operational flexibility in that area. The long absolute block section between Wigton and Maryport is a constraint on capacity and performance. The trailing connection into Workington Docks means that almost all docks manoeuvres involve a run-round move in the Workington area.

3.6.5 Single branch lines

There is an hourly service between Blackpool South and Colne. Capacity is constrained on this line because the Blackpool South section has a 12-mile single-line section which, combined with junction clearances at Kirkham (where services cross), requires a minimal turn round. The Colne section is a six-mile-long single line with some slow PSRs. It ends at Gannow Junction where the services interact with the long-distance Blackpool – Leeds services.

The line from Preston to Ormskirk is sufficiently long and slow that the round trip cycle is longer than one hour.

Bare Lane to Morecambe is laid out as two single lines, with only one line able to connect to Heysham. The single line to Heysham is accessed via a ground frame and is only 20mph.

3.6.6 Roses line

On the Roses line, timetabling and additional service options are currently constrained. This is due to the lack of overtaking facilities (except at Blackburn), combined with the flat junctions and the mix of fast and slow services between Lostock and Gannow. It is these factors that cause relatively few trains to give a disproportionately high utilisation.

3.6.7 Wennington line

The long block section between Carnforth and Settle Junction combined with a relatively slow line speed means that there is high utilisation in the hours when trains run – but this is not very often.

3.7 Current network performance

The RUS area benefits from generally fair to good performance on most route sections, particularly on the self-contained branches – Morecambe – Heysham and Windermere. There are, however, some sections that fall significantly short of PPM targets. Figure 3.17 is a typical extract of the relevant performance of service groups operating on the Lancashire and Cumbria RUS area (in this case March 2007 taken from Northern Rail and TPE's websites).

Figure 3.17 – Public Performance Measure

Service	PPM (Mar 07)	Operator
Windermere branch shuttles	97.21	TPE
Ormskirk – Preston	96.18	Northern Rail
Manchester Airport to Barrow-in-Furness/Windermere	95.17	TPE
Preston/Lancaster – Morecambe/Heysham Port	94.95	Northern Rail
Preston/Blackpool – Lancaster Morecambe	90.39	Northern Rail
Blackpool North/South – Preston – Blackburn – Colne	90.70	Northern Rail
Clitheroe – Manchester Victoria	90.01	Northern Rail
Clitheroe – Blackburn – Preston/Morecambe	86.96	Northern Rail
Carlisle – Leeds	85.94	Northern Rail
Leeds – Blackpool North	82.82	Northern Rail
Preston/Lancaster – Barrow (locals)	81.91	Northern Rail
Leeds – Manchester Victoria	81.66	Northern Rail

It can be seen that of these performance groups, a number perform below the current PPM targets – Northern Rail Moving Annual Average – 90.02 percent and TPE – 91.7 percent. The HLOS target for these services by the end of CP4 is 92 percent PPM, highlighting that a further three service groups will need improvement on the current position.

Performance suffers at times due to rigidity of the timetable (lack of resilience in times of perturbation) and because there is a high utilisation of units and resources which constrains flexibility and slows recovery from incidents. Slow line speeds and the number of foot crossings on certain lines, also impacts greatly on performance.

3.7.1 Settle – Carlisle

This route section has suffered from having a number of temporary speed restrictions in place; however these are being systematically removed by a long-term engineering solution over a five-year period. Animals on the line is a recurring issue and an extensive dry stone walling project has been undertaken to help this, particularly at the northern end.

3.7.2 Cumbrian Coast

Timetabling is a performance risk on this route section due to the tight turn rounds and the many request stop stations. Stock utilisation is high which constrains flexibility and slows recovery.

3.7.3 Ormskirk – Preston

Tight turn round times at Preston can cause performance issues on this section.

3.7.4 Roses line

Route crime is high on these route sections as stations are unstaffed and are in small towns and villages. Incidents of trespass and vandalism have a real impact on performance.

■ Clitheroe line

This route has tight timetabling when more than one train runs in the hour, either in the peaks or during diversions at Blackburn and Hellifield. This can cause delay which then transfers to other route sections in the RUS area.

■ Blackpool South (Preston) – Colne

This route section has poor performance due to tight turn round times at either end of the service in the morning peak

(four minutes), and by way of the many flat junctions and interactions with other services. This leaves no resilience from service problems or imported delay from other services. Services therefore tend to be terminated short of destination to help recovery. The single-line sections between Kirkham and Blackpool South and between Colne and Gannow Junction are constraints in their own right. In the peaks there is crowding at Preston, which can lead to station overtime.

■ **Blackpool North – Leeds/York**

This route section also has poor performance at times due to delay that is transferred from the Blackpool South branch. Time constraints at Leeds also import delay onto this service group. In the peaks there is crowding at Preston, which can lead to station overtime.

■ **Bolton – Blackburn**

This is a single line and can suffer with route crime problems particularly at Darwen, and in the peak is tightly timetabled at Darwen loop. This delay then compounds the situation on the Clitheroe line and at the flat junctions at Blackburn.

3.8 Current engineering access

A cyclical engineering access strategy for key junctions on the network was jointly developed by Railtrack, maintenance contractors, and train operators, some years ago. This strategy identified a programme of regular extended possessions which sought to ensure value for money and minimise overall disruption to train services. This possession strategy was centred on a series of large (in both geographic coverage and time span), cyclical access opportunities. The aim of this strategy was to provide the opportunity to undertake all major scheduled maintenance activity for the specific area on a regular, planned basis. This approach reduced the number of short, inefficient, but generally non-disruptive possessions. This pattern of possessions has

been reviewed on an annual basis since then and the concept has gradually been extended.

A cross-industry review of the engineering access strategy is currently under way, together with evaluation of the Seven-day railway concept being led within Network Rail by Operations and Customer Services and which is intended to be gradually implemented, where appropriate, until 2014. The outcome of these evaluations may result in alterations to the current maintenance and renewals plans. In the meantime the current strategy has resulted in an evolving engineering access regime that matches existing engineering requirements as closely as possible. There are a few locations where there is continued pressure on the access available, notably around some junctions or routes for empty stocks for the first or after the last services of the day. In these cases, engineering needs must be balanced with train diagramming demands and start-of-service performance. The normal service patterns allow, in most cases, for adequate maintenance and renewal access with suitable shift lengths available at weekend and midweek. The one notable exception to this, is the difficulty gaining sufficient engineering access to the Settle and Carlisle route, where a midweek cycle of longer maintenance access is necessary. With normal service levels and increased freight service requirements on this route with conflicting critical periods of peak demand to the passenger operators, together with the route being a normal diversionary route for works on the East and West Coast Main Lines, access for renewals and critical junction maintenance is a concern. Any strategy ultimately agreed, must be designed as part of a strategy with the East Coast Main Line and West Coast Main Line routes.

Figure 3.18 – Standard engineering access

Route section	Details	Weekend hours*	Sun/Mon*	Midweek*	Comments: *Most restrictive hours used
Cumbrian Coast	Carlisle – Whitehaven	13+ hrs	7hrs	6hrs 40	excludes Carlisle South
	Whitehaven – Sellafield	34hrs	weekend	10hrs 20	
	Sellafield – Barrow-in-Furness	31hrs	weekend	7hrs	
	Barrow-in-Furness – Carnforth	9hrs 40	3hrs 45	4hrs 55 all lines, 6hrs 15 down and 4 hrs 55 up	
	Dalton Loop (Dalton Jn – Park South Jn)	32hrs	n/a	8hrs 15	
Settle – Carlisle	Line from Skipton to Carlisle	11hrs 55	8hrs 10	7hrs 55	
Roses line	(Preston) – Farrington Curve Jn – Blackburn – Hall Royd Jn	7hrs 40	4hrs 45	3hrs 45 any week or 6 hrs 10, 9 weeks per annum	
	Blackburn (Daisyfield Jn) – Hellifield	9hrs 30	7hrs 10	4hrs any week or 6hrs 45, 9 weeks per annum	
	Farrington Curve Jn – Lostock Hall Jn	7hrs 40	8hrs	4hrs any week or 6hrs 40, 9 weeks per annum	
	Gannow Jn – Colne (this section is designated as a community rail line and service)	9hrs 20	5hrs	5hrs any week or 5hrs 40, 9 weeks per annum	
Ormskirk – Preston	Ormskirk – Farrington Curve Jn – (Preston)	32hrs	weekend	8hrs 10	
Branch lines	Windermere Branch (designated a Community Rail line)	11hrs 30	8hrs	6hrs 45	
	Carnforth - Skipton Jn	13hrs	8hrs 45	9hrs 45	
	(Lancaster) – Morecambe South Jn – Morecambe	13hrs	8hrs	6hrs 45	
	Morecambe – Heysham	32hrs	weekend	6hrs 45	Winter
		13hrs	8hrs		Summer
Hest Bank Jn – Morecambe (Bare Lane)	13hrs	7hrs	6hrs 45		
Miscellaneous	London Road Jn – Carlisle South Jn	10hrs 45	6hrs 45	NO POSSESSIONS	
	London Road Jn – Currock Jn	15hrs	4hrs 25	6hrs 45	Winter
				4hrs 40	Summer
	London Road Jn – Upperby Jn	18hrs	6hrs 45	BY SPECIAL ARRANGEMENT	
	Upperby Jn – Bog Jn	17hrs 15	6hrs 45	8hrs 45	
Preston station – Platforms 1 and 2 only	BY SPECIAL ARRANGEMENT				

3.9 Summary of generic gaps

The following gaps were identified during the analysis of the baseline data:

3.9.1 Inter/intra-regional links are typically poor (Regional Links)

A comparison of service patterns, frequencies and generalised journey times between urban centres in the Lancashire and Cumbria area are weak when compared with links between other centres in the North West region.

The RSS and the RPA both aspire to strengthen inter- and intra-regional flows between the city regions. Logically this means improving the generalised journey time by way of increased frequencies or faster journey times. In addition, links between other centres will be considered. In terms of Lancashire and Cumbria the centres and city regions being included for analysis can be seen in Figure 3.9.

3.9.2 The rail service is unattractive to commuters (Commuter Demand)

The importance of the rail network for supporting local communities in accessing places of employment is recognised as a key factor in this RUS. Sustainable economic growth will only be achievable with an efficient and accessible transport infrastructure. The issues associated with using the railway to commute to work are:

- localised crowding
- unsatisfactory service pattern/frequency
- uncompetitive journey time, especially where connections are required
- lack of car parking
- lack of through services between certain destinations
- lack of suitable interchanges with other modes
- imbalance between morning and evening commuter services.

The destinations that have been investigated are:

- Carlisle
- Lancaster
- Preston
- Barrow-in-Furness
- Blackburn
- Sellafield
- Manchester
- Leeds

3.9.3 Rail may be able to play a bigger role in alleviating social deprivation (Social Deprivation)

This gap relates to the need within the RUS area for sustained regeneration and economic growth, and the role that rail could play in accessing educational opportunities, services and leisure amenities. The areas of social deprivation identified are:

- West Cumbria, ie. journeys to Sellafield from the north, and to Carlisle
- Burnley/Nelson/Colne, ie. journeys to York, Leeds, Manchester and Blackburn
- Settle and Carlisle line in North Yorkshire, ie. journeys to Carlisle, Leeds, Blackburn and Manchester.

It is recognised that rail industry business cases are not necessarily aligned to tackling social deprivation. However, there may be an opportunity to exploit other funding sources from agencies that carry a responsibility in this area.

3.9.4 Rail services are not well integrated with the local tourism market (Tourism)

Currently rail is not providing a sufficiently attractive alternative to other modes of transport for accessing tourist destinations.

It was identified in the stakeholder sub-group discussions that rail currently accounts for a low percentage of journeys made to key tourist destinations in the RUS area in comparison with other modes. Reasons identified as contributing factors are:

- distance of station from tourist destination
- poor connections/interchange with other modes
- times of first and last trains
- low service frequency
- poor Sunday service/effect of engineering works
- lengthy journey time
- poor facilities at stations
- limited capability of services able to carry cycles.

Where a station is within easy walking distance of an attraction, this improves the prospect of rail increasing the travel market share.

Where the station is not near the attraction, rail clearly needs to connect with other modes of transport, especially buses.

Particular areas where rail could provide improvements to the above factors were identified as Windermere, Grange-Over-Sands, Ravenglass, Martin Mere, Carnforth, Sellafield, St Bees, Carlisle, Morecambe, Silverdale, the Settle – Carlisle route and access to the Yorkshire Dales, but many individual stations across the route serve individual places of interest.

3.9.5 The capability of the network in some areas constrains service improvements and future needs (Inadequate Infrastructure)

■ Inappropriate speeds

There are locations where there are historical speed restrictions for most of the RUS area junctions.

For most of the RUS area, the line speed is lower than the capability of the rolling stock operating over it.

Most of the junctions on the RUS area have relatively slow speeds.

Across the RUS area there are historic speed restrictions with large impacts.

■ Inappropriate RA and gauge

Most of the route has basic capability for axle loads and loading gauge reducing the opportunity for new traffic. This has to be viewed in the context of all of the routes between Scotland and England and the required capabilities of each.

■ Capacity pinch points, and inefficient utilisation

There are single-line sections and single-lead junctions which can have a significant effect on capacity and performance

There are sections where the mix of fast and slow traffic restricts overall capacity.

■ Route not suitable for the cumulative tonnage expected to traverse it

There are some sections of line where recent plans to re-route traffic means that remedial work has to be carried out on track, signalling and structures.

Future re-routeings of a similar nature on other sections would also lead to a requirement to carry out remedial work.

3.9.6 Performance of a number of train services is poor (Train Performance)

There is high stock utilisation arising from tight turn rounds on several sections of the RUS network. This makes recovery from disruption difficult, and often leads to part cancellations. Significant amongst these are the Colne – Blackpool South service and to a lesser degree the Ormskirk – Preston and Carlisle – Whitehaven services.

There are long signalling sections and long single-line sections where a late running train will impact on the next train due into the section. Examples of these long sections are Settle – Carlisle, Blackburn – Hellifield and between Maryport and Wigton. Single-line sections that impact on performance are the Colne Branch, the Blackpool South Branch and between Sellafield and Whitehaven.

At some locations there is no opportunity to separate services, especially at flat junctions. The interaction of the Blackpool South – Colne service with the Blackpool North – Leeds service along the whole length of the Roses line and the interaction of passenger and loaded coal trains along the length of the Settle and Carlisle line are the worst examples of this. There are other small-scale interactions in the Blackburn area and at Preston Platforms 1 and 2 where multiple services are crossing one another and trying to use the same platforms.

3.9.7 Interchange facilities are not fit for purpose (Interchange):

Much of the route serves as a feeder to the main line network. Interchange between the local services and the main line is currently inadequate, both in terms of timetabling and station facilities. Analysis of this gap concentrated on the need to make connections work in every hour from a timetabling perspective. In addition, the facilities at those stations currently used for interchange have been considered and found to fall short of the travelling public's reasonable requirements.



4. Planned and proposed schemes

4.1 Introduction

4.1.1

This chapter describes the major railway enhancement and renewal schemes which are either planned (committed schemes) or proposed (uncommitted schemes) within the forecasting horizon of the RUS.

4.1.2

Where schemes are committed, this RUS takes them as given and they therefore form part of the baseline. If schemes are not committed, the RUS cannot assume that they will take place. Instead, the RUS will only consider what effect implementation of

such projects might have on the strategic recommendations the RUS proposes.

It should be noted that established RUSs remain live documents, and they will be reviewed and, if necessary, updated whenever significant changes in circumstances arise – such as when a major proposed project becomes committed.

4.2 Committed enhancement schemes

4.2.1

The following are the major committed schemes (see Table 4.1) affecting the RUS:

Table 4.1 – Committed enhancement schemes

Project	Main promoter	Implication for RUS	Stage of development
Anglo Scottish coal – Gretna – Annan doubling	Network Rail	Provision of track and signalling changes for full redoubling of the section of route between Gretna and Annan. This will increase capacity on the sections and accommodate future coal traffic being transported by rail from Hunterston port and Ayrshire opencast collieries to power stations in England (principally the Aire Valley) via the Glasgow & South Western (G&SW) and the Settle and Carlisle (S&C) routes.	Completed in August 2008.
Anglo Scottish coal – provision of Intermediate Block Signals on the Settle and Carlisle line	Network Rail	Splitting the block sections by installing Intermediate Block Signals at Long Meg, Arnside, Crosby Garrett, Mallerstang, Ais Gill and Horton in Ribblesdale will reduce the coal train headways to less than 15 minutes. This work will address Freight RUS Capacity Gap 2.	At Grip stage 5 – 6. Installation of eight new IB Signals on the S&C has been authorised and all are targeted for December 2008. Demonstrating the safety case for the new Siemens axle counters will determine the next stage of development for the project.
East Lancs small stations scheme	Third party	Improved station facilities along the East Lancs line.	GRIP stage 5, to be completed in 2008.



Project	Main promoter	Implication for RUS	Stage of development
Blackburn to Hellifield capacity improvements	Network Rail	Track, signalling, structures and earthworks will increase capacity, accommodate rerouted traffic from the WCML and future freight traffic, reduce passenger journey time and deliver performance benefits. This work, along with the IBs on the Settle and Carlisle line will address Freight RUS Capacity Gap 4.	<ul style="list-style-type: none"> ■ At GRIP stage 4: Intermediate Block Signal locations have been finalised in each direction at Langho. Implementation is planned by December 2008. ■ The amendments to Horrocksford Signal Box are currently at GRIP stage 6. ■ 10 miles of plain line renewal is authorised and planned in the 2008/09 workbank (GRIP stage 6). ■ Plans for drainage and fencing work are currently being worked up and prepared for authorisation.
Oxenholme car park expansion	Virgin West Coast Trains Limited	Creation of additional spaces at Oxenholme, as part of a national car park expansion programme.	Being progressed, currently at GRIP stage 4.
Barrow-in-Furness - station improvements	Network Rail (Access for All), supported by the DfT	Installation of lifts as part of the Access for All programme	At GRIP stage 4, to be completed in 2008/09.
Metrolink on Oldham Loop	Metrolink	Initially the separation of Oldham Loop services from through working, and eventually transfer to Metrolink operation	Timetabled separation of services, assumed to happen within early years of the RUS.
Nelson Interchange	Third party	Creation of new bus and rail interchange	At GRIP stage 4, to be completed in 2008.

4.3 Proposed enhancement schemes

4.3.1

The following are the uncommitted schemes (see Table 4.2) which, if implemented, would have a significant impact within the RUS area:

Project	Main promoter	Operational output	Stage of development
West Cumbria Transport Interchange	Cumbria County Council	Creation of new bus/rail interchanges at Workington, Maryport and Whitehaven, and potentially Wigton.	Proposals currently being developed. Currently at GRIP stage 2.
Burnley station improvements	Third party	Station improvements works to Burnley Manchester Road and Burnley Central stations.	Proposals currently being developed. GRIP stage 2.
Ormskirk station improvements	Lancashire County Council	Provision of improved station facilities, including refurbishing the ticket office, platform canopy refurbishment, developing retail opportunities in the station building and providing CCTV, Public Address and CIS.	Project authorised for GRIP stages 6-8, works due to start on site early autumn 2008 with proposed completion early summer 2009.
Hellifield loop extension	Network Rail	Lengthening loop to accommodate longer freight services to improve capacity	In GRIP stage 1, in early stage of development.
National Station Improvements Programme	Network Rail, supported by DfT and third party	The scope for stations within the RUS area currently includes: Barrow: refurbish booking hall, toilets Burnside: better waiting facilities Kendal: better waiting facilities Staveley: better waiting facilities Windermere: additional summer waiting shelter Arnside: car park improvements and access Ulverston: create refreshment point and waiting facility Accrington: Proposed new waiting shelters, new platform surfacing, painting, repairs to footbridge Burnley Central: improved waiting facilities Burnley Barracks: improved waiting facilities	At early stage of development, within the management of a local delivery group.
Access for All	Network Rail, supported by DfT and third party	Carlisle: lift access to platforms 1, 2 and 3. Blackburn: lift access to Platform 4	In GRIP stage 1, in early stage of development.

Project	Main promoter	Operational output	Stage of development
South Cumbria Line speed increases	Network Rail	Improve speeds for fast and semi-fast services to deliver shorter journey times, increased patronage and better unit utilisation between Barrow and Carnforth.	In early stage of development, to be considered as part of the renewals programme.
Kirkby Thore Line speed increases	Network Rail	Enhanced structures renewal will strengthen embankment, remove structures in poor condition, provide ground treatment and reinstate conventional ballasted track. These works will enable the reduction or removal of current PSRs, deliver increased line speed and increased flexibility within the timetable.	In early stage of development.
Cumbria platform extensions	Network Rail	Extension of short platforms will enable the running of longer trains, increase capacity and improve operational performance (between Barrow – Sellafield).	In early stage of development.
Roses line speed increases	Network Rail	Improve speeds between Gannow Jn and Hall Royd Jn to deliver shorter journey times, increased patronage and better unit utilisation.	In early stage of development.
Freight enhancements	Third Party/ Network Rail	Enhancement to increase the freight handling facilities at Drigg, through the creation of an additional siding.	In early stage of development.
HLOS enhancements	ACR 2008	Increase the length of peak trains on the Blackburn – Bolton Corridor including trains to Clitheroe, with any associated platform lengthening	Included in Strategic Business Plan submission, details are subject to further discussions with industry partners.
Preston bay platform	Network Rail	Conversion of the existing engine siding into a bay platform to improve performance and increase capacity at Preston.	Currently under consideration.

4.4 Infrastructure renewal schemes

4.4.1

Table 4.3 lists the major planned infrastructure renewal projects within the RUS area. The timing of renewal projects is important as they represent the best opportunity to include any enhancements within the scope of the project.

4.4.2

A detailed list of planned infrastructure schemes can be found on Network Rail's website www.networkrail.co.uk by following the link headed "Business Plan 2008", and then opening the relevant Route Plan (Route 23).

Table 4.3 – Infrastructure renewal schemes

Project	Main promoter	Operational output	Stage of development
Workington signalling renewals	Rationalise track and signalling from Whitehaven, potentially as far as Wigton. Control is expected to migrate into a single point at Maryport.	Reduced maintenance and operating costs, and increased capacity. The remodelling of Workington and Maryport stations will be in line with local authority transport interchange aspirations. There are potential line speed and headway improvements associated with this work, and possible provision of a second platform at Maryport.	Planned for 2015 implementation. Currently in early stage of development.
Barrow signalling renewals	Rationalise track and signalling in the Barrow area. Control is expected to migrate into a single control point in the Barrow area.	Reduced maintenance and operating costs, improved headways, improved speeds and increased capacity. There are potential line speed and headway improvements associated with this work.	Planned for 2014 implementation. Currently in early stage of development.
Dalston crossovers	Renew points and crossovers.	Spacing the crossovers further apart would allow freight trains to work in two portions rather than three, thus improving performance.	Planned for 2011.

4.5 Summary of gaps identified

4.5.1

The schemes listed in this chapter highlight the following gaps:

- Inadequate Infrastructure: the capability of the network in some areas constrains service improvements and future needs.
- Interchange: interchange facilities are not fit for purpose.

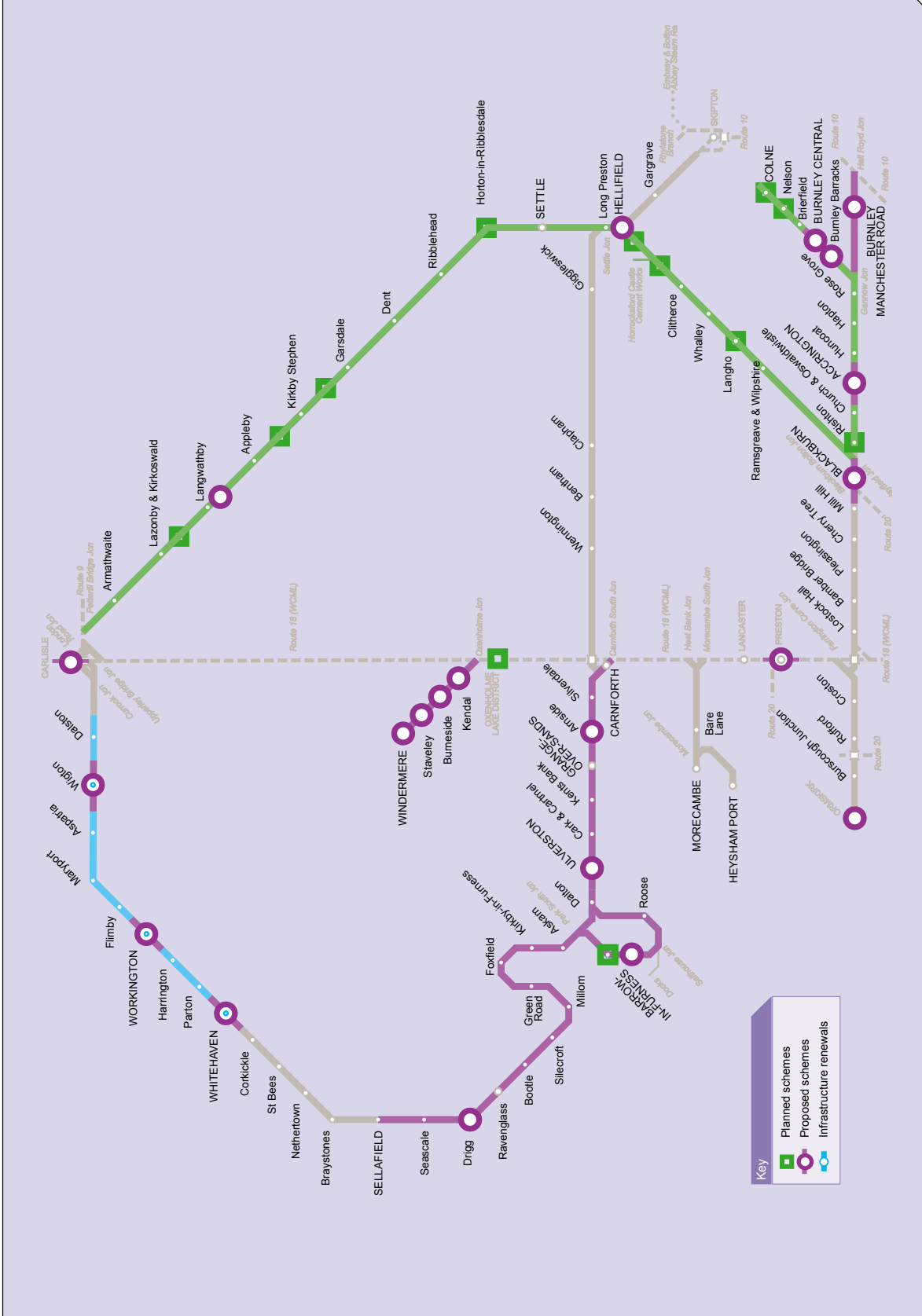
- Train Performance: performance of a number of train services is poor.

4.6 Summary of schemes

4.6.1

Figure 4.1 maps all enhancements and renewal schemes (planned and proposed), within the timeframe of the RUS.

Figure 4.1 – Enhancements and renewals schemes (committed and planned prior to 2018)



5. Drivers of change

5.1 Strategic context

The Lancashire and Cumbria RUS has a wide geographic spread and a diverse mix of demographics. The area includes prosperous sub-regional economic centres, economically deprived communities, self-contained rural lines and conurbations with very little rail service provision. Understanding the role that the railway has in the economic and social wellbeing of the range of communities in the RUS area is key to identifying the optimal mix of rail service provision and infrastructure investment.

5.1.1 Cumbrian Coast

The Cumbrian Coast route section is geographically isolated from the rest of the RUS area. The local economy is largely self-sufficient. Two of the major sources of employment and economic activity on the Cumbrian Coast are tourism and the nuclear energy sector based at Sellafield. The continued success of both industries requires good accessibility and mobility of people. A nuclear academy is being constructed near Workington, which is expected to cater for 250 students, and the University of Cumbria is being created out of existing colleges and the Cumbrian campuses of the University of Central Lancashire.

5.1.2 Settle – Carlisle

Similarly to the Cumbrian Coast, the majority of the Settle – Carlisle route section is isolated from the rest of the RUS area. The main sources of economic activity are the larger settlements of Carlisle and Leeds at either end of the route, and Skipton in the centre. Outside of the main centres, tourism is an important source of employment. A good quality transport infrastructure is fundamental to the continued wellbeing of the local economy.

5.1.3 Roses line (Pennine Lancashire)

The decline of the manufacturing industry in the late 20th century damaged the economy of Pennine Lancashire and resulted in higher than average unemployment and social deprivation. Over the last decade local and regional funding authorities have launched a strategy to reverse this trend based on promoting and funding high value tertiary industries, predominantly in towns on the M65 corridor such as Blackburn, Accrington, Burnley and Colne. Stakeholders view improved rail service provision as essential to sustaining economic growth through improved sub-regional accessibility, as well as improved links to the major regional economic centres in Manchester and Leeds.

5.1.4 Ormskirk – Preston (South Lancashire)

The Ormskirk – Preston route section comprises a number of small and medium sized towns and villages in between the major conurbations and economic centres of Liverpool, Preston and Southport. Although there is a sizeable amount of economic activity within the smaller settlements, the majority of economically active residents are employed in one of the three major centres. The transport infrastructure has an important role in the mobility of labour from South Lancashire to the main centres, as well as maintaining effective inter-regional links. Currently, rail services and infrastructure are predominantly aimed at providing good links to Liverpool.

5.1.5 Branch lines

This is a collection of lines grouped together for presentation purposes. Each location has a specific set of economic issues.



5.2 Forecast passenger growth

5.2.1 Background

Future rail passenger demand has been forecast for the period to 2017/18. The forecast was produced using a bespoke demand model based on the forecasting framework published in Passenger Demand Forecasting Handbook (PDFH) 4.1. This is an industry standard framework for modelling underlying growth and includes global factors such as GDP, employment, population, fuel costs and rail fares policy.

The model uses 2005/06 LENNON (rail) ticket sales data. This was the most recent available data when forecasts were produced and the forecasts have been sense-checked with the 2006/07 LENNON data published subsequently. Given the geographic scope of the RUS there is no requirement to estimate travel using PTE products.

Evidence from previous Route Utilisation Strategies suggests that the PDFH framework can understate recent acceleration in passenger growth experienced in some urban and inter-urban rail markets outside of London. To account for this, forecast growth for trips between the RUS area and the rest of the North West are based on work from the North West RUS. There is no evidence that PDFH will understate passenger growth in the rest of the Lancashire and Cumbria RUS area and as such there is no requirement for any additional demand overlays.

Following consultation it was agreed that development of a single “central” scenario was appropriate for the RUS as stakeholders are confident that the forecasting model provides an accurate representation of future demand in the area.

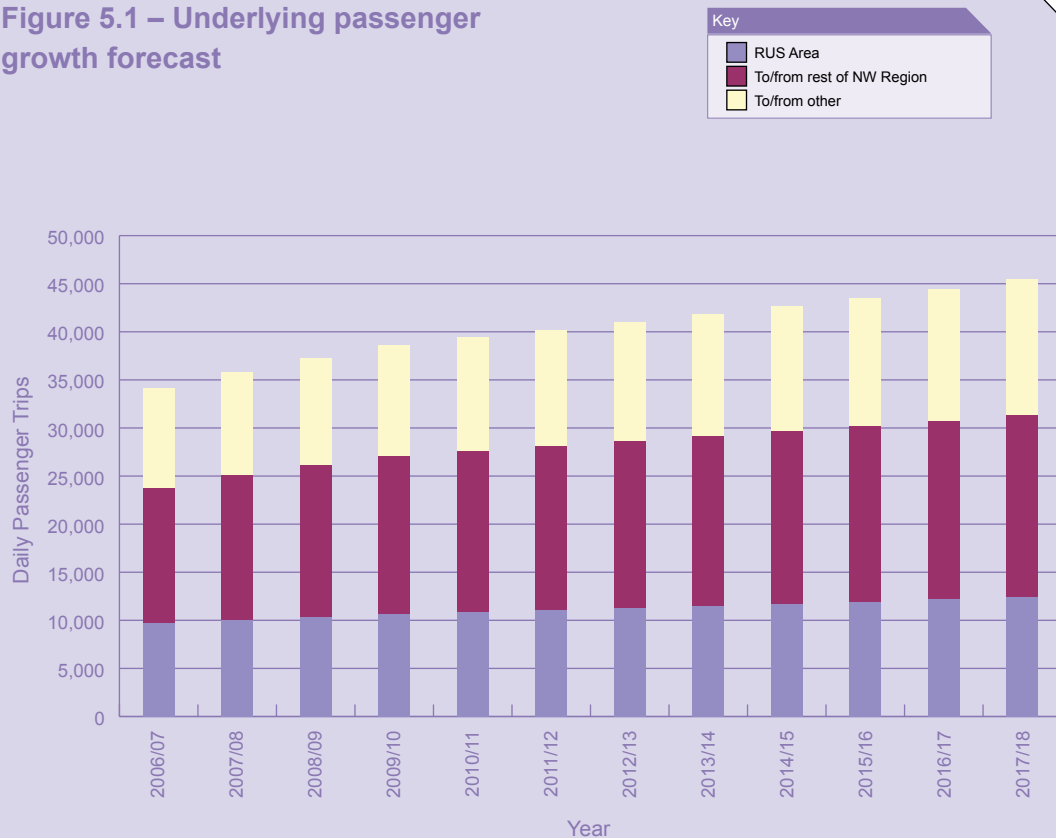
At a global level the potential variability in future drivers of demand will not materially alter the mix of enhancements recommended in the RUS; however, there was a requirement to take the demand impact of specific local factors into account, where smaller scale interventions are designed to address some of the local self-contained gaps that exist in a diverse RUS area such as Lancashire and Cumbria.

5.2.2 Overall growth forecasts

Over the 11-year period to 2017/18 passenger demand is expected to grow by approximately 40 percent, which is an average of around 2.8 percent per annum.

Figure 5.1 illustrates the growth forecast split by flows within the RUS area, within the Region (excluding the RUS area) and outside of the Region. The highest passenger growth is expected to occur on routes between the RUS area and the rest of the North West region at around 3.2 percent per annum, with particularly high growth expected over the first three years of the forecast. This reflects high recent passenger growth on routes into Manchester and Liverpool. Forecast growth in passenger trips between stations within the RUS area and from stations outside of the region is slightly lower at 2.4 percent and 2.9 percent per annum, respectively.

Figure 5.1 – Underlying passenger growth forecast



5.2.3 Growth forecast by route section

Figure 5.2 illustrates the total passenger growth forecast split by the route sections detailed in the baseline chapter.

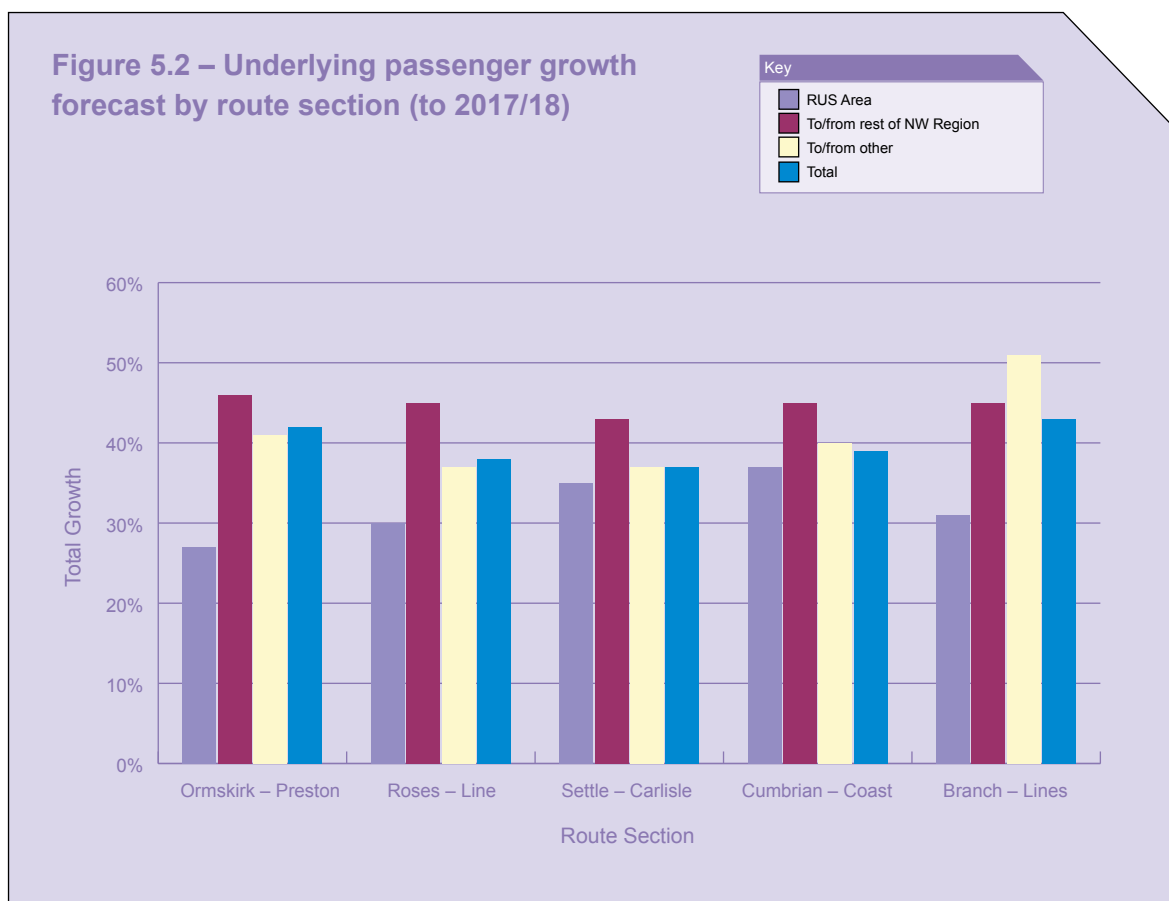
Passenger numbers on the Ormskirk – Preston route section are forecast to increase by 42 percent by 2017/18, which is equivalent to around 3 percent per annum. This is slightly higher than the average for the whole RUS area, largely as a result of increase in demand for trips to and from Merseyside.

By the end of the RUS period, passenger numbers are expected to have increased by 38 percent on the Roses route section, this equates to approximately 2.7 percent per year. This is marginally lower than the average for the RUS area. Similarly to the Ormskirk – Preston section, the highest growth is expected to occur in trips between the RUS area and the nearby regional economic centre, in this case Manchester.

The total projected growth on the Settle and Carlisle line is approximately 37 percent, which is equivalent to 2.7 percent per annum. Unlike route sections to the south of the RUS area, the growth rates for trips between stations within the RUS area and between the RUS area and the North West region are relatively similar.

Forecast growth for the Cumbrian Coast route section is around 39 percent by 2017/18, this equates to 2.8 percent per year. Similarly to the Settle and Carlisle line, the difference between growth in trips within the RUS area and trips to and from the North West region is significantly less than for route sections further south.

Figure 5.2 – Underlying passenger growth forecast by route section (to 2017/18)



5.3 Forecast freight growth

There are two main drivers of freight growth in the period to 2017/18. These are UK energy policies which determine the amount of coal used for power stations, and the growth of containerised traffic between ports and intermodal terminals in England and Scotland.

Significant freight growth is expected in the RUS area, particularly through Carlisle station and on the Settle and Carlisle line. The Freight RUS central scenario indicated that an additional five to ten trains per day in each direction are expected at Carlisle station by 2014/15, of which 25 percent has already occurred. An additional two trains per day in each direction are also expected to use the Settle and Carlisle line by 2014/15. A further four trains per day in each direction are required to transfer from the WCML to the Settle and Carlisle Line by 2008.

5.4 Future gaps

5.4.1 Passenger demand

The continued projected increase in the demand for travel by rail is a key factor behind a number of the gaps identified in the Baseline chapter.

Historically, the level of rail infrastructure and service provision in the RUS area has been adequate for inter- and intra-regional passenger markets. However, significant and sustained demand growth means that new journey opportunities and an increased frequency of services are now required to meet the needs of the 21st century rail market in Lancashire and Cumbria. Historically, delivering rail enhancements in less heavily used parts of the network involved a significant investment per passenger. This still remains true in some areas, where levels of patronage are still insufficient to justify step-change alterations to infrastructure, but in others, demand growth means that this is no longer

the case, and a number of projects have the potential to deliver tangible economic benefits and meet government value for money criteria.

Travel to and from work by rail is one of the fastest growing market segments nationally and within urban locations in the RUS area, and this trend is expected to continue over the period to 2017/18. A consequence of increased commuter demand is that additional services may be required to link conurbations with historically poor rail links to major economic centres. Furthermore, the most intensively used rail services are already operating at or beyond capacity and cannot accommodate further growth. Examples of this include the route from Blackburn to Manchester as well as Sellafield services.

Demand growth highlights the mixed usage of the passenger railway in the RUS area and emphasises the potential that the railway has to deliver socio-economic benefits that are not always associated with rail investment. Reduced social deprivation through greater accessibility to key services and improved access to tourism are important gaps for the RUS. Whilst the level of underlying passenger growth does not always guarantee that enhancements deliver the minimum DfT value for money requirement, it does help the rail industry and wider stakeholders understand the full impact of options in the RUS.

Demand growth will have a knock-on effect on the number of passengers interchanging at stations in Lancashire and Cumbria, as a number of the major stations do not have bespoke interchange facilities. As passenger numbers increase, the facilities will become capacity constrained, and investment will increasingly be required.

5.4.2 Freight demand

Additional freight paths may be constrained by capacity pinch points on the network. Many of those on the Settle and Carlisle, and Blackburn and Hellifield lines will be addressed within CP3, but others will remain, particularly Carlisle station. Stakeholders have

been consulted to understand the level of infrastructure investment required to facilitate freight demand, and to ensure that the RUS fits with the committed major infrastructure upgrade on the Settle and Carlisle line.

Given the high capacity utilisation on a number of sections on the network, growth in freight traffic and increased passenger services are competing for a scarce resource. Where necessary the RUS has helped the industry understand the relative economic benefits of increased freight and passenger services, and made recommendations on the optimal mix of investment.

The demands of timetabling the passenger services on the WCML (and addressing Freight RUS Gap 4) have led to some of the freight services being re-routed off the WCML and onto the Settle and Carlisle line via Hellifield and Blackburn. This makes the Settle and Carlisle line sensitive to variations in traffic flow not only between Ayrshire and Yorkshire but also between Ayrshire and the North West and West Midlands.



6. Gaps and options

6.1 Introduction

Previous chapters have outlined the scope of the RUS by presenting the baseline assessment of the study area, and summarising the role of rail in the economic and social well being of Lancashire and Cumbria. This analysis has demonstrated that there are several instances where the current rail network is not able to meet existing and future requirements; these are termed “gaps”.

This chapter presents an analysis of the RUS gaps and the series of options that were developed for the Draft for Consultation. Full details of the option assessments are contained in Appendix B.

The opportunity has been taken, in parallel with the progress of this RUS, to develop the December 2008 timetable to include changes which, in whole or in part, address some of the gaps identified in the baseline process. This has resulted in some of the recommendations included in this chapter no longer having an acceptable business case. An amended list of recommendations being made by this RUS is included in Chapter 8, Strategy.

6.2 Generic gaps

For reference, Table 6.1 details the list of high-level gaps that were identified in the baseline assessment. These gaps are generic to the whole RUS area.

6.2.1 Inter/intra-regional links are typically poor (Regional Links):

Rail links between some of the main conurbations in the RUS area and other sizeable destinations in the North West and other regions are poor relative to other parts of the UK network. Specific problems include infrequent services, short operating days and a lack of direct journey opportunities.

6.2.2 The rail service is unattractive to commuters (Commuter Demand):

There are a number of areas where the potential commuter market may not be fully realised. There are several reasons for this, including: lack of direct rail services; infrequent or poorly timed services including last trains too early to provide a reliable return journey; slow journey times; insufficient on-train capacity; lack of car parking provision; and poor accessibility of railway stations.

Table 6.1 – Generic RUS gaps

Number	Gap
1	Inter/intra-regional links are typically poor (Regional Links)
2	The rail service is unattractive to commuters (Commuter Demand)
3	Rail may be able to play a bigger role in alleviating social deprivation (Social Deprivation)
4	Rail services are not well-integrated with the local tourism market (Tourism)
5	The capability of the network in some areas constrains service improvements and future needs (Inadequate Infrastructure)
6	Performance of a number of train services is poor (Train Performance)
7	Interchange facilities are not fit for purpose (Interchange)



6.2.3 Rail may be able to play a bigger role in alleviating social deprivation

(Social Deprivation):

The most deprived areas in the RUS area, as well as nationally, have low levels of rail patronage per head of population. A number of deprived communities on the route have an infrequent rail service to a limited number of destinations, as the potential for a sizeable rail market is unclear. This means that the accessibility of key social infrastructure and major economic centres is often poorer than in other parts of the RUS area.

6.2.4 Rail services are not well-integrated with the local tourism market

(Tourism):

In conjunction with colleagues at Passenger Focus, the RUS has identified the main tourist markets and attractions on the route. Despite a number of these being situated in close proximity to a railway station, they are largely on lightly used parts of the route where rail services are often infrequent and not on a regular interval. As a consequence, services are not always attractive to tourists, particularly at popular times such as weekends.

6.2.5 The capability of the network in some areas constrains service improvements and future needs

(Inadequate Infrastructure):

Slow line speeds and permanent speed restrictions are spread throughout the route and are a serious constraint to improved journey times, increased service frequencies and better train performance. In many instances the constraint on improvement is infrastructure capability rather than rolling stock capability. Some of these restrictions are freight specific, or load specific.

Parts of the RUS area have restrictive loading gauge clearance, which reduces the suitability of lines as diversionary routes for the WCML.

Key capacity pinch-points on the network such as single-lead junctions, single-line sections and long signal sections, make increasing the frequency of the passenger and freight services difficult and expensive. Carlisle has a rather restrictive layout, and is the point where West Coast traffic and Ayrshire to Yorkshire/Midlands coal traffic interact and is hence a significant constraint on capacity.

On certain route sections, regular and lengthy possessions for maintenance and renewals are required to keep the infrastructure fit for purpose. This can be disruptive to passenger and freight operations.

6.2.6 Performance of a number of train services is poor

(Train Performance):

Similar to the previous gap, parts of the network exhibit poor train performance. This can be a result of outdated or inadequate rail infrastructure, particularly on longer-distance service groups with frequent stopping patterns, or from timetables with historically tight turnarounds as a result of high unit optimisation.

6.2.7 Interchange facilities are not fit for purpose

(Interchange):

Significant levels of investment have been made to interchange facilities at some locations in the RUS area, however there are still several key stations with poor interchange facilities. These stations are experiencing increased numbers of passengers wishing to interchange and this can lead to specific problems such as platform crowding and long transfer times between platforms. In addition, car parking, bus interchange facilities, waiting facilities or even just information about local bus services are insufficient, and this is a deterrent to passengers travelling by train even when the other gaps are addressed.

The interchange time between services can be

sufficiently long as to deter passengers from making the journey by train.

6.3 Relationships with other RUSs

The Lancashire and Cumbria RUS area is bisected by the West Coast Main Line and adjoins the areas covered by the North West, East Coast Main Line, Yorkshire and Humber, and Merseyside RUSs. It is also covered by the Freight RUS (which is established) and the Network RUS which is underway. The normal policy on gaps that straddle more than one RUS is to assign these gaps to the most appropriate RUS (or, where such a decision is arbitrary, the aim is to ensure these gaps unambiguously have a home in one of the RUSs). Another complication relates to the RUSs having different development timescales, which means that sometimes earlier RUSs can only initiate analysis and the task needs to be passed to a later RUS for completion.

Instances where the Lancashire and Cumbria RUS interact with other RUSs in this way are highlighted in the text. The dominant interaction is with the WCML, and the West Coast Main Line RUS is not scheduled to commence until later this year. By way of example, the strongest driver for gauge requirements of the Settle and Carlisle line is related to West Coast performance and maintenance needs, and hence this will be tackled in the West Coast Main Line RUS.

In the meantime, the improved frequency and regular pattern of the West Coast December 2008 timetable provides a strategic platform on which to build options for this RUS. However, detailed timetabling work may need to be done in some cases as the timetable becomes available to validate the practicality of certain options.

6.4 Geographical split

The diverse demographic split and wide geographic spread of the RUS area means that the mix of gaps differs by individual sections of the route, and that the sections of routes are relatively independent of each other, such that a selection of option for one has in most cases no effect on options or selections for others. On this basis the route sections have been considered individually. For convenience the geographical summary identified in the baseline assessment has been reproduced below in Table 6.2 and it has been this that has been used to divide up options. In general the route sections are self-contained rail markets with a bespoke set of issues. The main exception to this is the Roses line (Pennine Lancashire) route section which has a mixture of local stopping services, inter-regional services between Lancashire and West Yorkshire, and Greater Manchester commuter services.

Table 6.2 – Generic RUS gaps

Serial	Route Section	Details
C	Cumbrian Coast	Carlisle – Whitehaven Whitehaven – Sellafield Sellafield – Barrow-in-Furness Barrow-in-Furness to Carnforth (to Lancaster) Dalton Loop (Dalton Jn – Park South Jn)
S	Settle – Carlisle	Line from Skipton to Carlisle
R	Roses Line	(Preston) – Farington Curve Jn – Blackburn – Hall Royd Jn Blackburn - Hellifield Gannow Jn – Colne
OP	Ormskirk – Preston	Ormskirk – Farington Curve Jn – (Preston)

Serial	Route Section	Details
BL	Branch Lines	Windermere Branch (Lancaster) – Morecambe South Jn – Morecambe Morecambe – Heysham Hest Bank Jn – Morecambe Carnforth Station Jn – Settle Jn
MC	Miscellaneous	Carlisle Avoiding lines London Road Jn – Currock Jn London Road Jn – Upperby Jn Upperby Jn – Bog Jn Preston Station – Platforms 1 and 2 only Blackburn Station Carlisle Station Ormskirk Station

6.5 Geographic gap analysis and options

For simplicity, all the options detailed in this chapter are presented on a stand alone basis. In reality the strategy will comprise the implementation of a package of these interventions to make use of potential synergies in the economic benefits as well as economies of scale. Where appropriate, Benefit-Cost Ratios (BCRs) are reported for options which

indicate the value for money of each. DfT funding criteria permits recommendation for funding through the RUS process if the BCR is at least 1.5. The figures presented in this chapter result from high-level feasibility work (equivalent to GRIP 1), and represent the most likely value for money based on a range of key sensitivities. Value for money has not been quantified when an option is clearly inferior to another that is below the DfT funding threshold.

6.5.1 Cumbrian Coast gaps

Cumbrian Coast	
The main gaps identified are:	
Commuter Demand	Sellafield northbound am peak arrivals and southbound pm peak departures are operating at or beyond capacity, and cannot accommodate expected passenger growth.
Regional Links, Commuter Demand, Tourism, Social Deprivation	The Monday – Saturday rail timetable between Barrow-in-Furness and Carlisle is irregular. This means that at certain times of the day it is impractical to travel between stations on the Cumbrian Coast and beyond, including from the commuter market to the north of Sellafield. Provision of the current service has a high resource utilisation.
Regional Links, Commuter Demand, Tourism, Inadequate Infrastructure	There is an irregular service pattern between Sellafield and Whitehaven, which makes travel by rail impractical at certain times of the day.
Tourism, Regional Links, Social Deprivation	On Sundays there are only three train services in each direction between Carlisle and Whitehaven, and no services between Whitehaven and Barrow-in-Furness. This level of service is not attractive to passengers, particularly those wishing to travel to tourist sites on the Cumbrian Coast.
Train Performance	Tight turnaround times, particularly at Carlisle, are a regular source of delay to services. Long block sections and single-line sections can magnify the effects of poor performance.

6.5.2 Cumbrian Coast options

The options that have been developed to address these gaps are summarised below, and Table 6.3 details the options that have been considered.

Option C1 – Sellafield train lengthening

On-train crowding around Sellafield occurs on services that coincide with the start or end of staff shifts at the plant. This means that overcrowding is limited to a relatively narrow time period, and as a consequence train lengthening is more appropriate than an improved peak frequency. It is recommended that the two busiest services in each of the am and pm peaks are lengthened. This increases the peak rail capacity provision for the plant from approximately 400 to 700 passengers in both the morning and the evening, and represents the optimal investment of funding. The analysis assumed the same standard cost per metre of platform lengthening as used in other RUSs. It is recognised that the low platforms prevalent in this area may lead to a higher value in reality but that the BCR is robust against that. With the specific issues of low platforms, it could be that detailed analysis identifies that it may be more cost effective to run more trains rather than longer trains. It is assumed at this stage that this will not be the case. Given that the extra vehicles are only required for a short period of time it is viewed that the option will provide two additional units which can be used to help improve the timetable outside of the peak periods.

Option C2 – Sellafield from the north

A separate option looks at improving the service between Sellafield and conurbations to the north. Rail demand modelling tools do not deal well with single-employer sites with shift patterns, so it is hard to produce a formal business case. However, there are more Sellafield employees living to the north of the site compared with to the south, and the feeling is that intuitively a service at the right time to serve the shift patterns, would be fairly well filled. The analysis shows that, using the assumptions made, there is a justification for

an additional unit and crew to provide a peak service between Sellafield and Whitehaven and beyond.

Option C3 – Retimetable Carlisle – Barrow-in-Furness

Following an extensive high level timetabling exercise it is recommended that the Monday – Saturday timetable is rationalised to provide improved services from both Carlisle and Lancaster to Barrow-in-Furness, with good connections at Barrow-in-Furness and with the WCML December 2008 timetable at Carlisle and Lancaster. The work so far has been at high level drawing on the additional units justified by options C1 and C2, with a further additional three units and crews. It is recognised that the practicalities of the single-line sections, and ensuring the units are in the right places for both the morning and evening peaks at Sellafield may mean that the aspiration for a regular pattern may not be achievable in practice. It may also mean additional infrastructure might be required, or that there may be some gaps in the pattern. Similarly, if no additional units beyond those provided for lengthening were made available then there would definitely be gaps in the pattern. We have looked at two main options between Carlisle and Barrow. The first (Option C3a) – which we recommend – is to operate between Barrow and Carlisle on an hourly pattern. The second (Option C3b) is to enable the whole service to be on a pattern, in such a way that different sections see different frequencies of service: Carlisle – Whitehaven, half-hourly; Whitehaven – Sellafield, two-hourly; and Sellafield – Barrow, hourly. This is more difficult to achieve with the available units. It is more likely to have gaps in the pattern when properly timetabled, and would require improvements to headways between Maryport and Wigton to accommodate the pattern as well as freight trains. Furthermore it involves running more route miles, and potentially needs more crew than Option C3a. Consequently this option has a lower BCR than Option C3a, and hence it is not recommended.

Option C4 – Retimetable Barrow-in-Furness – Lancaster

Between Barrow and Lancaster we anticipate the recast of the service for the rest of the coast operated between TPE and Northern Rail to give a broadly hourly pattern. We anticipate a service that provides a train an hour from key stations and a train every other hour from other stations – ideally on a regular pattern. This is achieved broadly by retiming current services, and making best use of the move to a pattern service north of Barrow. This improved pattern of services between Carlisle and Barrow-in-Furness and between Barrow-in-Furness and Lancaster represents the optimal mix of journey opportunities including to and from Sellafield and the previously unserved peak commuter markets to the north¹. The new timetable would improve the utilisation of TOC resources, through more efficient train crew working and use of the additional units from the peak train lengthening. This combination of options will also improve train punctuality on the line by creating more robust turnrounds.

It was recognised that the timetabling of the Newcastle services is primarily driven by issues on the East Coast Main Line, and that it would be coincidence if good connections could be made between Cumbrian Coast services and both Newcastle and West Coast services. Given that, the case was examined to see whether the revised timetable should be designed to preferentially connect with Newcastle or West Coast services. It was identified that it is more beneficial to connect to West Coast services.

Option C5 – General infrastructure improvements

There may be opportunities – especially if combined with renewals – to enhance the infrastructure, to improve speeds or capacity for performance or journey time improvements.

It may be that some may turn out to be necessary for Option C3 but otherwise each item would be considered on its own merits.

Options C6 and C7 – Sunday services

Operation of an additional Sunday service in each direction between Carlisle and Whitehaven (Option C6) is recommended, as this can be achieved for virtually no additional cost if done within existing signal box opening times. After Workington resignalling, when the number of signal boxes from Carlisle to Whitehaven will reduce to one or two, extending the opening hours of the line on a Sunday should not destroy the case for an additional Sunday service even if outside the current hours. All other options to improve the Sunday timetable (Option C7) were found to have a value for money that is below the minimum threshold for DfT funding and hence cannot be recommended by the RUS. This was identified before any consideration was taken of having to open on a Sunday any of the signal boxes between Barrow and Whitehaven. It is recommended that local and regional stakeholders examine the case for funding further improvements to the Sunday timetable.

Options C8 and C9 – Specific infrastructure improvements

The long block section between Wigton and Maryport restricts capacity and timetabling options as well as magnifying delay. If splitting this long section is not necessary in order to operate the enhanced service on the Cumbrian Coast, it may still have a case from the point of view of performance enhancements. The need to split the tank train to Dalston into three portions increases the risk of delay. Splitting this train only into two portions, if the runround facilities were longer in length, would reduce that risk. It is recommended that both of these are explored as performance improvement opportunities within appropriate renewals schemes.

¹ This will require a small improvement to passenger waiting facilities at Sellafield station, and a subsequent review with Cumbria County Council is needed to assess the suitability of multi-modal facilities on the route such as bus services, rail/bus interchanges and car parks. The option for higher frequency services between Whitehaven and Carlisle may require the Workington resignalling scheme to carry out enhancements.

Table 6.3 – Cumbrian Coast options

Option	Description	Gap(s) addressed	Recommendation in RUS? (As at Draft for Consultation)	Benefit Cost Ratio (BCR)
C1	Barrow – Sellafield peak train lengthening: lengthen the two existing peak trains (in both peaks)	Commuter Demand	Include in strategy	3.2
C2	Whitehaven – Sellafield peak trains: provision of a peak train to serve Sellafield effectively to and from the north (in both peaks)	Commuter Demand	Include in strategy	Greater than 1.5
C3a	Using the additional stock from C1 and C2, improve the service between Carlisle and Barrow, with a potential hourly pattern.	Regional Links, Commuter Demand, Social Deprivation	Include in strategy, recognising that further development is required – alternative to C3b	1.7
C3b	Using the additional stock from C1 and C2, improve the service between Carlisle and Barrow, with a potential pattern of: half-hourly Carlisle – Whitehaven; hourly Barrow – Millom/ Sellafield; and two-hourly working through between Millom/Sellafield and Whitehaven	Regional Links, Commuter Demand, Social Deprivation	Do not include in strategy – alternative to C3a	0.8
C4	With Option C3a make best use of the stock so that in conjunction with TPE's service, an hourly service is provided at the main stations between Barrow and Lancaster. (An equivalent option would have been recommended in conjunction with Option C3b, had that been recommended.)	Regional Links, Commuter Demand, Social Deprivation	Include in strategy	n/a as included within C3a
C5a	Infrastructure improvement Whitehaven – Carlisle	Regional Links, Commuter Demand, Train Performance, Inadequate infrastructure	Include in the strategy the need to review opportunities for improvement with future renewals works	To be determined once the precise scope has been identified
C5b	Infrastructure improvement Sellafield – Barrow	Regional Links, Commuter Demand, Train Performance, Inadequate infrastructure	Include in the strategy the need to review opportunities for improvement with future renewals works	To be determined once the precise scope has been identified

Option	Description	Gap(s) addressed	Recommendation in RUS? (As at Draft for Consultation)	Benefit Cost Ratio (BCR)
C5c	Infrastructure improvement Barrow – Grange-over-Sands	Regional Links, Commuter Demand, Train Performance, Inadequate infrastructure	Include in the strategy the need to review opportunities for improvement with future renewals works	To be determined once the precise scope has been identified
C5d	Infrastructure improvement Grange-over-Sands – Carnforth	Regional Links, Commuter Demand, Train Performance, Inadequate infrastructure	Include in the strategy the need to review opportunities for improvement with future renewals works	To be determined once the precise scope has been identified
C6	Additional Sunday services operated within existing resources: one additional Carlisle – Whitehaven round trip on Sundays within existing signal box opening hours	Regional Links, Tourism, Social Deprivation	Include in strategy (scheme involves a reduced subsidy so BCR is not reported)	n/a
C7a	Additional Sunday services operated with additional resources: three additional Carlisle – Whitehaven round trips on Sundays. The case assumed operating within existing signal box opening hours.	Regional Links, Tourism, Social Deprivation	Do not include in strategy, but note that local and regional stakeholders may wish to re-examine the case for improvements, especially after Workington resignalling	1
C7b	Additional Sunday services operated with additional resources: extend current Carlisle – Whitehaven service (3 each direction) to Barrow-in-Furness on Sundays	Regional Links, Tourism, Social Deprivation	Do not include in strategy, but note that local and regional stakeholders may wish to re-examine the case for improvements	0.2, before considering signalling costs
C7c	Additional Sunday services operated with additional resources: operate a two-hourly Carlisle to Barrow-in-Furness service	Regional Links, Tourism, Social Deprivation	Do not include in strategy, but note that local and regional stakeholders may wish to re-examine the case for improvements	1.1 before considering signalling costs
C8	IB between Maryport and Wigton	Regional Links, Commuter Demand, Train Performance	Include as an option within the Workington signalling renewals scheme due in 2012 – would be required for C3b	To be determined once the precise scope has been identified
C9	Lengthen standage between ground frames at Dalston	Regional Links, Commuter Demand, Train Performance	Include as an option within the renewals scheme due for the ground frames in 2011 or later	To be determined once the precise scope has been identified

6.5.3 Settle and Carlisle gaps

Settle and Carlisle	
The main gaps identified are:	
Regional Links, Commuter Demand, Tourism	The Monday – Saturday timetable between Leeds and Carlisle via Skipton is regular and on a pattern at the Leeds end. At the Carlisle end, it is an irregular pattern with some long gaps. There are only six trains a day each way, and the service is unattractive at certain times of the day. The last train away from Carlisle is relatively early and so commuters who may need to work late run the risk of missing the last train home.
Inadequate Infrastructure	Intensive freight usage, long signalling sections, slow line speeds – especially some speed restrictions and capacity at Carlisle and Leeds stations make improving service frequencies difficult for both passenger and freight operators. In addition, the maintenance schedules currently required to keep the route fit for purpose result in frequent and often lengthy closures that are particularly disruptive to services. The capacity on the line is constrained by the capacity to/from and through Carlisle station, where there is interaction between the Settle and Carlisle traffic, the Carlisle – Newcastle traffic over the single-lead junction at Carlisle South Jn, and with the West Coast Main Line traffic. Accommodating freight traffic through the Leeds area is also a capacity constraint, but this issue will be considered as a part of the Yorkshire and Humber RUS.

6.5.4 Settle and Carlisle options

The recommendations that have been developed to address these gaps are summarised below, and Table 6.4 details the options that have been considered.

Due to capacity constraints at Leeds and Carlisle and demand for freight traffic, it is expensive and impractical to improve the end-to-end service frequency both between Carlisle and Leeds and between Morecambe and Leeds. However, as the recommended options do not involve increasing the frequency of both of these services on the Airedale line (between Skipton and Leeds), the two issues have been treated separately in the analysis, recognising that there may be stock and crew synergies to be identified.

Option S1 – Extra evening train

There is no economic case for an extra evening working between Carlisle and Kirkby Stephen making use of marginal time of a unit and crew from the Newcastle service.

Options S2, S3, S4 – Increased frequency passenger services

At a high level of analysis, there is an economic case for an hourly passenger service between

Leeds and Carlisle (Option S3); however, one passenger and one freight path per hour would require a six-minute increase in passenger journey times over the existing all-stop times or a six-minute improvement in freight journey times for the all-stop passenger path to fit. In addition, given existing route timings and pathings, an hourly freight path is not sufficient for the predicted level of freight traffic growth. Consequently, there could not be a passenger path in every hour with the current level of freight traffic without infrastructure interventions to create additional capacity. Given market uncertainties, however, coal shipments may switch to ports on the east coast. Alternatively, circumstances might change so that the freight traffic routed onto the Settle and Carlisle line to relieve capacity problems on the WCML could return there. Given these uncertainties, it is not possible to recommend Option S3 at this stage, but it is retained as a future aspiration should circumstances change.

Economically justifiable, targeted speed improvements for freight traffic are recommended in order to contribute towards realising this aspiration. Speed improvements to passenger services will be harder to justify,

as passenger trains pathed between freight trains will simply catch up the freight trains earlier and hence will see no benefit.

There is an economic case for the existing service to become broadly two-hourly and tie into connections with the WCML 2008 timetable. There is also a case for operating another three round trips infilling and extending that pattern (Option S2). It is recommended that a scheme is developed based on a minimum passenger frequency of two-hourly, and supplemented with additional services targetted to the passenger market and where space exists in the timetable, and ideally consistent with the rest of the pattern.

Option S5 – Carlisle capacity

The Freight RUS identified in Chapter 5, (Gap 1) that there were conflicting movements south of Carlisle. The single lead from London Road Jn to Carlisle South Jn has a high level of utilisation, restricting capacity and having an impact on performance. It has proved to be difficult to get a view of how capacity is utilised in the Carlisle area resulting from the December 2008 timetable, in time to do any analysis for the publication of this RUS. It is also not clear at this time whether the capacity constraint is at

Carlisle or elsewhere. If Carlisle is deemed to be the capacity constraint and full, we expect there to be a business case to reopen the Avoiding lines. We shall continue to explore the issues, but do not anticipate having an answer in time for the final Lancashire and Cumbria RUS document. This topic will hence be passed to the West Coast Main Line RUS. In the meantime, reinstating the double junction at London Road (Option S5) is seen as a relatively simple enhancement that does not involve a great deal of signalling alterations and provides some alleviation of congestion and improvement to performance, albeit without tackling the whole issue of capacity constraints at Carlisle South Jn. This is recommended to be developed further.

Option S6 – Maintenance and renewals

Both the recommended option and the long-term aspiration would be significantly improved by the ability to minimise the disruption to freight and passenger services caused by the requirement for regular and lengthy maintenance and renewal possessions, and it is recommended that an option is developed to do this. Dialogue within Network Rail and with industry partners is required to identify the optimal pattern of maintenance and renewals.

Table 6.4 – Settle and Carlisle options

Option	Description	Gap(s) addressed	Recommendation in RUS? (As at Draft for Consultation)	Benefit Cost Ratio (BCR)
S1	The last train departs Carlisle by 17:55 hours - operate an appropriate extra service later in the evening (to Kirkby Stephen)	Commuter Demand, Tourism	Do not include in strategy	About 1
S2	Operate a two-hourly Carlisle – Leeds service with limited additional frequency to address key issues. (Assumed three additional round trips ideally conforming to the same pattern) Retime services to provide good connections at Carlisle to Leeds and with WCML 2008 timetable and to provide a later last train from Carlisle.	Regional Links, Commuter Demand, Tourism	Develop further, subject to the outcome of the evaluation and the ability to identify acceptable pathing options for both freight and passenger services	1.5

Option	Description	Gap(s) addressed	Recommendation in RUS? (As at Draft for Consultation)	Benefit Cost Ratio (BCR)
S3	Operate an hourly Carlisle – Leeds service	Regional Links, Commuter Demand, Tourism	Include as the long-term aspiration, but do not develop further, unless the level of freight traffic alters sufficiently	1.5 before any infrastructure intervention considered
S4	Increase line speed between Carlisle – Skipton	Regional Links, Commuter Demand, Tourism, Inadequate Infrastructure	Identify cost effective and affordable improvements to freight journey times, probably as increments on renewals. This is a prerequisite for hourly passenger services to not need “pathing time”.	To be determined once the precise scope has been identified
S5	Redouble the track between Carlisle South Jn and London Road Jn	Train Performance, Inadequate Infrastructure	Include in the strategy	About 2
S6	Optimise maintenance and renewal practices around new service requirements	Regional Links, Commuter Demand, Tourism, Inadequate Infrastructure	Develop further through dialogue within Network Rail and with key stakeholders	To be determined once the precise scope has been identified

6.5.5 Roses line gaps

Roses line	
The main gaps identified are:	
Regional Links, Commuter Demand, Social Deprivation Interchange	Currently there is only one direct service per day between Burnley and Accrington and Manchester. As a result, most passengers are required to interchange at Blackburn or Hebden Bridge which makes the overall journey time 97 or 72 minutes respectively. This service is unattractive, particularly for commuters. (The morning peak journey time between Burnley and Manchester is 91 minutes by bus with a 10-minute frequency and 47 minutes by car.) In addition the platform at Blackburn used predominantly for interchange with Manchester services has no canopy, and no DDA compliant access.
Regional Links, Commuter Demand	The Leeds – Manchester Victoria route currently has a service frequency of two trains per hour. This is relatively infrequent given the size of the rail catchment area. The gaps largely relate to the east end of the route section and as a result will be addressed in the Yorkshire and Humber RUS. However, options to extend the Leeds – Hebden Bridge service to give a third train per hour have been assessed here, to ensure consistency with the Yorkshire and Humber RUS and avoid spurious modelling outcomes as a result of differing assumptions about this service.

Regional Links, Commuter Demand, Social Deprivation	The line between Skipton and Colne is closed and has been completely out of service since 1970. As a consequence it is not possible to travel by rail between conurbations on the route, and between most of the route and Leeds. A number of communities on the route between Nelson and Skipton suffer from deprivation and would benefit from improved links to Leeds. In addition, the Leeds – Hebden Bridge – Blackburn – Preston route currently has a service frequency of one train per hour and to access it passengers from Nelson and Colne would have to either interchange at Accrington or walk across the centre of Burnley. For passengers in Burnley this service via Skipton and Colne would be 10 minutes faster than the existing one via the Calder Valley. The line may be a suitable alternative to routeing existing and additional trains through the Calder Valley, especially freight due to the gentler gradients.
Train Performance	The Blackpool South – Colne service group suffers from punctuality problems. Infrastructure limitations at either end of the route regularly produces delays, and given the long route length, large reactionary delays often result. The Blackpool North – York and the Calder Valley services can also perform poorly, and all three interact with each other importing delay.
Regional Links, Commuter Demand, Social Deprivation	The York (via Leeds) – Blackpool (via Preston) route currently has a service frequency of one train per hour. A shortage of on-train capacity between Halifax, Bradford and Leeds will be addressed in the Yorkshire and Humber RUS.
Regional Links, Commuter Demand, Train Performance, Inadequate Infrastructure	Low line speeds result in lengthy timetabled journey times. This can make travel by rail unattractive.

6.5.6 Roses line options

The recommendations that have been developed to address these gaps are summarised below, and Table 6.5 details the options that have been considered.

Option R1 – Extend Blackburn peak services

Extension of the current am and pm peak Manchester Victoria – Blackburn services to Burnley including switching the existing one Manchester Victoria – Clitheroe service to Burnley (Option R1a), will provide a direct hourly peak service between Burnley, Accrington and Victoria. This will reduce the rail journey times for existing and potential commuters. The high-level assumption is that this can be achieved for little additional operational costs. Re-routeing all peak services to Clitheroe (Option R1b) would increase the Clitheroe – Manchester Victoria to half-hourly and have a similarly strong economic case. However, whilst it is viewed that there is a greater potential for growth in the Accrington and Burnley passenger markets, and the social benefits from serving these locations may also be significant, rail via

Blackburn will still remain uncompetitive for commuting between Burnley and Manchester in comparison with bus. Closer examination is likely to show that there are some additional costs associated with the option. Option R1b, however, strengthens an existing market and is already competitive with bus services. Unless the results of Northern Rail’s existing one-per-day service demonstrates unexpected results, progressing Option R1b is recommended.

Peak train lengthening is a prerequisite for both options, as services are currently operating at or beyond capacity.

Options R2, R3, R4, R5 – All day Burnley service

Many of the options appraised for the Roses line found it difficult to make a positive business case. This was partly due to East Lancashire having areas of social deprivation, which lead to low patronage. Even using optimistic demand forecasts, transport business cases using the DfT guidelines could not be made. Network Rail has advised local and regional stakeholders, and asked them to investigate the potential of social inclusion and regeneration benefits, with

a view to identifying whether these can justify use of an alternative funding source in order to improve the transport business case.

Options to provide additional services to Blackburn, Burnley or Clitheroe throughout the day (Option R2) were found to have a value for money that is below the minimum threshold for DfT funding, even before considering if any additional infrastructure between Blackburn and Bolton would be required. These cannot be recommended in the RUS, but it is recognised that other parties are working on refining costs and benefits and identifying other potential sources of funding.

Extending the hourly Leeds – Hebden Bridge service to Manchester Victoria by merging with the current Rochdale – Victoria service (Option R3) is likely to deliver high value for money case. It is recommended that this option is developed further by Northern Rail or in the Yorkshire and Humber RUS.

Option R4 considered a holistic view of half-hourly services radiating out of Blackburn, giving good connections from Clitheroe and Burnley to Preston and Manchester, and everywhere in between. Even before taking into account any necessary infrastructure interventions this had a BCR less than 1, and cannot be recommended.

Option R5 considered serving Burnley and possibly Accrington and beyond, by operating one of current Rochdale services over a reinstated Todmorden Curve. However, there were insufficient benefits to cover the cost of the necessary infrastructure.

Option R6 – Colne – Skipton reinstatement

A study commissioned on behalf of local stakeholders has identified a potential high-level case for reinstatement of the line and services between Skipton and Colne. The most significant issue now is how the scheme could be funded. It is recommended that the alignment is protected to give stakeholders time to identify potential sources of funding and commission a more detailed feasibility study.

Option R7 – Split the Colne – Blackpool service

The option of separating the Blackpool South – Colne service into two parts at Preston does not appear to have a business case, but this will be reviewed if the service has a significant adverse impact on other services in the forthcoming December 2008 timetable, or if splitting the service makes a significant contribution to Northern's efficient deployment of rolling stock.

Option R8 – Add second fast Preston – Leeds service

Options to add a second fast service between Preston and Leeds were considered. From the point of view of this RUS no economic case was found to operate them, even after considering different routeings and end-points. However, it was recognised that the Yorkshire and Humber RUS will be considering very different factors such as overcrowding on the approaches to Leeds and may reach a different conclusion.

Option R9 – Line speed improvements

The options to increase line speeds on various sections of the route require developing from the point of view of improving performance rather than improving journey time, due to the potential of these services to import disruption into Manchester, Leeds and the WCML.

Note

It has not been possible to establish a suitable value for money case for other options to improve services between Leeds and Manchester or on the Calder Valley Line based on the benefit from improved journey opportunities. However, it may be that the business case for these options is generated by the impact on the Leeds end of the service or from efficiencies in the deployment of rolling stock. So whilst options are not able to be recommended by this RUS, it is recommended that Northern and the Yorkshire and Humber RUS consider the impact of these options to reduce on-train crowding in the Yorkshire and Humber RUS area, and to consider any impact of the deployment strategy of rolling stock in order to meet the HLOS targets.

Table 6.5 – Roses options

Option	Description	Gap(s) addressed	Recommendation in RUS? (As at Draft for Consultation)	Benefit Cost Ratio (BCR)
R1a	Extend am and pm peak Manchester Victoria – Blackburn services to Burnley to provide an hourly peak service. Alternative to R1b	Regional Links, Commuter Demand, Social Deprivation	Do not include in strategy	2.6
R1b	Extend am and pm peak Manchester Victoria – Blackburn services to Clitheroe to provide a half-hourly peak service. Alternative to R1a	Regional Links, Commuter Demand, Social Deprivation	Recommend in strategy	3.4
R2	Operate an hourly service through the day Victoria – Blackburn in addition to the existing hourly Victoria – Clitheroe (and possibly extend it to Burnley or Clitheroe)	Regional Links, Commuter Demand, Social Deprivation	Do not include in the strategy (Up-side demand assessment used)*	Between 0.6 and 1.2
R3	Extend the Leeds – Hebden Bridge service: to Rochdale where it (a) combines with the Rochdale – Victoria service giving three Leeds – Victoria trains per hour; or (b) goes all the way to Victoria; or (c) goes on to Blackburn and possibly beyond	Regional Links, Commuter Demand	Northern Rail to develop further or pass to the Yorkshire and Humber RUS	1.5 for at least one option
R4	Operate an additional hourly Victoria – Blackburn – Burnley Manchester Road service (R2), plus extend the Leeds – Hebden Bridge service to Victoria by merging with the Rochdale – Victoria service (R3), plus an additional Preston – Clitheroe hourly service	Regional Links, Commuter Demand, Social Deprivation	Do not include in the strategy, but Northern or the Yorkshire and Humber RUS may wish to develop further	0.9 even before any necessary infrastructure costs are included
R4a	As Option R4 but operate the additional Preston – Clitheroe as a semi-fast hourly service	Regional Links, Commuter Demand, Social Deprivation	Do not include in the strategy, but Northern or the Yorkshire and Humber RUS may wish to develop further	0.8 before any necessary infrastructure costs are included
R5	Extend the Leeds – Hebden Bridge service to Victoria by merging with the Rochdale – Victoria service, plus extend the hourly Victoria – Rochdale slow service via the Todmorden Curve to (a) Burnley, (b) Accrington, (c) Blackburn, (d) Preston, (e) Blackpool North	Regional Links, Commuter Demand, Social Deprivation	Do not include in the strategy unless suitable alternative funding can be found, or Northern or the Yorkshire and Humber RUS wish to develop further (Up-side demand assessment used)*	1.5 for (b), worse for others

* The demand assessment was based on forecasts produced by consultants Faber Maunsell on behalf of a consortium of local authorities. Whilst robust, these forecasts were at the higher end of the range that would be expected by Network Rail.

Option	Description	Gap(s) addressed	Recommendation in RUS? (As at Draft for Consultation)	Benefit Cost Ratio (BCR)
R6	Reinstate the route between Skipton and Colne (SELRAP) and operate shuttle services between Colne and Skipton or from Leeds	Regional Links, Commuter Demand, Social Deprivation	Do not include in strategy as no identifiable funding source, noting that outside parties are working to identify such. Protect the alignment in the interim	n/a until precise scope has been identified
R7	Split the service group to create two new service groups: Blackpool South – Preston and Preston – Colne	Train Performance	Do not include in the strategy, but pass to West Coast RUS for review once performance impact known, or for Northern Rail to consider further if unit utilisation benefits accrue	0.3
R8	Extend the Leeds – Hebden Bridge service to Victoria by merging with the Rochdale – Victoria service (Option R3a), plus (a) an additional hourly Blackpool North – Leeds via Brighouse service or (b) an additional hourly Blackpool North – Leeds via Bradford service or (c) an additional hourly Preston – Bradford service	Regional Links, Commuter Demand, Social Deprivation	Do not include in the strategy, but outside parties, Northern or the Yorkshire and Humber RUS may wish to develop further	0.8
R9a	Line Speed Improvements – East of Burnley Manchester Road	Regional Links, Train Performance, Inadequate Infrastructure	Recommend progressing to GRIP stage 3 as an NRDF scheme	To be determined once the precise scope has been identified
R9b	Line Speed Improvements - Blackburn – Clitheroe	Regional Links, Train Performance, Inadequate Infrastructure	Recommend progressing to GRIP stage 3 as an NRDF scheme	To be determined once the precise scope has been identified
R9c	Line Speed Improvements – Colne Branch	Train Performance, Inadequate Infrastructure	Recommend progressing to GRIP stage 3 as an NRDF scheme	To be determined once the precise scope has been identified

6.5.7 Preston – Ormskirk gaps

Preston – Ormskirk	
The main gaps identified are:	
	Regional Links and Commuter Demand – Preston – Ormskirk services are infrequent, irregular and provide poor connections to Liverpool. No direct services exist between Southport and Ormskirk and between Southport and Preston. The current level of service provision is resource efficient.

6.5.8 Preston – Ormskirk options

The recommendations that have been developed to address these gaps are summarised below, and Table 6.6 details the options that have been considered.

Work to address the gaps has identified the potential to deliver a step-change in railway services, by delivering a greatly improved set of journey opportunities including Preston – Southport, Southport – Ormskirk and hourly Preston – Ormskirk, through a more efficient use of existing resources and public funding.

Option OP1 – Hourly service

Remedial signal and track work in the Rufford and Croston area will increase the line speed and allow a standard hourly service pattern between Preston and Ormskirk, without the requirement for additional rolling stock. The cost saving from reduced signal staffing and renewals avoided would be greater than the infrastructure costs and additional mileage costs. On this basis the scheme offers a net economic benefit with a reduced whole-life cost requirement, and is recommended for inclusion in the RUS. It is recognised that removing the loop and greatly simplifying the signalling would make it more difficult, subsequently, to introduce a half-hourly service. However the existing infrastructure is less than ideal for a half-hourly service anyway, and the hourly service (at a justifiable cost) is seen as a necessary first step.

Options OP2, OP3, OP4 – Southport connections

The improved journey time and increased Preston – Ormskirk service frequency would make it practicable and significantly less expensive to provide good connections between Southport, Preston and Ormskirk. A number of options are available to do this. Closing the existing stations in Burscough and building a new station where the Wigan Line crosses the Ormskirk line makes use of retimed existing services and requires little additional operating cost (Option OP2). As a result this represents the optimal mix of journey opportunities and is recommended

to be developed further. It is recognised that a number of potentially complex planning issues need to be resolved. It is acknowledged that this option makes fairly redundant the transport interchange recently built at Burscough Bridge, implies a considerable expense to create transport links to the new station, and makes it more difficult at a later date to justify extending electric services from Ormskirk to Southport via a reinstated south chord or running direct Southport – Preston services via a reinstated north chord. Therefore, whilst Option OP2 is the better option in terms of BCR, in terms of keeping open future options, it is not as good as Option OP3.

Option OP3 is an alternative to Option OP2. In effect it trades the capital cost of a new two-level station with the capital cost of reinstating the chord and some additional plain line as well as station works at Burscough Junction and Ormskirk. The BCR is lower than that for Option OP2 largely because of the need to run an additional hourly service between Southport and Ormskirk, via a reinstated southern Burscough Curve. This scheme addresses the same RUS gaps as Option OP2 with a slightly reduced value for money, but retains flexibility for further alterations and new service patterns. For these reasons it is recommended that this scheme is included in the strategy, although Option OP2 should also be developed as an alternative.

Provision of direct services between Preston and Southport (Option OP4) is not recommended. In effect the benefits are the same as Option OP3 apart from removing the need to interchange to travel between Southport and Preston. The costs are significantly increased due to the need to add additional points, crossings, a significant amount of signalling and a signalling interface between Preston and Burscough Bridge. Option OP3 can be viewed as an intermediate step towards Option OP4, should that be justifiable at a later date.

Options OP5 and OP6 – Preston – Liverpool services

The gap of improved regional links between Liverpool and Preston was passed over by the North West RUS. It has not been possible to make an economic case for an additional service via Wigan (Option OP6) or a direct Liverpool Central – Preston service via a newly electrified Ormskirk – Preston line (Option OP5).

Option OP7 – Extend electrification to Burscough Junction

Extending the electrification to Burscough Junction requires an additional electric unit and crew unless benefits can be found from a recast of the electric timetable. This is not recommended.

Table 6.6 – Ormskirk – Preston options

Option	Description	Gap(s) addressed	Recommendation in RUS? (As at Draft for Consultation)	Benefit Cost Ratio (BCR)
OP1	Speed up Preston – Ormskirk service to make it hourly, with identical rolling stock and TOC staff requirements	Regional Links, Commuter Demand, Inadequate Infrastructure	Include in the strategy, (scheme involves a reduced subsidy so BCR is not reported)	n/a
OP2	Option OP1, plus replace Burscough Bridge and Burscough Junction with a new interchange station where both lines cross. Existing Southport – Wigan services timed to give a five minute interchange for Preston/Ormskirk at the new station.	Regional Links, Commuter Demand	Develop further, as alternative to OP3, (minimal public sector funding requirement so BCR is extremely large)	> 2.0 prior to considering any necessary highways work.
OP3	Option OP1, plus reinstate Burscough Chord South and operate hourly Southport – Ormskirk, timed to give a five-minute interchange for Preston at Burscough Junction	Regional Links, Commuter Demand	Recommend in strategy	2.2
OP4	Option OP1, plus reinstate Burscough Chord South, and replace current Preston – Ormskirk with an hourly service Southport – Preston via Ormskirk. Make connections between Preston section and Burscough section including signalling interface to allow through running between Southport and Preston	Regional Links, Commuter Demand	Do not include in strategy, apart from to note that it is a logical future development to OP3 should that be progressed and be sufficiently successful	1.3
OP5	Speed up Preston – Ormskirk service to make it hourly, plus electrify Ormskirk – Farington Curve and operate hourly Liverpool Central – Preston	Regional Links, Commuter Demand	Do not include in strategy other than to note that none of the recommended options make its future implementation more difficult	0.7

Option	Description	Gap(s) addressed	Recommendation in RUS? (As at Draft for Consultation)	Benefit Cost Ratio (BCR)
OP6	Additional Lime St – Wigan – Preston to become half-hourly	Regional Links, Commuter Demand	Do not include in strategy	1.2 even before any infrastructure interventions
OP7	Extend electrification to Burscough from Ormskirk	Regional Links, Commuter Demand	Do not include in the strategy	0.9

6.5.9 Branch lines gaps

Branch lines	
The main gaps identified are:	
Commuter Demand	Currently only two trains per day in each direction operate between Heysham and Morecambe. During the am and pm peak periods the alternative route by road is usually congested, indicating that there may be a suppressed commuter market.
Commuter Demand	Slow journey times and an infrequent service on Morecambe – Leeds service group makes rail less attractive to passengers.
Tourism	From December 2008 the Windermere branch will be operated for more of the day as a captive service with fewer direct trains to and from Manchester Airport. The pattern of trains that will call at Oxenholme will be mixed to give a wide range of destinations. The combination of these factors means that the timetable for the Windermere branch will be irregular.

6.5.10 Branch lines options

Table 6.7 summarises the options that have been developed to address these gaps.

Option BL1 – Heysham branch

A variety of options were looked at in Option BL1 in terms of how to create a practical hourly service in the peaks between Heysham and Lancaster. The business cases were weak because the only station is in the wrong place for easy access by commuters, the line is slow and the method of operation is time consuming. Realistically such a service would need a higher linespeed, and a simplified method of working at Morecambe, in order to justify the assumption that the service could be operated in the marginal time of existing units and crews, and in order to attract passengers from their cars there would need to be new stations in appropriate places. These factors mean the scheme not viable.

Option BL2 – Wennington line frequencies

The line currently sees five trains a day each way between Morecambe and Leeds (with a few short workings). The existing pattern means that the service does not contribute significantly to the peak flows in and out of Lancaster, nor does the first train contribute well to the peak flow into Leeds as it arrives after 09:00am

The premise behind the options considered is that if the service no longer operated to Leeds, but instead operated from Skipton, the advantages gained from that shorter service would outweigh the disadvantages from the enforced interchange. It was established that the analysis is very sensitive to the net number of services between Skipton and Leeds such that there could be linkage with Option S2, or Yorkshire and Humber RUS options for the Aire Valley, and also that to regularly terminate the Lancaster service at Skipton a new crossover is required there.

Within these options there is an implied sub-option of not going as far as Morecambe. Analysis has shown that the Morecambe – Lancaster leg of the service contributes revenue twice as great as costs – assuming that the working is in marginal time for unit and crew. Consequently, it is only worth cutting back the service at Lancaster if there is good reason to do so from other benefits such as improving stock and crew utilisation, or removing passenger train paths on the WCML, thereby easing capacity and performance there.

Three options were considered:

- retain the existing level of service (broadly every three hours) but only operate between Lancaster and Skipton, saving a unit and crew to use elsewhere (Option BL2a)
- use the same units and crews to operate a more frequent service – a doubling, or broadly every 90 minutes (Option BL2b)
- introduce an extra unit and crew to provide an even more intense service – a tripling, or broadly hourly (Option BL2c).

Both options BL2b and BL2c provide services that allowed journeys between Leeds and Lancaster that arrived at the destination before 09:00am

Analysis suggests that the cost saving from the smaller resource requirement in Option BL2a is significantly less than the economic benefit that would be foregone through reduced journey opportunities. It is therefore not recommended that this option is pursued unless more detailed analysis is able to demonstrate substantially greater cost savings.

Option BL2b is sensitive to providing good connections at Skipton, and to maintaining at least a similar number of services between Skipton and Leeds through either additional services from Carlisle (Option S2) or capacity provision schemes from the Yorkshire and Humber RUS. This option is also sensitive to

the cost of infrastructure work at Skipton and the cost of operating the service. High-level analysis has suggested that an off-pattern service frequency of slightly less than every 90 minutes (around nine trains per day in each direction) between Morecambe and Skipton may provide the optimum mix of journey opportunities and resource savings. There would appear to be a trade-off between an on-pattern 90-minute service between Lancaster and Skipton and the one that is slightly off-pattern but includes Morecambe.

On balance Option BL2a has the potential to expand the passenger market for little additional operating costs and consequently may provide a better combined set of journey opportunities and a more effective utilisation of the route section. It has been possible to identify a variant on Option BL2a with a value for money greater than the DfT requirement, and it is recommended that industry stakeholders develop this further.

The additional demand and associated revenue and economic benefit that would be generated by increasing the service frequency to hourly (Option BL2c) would not be sufficient to cover the additional operating and infrastructure costs, and as a result this option is not recommended.

Option BL3 – Wennington line speeds

The level of patronage on the Wennington line mean that it is highly unlikely that there is an economic case for journey time improvements. However, it may be that as part of Option BL2 speed improvements are required in order to optimise stock utilisation.

Option BL4 – Windermere branch

An initial appraisal of alternative timetable patterns for the Windermere branch has been analysed. This indicates that there is a broadly equivalent economic case for either irregular departures to maximise the number of through journey opportunities at Oxenholme, or clock face departures with less variety of connections. Given the parity

between these options it is recommended that a timetable is developed taking account of stakeholder aspirations, once the final West Coast 2008 timetable has been completed. Any revised timetable and connections will

have implications for traffic on the West Coast. Consequently the detailed analysis for any alternatives is best carried out in the West Coast Main Line RUS.

Table 6.7 – Branch line options

Option	Description	Gap(s) Addressed	Recommendation in RUS? (As at Draft for Consultation)	Benefit Cost Ratio (BCR)
BL1	Operating four additional services between Morecambe and Heysham, thereby providing an hourly frequency in the peak	Commuter Demand	Do not include in strategy, as infrastructure solutions offer poor value for money	< 1.5
BL2a	Cut back existing Morecambe – Leeds services to operate only between Lancaster and Skipton. Keep existing number of services, but retime services to maximise unit and crew saving and where possible provide good connections at Lancaster, Carnforth and Skipton	Commuter Demand, Tourism	Do not include in strategy	Worse than for Option BL2b
BL2b	Using the existing number of units and crews, maximise the service frequency by cutting back Morecambe – Leeds services to operate only between Morecambe or Lancaster and Skipton. Retime services to provide good connections where possible at Lancaster, Carnforth and Skipton	Regional Links, Commuter Demand, Tourism	Develop further and establish the best use of the existing resources, and understand the trade-off between a 90-minute pattern service between Skipton – Lancaster and off-pattern service between Morecambe and Skipton	To be determined once the precise scope has been identified
BL2c	Using additional units and crews, and those released by cutting back Morecambe – Leeds services to operate only between Lancaster and Skipton, increase the service frequency to broadly hourly. Retime services to provide good connections where possible at Lancaster, Carnforth and Skipton	Regional Links, Commuter Demand, Tourism	Do not include in strategy	Worse than for Option BL2b
BL3	Journey time improvements Carnforth – Settle Junction	Commuter Demand	Do not include in strategy as a standalone option as the economic benefit of option is very low relative to the likely cost. May be included within Options BL2 if it brings unit efficiencies	To be determined once the precise scope has been identified
BL4	Recast Windermere Branch timetable to provide better connections at Oxenholme rather than through journey opportunities	Tourism	Develop further based on stakeholder aspirations	n/a

6.5.11 Miscellaneous gaps

Miscellaneous	
The main gaps identified are:	
Interchange (Preston station)	The usable space by the footbridge stairwell entrance/exit to island Platforms 1 and 2 is relatively small and becomes extremely crowded when trains arrive or depart at peak times. This increases access and egress times for passengers, as well as some train dwell times at the platforms, and is an unpleasant environment for passengers.
Interchange (Preston station)	The majority of passengers accessing, egressing or moving between platforms at Preston station are required to use stairs and footbridges. This can make movement around the station and accessing station facilities difficult, particularly at peak times and for passengers with luggage.
Interchange (Carlisle station)	Around 15 percent of all passengers at Carlisle use the station for interchange. At present the station does not have bespoke interchange facilities and lacks a waiting room on the London-bound platform. Movement around the station can be difficult for passengers with luggage.
Inadequate Infrastructure (Carlisle station)	There are a limited number of additional paths available through Carlisle station and the infrastructure may not be able to accommodate predicted growth in freight traffic during the RUS study period. Carlisle does not have a diversionary route and the viaduct directly to the north of the station is likely to require closure for maintenance and renewals during the RUS study period.
Interchange (Ormskirk station)	Lancashire County Council is developing a scheme separately from the RUS which will improve the station facilities for passengers who begin or end their journey at Ormskirk station. Currently very few passengers interchange at the station; however, the RUS options detailed may significantly increase the number of interchanging passengers.
Interchange (Blackburn station)	Over one million passengers use Blackburn station annually. Significant proportions (over 70 percent) of these depart from Platform 4, which accommodates departing trains towards Preston and Manchester. The platform has an extremely small shelter with accommodation for very few passengers.

6.5.12 Miscellaneous options

Table 6.8 summarises the options that have been developed to address these gaps.

Option MC1 – Preston Platforms 1 and 2

Relocating the buildings on Platforms 1 and 2 at Preston station away from the bottom of the stairs from the overbridge will significantly improve the flow of boarding and alighting passengers. This will reduce access and egress times as well as some train dwell times. The infrastructure work is low cost, therefore offering good value for money, as well as the potential to improve waiting facilities on the platform. For the purposes of the analysis, it has been assumed that an equivalent-sized buffet and information point would be created further along the platform, and that toilet facilities would be provided. It is recommended

that this scheme (Option MC1) is included in the strategy.

Option MC2 – Preston

A full upgrade and refurbishment of passenger interchange facilities at Preston station is likely to generate significant economic benefit. It is recommended that options to upgrade the station are developed within the West Coast Main Line RUS.

Option MC3 and MC4 – Carlisle and Ormskirk

The lack of southbound facilities and DDA compliant access at Carlisle and suitable facilities at Ormskirk were identified as gaps that ought to have a benefit sufficient to justify the work to address them – but the analysis is not complete.

Option MC5 – Blackburn

Most interchanging passengers towards Manchester and Preston wait on Platform 4 which has no canopy. There is an economic case to provide one.

Option MC6 – Burscough Junction

Dependent on the options progressed for Ormskirk – Preston, there will be a need for improved facilities at Burscough Junction station. The scope of these has yet to be identified.

Option MC7 – Carlisle Avoiding lines

The case for reinstating the Avoiding lines has yet to be made, as further analysis of the timetables is required. The gap and option has been passed to the West Coast Main Line RUS.

Option MC8 – Commuter Demand Newcastle and Annan

In addition, although outside the RUS geography, we have looked at improving the

service on the Newcastle and Dumfries lines into Carlisle in order to complete the analysis of the gap of commuter demand to Carlisle. As stand-alone interventions with only the effects at Carlisle taken into account there is no business case to alter either service. Intuitively the more important and more congested end of the Newcastle – Carlisle service is at Newcastle, and the G&SW service is at Glasgow and Kilmarnock, so it is unlikely that the needs of commuters at Carlisle will drive forward a change in the service pattern.

In the case of both routes, should there be other reasons driven from elsewhere to consider a recast of the service, and potentially to put the service onto an all-day pattern, it would make sense to take into account the desire to have at Carlisle a patterned service that made good connections with the West Coast as well as a pattern of services suitable for commuting to and from Carlisle.

Table 6.8 – Miscellaneous options

Option	Description	Gap(s) Addressed	Recommendation in RUS? (As at Draft for Consultation)	BCR
MC1	Preston station: relocation of the prefabricated platform buildings located near the entrance/exit at stairwell platforms (1 and 2)	Interchange	Include in strategy, (minimal public sector funding requirement so BCR is extremely large)	> 2.0
MC2	Preston station: full station refurbishment, replacement of stairwells and footbridges with escalators or lifts, and provision of additional station facilities	Interchange	Pass to West Coast Main Line RUS to develop	> 2.0
MC3	Carlisle station: provide better interchange facilities, particularly improved access between platforms such as escalators or lifts	Interchange	Recommend development to GRIP stage 3	n/a until precise scope has been identified
MC4	Ormskirk station: provide better interchange facilities, particularly those appropriate if Option OP3 is pursued, ie. a bridge with lifts	Interchange	Recommend development to GRIP stage 3	n/a until precise scope has been identified
MC5	Blackburn station: provide a full length canopy on Platform 4	Interchange	Include in strategy	1.7

Option	Description	Gap(s) Addressed	Recommendation in RUS? (As at Draft for Consultation)	BCR
MC6	Burscough Jn: better interchange facilities if the second platform were to reopen as part of OP3. This may include a bridge and lift.	Interchange	Recommend development to GRIP stage 3	n/a
MC7	Reinstate the Carlisle station Avoiding lines.	Inadequate Infrastructure	Still to be tested – awaiting final West Coast 2008 timetable. Pass to West Coast Main Line RUS to develop.	n/a until precise scope has been identified
MC8	Improved commuter services to Newcastle and Annan	Commuter Demand	Do not include in strategy	

Tourism

The RUS convened a series of meetings between the various tourism bodies, train operators, passenger focus and Network Rail. The group identified the key issues for improving rail's service integration with the local tourism market: putting services onto patterns, making good connections with long-distance services, providing interchange facilities as well as examining the case for Sunday services. The group concluded that as the proposed options to address the other gaps within the RUS area also dealt with all those strategic issues there was not a need to identify any specific options. Tactical issues about individual sites would continue to be an issue for individual authorities, companies and train operators to discuss as and when necessary.



7. Consultation process and overview

7.1 The Draft for Consultation

The Lancashire and Cumbria RUS Draft for Consultation was published in April 2008, along with a press release announcing its publication. The document outlined a number of gaps between the present capability of the rail routes in the Lancashire and Cumbria areas (in terms of capacity and performance), and the predicted demand for both freight and passenger traffic up to 2018. A set of options was proposed for bridging those gaps.

The Draft for Consultation was distributed to a wide range of stakeholders and a period of 12 weeks was given to allow stakeholders to respond. The consultation period ended on 18 July 2008.

During the consultation period stakeholders were invited, either collectively or individually, to briefing sessions at which specific issues were discussed.

This section explains how responses shaped the development of the strategy.

7.2 Consultation responses

A total of 65 consultation responses were received and these are broken down as follows:

Train and Freight Operators	4
Government, Regional bodies, PTEs and Local Authorities	24
User Groups and Rail Partnerships	15
MPs and MEPs	4
Businesses	6
Members of the public	12

Copies of the various responses can be found on the Network Rail website at www.networkrail.co.uk.

7.3 Key themes in the consultation responses

The responses which Network Rail received were varied and, in many cases, comprehensive. Therefore, only the key and recurring themes are summarised below:

7.3.1 Positive reaction

General reaction from most respondents was positive, acknowledging the particular challenge of the large geographical and predominantly rural area this RUS covers.

Responses were generally supportive of the gaps identified, the options proposed as recommendations, the overall direction of the RUS, and the work being done.

7.3.2 Further analysis

As a result of the consultation responses further analysis was carried out on several options. The further analysis is shown in Appendix C. This resulted in some alterations to the overall recommendations. The themes of the responses and, where appropriate, the results of this further analysis are shown below, split by geographical section.

7.3.3 Key responses with commentary Cumbrian Coast

- The options of providing an hourly pattern between Barrow and Carlisle, and strengthening Sellafield services from north and south were broadly supported.
- There was also a desire for an all-stations hourly service between Barrow and Lancaster rather than a two-hourly all-stops Northern service (interleaved with a two-hourly semi-fast TPE service). Northern's proposal for the December 2008 timetable partially addresses the issues between Barrow and Carlisle without the need for additional rolling stock. This is possible by



using the same units to address the peak at Sellafield and at Barrow, as they occur at different times of the day. However, the working patterns at Sellafield are expected to change in the next few years and this will invalidate Northern's efficient timetable solution. Once the working patterns change, the business case for some additional units to serve Sellafield is expected to be valid again. This means that the timetable making use of those units may justify additional ones which would then make an overall improvement to the pattern between Carlisle and Barrow. The business case for improving the frequency of service between Barrow and Lancaster may be made with that recast of the timetable, but recognising how much of the case between Barrow and Sellafield was made by accommodating Sellafield traffic, that is unlikely.

- There were responses regarding the need for suitable parking and interchange facilities to support growth in passenger numbers.
- There was a desire for any timetable recast to include later trains to accommodate the "evening economy" of shopping/leisure, education and employment and to provide connections at Carnforth to link with Lancaster – Skipton services.
- Even though the Draft for Consultation did not recommend Sunday services, many responses expressed disappointment with that conclusion. There is a desire for increased and more frequent Sunday services (across the RUS area). Ravenglass and Eskdale Railway commented that it sees more patronage on a Sunday than on a Saturday, even without a connecting rail service.

Settle – Carlisle

- There were many supporters of an hourly service even if that meant that freight trains have to be looped. However, the BCR of 1.5 for the hourly pattern meant that there was no headroom in the business case either to justify the capital cost of creating the required looping facilities or the operational cost to the freight operators of extended journey times.
- There was broad support for the recommended two-hourly "plus" timetable. Discussions centred around the required freight capacity, the desire for some services to be semi-fast, and for some to arrive from the Blackburn direction to provide a non-Sunday "Dalesrail" service (possibly on a Saturday and Friday only). The Draft for Consultation recommendation was that the "plus" services should fit into the same pattern as the two-hourly pattern, however it is now recommended that the 'plus' services should be off-pattern.
- It was recognised that the recommendation for some passenger trains to be off-pattern would provide support for potential line speed improvements, and hence present a better case for carrying out the required work.
- There was a desire for Sunday services to be at least similar to the pattern on weekdays and Saturdays.

Lancaster – Leeds

- The responses include a broad opposition to cutting back the service at Skipton. Consultees argued that the disbenefits from breaking the through service, would outweigh the benefits of the improved frequency. This was coupled with an

appreciation that if the service frequency was to be improved, a two-hourly pattern would be more desirable than a 90-minute one (which would also reduce the benefits). The SMG took the view that the benefits of the option recommended in the Draft for Consultation document are so dependent on assumptions and synergies with the Settle and Carlisle services, and with the Aire Valley timetable to meet HLOS metrics still a subject of debate that there was a high risk of them not being realised in practice. Taking these factors into consideration it was decided that the recommended option in the draft would not be pursued. Instead the recommendation is to use the same level of resource, potentially stabled at alternative locations, retain through services, and try to meet other aspirations in a recast of the timetable.

- Other aspirations that came out of the consultation are:
 - If the service were suitably interleaved with a two-hourly pattern on the Settle and Carlisle line, this would give an improved pattern to Gargrave and Hellifield services.
 - Good connections at Carnforth would give a better South Cumbria – Leeds regional link.
 - Stabling one unit on the Lancaster side of the Pennines could allow the service to give suitable peak arrivals into both Leeds and Lancaster.

Roses line

- There was broad recognition that if the additional peak Victoria – Blackburn services were to be extended, then it should be to Clitheroe and not to Burnley.
- There was continued support to extend the half-hourly Bolton – Blackburn service throughout the day, even though both the North West RUS and Lancashire and Cumbria Draft for Consultation document identified there is no business case. Consultees wished to explore this option

further however, along with seeking alternative sources of funding.

- Reinstating the Todmorden Curve and running services between Burnley and Manchester had broad support. Further analysis by Network Rail identified some circumstances where extending the existing service to Accrington could have a medium value for money business case. This was dependent on the solution for meeting HLOS metrics in the Yorkshire and Humber RUS having justified bringing the train that currently terminates at Rochdale up the valley as far as Todmorden and providing some infrastructure to allow it to get off the main line. In work carried out by the consultants Colin Buchanan (on behalf of Lancashire County Council and Burnley Borough Council), it was identified that running an additional fast hourly service between Victoria and Accrington could have a high value for money business case, which would also finance the additional infrastructure. However, in reviewing the work, Network Rail believes that the unit operating cost used is too low. Substituting operating cost, that has been agreed by the industry, reduces the BCR to 1.5, making it a medium value for money scheme. This is marginally above the DfT threshold for funding support of operating costs. However it is less than the level typically required for funding infrastructure schemes. The future timetable on the Calder Valley is still the subject of debate among industry stakeholders in the Yorkshire and Humber RUS. In determining solutions that meet the HLOS metrics, it is believed that the timetable for the Buchanan option would probably be workable with the number of units assumed, but that this would need to be confirmed. There are separate issues over sources of funding and whether the required rolling stock and funding would be available within the CP4 plan to meet HLOS metrics.

- Protecting the Colne to Skipton alignment has broad support.
- There was support for an interchange between Blackpool – Leeds services and Blackpool – Colne services at Rose Grove. This was shown to have disbenefits greater than the benefits, so is not recommended in this strategy.
- It was recognised that the disbenefit of splitting the Blackpool South – Colne service at Preston was so significant that even performance gains from a new West Coast timetable would be unlikely to overcome them. Therefore this option should not be developed any further. As a result of responses to the Draft for Consultation document, the option of operating a half-hourly service on the Blackpool South branch was revisited to see if such a service would help the overall business case. Unfortunately further analysis still produced a negative business case.
- There was broad rejection of the option for a new interchange station – option OP2.
- There was broad support for OP3 – OP5, or OP7 to be progressed, but there was a desire to await the outcome of the demand study commissioned by Merseytravel, in order to establish which option should be developed.
- Whilst there was support for option OP6, Network Rail has undergone further work to confirm there is no business case (by a significant margin). In fact, pursuing option OP1 would actually make the case even weaker.

7.3.4 Other Issues

- Some responses asked for more detail on performance.
- Further information on the maintenance and renewals regimes for the Settle and Carlisle line was requested.
- There were requests for information on a longer-term view.

Ormskirk – Preston

- There was broad support for option OP1 but some consultees expressed caution about committing to it without knowing which of the other OP options would be progressed. It was thought that further work was necessary to confirm whether an hourly patterned service would be possible in practice before actually removing infrastructure. It was commented that the option would reduce capacity for special trains, and that it may make reopening a station at Midge Hall, to serve new housing developments, more difficult.

8. Strategy

8.1 Introduction

8.1.1

Development work on the December 2008 timetable, Northern Rail's view of how to address HLOS metrics in Leeds and Manchester, and option analysis for the Yorkshire and Humber RUS, have all evolved in parallel as this RUS was being developed. Consequently, some of the recommendations in this RUS are conditional or cross-referenced to other planning activities.

8.1.2

It has been judged that although additional DfT funding through HLOS is minimal in the Lancashire & Cumbria area, the individual small sums required for many of the interventions may reasonably be expected to become available from other sources such as the Regional Funding Allocation or the Transport Innovation Fund. Where funding does not materialise, the recommendations are mostly not time-sensitive and could be implemented at a later date.

8.1.3

Many of the recommendations are reliant on additional rolling stock being available in order to provide longer or more frequent trains. Consequently, the practicality of taking forward these recommendations will be dependent on the process for deploying rolling stock, taking into account the priority likely to be given to meeting the specified capacity outputs in CP4.

8.1.4

The strategy for the next 10 years is described in sections 8.3 and 8.4, set in two parts; Control Period 4 and Control Period 5. Chapter 9 takes a view of the longer term beyond 2019 out to 2038.

8.2 Principles

8.2.1 Dealing with growth

The general principle adopted throughout the RUS has been to consider simpler and lower-cost interventions before turning to more complex and expensive solutions. Timetabling solutions have generally been sought as preferable to infrastructure works, subject to there being no unacceptable performance impact.

8.2.2 Performance

The analysis of Public Performance Measure (PPM) by service group in Figure 3.17 showed six groups operating below the operator PPM target in March 2007. The overall PPM for the sectors in which these trains operate is set by the Government's HLOS and rises to 92 percent at the end of Control Period 4 (in 2013/14). The trajectory of targets for individual operators over the next five years has yet to be finalised, but provisionally they are expected to rise as follows:

- Northern Rail: from 90.0 percent in 2008/09 to 92.2 percent in 2013/14
- TPE: from 92.5 percent in 2008/09 to 94.2 percent in 2013/14
- Significant lateness and cancellations are required to reduce as follows (sector targets):
 - Regional (includes Northern Rail): by 27 percent to 2.2 percent of trains in 2013/14
 - Long distance (includes TPE): by 36 percent to 3.8 percent of trains in 2013/14
 - Network Rail delay minutes for freight services nationally are to reduce from 3.92 delay minutes per 100 train km in 2008/09 to 2.94 in 2013/14.



These targets will be delivered through a Long Term Performance Plan (LTPP) being developed between Network Rail and each operator. This process will devolve ownership of the initiatives and targets to local level within the operators and the various Network Rail functions. The ORR's draft conclusions on Network Rail funding for CP4 (published in July 2008) identified £160 million for performance schemes to help deliver the targets. The RUS recommendations include a number of minor schemes which could be candidates for some of this money, or for other funding sources such as the Network Rail Discretionary Fund.

8.2.3 Maintainability

The RUS has considered the ongoing maintenance and renewals on routes within the geography and found to have, with the exception of the Settle and Carlisle line, no anticipated problems.

The Settle and Carlisle line, although considered by this RUS for ongoing maintenance, forms an integral part of any strategy being developed for the Anglo-Scottish routes and so cannot be considered in isolation for renewals and future enhancement works requiring increased periods of access. Access patterns between Preston and Carlisle via both routes, will therefore be considered in the West Coast Main Line RUS.

For normal maintenance works, the midweek maintenance strategy for the December 2008 timetable includes additional weeks per annum detailed in the agreed Rules of the Route for the year. Together with the normal Saturday and Sunday night single shift opportunities also available, this constitutes adequate access for maintenance of the route.

8.2.4 Developing the strategy

The RUS seeks to attain the effective and efficient use and development of railway capacity, commensurate with funding and other constraints. It is important to differentiate between:

- measures which contribute to the objective and which are financially neutral or beneficial
- measures which contribute to the objective; which have a net financial cost but are value for money when their socio-economic benefits are considered; and which are necessary to meet gaps identified through RUS analysis
- measures which contribute to the objective which have a net financial cost but are the result of specific requests from railway funders.

The option to operate an hourly service between Preston and Ormskirk falls into the first category, whilst all other recommended options fall into the second category.

8.3 Control Period 4 (2009 – 2014)

8.3.1

There are performance improvement schemes already being developed, and further opportunities that have been identified. Northern's services operating on the Roses line between Preston and Leeds via Burnley perform poorly in comparison to other service groups. A line speed improvement between Burnley Manchester Road and Hebden Bridge would provide some valuable performance benefits to the Leeds – Blackpool North service, whilst some improvements on the Colne branch would bring performance benefits to the Colne – Blackpool South service. Freight and

passenger services on the Settle and Carlisle line would benefit from a redoubling of London Road Junction at Carlisle and substantial civil engineering renewals works at Kirkby Thore to remove a PSR of 30mph. There are other opportunities to enhance renewals to improve performance. It is recommended that the identified and potential performance improvement opportunities are pursued, subject to satisfactory evaluation of costs and performance benefits.

8.3.2

The Draft for Consultation document identified from the baseline timetable, that there was a case for an improved pattern of services on the Cumbrian Coast using additional vehicles. In its recent bid for services in the December 2008 timetable, Northern has proposed changes that partially address the gaps, although some may appear in the future.

- a. Peak services into Sellafield currently suffer from overcrowding on those trains carrying shift workers, and there is a business case to strengthen these trains with additional units. Northern's bid for the December 2008 timetable on the Cumbrian coast would seem to have addressed this gap for now. However, it is expected that around 2010 Sellafield Ltd will move away from its traditional shift patterns towards more normal office hours. This will make it impossible for a unit to serve both the peak flow into Sellafield and into Barrow – as Northern plans to do in December 2008 – and it is likely that at that time the gap of peak crowding into Sellafield will reappear. It is recommended that Northern discuss with Sellafield Ltd their expectations for 2010 and identify whether there would then be a case for additional vehicles and a recast timetable.
- b. The Draft for Consultation document established that there was a case for additional units in order to serve Sellafield better from the North and at the same time put the Cumbrian coast service onto a clockface pattern. The proposed Northern

timetable for December 2008 has taken steps to address these issues, providing a much more frequent service than now, across the section between Whitehaven and Sellafield. It is recommended that in conjunction with establishing with Sellafield Ltd the future requirement for serving Sellafield from the south, the service for the whole Cumbrian Coast is reviewed to see if additional vehicles to serve Sellafield from the north and to provide a better pattern of service along the whole route, can still be justified and can be procured.

- c. There is no case to provide an hourly Northern service between Barrow and Lancaster using additional units. However, it is recommended that when reviewing the Cumbrian coast timetable for potential changes in 2010, the review is from Lancaster to Carlisle, to see if the case can then be made for the hourly service.

8.3.3

It is recommended that the existing three per day each way Sunday service between Carlisle and Whitehaven is expanded to four per day, if that can be accommodated within the existing resources.

8.3.4

The case for providing a Sunday service between Whitehaven and Barrow has not been made. It is recommended that the rail industry work with outside parties to establish the additional level of support the service would require to be operated, in whole or in part.

8.3.5

On the Settle and Carlisle line, an hourly passenger service between Leeds and Carlisle cannot operate with the existing level of freight traffic without a substantial level of investment in infrastructure – for which there is no economic case. The existing level of freight traffic is expected to remain for the foreseeable future, and indeed potentially grow. There is an economic case with a BCR of 1.5, including the lease cost of additional units, to operate a greater number of passenger services on

the Settle and Carlisle line where a path exists. The case would be made stronger if the service were operated with marginal time of peak units. It is hence recommended that the base passenger service is a two-hourly pattern, giving suitable arrivals and departures at Carlisle to give good connections with other services and meet commuter aspirations, and that this is augmented with targeted additional services where the likely passenger market and space in the timetable coincide, and units are available. The right balance on the Settle and Carlisle line between freight needs, passenger needs, maintenance and renewals will remain a critical issue. For this reason the issue has been passed to the WCML RUS to consider in the context of an East Coast, West Coast and Settle and Carlisle strategy. It is recognised that substantial engineering works over recent years will have suppressed passenger demand on the line, and that there could be a step change increase in demand. It is expected that train lengthening would accommodate such a change in demand, and if there were a financial case, additional services on Sundays.

8.3.6

In combination with the WCML work, the maintainer believes that steady state maintenance of the Settle and Carlisle line can be achieved with the increased midweek access, currently four weeks per annum and extended to six weeks per annum in the 2008/09 timetable year. The strategy for renewals work on the Settle and Carlisle Line can only be established in conjunction with a strategy for the Glasgow and South Western Line, the West Coast Main Line and the East Coast Main Line and will need to be developed within the West Coast RUS and Seven-Day railway initiative.

8.3.7

The Morecambe – Leeds service provides a poor service for commuters to both Lancaster and Leeds, arriving too late in the morning to be useful. The service is also relatively infrequent. The Draft for Consultation recommended that a better overall service

would be provided if the service were cut back from Leeds to Skipton, and the same rolling stock and crew resource deployed to double the frequency of Lancaster – Skipton services. There has been strong opposition to this in the consultation responses, and as the economic case is marginal and very dependent of crewing efficiencies that might not be realised in practice this option is not recommended in the final strategy. Instead, it is recommended that Northern review whether the service could be partly resourced from the western end and recast to provide arrivals in the peak into Leeds and Lancaster, good connections at Carnforth for services towards Barrow, and in conjunction with the recast Settle and Carlisle services provide a better pattern of services to Gargrave and Hellifield.

8.3.8

The NW RUS identified that train and platform lengthening was required on the Manchester – Clitheroe services, although delivery of this will depend on funding as the CP4 draft determination did not provide funding for all the capacity measures sought on Manchester radial routes. In addition this RUS recommends that the additional peak services between Manchester and Blackburn should all be extended as far as Clitheroe.

8.3.9

The case for providing a half-hourly service through the day between Manchester and Blackburn has not been made. It is recommended that the Rail Industry work with outside parties to establish the additional infrastructure required, its associated cost, and the level of support the service would require to be operated.

8.3.10

The consultation draft of this RUS identified that a service linking Manchester and Burnley/Accrington via a new curve at Todmorden would not justify the operating and infrastructure costs. However, if it becomes necessary to extend the current Manchester – Rochdale stopping service to Todmorden to meet HLOS capacity specification and this

requires provision of a turnback facility then the incremental case for a further extension of the service to Burnley or Accrington would be medium value for money. Consultation responses included a report carved out on behalf of Lancashire County Council and Burnley Borough Council which proposed a very limited-stop service above the existing quantum between Todmorden and Manchester. This pattern of service appears to have a stronger business case than a simple extension of the stopping service, provided suitable rolling stock and timetabling paths are available, although the likely value for money is still likely to be lower than the level typically required for DfT funding for rail infrastructure. It is therefore recommended that stakeholders work together to further develop the business case for this option including understanding the potential benefits, funding sources, rolling stock availability and timetabling requirements.

8.3.11

Enhancements to track and signal work in the Rufford and Midge Hall area, along with overall improvements to line speeds would allow a standard hourly service pattern between Preston and Ormskirk without the requirement for additional rolling stock. This improved journey time and regular service facilitates (but does not fully deliver) the local stakeholders' aspirations for a service between Southport, Preston and Ormskirk. It is recommended that this scheme is delivered in CP4. It has a positive financial case and the development work for a more extensive scheme should begin in CP4 with a view to implementing in CP5 if funding is available. Determining the best option will take account of the results of the demand study that Merseytravel is carrying out, but which will not be completed before publication of the RUS. There is a desire for a Sunday service on the line and it is recommended that the rail industry work with outside parties to establish the level of support the service would require to be operated.

8.3.12

An initial appraisal of alternative timetable patterns for the Windermere branch indicated that there is broad economic equivalence for either irregular departures to maximise the number of through journey opportunities at Oxenholme, or clock face departures with less regular connections. Responses to the RUS consultation document identified that TPE had a much altered pattern of services included in its December 2008 timetable bid compared with earlier drafts, which was broadly supported by the user groups. The recommendation is therefore to leave the pattern unaltered from TPE's proposals and not revisit this in the West Coast RUS.

8.3.13

A number of minor investments are recommended at Preston station (Platforms 1 and 2), Carlisle, Ormskirk, Blackburn and Burscough Junction to improve interchange facilities. These are consistent with the overall thrust of the RUS, which is to move the timetables towards a regular pattern with good connections and improved station facilities. Further options have been identified at Preston which will be passed to the West Coast RUS to develop.

8.3.14

Carlisle is perceived to be a bottleneck in capacity where the West Coast and the Glasgow and South Western/Settle and Carlisle flows combine, and there is a belief that reinstating the former Carlisle Avoiding lines would relieve this bottleneck. As the information was not available to come to a decision on this within this RUS it is recommended that this study is passed to the West Coast RUS to progress.

8.3.15

There is broad support for retaining the option to reinstate the line between Colne and Skipton, and it is recommended that the formation is protected.

8.4 Control Period 5 (2014 – 2019)

8.4.1

Resignalling and remodelling is planned for the Whitehaven – Maryport area for implementation in early CP5. Some value-for-money enhancements are already identified, others will be dependent on the timetable resulting from Northern Rail's discussions with Sellafeld Ltd about future work patterns, and further enhancements will depend on the long-term view of traffic volumes. Development of the resignalling scheme will take all these into account.

8.4.2

There will be demand for more Sunday services in the future and for those not to bring significant associated operating costs, the number of manual signal boxes will need to have been reduced, and revisions made to access regimes for maintenance and renewals.

8.4.3

The preferred long-term solution (from three options) at Burscough should be implemented allowing rail passenger journeys between Southport and Preston.

8.4.4

Should the tram-train trial prove successful, it is recommended that some of the services in the RUS area be examined to see if transfer to tram-train operation is beneficial.

8.5 Summary of issues received from or passed on to other RUSs

Table 8.1 summarises the issues arising from other RUSs that have been considered within this RUS. Table 8.2 summarises the issues from this RUS that could be considered more effectively in other RUSs.

Table 8.1 – Issues received from other RUSs

Issue	Reference	Action
Freight RUS capacity - conflicting movements south of Carlisle	Freight RUS Chapter 5 gaps 2 and 4	The issue is addressed by the CP3 planned works, but any potential residual capacity issue was considered through Option S5 (option recommended) – however see table 8.2
Bolton – Blackburn off peak service	NW RUS 5.3.8 Option 2	Considered through Option R2; option not recommended
Reinstate Todmorden Curve services	NW RUS 5.3.7 Option 1	Considered through Option R5; option development recommended
More Preston – Liverpool services	NW RUS 5.3.14 Options 1 and 3	Considered through Options OP5 and OP6; options not recommended

Table 8.2 – Issues passed to other RUSs

Issue	Reference	Action
Capability of the S&C to cope with diverted traffic from the WCML	Chapter 6 – section on WCML	To be considered alongside Preston – Carlisle capacity West Coast Main Line RUS
Freight RUS capacity – conflicting movements south of Carlisle	Freight RUS Chapter 5 gap 2 and 4, Option MC4	If any gap remains after the planned CP3 works and option S5, West Coast Main Line RUS could consider the case for redoubling Carlisle South Jn and/or reinstating the avoiding lines
Improve Preston interchange beyond that in Option MC1	Option MC2	To be considered within West Coast Main Line RUS

9. A longer-term view

9.1 Introduction

9.1.1

The purpose of this section is:

- To provide an initial overview of longer term strategic issues as an input to the DfT's development of policy options through the TaSTs (Towards a Sustainable Transport policy) process.
- To check that RUS recommendations are consistent with longer-term requirements.
- To identify any future schemes where development will need to start within the 10-year RUS period.

9.1.2

It is not possible to produce accurate demand forecasts over a 30-year period, so the 2007 White Paper 'Delivering a Sustainable Railway' has been used, which includes the suggestion that passenger and freight traffic might double over 30 years.

- Leisure travel - midweek, weekend (particularly Sundays) and business travel is expected to grow faster than commuting, and this is likely to be especially true in the Lancashire and Cumbria RUS area with its many tourism and leisure destinations.
- In general freight growth is expected to double with intermodal freight traffic being disproportionately strong (possibly even quadrupling). It is anticipated that other commodities will grow at a slower rate.

9.2 General strategy

9.2.1

Many passenger services in the RUS area are lightly loaded and have enough spare capacity to accommodate double the current levels of demand. In most other cases, lengthening from two to three or four cars will be sufficient

to accommodate demand. There is a case for an increased level of frequency in a few instances, but only where this is more cost-effective than further lengthening.

9.2.2

The level of freight traffic is quite low on many routes. Therefore, doubling of demand can be accommodated by using current paths (in more days per week) or finding a small number of additional paths.

9.2.3

The increase in intermodal freight will imply a significant increase in traffic that would naturally be routed via the WCML. In terms of this RUS, the increased rerouting of freight off the WCML by either the Settle and Carlisle or the Cumbrian coast is likely to be the main challenge. However, before reaching any firm decisions for the routes on this RUS, decisions will need to have been made regarding the most appropriate means to allow greater levels of freight traffic between England and Scotland. Whilst that may mean appropriate works on the Settle and Carlisle or the Cumbrian coast for gauge clearance, to allow unrestricted access for heavy axle weight vehicles and extended loop lengths, it might alternatively mean four tracking sections of two track on the ECML or 'crawler lanes' on the WCML on the uphill sections.

9.2.4

Much of the route is currently controlled by manual signal boxes, absolute block and semaphore signalling. Establishing business cases to convert signalling to colour lights, track circuits and centralised control has proved very difficult. Only where there are many boxes in a relatively small area of railway, such as between Whitehaven and



Maryport, will there be likely to be a business case. It is anticipated that as modular signalling is developed for rural lines, a cost effective solution will be found to allow the centralisation of signalling control. With such a solution, control would be concentrated in the following way; north Cumbria controlled by Maryport prior to transferring into Carlisle; south Cumbria controlled by Barrow, prior to transferring to Preston; the Settle and Carlisle line transferring to Carlisle, possibly via an intermediate control point if the timing does not align to migrate straight to Carlisle.

9.3 Cumbrian Coast

9.3.1

Generally the doubling of off-peak demand can be accommodated within spare capacity of current services (ie. current load factor usually less than 50 percent).

9.3.2

Doubling of peak demand into Carlisle and Barrow might require some trains to be lengthened to three or four cars. Therefore, an extra service in the morning and evening peak might be able to be justified.

9.3.3

Longer trains may be necessary to accommodate weekend and seasonal holiday traffic, with increasing pressure to operate a significant Sunday service the full length of the coast.

9.3.4

The Draft for Consultation document identified that an additional five vehicles could be justified, based on current patronage, existing shift patterns at Sellafield and the 2006/07 timetable. Growth in Sellafield peak traffic is uncertain. However there does seem to be a steady market and the ability to expand

modal share. Should that happen, it is likely that additional vehicles to serve Sellafield could be justified.

9.3.5

Freight growth could be accommodated by using current paths on more days of the week, or the same paths in additional hours.

9.3.6

The above are achievable without providing additional infrastructure beyond existing RUS recommendations, except some potential further platform lengthening to accommodate four-car trains.

9.3.7

If the decision was taken to reroute significant levels of freight traffic via the Cumbrian Coast (that would otherwise have gone via the WCML), then some gauge clearance works would be required – mainly on the former Maryport and Carlisle section. It would also involve a reduction in the amount of single line sections, by redoubling the appropriate sections of track.

9.4 Settle and Carlisle

9.4.1

The doubling of passenger demand can generally be accommodated within the spare capacity of current services (ie. the current load factor is usually less than 50 percent) and the small number of additional trains that are recommended in the RUS. Some selective lengthening to four or six cars might be necessary to accommodate seasonal peak loadings and this would require platform lengthening at particular stations.

9.4.2

Significant freight growth is likely, and whilst there could be a long-term reduction in coal movements due to a progressive switch away

from coal-fired power generation and more coal imported via East Coast ports, the strong growth in West Coast traffic, particularly intermodal, is likely to lead to an increased need to route some WCML trains via the Settle and Carlisle line. The gauge clearance of the Settle and Carlisle line would then become an obstacle to such transfers.

9.4.3

The current line capacity is limited by signalling headway (practical headway around 18 minutes between freight trains after installation of the planned additional signals) and the speed differential between passenger and freight (around 40 minutes). It is theoretically possible to run one passenger train plus four freight trains in each two-hour period. The current freight traffic equates to just over one train per hour and some further paths will be required for trains diverted off the WCML following the introduction of the December 2008 timetable. If the passenger service is limited to one train in each two-hour period for most of the day as at present, there is scope for about 30 percent growth in freight traffic through the use of additional paths. Increasing the weight of the freight train to 2400 tonnes would increase speed differential and reduce throughput to one passenger train plus three freight trains every two hours, therefore preventing an increase in the total freight tonnage that could be moved.

9.4.4

Options to increase capacity further are:

- Double-heading freight trains. This would allow double the tonnage to be conveyed in current timings on the current infrastructure, subject to length limits. It would require a number (approximately 10) of additional locomotives.
- Further signalling improvements could reduce the headway between freight trains. Ultimately a headway of around five minutes might be possible by use of ERTMS or conventional multiple aspect signalling. This might allow one passenger plus three freight trains per hour, providing

approximately double the current passenger and freight capacity. Additional facilities at Carlisle and Skipton/Leeds/Blackburn (to be identified) would probably be necessary to accommodate that level of traffic.

- Provision of extended loops or a section of three or four-tracking to allow passenger trains to overtake. This is likely to be expensive and introduce a performance risk. Additional tracks would be dependent on location and gradients, with the steep uphill sections providing the best opportunity to overtake but, by the nature of the geography, usually more expensive than equivalent infrastructure where the alignment is level.

9.4.5

Further headway improvements, beyond that already planned, may be necessary between Hellifield and Blackburn if there is a significant increase in the level of freight traffic routed that way in future.

9.4.6

If it is decided that intermodal traffic is pathed via the Settle and Carlisle line, it may not be possible to route W12 or even W10 traffic through the many and extensive tunnels without prohibitive cost.

9.5 Roses line

9.5.1

All trains are currently two or three-car so the doubling of passenger demand is easily accommodated by use of spare capacity (where current load factor is less than 50 percent) and lengthening to three, four or six cars where necessary. This may require targeted platform lengthening, but both train and platform lengthening is already planned for the Clitheroe – Manchester route.

9.5.2

Alternatively a two tph Blackpool/Preston – Leeds service could be provided. This may require providing the capability to overtake local trains somewhere on the route. The most likely location for this facility would be at Blackburn.

9.5.3

Commuting traffic from Blackburn to Manchester may be at such a high level that it would not be able to be accommodated within sensible train lengthening. Therefore it may require doubling of the Bolton - Blackburn line to allow a further frequency increase.

9.5.4

There are low levels of freight traffic on most of the route with growth being generally accommodated by use of current paths on more days per week.

9.5.5

There could be a significant increase in WCML freight diverted via Roses and Settle and Carlisle lines. This would increase the utilisation of Linstock Hall – Daisyfield Jn section to close to theoretical maximum capacity. Daisyfield Jn would almost inevitably need to be doubled out, and there may be the need for a new chord to allow freight traffic from the Roses line to avoid crossing the fast lines of the WCML at Farrington Jn. There would also likely to be a need for loops or further running lines to accommodate this rerouted freight traffic.

9.5.6

Should the promoters of the scheme to reopen the route from Skipton – Colne be successful in securing funding, then it is likely that this line will have been reopened.

9.6 Preston – Ormskirk

9.6.1

For the foreseeable future, passenger growth would be accommodated by using spare capacity where the current load factor is less than 50 percent and targeted train lengthening when necessary.

9.6.2

It is possible that growth might be significantly more than double, eg. if the Southport service proves to be remarkably successful or this becomes the route of choice between Preston and Liverpool. There would then come a point when the provision of looping facilities to permit two trains per hour for some or part

of the day, most likely the peak, would be economically the preferred choice over the option of further train lengthening.

9.7 Branch lines

9.7.1

The use of spare capacity and maybe some selective lengthening is likely to be sufficient to deal with passenger growth.

9.7.2

Should freight growth make it necessary for a significant level of freight traffic over the Carnforth – Settle Junction line, then the long block section on the line would need to be broken with additional signals, although the introduction of ERTMS could provide this facility.

10. Next steps

10.1 Introduction

This RUS will become established 60 days after publication unless the ORR issues a notice of objection within this period.

The recommendations of this RUS form an input into decisions made by industry funders and suppliers on for example, franchise specifications, investment plans and the Government's HLOSs.

10.2 Network Rail Route Plans

The Route Plan for Network Rail Strategic Route 23 includes all the routes covered by this RUS, albeit that some options could affect strategic routes 10, 18, 20 and 21. The route plans were published alongside the Strategic Business Plan (SBP) update in April 2008, and are updated regularly. They list all significant planned investment on the route, including scheduled renewals as well as committed and aspirational enhancements. The next Business Plan (April 2009) will incorporate the RUS conclusions and relevant outputs from the final determination of the SBP.

10.3 High Level Output Specification (HLOS) & Periodic Review

In July 2007 the Department for Transport issued its HLOS to define the outputs it wishes to buy from the railway system in Control Period 4 (2009 – 2014). Network Rail, taking into account other obligations and funders' reasonable requirements, responded in conjunction with industry stakeholders to the HLOS and its associated Statement of Funds Available (SoFA) with its November 2007 SBP and its April 2008 SBP update. In June 2008 the ORR gave its draft determination of the funding required by Network Rail to meet these requirements in CP4, and Network

Rail is working with industry stakeholders to respond to this. This work includes determining with the train operators the optimal deployment of the additional rolling stock and associated platform lengthening in order to meet the HLOS metrics. The ORR's final determination is expected in October 2008. A similar process is expected to be carried out for funding in Control Period 5 (2014 – 2019).

10.4 Other RUSs

Some of the options this RUS initially considered have been passed on to other RUSs. The Yorkshire and Humber and the Merseyside RUSs are both expected to publish a draft for consultation in the autumn of 2008. The West Coast Main Line RUS is critical to the resolution of some of the issues identified on the Lancashire and Cumbria route. It is currently being scoped, with most of the analysis expected to take place in 2009 following the introduction of significant changes to the train service in December 2008.

10.5 Ongoing access to the network

This RUS will also help to inform the allocation of capacity on the network through application of normal Network Code processes.

10.6 Review

Network Rail is obliged to maintain a RUS once it is established. This requires a review using the same principles and methods used to develop the RUS:

- when circumstances have changed
- when directed to by the ORR
- when (for whatever reason) the conclusions may no longer be valid.



Appendices

- Appendix A:** Baseline report as per Baseline Exhibition April 2007. Available at www.networkrail.co.uk.
- Appendix B:** Gaps and options from Draft for Consultation document issued April 2008. Available at www.networkrail.co.uk.
- Appendix C:** Further options analysis following consultees responses to Draft for Consultation April 2008. Available at www.networkrail.co.uk.
- Appendix D :** Consultee list
- Glossary**



Appendix D: Consultee list

Stakeholder Management Group	Other Bodies
Association of Train Operating Companies	Aire Valley Rail Users Group
Department for Transport	Blackpool & Fylde Rail Users Association
Direct Rail Services Ltd	British Transport Police
English Welsh and Scottish Railway Ltd	Community Rail Partnership – East & West Lancashire
Freightliner Ltd	Cumbrian Vision
GB Railfreight	Eden Valley Railway Trust
Northern Rail	Friends of Carnforth Trust
Office of Rail Regulation	Friends of the Lake District
First Keolis TransPennine Express	Friends of the Settle – Carlisle line
Statutory Bodies	Freight Transport Association
Department for Transport	Furness Line Action Group (FLAG)
Government Office of the North West	Highways Agency
Merseytravel	Lakes Lines Community Rail Partnership
Northern Way	Lakes Line Rail Users Group
4NW (formally North West Regional Assembly)	Lancaster & Skipton Rail Users Group
North West Regional Development Agency	Leeds – Lancaster/Morecambe Community Rail Partnership
Office of Rail Regulation	North West Rail Campaign
Passenger Focus	North West Transport Activists Round table
Yorkshire Forward	Ormskirk – Preston – Southport Travellers Association (OPSTA)
Local Authorities	Rail Freight Group
Blackburn with Darwen Borough Council	Rail Future
Blackpool Borough Council	Ravenglass & Eskdale Railway
Bootle Parish Council	Ribble Valley Rail Rail Users Group
Burnley Borough Council	Settle – Carlisle Railway Dev. Co.
Carlisle City Council	Skipton – East Lancs Rail Action Partnership (SELRAP)
Craven District Council	Support the East Lancs Line Association (STELLA)
Cumbria County Council	Travel Watch North West
Hyndburn Borough Council	Elected Representatives
Lancaster City Council	MPs in the Region
Lancashire County Council	Businesses
North Yorkshire Council	Business in the Community
Ribble Valley Borough Council	Ports and Airports
Sefton Council	Sellafield Ltd
West Lancashire District Council	

Glossary of terms

TERM	MEANING
Absolute Block Signalling	(AB) is a long established form of signalling mainly, but not necessarily, associated with semaphore signals and one signal box for each signalling section. Its purpose is to ensure that only one train is within a given section of line at a time. Each signal box is equipped with Block Indicators, which show Line Blocked, Line Clear or Train on Line.
ATOC	Association of Train Operating Companies
BCR	Benefit Cost Ratio
CUI	Capacity Utilisation Index
Dalesrail	Stand alone Sunday service from Preston/Blackpool to Carlisle via Settle and Carlisle line (two round trips)
DfT	Department for Transport
DRS	Direct Rail Services
Dwell time	The time a train is stationary at a station
ECML	East Coast Main Line
EWS	English Welsh and Scottish Railway
FOC	Freight Operating Company
GRIP	Guide to Railway Investment Projects
GSW	Glasgow and South Western (line between Gretna Jn and Dumfries and on towards Glasgow)
Headway	on a particular route is the minimum time necessary between the passage of similar trains which will ensure that the driver of the second train will always be travelling under green aspects (ie. not double or single yellows). On certain Track Circuit Block Lines with four aspect signals the headway is two minutes whereas on a line with Absolute Block Signalling the headway may be 10 minutes or more.
HLOS	High Level Output Specification
Intermodal trains	Trains which convey traffic which could be moved by road, rail or sea (eg. container traffic).
L&C	Lancashire and Cumbria
Loading factor	The amount of seats occupied on a train service expressed as a percentage of total seats available.
Loading gauge	The Load Gauge is the profile for a particular rail route within which all vehicles or loads must remain to ensure that sufficient clearance is available at all structures.
LENNON	Latest Earnings Networked Nationally Over Night; records most ticket sales
Looped	Operational term for when one train is placed onto an adjacent line whilst a faster train passes
MOIRA	Industry standard demand forecasting model
Multiple Unit Trains (DMU & EMU)	Trains composed of self-contained units, coupled together so that they work in unison under the control of the driver at the front of the leading unit. Each unit is normally composed of two or more semi-permanently coupled vehicles and a driving compartment is provided at each end of every unit. There are diesel multiple units (DMU) and electric multiple units (EMU).
NRDF	Network Rail Discretionary Fund
ORR	Office of Rail Regulation
Perturbation	The word used to describe disruption to the planned train service pattern

PPM	Public Performance Measure
PSR	Permanent Speed Restriction
PTE	Passenger Transport Executive
Route Availability (RA)	The system which determines which types of locomotive and rolling stock can travel over any particular route. The main criteria for establishing RA usually concerns the strength of underline bridges in relation to axle loads and speed, although certain routes have abnormal clearance problems (eg. very tight tunnels). A locomotive of RA8 is not permitted on a route of RA6 for example.
Roses line	Preston – Leeds via Blackburn route (and including Blackburn – Hellfield and Rose Grove – Colne).
RDA	Regional Development Agency
RES	Regional Economic Strategy
RPA	Regional Planning Assessment
RSPB	Royal Society for the Protection of Birds
RSS	Regional Spatial Strategy
RUS	Route Utilisation Strategy
SBP	Strategic Business Plan
SMG	Industry Stakeholder Management Group
S&C	Settle and Carlisle
SRA	Strategic Rail Authority
Standard Length Unit (SLU)	A railway term of measurement. One SLU = 6 metres or 21 feet. By describing a length of a train in SLUs, it is easy to establish if it can or cannot be accommodated in a particular loop or siding.
tph	trains per hour
Track Circuit Block Signalling (TCB)	A signalling system which requires the entire line to be track circuited. The presence or otherwise of trains is detected automatically by the track circuits. Consequently many of the signals on TCB Lines operate automatically as a result of the passage of trains. The associated equipment ensures that only one train can be in a “section” at any given time.
TPE	First Keolis TransPennine Express
TOC	Train Operating Company
Warrington stations	This consists of Warrington Bank Quay and Warrington Central stations
WC2008	Timetable for the West Coast Main Line and related routes being developed for implementation in December 2008
WCML	West Coast Main Line
WCRM	West Coast Route Modernisation
Wigan stations	This consists of Wigan Wallgate and Wigan North Western stations
WSG	Wider Stakeholder Group
WYPTE	West Yorkshire Passenger Transport Executive

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