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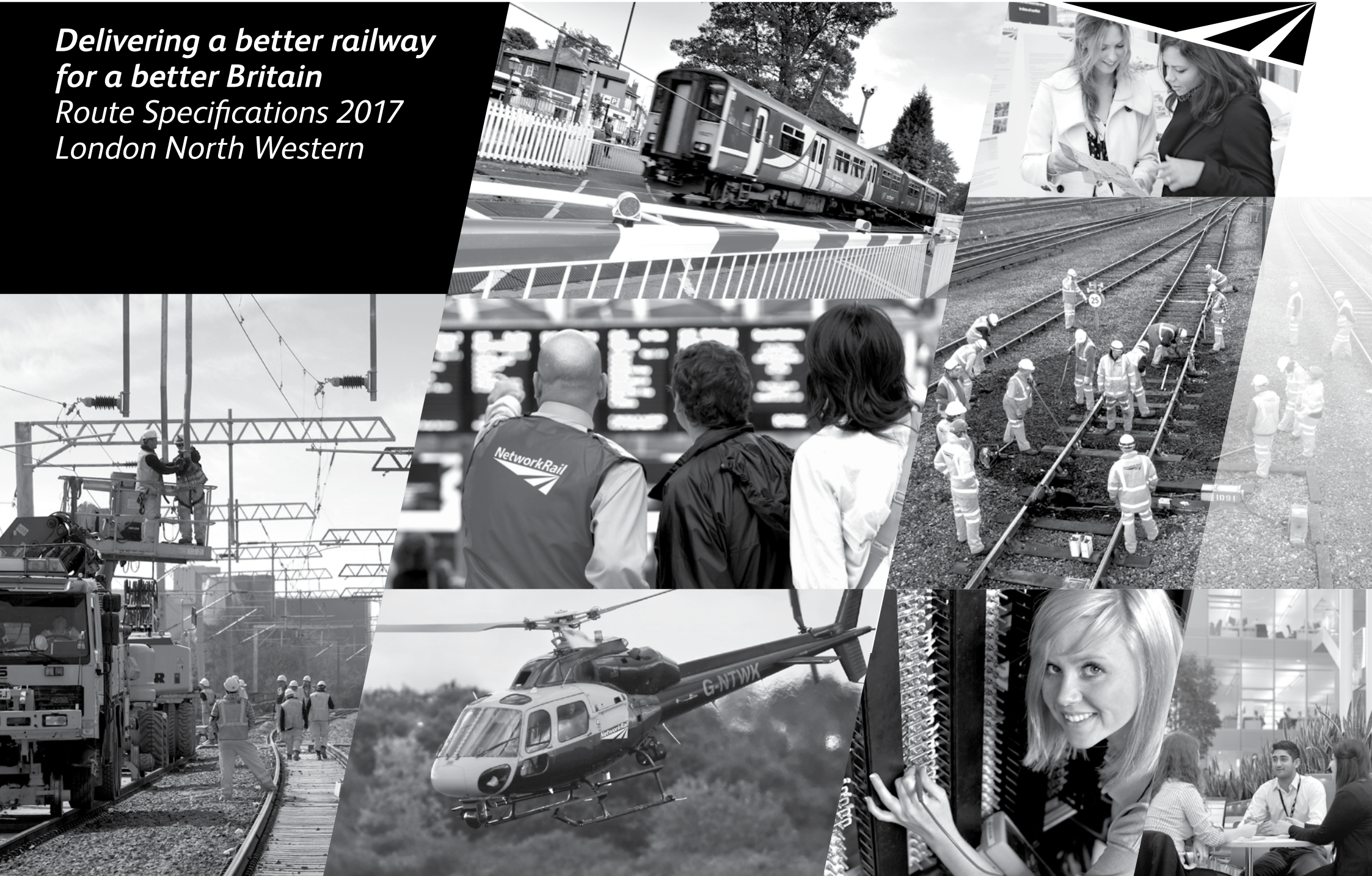
Route Specifications 2017

London North Western



London North Western

Route H: Cross-Pennine, Yorkshire & Humber and North West (North West section)

Route M: West Midlands and Chilterns

Route N: West Coast Main Line

Route O: Merseyside

Interface with other routes (refer to separate Strategic Route Specifications documents)

Scotland Route: SRS Q.01 Glasgow Central to Carstairs

Sussex Route: SRS B.13 West London Line - Milton Keynes to East/South Croydon

Anglia Route: SRS E.01 Richmond to Willesden Jn - Acton Branch (freight line)

SRS E.02 North London Line - Willesden Junction to Gospel Oak

LUL Network: Bakerloo Line on DC lines - Harrow & Wealdstone to Queens Park

Wales Route: SRS L.04-05 Newport to Crewe

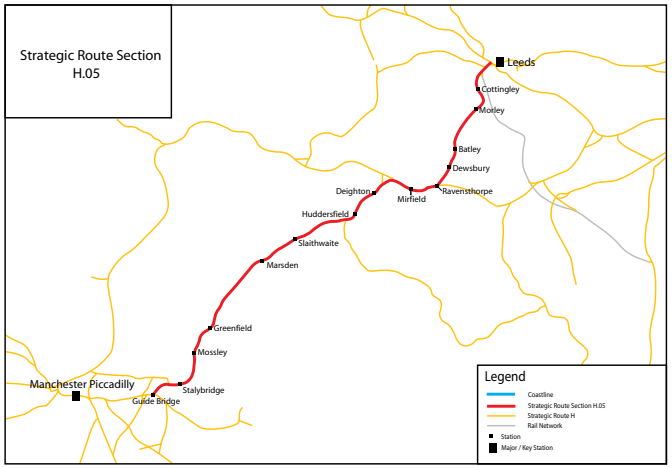
SRS L.13-14 Chester to Holyhead

East Mids Route: SRS I.01 St Pancras International to Bedford

SRS I.11 North Staffs Junction to Stoke-on-Trent

Route H: Cross-Pennine, Yorkshire & Humber and North West (North West section)

SRS H.05 North Transpennine: Leeds - Guide Bridge



Route specification description

This Route Specification links Greater Manchester and Leeds via Huddersfield with a combination of regional, inter-urban and freight services. Commuting between West Yorkshire and Greater Manchester (and vice versa) are the dominant flows in addition to longer-distance trans-Pennine traffic. It is a double track 36 mile route covering both London North Eastern (LNE) and London North Western (LNW), with the boundary being to the west of Standedge Tunnel.

The route between Leeds (exclusive) and Thornhill Junction LNW contains five stations, whilst the section of route from Heaton Lodge Junction to Stalybridge exclusive contains six stations. Huddersfield station is the major station on this section of route and is managed by TransPennine Express. The station has eight platforms, two of which are bay platforms. Express services operate to Manchester, Liverpool, Leeds, Hull and to the North East. The station also serves stopping services to/from Leeds and Wakefield Westgate as well as to Penistone and Sheffield. The route also carries a number of freight services including aggregates, domestic waste and biomass.

Stalybridge is served by a station which has five platforms, and is where the route divides towards either Manchester Piccadilly or Manchester Victoria.

There are passenger loops at Dewsbury, in the down direction, Huddersfield, Marsden, Diggle and Stalybridge. The route contains five level crossings and two major tunnels.

The section between Thornhill Junction and Heaton Lodge Junction has three tracks. This route excludes the section of route between Mirfield East Junction and Thornhill London North West Junction. This is included in Route Specification H.09.

The route contains several major structures, namely:

- Dewsbury Viaduct (MDL1/9), stone viaduct, 11 arches
- Batley Viaduct (MDL1/27), stone viaduct, 16 arches
- Slaithwaite Viaduct (MVL3/61), stone and brick construction, 14 spans
- Crimble Viaduct (MVL3/64), stone and brick construction, 19 spans
- Milne Viaduct (Longwood) (MVL3/76), stone and brick construction, 20 spans
- Huddersfield Viaduct (MVL3/92), wrought iron and stone construction, 47 spans
- One grade separated junction at Heaton Lodge Junction.
- There is also a Strategic Freight Site at Hillhouse on this route.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	North Trans Pennine: Leeds – Guide Bridge			
Section start	MDL1: 32m 342 yds (Thornhill LNW Junction), MVL4: 28m 1716 yds (Bradley Junction.), MVL3: 7m 1630 yds (Stalybridge), MVN2: 37m 779 yds (Heaton Lodge Junction.), SAJ: 0m 85 yds (Ardwick)			
Section end	MDL1: 42m 58 yds (Leeds), MVL4: 29m 1628 yds (Heaton Lodge Junction.), MVL3: 29m 957 yds (Bradley Junction.), MVN2: 39m 703 yds (Mirfield East Junction), SAJ: 2m 177 yds (Stalybridge)			
Route availability	8, 9			
Gauge	W6, W7, W8, W9	W10, W12	W10, W12	
Signals	Track circuit block.	Track circuit block.	ERTMS	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 80 miles per hour.	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock.	Incremental linespeed improvements where possible in line with infrastructure characteristics and capability of rolling stock	
Electrification	Not electrified	Not electrified	25kV AC OHL	See Enhancements Delivery Plan Update 2017

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Leeds – Huddersfield fast 18 minutes and slow 39 minutes Leeds – Manchester fast 52 minutes	Network Rail is developing & designing a solution and a programme of works by the end of December 2017 which could enable enhancements to the capability of the rail network across the North of England to support improvements to journey times, increased capacity and more frequent services between Northern cities (Enhancements Delivery Plan Update 2017).	Future rail service offer and network alignments to be determined by the rail industry in conjunction with Transport for the North.	All future service specifications to be shaped by Market and Route Studies as part of the Long Term Planning Process.
No. of trains per hour	4 tph Leeds–Guide Bridge, 1 tph Huddersfield to east of Leeds & Manchester, 1 tph Huddersfield & Mirfield East Jnc.	The new Northern and TransPennine Express franchises include ambitious commitments to transform rail services in the north of England between now and the end of 2019, with extra services, new trains and a massive increase in capacity to accommodate more passengers while reducing crowding. Network Rail will work with the successful franchise bidders to delive r the outputs of the North of England Programmes and to seek opportunities for further passenger benefits to be delivered as infrastructure schemes are completed during CP6'	Possible changes to service frequency in line with industry aspirations and market requriements.	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Paths in one direction (as per WTT)	1 freight path per off peak hour			See Freight Network Study / Freight Market Study for further information
* Figures are for freight trains in one direction only on an average weekday.				

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	0	As determined by Level Crossing policy	
Automatic:	1		
User:	4		

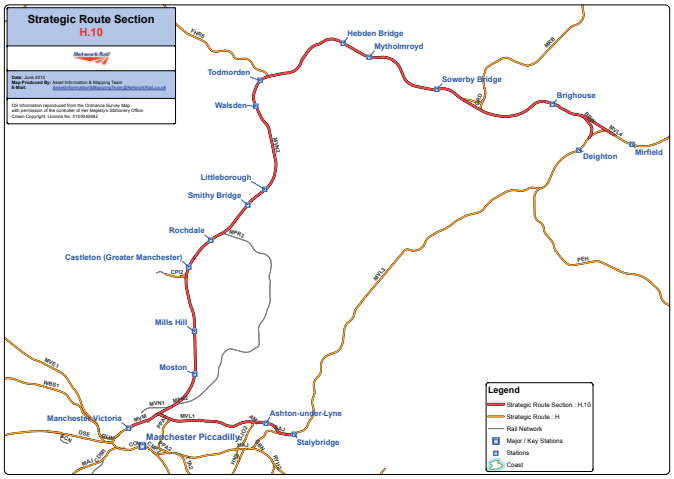
Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Status
Northern Hub	Journey time and capacity improvements between Manchester ¬ Leeds via Diggle	MDL1MVL3 MVL4 SAJ	2014 – 19	Journey time/capacity improvements	In development
Huddersfield Station Capacity Improvements	Platform alterations.	MVL3	2014 – 19	Platform alterations to cater for longer trains to meet Higher Level Output Specification metrics.	In development
Additional stabling for Northern Rail (West Yorkshire)	Stabling for improved Northern Rail fleet (Hillhouse)	MVL3	2014 – 19	Increased capacity.	In development
Leeds Station Capacity Improvements: platforms one to five	Alterations to platform layout.	HUL4	2014 – 19	To meet HLOS passenger growth and improve capacity and performance in Leeds Station area	In development
Leeds City Station Extension of Platform 17	Alterations to platform layout.	HUL4	2014 – 19	To allow additional 4 x 23m cars to terminate on southern side of station.	In development
Leeds Station Capacity Improvements : New through Platform 13/14	Alterations to platform layout.	HUL4	2014 – 19	To meet High Level Output Specification passenger growth and improve capacity and performance in Leeds Station area	In development

* In addition to the proposed enhancement programme, this table includes third party schemes and renewals w ith a value of greater than £5 million.

SRS H.10 Manchester Victoria - Mirfield (via Rochdale)/Stalybridge



Route specification description

This secondary urban route leads in an easterly direction from Manchester to Mirfield via Rochdale, with another route diverging to Stalybridge, via Ashton-under-Lyne. The former crosses the London North Western/London North Eastern boundary at 22 miles 62 chains on MVN2 just west of Hebden Bridge. The section between Miles Platting Junction and Rochdale East Junction via Oldham (the 'Oldham Loop') has been transferred to Transport for Greater Manchester who operate this line as part of Manchester Metrolink. There are approximately 46 miles of route in total. Manchester Victoria to Miles Platting Junction comprises a four track section of route, with the remainder being double track. There is a section of single line between Bradley and Bradley wood junctions between Brighouse and Deighton.

There are fifteen stations on this route including Manchester Victoria and Stalybridge. Manchester Victoria is the major station on this route managed by Northern Rail and has six platforms: two east facing bay platforms and four through platforms, with services radiating towards Yorkshire, Merseyside and various North West destinations. Other notable stations managed by Northern Rail are Stalybridge, Rochdale, Todmorden, Hebden Bridge and Sowerby Bridge.

The Manchester to Mirfield via Rochdale and Manchester to Stalybridge routes are predominantly passenger routes with occasional freight services. There are two level crossings on this route.

The Todmorden Curve scheme provides new junctions, track and associated infrastructure to connect the Calder Valley line with the 'Roses Line'. The re-instatement of this chord provides the opportunity to serve Burnley and Manchester directly by rail.

The Northern Hub programme in CP5 will deliver a direct link between Manchester Victoria and Piccadilly stations via a new chord at Ordsall. This will provide opportunities to improve journey times and connectivity between the Calder Valley and the North West .

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Manchester Victoria – Mirfield (via Rochdale) / Stalybridge			
Section start	BBW 0m 0yds Bradley Junction), BPP -0m 197 yds (Phillips Park W. Junction), MPR1 1m 663 yds (Man. Vic.), MPR3 14m 0 yds (Oldham Loop), MVL1 1m 663 yds (Miles Platting), MVL2 7m 1012 yds (Stalybridge), MVM -0m 45 yds (Manchester Victoria), MVN2 2m 365 yds (Thorpes Bridge Junction), MVN2 9m 616 yds (Castleton)			
Section end	BBW 1m 393yds (Bradley Wood Junction), BPP 0m 525 yds (Brewery Junction), MPR1 2m 387 yds (Thorpes Bridge Junction), MPR3 14m 585 yds (Oldham Loop), MVL1 7m 1013 yds (Stalybridge), MVL2 7m 1630 yds (Stalybridge), MVM 1m 674 yds (Manchester Victoria), MVN2 9m 616 yds (Rochdale), MVN2 37m 779 yds (Heaton Lodge Junction)			
Route availability	8, 9	9	9	
Gauge	W6, W7, W8	W8	W8	
Signals	Mixture of AB and TCB	Mixture of AB and TCB	ERTMS	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 60 miles per hour (mph)	Raise linespeed up to 90 mph	Incremental linespeed improvements where possible in line with infrastructure characteristics and capability of rolling stock	
Electrification	Not electrified	25kV OLE Rochdale and Stalybridge in development	See Electrification RUS	For longer term strategy - see Electrification RUS

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Manchester Victoria – Stalybridge: 15 minutes. Manchester Victoria – Rochdale: 18 minutes. Manchester Victoria – Mirfield: 1 hour 15 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock.	All future service specifications to be shaped by Market and Route Studies as part of the Long Term Planning Process.
No. of trains per hour	Manchester – Stalybridge 2 trains per hour (tph) in each direction. Manchester – Rochdale 4 tph in each direction. Rochdale – Hall Royd Junction 3 tph in each direction. Hall Royd Junction – Milner Royd Junction 4 tph in each direction. Milner Royd Junction – Greetland Junction 1 tph in each direction Greetland Junction – Bradley Wood Junction 2 tph in each direction. Bradley Wood Junction – Heaton Lodge Junction 1 tph in each direction. Bradley Junction – Bradley Wood Junction 1 tph in each direction.	Possible changes to service frequency in line with industry aspirations and market requriements.	Possible changes to service frequency in line with industry aspirations and market requriements.	

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Trains in one direction (as per WTT)	1	For further information please see the Freight Network Study (2017).		
* Figures are for freight trains in one direction only on an average weekday.				

Level crossings on route

Table 4.0			
Type	Current No. of level crossings	2019 No. of level crossings	2043 No. of level crossings
Supervised:	0	As determined by Level Crossing policy	
Automatic:	0		
User:	2		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

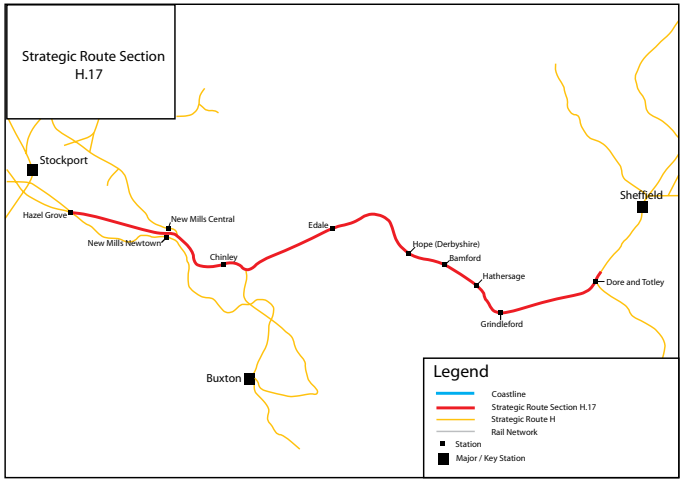
Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Status
Todmorden Curve	Journey time and connectivity improvements between East Lancashire (Burnley) and Manchester	MVN2/FHR6	May 2014	Direct connectivity between Burnley and Manchester. Ability to reverse trains at Todmorden.	Burnley Council	under construction - to be completed by May 2014
Northern Hub Manchester Victoria Interchange facilities	Station improvements, improved access and interchange facilities	MVE1	December 2014	Improved station facilities	DfT, TfGM	under construction
Northern Hub	Journey time and connectivity improvements between Bradford and Manchester	Various	2019	Journey time and connectivity improvements.	DfT	under construction

* In addition to the proposed enhancement programme, this table includes third party schemes and renewals w ith a value of greater than £5 million.

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

SRS H.17 South Transpennine: Dore - Hazel Grove



Route specification description

This interurban route leads in a westerly direction from Dore, south of Sheffield in South Yorkshire, through the Hope Valley (Hathersage and Edale) via New Mills South Junction to Hazel Grove, in the metropolitan borough of Stockport, Greater Manchester.

It is a section of approximately 30 miles of route, all double track with a change of boundary from London North Eastern to London North Western at Dore West Junction. There is a loop for freight trains in the Manchester bound (Down) direction, and Cement freight terminal at Earles Sidings. A freight line diverges at Chinley South Junction towards Buxton (see Freight Route Specification H98 'Peak Forest' branch). There is a junction at New Mills South Junction where the route splits towards either towards Hazel Gove or Romiley and on towards Manchester by either route

The route between Dore and New Mills South Junction contains seven stations. These consist of two platforms with the exception of Dore which is a single platform station with services to Sheffield and Manchester. At the western end of the route, SRS H.17 merges with the following routes at Hazel Grove High Level Junction:

- SRS H.38 Hazel Grove - Edgeley Junction: this route provides direct access between Sheffield and Hope Valley stations with Stockport and Manchester Piccadilly. A single line chord between Hazel Grove East Junction and Hazel Grove High Level Junction links the two routes.
- SRS H.30 Guide Bridge - Chester (via Stockport) (Western Leg): this route provides direct access between the Hope Valley route and the Mid-Cheshire line, predominantly for freight traffic travelling between the Peak Forest and various cement and aggregate terminals across Cheshire. The linking line is a single track, bi-directional route that merges with SRS H.30 at Northenden Junction.

The Hope Valley line carries aggregates traffic from the Peak District quarries and traffic connected with Hope Cement Works to the North East, East Midlands, North West and London/South East. The freight route from Buxton and the Peak Forest joins this route at Chinley (see Route Specification H.98). The route also carries some freight between Manchester and South Humberside.

The Hope Valley currently carries three distinct hourly passenger services between Manchester and Sheffield:

- Liverpool Lime Street – Norwich: this inter-regional service links Merseyside, Warrington, Manchester, the Hope Valley, Sheffield and destinations in the East Midlands and East Anglia.
- Manchester Airport – Cleethorpes: this inter-regional service provides a link between Manchester Airport, South Yorkshire and North Lincolnshire.
- Manchester – Chinley/Sheffield: Alternating stopping service linking communities in South East Greater Manchester and the Hope Valley with Central Manchester and Sheffield.

The route contains three major tunnels.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	South TransPennine: Dore Junction – Hazel Grove East Junction			
Section start	DWS 0m 0 yds (Dore West Junction.), MAS 153m 1650 yds (Dore South Junction.), TTA1 168m 855 yds (Chinley North Junction.), NMC1 172m 235 yds (New Mills South Junction.), HGC 2m 759 yds (Hazel Grove High Level Junction.)			
Section end	DWS 0m 1343 yds (Dore Station Junction), MAS 174m 29 yds (Chinley North Junction), TTA1 172m 439 yds (New Mills South Junction), NMC1 177m 880 yds (Hazel Grove High Level Junction), HGC 2m 1383 yds (Hazel Grove East Junction)			
Route availability	8	8	8	
Gauge	W6, W7	W6, W7	W6, W7,W8	
Signals	Mixture of AB and TCB.	Mixture of AB and TCB.	ERTMS	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 90 mph	Incremental linespeed improvements where possible in line with infrastructure characteristics and capability of rolling stock	Incremental linespeed improvements where possible in line with infrastructure characteristics and capability of rolling stock	
Electrification	Not electrified	Not electrified	See Electrification RUS	For longer term strategy - see Electrification RUS

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Hope Valley Capacity & Journey Time Improvements: Doubling of the single line between Dore West & Dore Station Junction and provision of freight recessing facilities, a passing loop at Bamford, with Infrastructure improvements between Dore and Stockport to provide journey time savings. Subject to TWAO. (Enhancements Delivery Plan Update 2017).	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Future rail service offer and network alignments to be determined by the rail industry in conjunction with Transport for the North.	All future service specifications to be shaped by Market and Route Studies as part of the Long Term Planning Process.

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Trains in one direction (as per WTT)	Approx 3 paths per hour (Earles Sidings - Dore West Jn). Source: Freight Market Study, Base Year (2011/2012)	For further information please see the Freight Network Study (2016) & Freight Market Study (2013)		
* Figures are for freight trains in one direction only on an average weekday.				

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	There are no level crossings in this SRS	As determined by Level Crossing policy	
Automatic:			
User:			

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

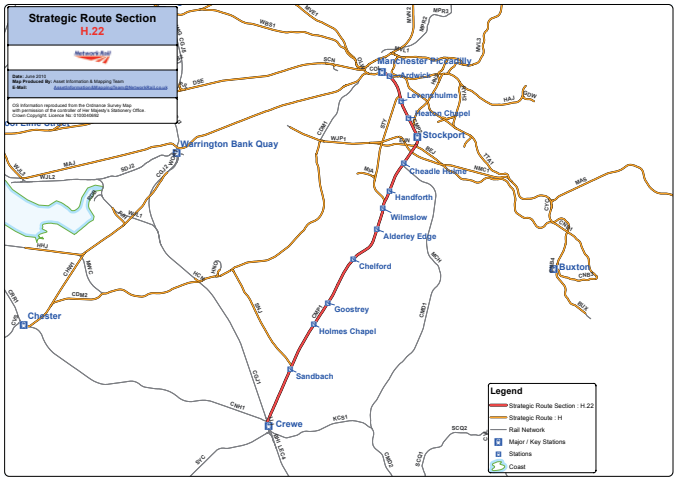
Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Status
Dore and Totley re-signalling	Renewal	DWS, MAS	2014 – 19 (Subject to Transport & Works Act Order)	Renewal of asset.	In development
Hope Valley Resignalling	Renewal	DWS, MAS, TTA1, NMC1, HGC	2014 – 19 (Subject to Transport & Works Act Order)	Renewal of asset.	In development
Dore Station Junction doubling.	Capacity & Performance improvement	MAS	2014 – 19 (Subject to Transport & Works Act Order)	Capacity improvement.	In development
Manchester to Sheffield Journey Time/Capacity Improvements under the Northern Hub including an additional loop in the Hope or Grindleford area so faster trains can overtake slower services.	Capacity, journey time and performance improvement	HGC, NMC1, TTA1, MAS	2014 – 19 (Subject to Transport & Works Act Order)	Capacity, journey time improvements.	In development
Platform lengthening Sheffield to Manchester	Capacity improvement	MAS	2014 – 19 (Subject to Transport & Works Act Order)	Capacity improvement	In development.

* In addition to the proposed enhancement programme, this table includes third party schemes and renewals w ith a value of greater than £5 million.

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

SRS H.22 Manchester Piccadilly - Crewe



Route specification description

SRS H.22 links Crewe and Manchester City Centre via Stockport and Wilmslow. The route serves several markets, namely Long Distance, Inter-Regional, Local, Commuter and Freight. The line is (approximately) 30 miles long, is fully 25kV overhead electrified and consists of a mixture of two track, four track and six track sections. The route is bi-directionally signalled between Sandbach and Wilmslow, which offers a high level of flexibility to mitigate disruption and planned engineering works.

The major junctions on the route are:

- Crewe North Junction – provides access between Crewe Station/ West Coast Main Line and SRS H.22
- Sandbach North and South Junctions – provide access to SRS H.99 – NW3029 and is the location where the four track section south of Sandbach station merges with the two track section north of Sandbach.
- Wilmslow South Junction – provides access between SRS H.31 for Manchester Airport and SRS H.22
- Cheadle Hulme North Junction – provides access between SRS N.08 (main West Coast Main Line route between Manchester and London Euston) and SRS H.22
- Edgeley Junction No. 1 – provides access between SRS H.38 and SRS H.22 three quarters of a mile south of Stockport station.
- Edgeley Junction No. 2 – provides access between SRS H.30 and SRS H.22 immediately south of Stockport station.
- Heaton Norris Junction – provides access between SRS H.30 and SRS H.22 half a mile north of Stockport station.
- Slade Lane Junction – provides access between SRS H.31 for Manchester Airport and SRS H.22 approximately two miles south of Manchester Piccadilly.
- Ardwick Junction – provides access between SRS H.26 and SRS H.22 approximately half a mile south of Manchester Piccadilly.
- Manchester Piccadilly East Junction – the junction immediately south of Manchester Piccadilly station which is used to sort services to access the platforms in the station.

The route has 13 stations, the largest of which are (in terms of passenger usage) Manchester Piccadilly, Stockport, Wilmslow and Crewe and all four serve as interchanges. The other stations serve smaller conurbations, primarily for commuter markets to Manchester.

There are carriage sidings adjacent to Stockport station and a large rolling stock depot is located at Longsight (approximately one mile south of Manchester Piccadilly station).

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Manchester Piccadilly – Crewe North Junction (via Stockport)			
Section start	CMP, 188 miles 70 chains Manchester Piccadilly			
Section end	CMP1, 158 miles 18 chains Crewe North Junction			
Route availability	RA8	RA8	RA8	
Gauge	W9, W10	W9 and W10 – all structures to be W12 when renewed	W12	
Signals	Colour Light Track Circuit Block	Colour Light Track Circuit Block	Subject to the rollout programme of European Rail Traffic Management System (ERTMS).	See Network Specification
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 110 mph	Incremental linespeed improvements where possible in line with infrastructure characteristics and capability of rolling stock	Incremental linespeed improvements where possible in line with infrastructure characteristics and capability of rolling stock	
Electrification	25 kV OHL	25 kV OHL	25 kV OHL	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Fast service - 32 minutes Stopping service - 1 hour	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Opportunities will be sought during major timetable recasts and to consider the implications of HS2 to improve journey times
No. of trains per hour	4 tph	Possible changes to service frequency, in line with with industry aspirations and market requirements	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Route section	Manchester Piccadilly to Crewe			
Daily paths in one direction (as per WTT)	Manchester Piccadilly Slade Lane Junction: 29tpd, Slade Lane Cheadle Hulme: 9 tpd, Cheadle Hulme Crewe 1 tpd (weekday). This equates to broadly one train per hour. Subject to timetable fluctuations and based on average number of trains in each direction	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

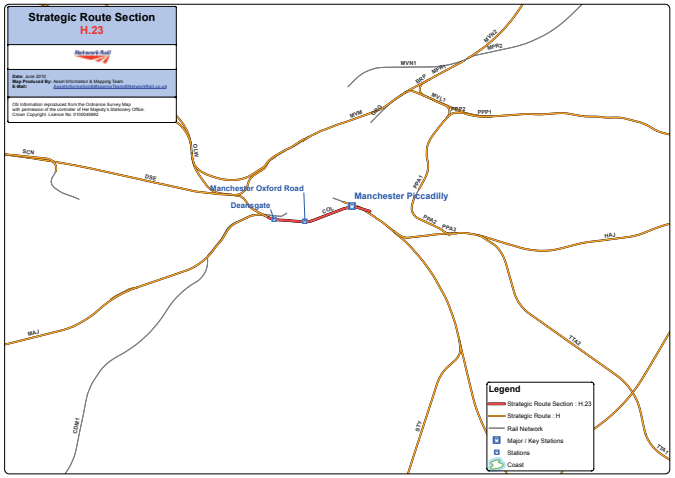
Level crossings on route

There are no level crossings on this route section.

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 4.0							
Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Northern Hub : Manchester Piccadilly station	Provision of two new platforms at Manchester Piccadilly station - platforms 15 and 16	COL CMP2	See Enhancements Delivery Plan Update 2016	Increased capacity and throughput at Manchester Piccadilly	DfT		In development
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable. ** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.							

SRS H.23 Manchester Piccadilly - Deansgate



Route specification description

SRS H.23 links Manchester Piccadilly with Manchester Oxford Road and Deansgate. It is the key cross-Manchester route, providing links between south Manchester and beyond (including Manchester Airport) and routes to the west and north of Greater Manchester.

The route is one mile long, consisting mainly of two track formation (with the exception of Manchester Oxford Road station, which has four platforms), is fully 25kV overhead electrified and is situated on viaducts through the heart of Manchester City Centre. Several markets are catered for on this route, including Long Distance, Inter-Regional, Commuter, Local and Freight (to/from Trafford Park Terminal).

All Passenger services call at Oxford Road and Piccadilly stations, with some local stopping services also calling at Deansgate.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Manchester Piccadilly East Junction – Castlefield Junction.			
Section start	COL, 188 miles 48 chains, Manchester Piccadilly East Junction.			
Section end	COL, 189 miles 67 chains, Castlefield Junction.			
Route availability	RA8	RA8	RA8	
Gauge	W9, W10	W9 and W10	W12	
Signals	Track circuit block.	Track circuit block.	Subject to the rollout programme of European Rail Traffic Management System (ERTMS).	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 35 miles per hour (mph), with reduced maximum speeds in sections	30 mph standard speed profile throughout	30 mph standard speed profile throughout	Manchester Hub proposals are developing a standard speed profile along the route which is proposed to be 30mph.
Electrification	25kV OHL	25kV OHL	25kV OHL	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	MP - Deansgate 5 minutes	Manchester Piccadilly – Deansgate 5 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	12 trains per hour	Changes in the number of passenger trains per hour: • further train lengthening into Manchester and Liverpool (December 2018) • Northern Hub train service changes - further details to be confirmed (by December 2018). • Northern Hub study outputs recommended an increase to 16 trains per hour (which included two freight services) on this corridor.	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Route section	Manchester Piccadilly to Deansgate			
Daily paths in one direction (as per WTT)	35 trains per day (weekday) equating to broadly one train per hour. (increases to two trains per hour off-peak.) Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017))	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

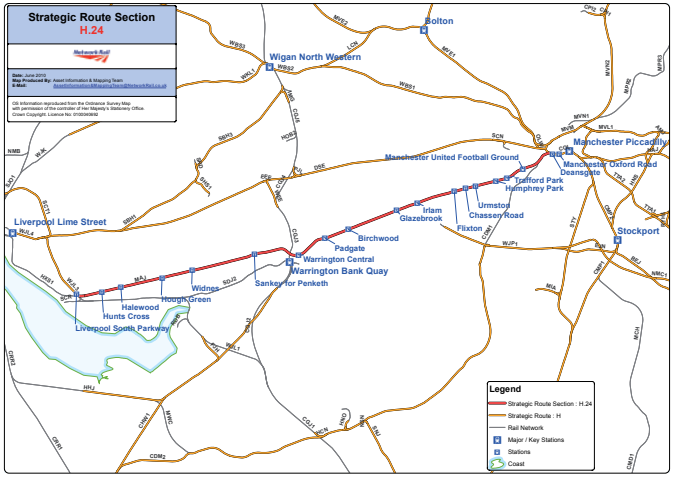
Level crossings on route

There are no level crossings on this route section.

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 4.0							
Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Northern Hub	Ordsall Curve : Provision of new infrastructure to link Piccadilly and Victoria stations directly (via a new curve at Ordsall)	COL	December 2017	Increased capacity and additional connectivity across Manchester	DfT		In delivery
	Manchester Piccadilly station : Provision of two new platforms (15 and 16)	COL	See Enhancements Delivery Plan Update 2016	Increased capacity and throughput at Manchester Piccadilly			In development
	Liverpool to Manchester via Chat Moss: Journey Time Improvements	MAJ	2018	Journey time improvements between Liverpool and Manchester via Chat Moss			In development
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable. ** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.							

SRS H.24 Deansgate - Liverpool South Parkway



Route specification description

SRS H.24 is an important commuting route between Liverpool and Manchester, also serving Widnes, Warrington and outlying suburbs of both Liverpool (western end) and Greater Manchester (eastern end). The route is 33 miles long, consists of two tracks (one in each direction) and is currently not electrified. The primary markets served by this route are commuting into Manchester, Liverpool and to a lesser extent, Warrington. In addition the route serves longer distance travel between Liverpool and Manchester and eastwards to South Yorkshire and the East Midlands.

There are 17 stations on the route (including Liverpool South Parkway), the largest of which are (in terms of passenger usage) Warrington Central, Liverpool South Parkway*, Hunts Cross*, Birchwood and Widnes.

(* denotes station is also served by Merseyrail services and station usage data is not disaggregated between Train Operating Companies).

There is an rolling stock depot at Allerton (in the vicinity of Liverpool South Parkway and Hunts Cross), sidings at Warrington Central, a down passing loop at Glazebrook East Jn (formerly a connection to Glazebrook Exchange Sidings), a reversing siding opposite Manchester United Football Ground station and connections to/ from Trafford Park freight terminal (Trafford Park West Jn), which are east facing only.

The two major junctions on the route are Hunts Cross West Junction (linking to SRS H.25 and Strategic Route O (Merseyrail network) and Castlefield Junction (linking to SRS H.23).

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW6003 Castlefield Junction to Allerton (Cheshire Line Committee) Junction.			
Section start	MAJ, 33 miles 57 chains, Castlefield Junction.			
Section end	MAJ, 0 miles 00 chains, Allerton Junction.			
Route availability	RA7, RA8	RA8	RA8	
Gauge	W9,	W9, W10	W10	
Signals	Track circuit block.	Track circuit block.	Subject to the rollout programme of European Rail Traffic Management System (ERTMS).	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 85 mph	90 mph	90 mph	
Electrification	Not electrified. Except access to Allerton Light Maintenance Depot	Not electrified. Except access to Allerton Light Maintenance Depot	Aspiration for electrificaiton of the route	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	49 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Deansgate to Liverpool South Parkway : half-hourly	Changes in the number of passenger trains per hour: Northern Connect service operating 1 service per hour between Liverpool South Parkway to Manchester Oxford Road (and beyond) not stopping at Deansgate.	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Deansgate to Liverpool South Parkway			
Daily paths in one direction (as per WTT)	2 trains per day (weekday). Subject to timetable fluctuations and based on average number of trains in each direction	As per forecasts in the Freight Market Study (2013)	As per forecasts in the Freight Market Study (2013)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

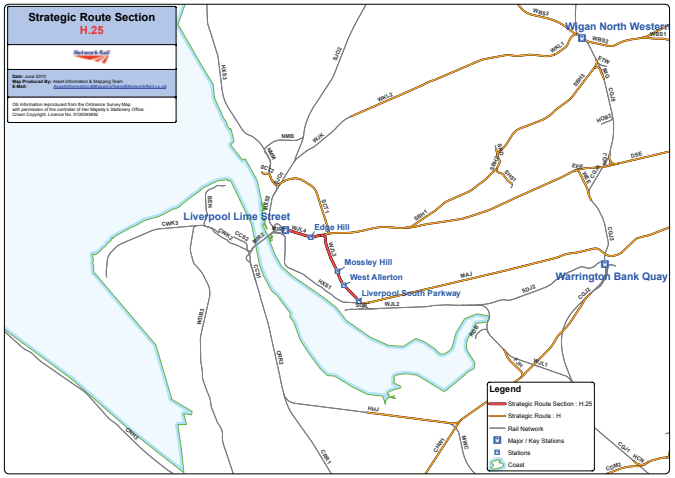
Level crossings on route

There are no level crossings on this route section.

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 4.0							
Project	**Project Description**	**ELR**	**Implementation Date**	**Output change**	**Funder**	**Notes**	**Status**
Train lengthening	Platform extensions along the route	MAJ	2014-2019	Increased train capacity	DfT	Stations affected include: Liverpool South Parkway, Widnes, Warrington Central, Irlam.	In development
Northern Hub	Increase in train frequency	COL, CMP2	2019	Ability to increase capacity along Castlefield corridor	DfT		In development
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable. ** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.							

SRS H.25 Liverpool Lime Street - Liverpool South Parkway



Route specification description

SRS H.25 is mainly a four track route which is approximately six miles long, fully 25kV overhead electrified and serves several markets, namely Long Distance, Inter-Regional, Local, Commuter and Freight between Liverpool Lime Street and Liverpool South Parkway.

The four major junctions on this route are:

- Allerton Junction - providing access to/from SRS H.24 and Allerton electric rolling stock depot.
- Wavertree Junction – providing access to/from Edge Hill rolling stock depot and is also the location where the four track section merges with a two track section between Wavertree Junction and Edge Hill East Junction.
- Edge Hill Junctions – the convergence/divergence of SRS H.25 and SRS H.33. There is no direct access between the two strategic route sections. The section between Edge Hill station and Lime Street station comprises a four track section of route.
- Liverpool Lime Street – there are several switches and crossovers immediately outside the station, which allow services to access different platforms at the station. The arrangement is complicated and is a capacity restriction at the station, particularly due to the restricted physical area where the infrastructure is situated.

The section between Edge Hill station and Liverpool Lime Street station is a steep gradient situated in a series of cuttings and tunnels, which physically restricts infrastructure layouts and therefore reduces operational flexibility.

There are 5 stations on the route of which Liverpool Lime Street is the largest (in terms of passenger usage). Liverpool South Parkway, Edge Hill and Liverpool Lime Street are interchanges and the two smaller stations between serve suburban areas of Liverpool for commuters.

In addition to Edge Hill maintenance depot, there are sidings on both sides of Edge Hill station (Down Wapping and Tuebrook sidings), which are required for freight services to reverse for access to and from the Port of Liverpool via Bootle Branch Junction.

Route capability overview

Table 1.0

Information	Current	2019	2043	Notes
Line of route description	Liverpool Lime Street Liverpool South Parkway.			
Section start	WJL4 193 miles 52 chains.			
Section end	WJL3 187 miles 77 chains.			
Route availability	RA8	RA8	RA8	
Gauge	W6, W9, W10	W9	W9	
Signals	Track Circuit Block	Track Circuit Block See notes	Subject to the rollout programme of European Rail Traffic Management System	Line of route signalling will be renewed and re-controlled to the Manchester Rail Operating Centre in 2018
Speed See Sectional Appendix for detailed speed profiles	Predominant linespeed 80 mph	80 mph	80 mph	
Electrification	25kV OHLE	25kV OHLE	25kV OHLE	

Passenger train service levels (trains per hour / day)

Table 2.0

	Current	2019	2043	Notes
Typical journey time	Between 10 and 18 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Liverpool Lime Street to Liverpool South Parkway : on average there are 6-7 trains per hour during the main part of the day. These services include a hourly London Euston, a half hourly service through to Birmingham New Street, an hourly service to Scarborough (First TransPennine Express), an hourly service to Norwich , a half hourly service to Manchester Oxford Road and the seventh service is an hourly service from Preston terminating at Liverpool South Parkway.	• Stakeholder aspiration for half hourly service to London Euston • Stakeholder aspiration for hourly service to Chester via Runcorn and Halton • Northern Hub train service changes further details to be confirmed December 2018 • Northern Connect service limited stop between Liverpool Lime Street, Liverpool South Parkway towards Manchester	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Liverpool Lime Street - Liverpool South Parkway			
Daily paths in one direction (as per WTT)	8 trains per day (weekday) Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Market Study (2013)	As per forecasts in the Freight Market Study (2013)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

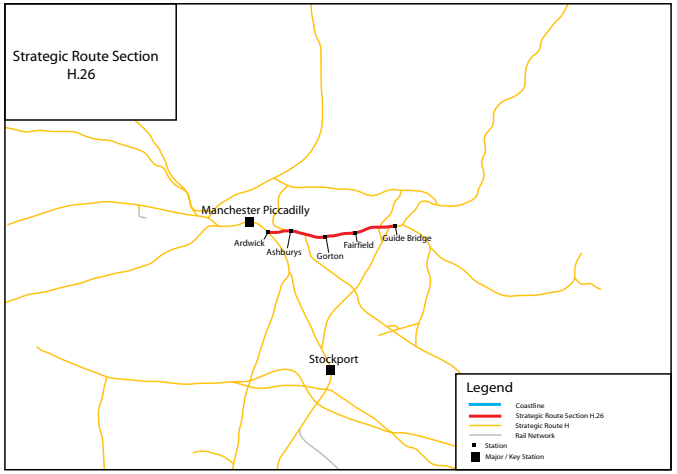
Level crossings on route

There are no level crossings on this route section.

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 4.0							
Project	**Project Description**	**ELR**	**Implementation Date**	**Output change**	**Funder**	**Notes**	**Status**
Liverpool Lime Street station and platform capacity	Ability to operate lengthened and increased numbers of services. In conjunction with Signalling and track/S&C renewals.	WJL4	Dec 2018	Increased capacity, performance and timetable robustness	DfT		In development
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable. ** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.							

SRS H.26 North Transpennine: Manchester Piccadilly - Guide Bridge



Route specification description

SRS H.26 is a two track section of route in south east Manchester which is approximately five miles long and is 25kV overhead electrified. Several markets are catered for by services on this route, including Inter-Regional, Local, Commuter and Freight.

There are 5 junctions on the route:

- Ardwick Junction – links SRS H.26 to SRS H.22, providing access between this route and Manchester Piccadilly station/the Castlefield corridor.
- Ashburys West Junction links SRS H.26 to the 'Phillips Park Branch Line (NW7025)', as listed in SRS H.99. Access to Manchester Victoria is provided via this route.
- Ashburys East Junction links SRS H.26 to SRS H.28, providing access to/from Ashburys station and Marple, New Mills and the Hope Valley route (SRS H.17).
- Guide Bridge Station Junction links SRS H.26 to SRS H.30, which provides a direct link between Guide Bridge and Stockport.
- Guide Bridge West Junction links SRS H.26 with both SRS H.05 (for Huddersfield, Leeds and beyond) and SRS H.29 (for Hadfield and Glossop). There is no direct link between H.05 and H.29 at Guide Bridge West Junction.

There are five stations on the route, of which Guide Bridge is the busiest in terms of passenger usage.

Adjacent to SRS H.26 and situated between Ardwick station and Ashburys station, is Ardwick Traction Maintenance Depot, which is currently operated by Siemens to service and maintain Class 185 diesel units and Class 350 electric units. Parts of the depot have recently been electrified to permit the maintenance and stabling of electric stock, which forms part of a wider strategy to electrify railway lines in the North of England.

There is a strategic freight site to the north of Ashburys station and Lafarge Tarmac has a freight terminal adjacent to the route between Ashburys station and Gorton stations. Access to Brookside Sidings is situated immediately to the west of Guide Bridge station, although the sidings are located parallel to the Guide Bridge – Stalybridge section of SRS H.05.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Manchester Piccadilly Guide Bridge West Junction			
Section start	0 mile 40 chains, HAJ			
Section end	4 miles 76 chains, HAJ			
Route availability	RA8	RA8	RA9	
Gauge	W9	W9	W10	
Signals	Track Circuit Block	Track Circuit Block	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed See Sectional Appendix for detailed speed profiles	60 mph	In development	In development	
Electrification	25kV electrification	25kV electrification	25kV electrification	See Network RUS : Electrification strategy

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	10 minutes	10 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Between Ardwick Junction and Guide Bridge : 6 trains per hour in the peak and 4 trains per hour in the off-peak, being a mixture of - First TransPennine Express's Eastbound services from Manchester Airport to Scarborough and Middlesbrough, Manchester Piccadilly to Hull and Liverpool to Scarborough, and Northern Rail Limited's shorter local services from Manchester Piccadilly to Hadfield and Rose Hill Marple	• The new Northern and TransPennine Express franchises include ambitious commitments to transform rail services in the north of England between now and the end of 2019, with extra services, new trains and a massive increase in capacity to accommodate more passengers while reducing crowding. Network Rail will work with the successful franchise bidders to delive r the outputs of the North of England Programmes and to seek opportunities for further passenger benefits to be delivered as infrastructure schemes are completed during CP6	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	North Transpennine : Manchester Piccadilly to Guide Bridge			
Daily paths in one direction (as per WTT)	Freight Market Study Base Year(2011/12). Approximate Daily Paths in Each Direction : 2.	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals. For further information please see the Freight Network Study (2016) & Freight Market Study (2017).

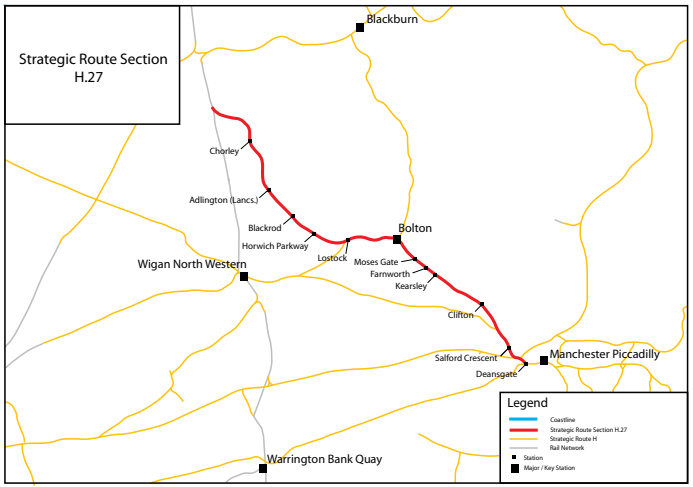
Level crossings on route

There are no level crossings on this route section.

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

There are no schemes currently planned for Control Period 5.

SRS H.27 Deansgate - Euxton Junction



Route specification description

SRS H.27 is a predominantly two track section of route between Deansgate station in the centre of Manchester and Euxton Junction, which provides access to/from the West Coast Main Line and Preston. The route is approximately 26 miles long and is currently not electrified. It serves the Inter-Regional, Commuter, Local and Freight markets. It is an important commuting route for Manchester and also serves as a diversionary route for the West Coast Main Line during planned and unplanned disruption.

There are eight major junctions on the route, namely:

- Castlefield Junction – links SRS H.27 with SRS H.23 for access to/from Manchester Oxford Road and Piccadilly stations, south Manchester (and beyond) and Manchester Airport.
- Ordsall Lane Junction – links SRS H.27 with SRS H.33 for access to/from the West Coast Main Line (Warrington/Wigan) and Merseyside.
- Windsor Bridge South Junction – links SRS H.27 with H.35 for access to/from Manchester Victoria.
- Windsor Bridge North Junction – links SRS H.27 with H.35 for access to/from Wigan and Southport.
- Bolton East Junction – used for sorting services at Bolton station.
- Bolton West Junction – used for sorting services at Bolton station.
- Lostock Junction – links SRS H.27 with SRS H.35 for access between Bolton and Wigan.
- Euxton Junction – links SRS H.27 with SRS N.04 for access to/from the West Coast Main Line, Preston, Blackpool, North Lancashire and Cumbria.

SRS H.27 contains 13 stations (including Deansgate), the largest of which (in terms of passenger usage) are: Bolton, Salford Crescent, Chorley and Horwich Parkway.

There are two freight terminals between Clifton station and Salford Crescent station. The facility on the south side of the route is Pendleton Waste Facility (owned by Greater Manchester Waste plc)

and the facility to the north of the line (also known as Pendleton) is owned by Lafarge Tarmac. Access to both facilities is provided via Agecroft South and Agecroft North Junctions.

There are also sidings to the east of Bolton station: Manchester Road Sidings to the north of the line and Burnden Junction sidings to the south of the line.

The 'Ordsall Chord' is currently under construction which will Manchester Piccadilly and Manchester Victoria via a new line in West Manchester.

Route capability overview

Table 1.0

Information	Current	2019	2043	Notes
Line of route description	Manchester Piccadilly East Junction to Euxton Junction			
Section start	189 miles 67 chains, COL			
Section end	25 miles 31 chains, MVE2			
Route availability	RA8	RA8	RA8	
Gauge	W6, W7, W8, W9, W10	W9	W10	
Signals	Track circuit block.	Track circuit block.	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed See Sectional Appendix for detailed speed profiles	75 mph	Aspiration for 100 / 110 mph See Notes	Aspiration for 100 / 110 mph See Notes	JTI scheme proposals in development
Electrification	None	25kV electrification See Notes	25kV electrification	Part of North West Electrification programme. See Enhancement Delivery Plan Update 2017.

Passenger train service levels (trains per hour / day)

Table 2.0

	Current	2019	2043	Notes
Typical journey time	30 minutes	Deansgate – Euxton Junction, with the electrification of the Bolton corridor and deployment of Electric Multiple Unit rolling stock with 90mph capability, Journey time and line speed improvements are required.	With the electrification of the Bolton corridor and deployment of Electric Multiple Unit rolling stock with 90mph capability, Journey time and line speed improvements are required.	
No. of trains per hour	Half-hourly	Scotland to Manchester Airport Electric Multiple Unit service instead of Diesel Multiple Unit approximately 1 train per hour routed from the West Coast Main Line via Golborne Junction Parkside Junction and the Chat Moss to Manchester. May revert back to the Bolton route when this is electrified. Lengthening of peak hour services Manchester to Blackpool. Lengthening of peak hour services Manchester to Liverpool by both the CLC and Chat Moss routes and Wigan/Southport, Kirkby and Clitheroe. Lengthening of high peak hour Chester/Llandudno to Manchester Piccadilly services 4,6 or 8 car services Blackpool – Manchester via Bolton Northern Hub and Electrification programme train service changes are being developed for December 2017 and December 2018 timetables – further details within the Enhancement Delivery Plan Update 2017.	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Route section	Deansgate to Euxton Junction			
Daily paths in one direction (as per WTT)	4 trains per day (weekdays). Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

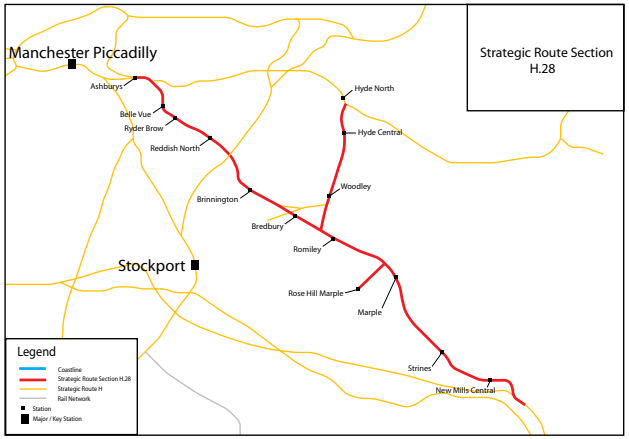
Level crossings on route

Table 4.0			
Type	Current No. of level crossings	2019 No. of level crossings	2043 No. of level crossings
Supervised:	0	As determined by Level Crossing policy	
Automatic:	0		
User:	4		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 5.0							
Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Train lengthening	Platform extensions between Clifton and Chorley	MVE1, MVE2	2014-2019	Increased capacity	DfT		In development
Northern Hub	Northern Hub linking Piccadilly and Victoria stations directly via a new curve at Ordsall	COL	2017	Increased flexibility and capacity	DfT		In delivery
Electrification between Manchester and Blackpool North	North West Electrification Phase 3 and 4	MVE1, MVE 2, PBN	See Enhancement Delivery Plan Update 2016	Ability to operate electric multiple unit services	DfT		In delivery
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable. ** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.							

SRS H.28 Ashburys/Hyde North - New Mills Central/ Rose Hill



Route specification description

SRS H.28 is a predominantly two track, non-electrified route section between Ashburys, Hyde Junction, Rose Hill Marple and New Mills South Junction. This route serves Inter-Regional, Local, Commuter and Freight markets. The route consists of three sections, the main line is the route between Ashburys and New Mills South Junction with a branch to Hyde Jn from Romiley Junction and a branch to serve Rose Hill Marple Station from Marple Wharf Junction.

Ashburys – New Mills South Junction

This route is approximately 13 miles long and has nine stations (excluding Ashburys), the largest of which in terms of passenger usage are Marple and Romiley. The route has four major junctions:

- Ashburys East Junction - links SRS H.28 to SRS H.26, providing access to/from Ashburys station and Marple, New Mills and the Hope Valley route (SRS H.17).
- Romiley Junction – links the Ashburys/New Mills route with the Romiley/Hyde route (within this SRS). Romiley Junction only permits services to access the branch to/from the south end of the Ashburys/New Mills line.
- Marple Wharf Junction – links the Ashburys/New Mills route with Rose Hill Marple. Marple Wharf Junction only permits services to access the branch to/from the north end of the Ashburys/New Mills line.
- New Mills South Junction – links SRS H.28 with SRS H.17 (The Hope Valley route), which provides access between Manchester and Sheffield via this route.

Hyde Junction – Romiley Junction

This route is approximately three and a half miles long and has three stations, the largest of which in terms of passenger usage is Hyde Central.

There are three major junctions on the route:

- Hyde Junction – links SRS H.28 with SRS H.29, providing access to/from Guide Bridge. Hyde Junction is a single track link onto SRS H.29.
- Woodley Junction – links SRS H.28 with freight facilities at Bredbury. Greater Manchester Waste plc and Lafarge Tarmac both have facilities adjacent to the branch line to/from Woodley Junction.
- Romiley Junction – links the Romiley/Hyde route with the Ashburys/New Mills route (within this SRS). Romiley Junction only permits services to access the branch to/from the south end of the Ashburys/New Mills line.

Rose Hill Marple – Marple Wharf Junction

This route is approximately one mile long and has one station – Rose Hill Marple. Marple Wharf Junction provides access between this branch and the main Ashburys – New Mills South Junction line. Access is to/from the Romiley direction, so there is no direct access to/from Marple and the southern end of the route.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Hadfield to Ardwick Junction, New Mills South Junction. to Ashburys East Junction, Romiley Junction to Hyde Junction			
Section start	HAJ, 1m 42/ RYH2 6m33			
Section end	TTA1 173m15/ RYH1 178m 33			
Route availability	RA8	RA8	RA8	
Gauge	W6, W7	W7	W7	
Signals	Track circuit block.	Track circuit block.	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant Linespeed 60 mph	75 mph	75 mph	
Electrification	None	None	None	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Ashburys to New Mills : 30 minutes Hyde North to Romiley : 9 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Currently a number of services pass over this route east and southbound; Northern services from Manchester Piccadilly to New Mills Centre (1/2 trains per hour), Chinley (1 train per day) and Sheffield 1/2 trains per hour), some stopping at New Mills Central, and Northern services from Manchester Piccadilly to Rosehill/ Marple mainly 1 train per hour except for the morning and evening peak when there are 2 trains per hour. Other services, broadly one train per hour, joining via the single lead at Hyde Junction after travelling via the Hadfield and Glossop branch from Guide Bridge, destined to Rosehill/Marple. The frequency is increased to two trains per hour in the peaks.	Northern Hub train service changes including more peak hour services from Marple and Rose Hill further details to be confirmed December 2018.	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Ashburys to New Mills Central			
Daily paths in one direction (as per WTT)	Ashburys to New Mills Central: 4 trains per day (weekdays). Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Market Study (2017)	As per forecasts in the Freight Market Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

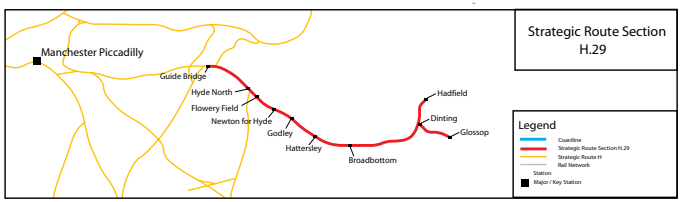
Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	0	As determined by Level Crossing policy	
Automatic:	0		
User:	1		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 5.0							
Project	**Project Description**	**ELR**	**Implementation Date**	**Output change**	**Funder**	**Notes**	**Status**
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable. ** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.							

SRS H.29 Guide Bridge - Glossop/Hadfield



Route specification description

SRS H.29 is a predominantly two track route and is 25 kV overhead electrified. There are two single track sections at the eastern end of the route between Dinting West Junction and Hadfield and between Dinting West Junction and Glossop. The two single line sections are linked by a single line chord between Dinting East and Dinting South junctions, which permits direct access between Hadfield and Glossop.

The two track section is approximately nine miles long and the single line sections are one mile long each. The single line sections meet at Dinting West Junction, forming a triangular track layout at Dinting station. The prevailing line speed is 60mph because it is optimised to current calling patterns on the route. The route caters for Commuter and Local markets for access to/from Manchester City Centre and local centres with stations on the route (such as Hyde) and on SRS H.26.

There are nine stations on this route (excluding Guide Bridge), of which Glossop, Hadfield and Flowery Field are the busiest in terms of passenger usage.

There are three major junctions on the route:

- Guide Bridge West Junction – links SRS H.29 with SRS H.26, for access to/from Manchester City Centre.
- Hyde Junction – links SRS H.29 with SRS H.28, for access to/from Hyde, Marple and the Hope Valley Route (SRS H.17). The junction only permits access to/from the Guide Bridge direction.
- Dinting Junctions – The track layout at Dinting station consists of three junctions: Dinting West, Dinting East and Dinting South. Dinting West Junction is where the two track section merges with two single line sections: Dinting South Junction is located on the Glossop route and Dinting East Junction is located on the Hadfield route.

At Hyde Junction, there is access to/from Avenue Engineers Sidings via a bi-directional, non-electrified passing loop. There is also access to the loop at Guide Bridge East Junction.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Hadfield to Ardwick Junction, Dinting South Junction to Dinting East Junction, Glossop to Dinting West Junction			
Section start	Dinting West Junction.			
Section end	Hadfield HAJ 12 miles 61 chains, Glossop GDW 0 miles 01 chain.			
Route availability	RA8	RA8	RA8	
Gauge	W6, W9	W6, W9	W6, W9	
Signals	Mixture of Track Circuit Block and Absolute Block. Fixed Distant signals at Dinting	Mixture of Track Circuit Block and Absolute Block. Fixed Distant signals at Dinting	Subject to the rollout programme of European Rail Traffic Management System (ERTMS).	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant Linespeed 60 mph	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock.	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock.	
Electrification	25kV electrification	25kV electrification	25kV electrification	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Manchester Piccadilly to Glossop : 31 Minutes	Aspiration for improved journey times in the short term by remodelling timetable, calling and destination patterns with amended operating instructions. Also improved line speeds gained by track and signalling interventions.	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Northern Rail services operate from Manchester Piccadilly through to Hadfield : 3 trains per hour in the peak (2 trains per hour - off peak)	Additional three car peak service . Proposal to run four tph with alternate departures to Hadfield and Glossop. This requires Line speed improvements/ Journey time improvements around the Dinting area coupled with amended alternate stopping patterns and cannot be implemented until the capacity becomes available between Guide Bridge and Manchester Piccadilly when trains are re-routed via Victoria.	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Hyde Junction to Guide Bridge only			
Daily paths in one direction (as per WTT)	4 trains per day (weekday). Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Market Study (2017)	As per forecasts in the Freight Market Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

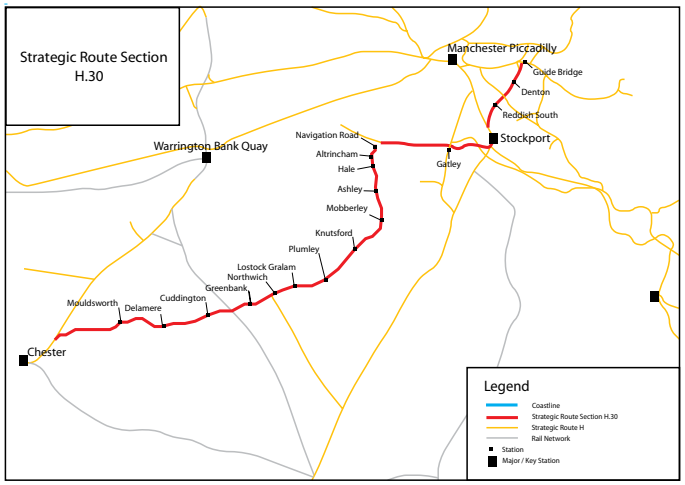
Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	0	As determined by Level Crossing policy	
Automatic:	0		
User:	1		

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

There are no schemes currently planned for Control Period 5.

SRS H.30 Guide Bridge - Chester (via Stockport)



Route specification description

SRS H.30 is a predominantly two track, non-electrified route approximately 40 miles in length. The route is split into two parts in the vicinity of Stockport station (within SRS H.22). There are single line sections between:

- Mickle Trafford Junction and Mouldsworth station (inclusive)
- Navigation Road station and Deansgate Junction (inclusive)
- Northenden Junction and Edgeley Junction No. 2 (SRS H.22) (this section is a mix of partial two track and single track).

The route mainly serves local, commuter and freight markets to/from several large conurbations in Cheshire, including Northwich, Knutsford, Altrincham and Stockport.

Between Chester & Manchester Piccadilly via Northwich & Stockport there is a broadly hourly frequency all stations local service. Extra services operate between Chester & Stockport in the morning and evening peak periods. Between Stockport & Stalybridge via Guide Bridge there is a 'parliamentary' service which runs once a week, in one direction only. Improvements have recently taken place to the passenger interchange at Altrincham, which improve connectivity between Rail, light rail, & bus services. Real time passenger information screens have also recently been installed at stations on the line. Both sections of route are used by freight services which include aggregate from the Peak District to Cheshire & further afield, biomass, energy from waste and other services. The lines fulfills a useful function to assist freight services in avoiding central Manchester.

There are 12 major junctions on the route:

- Guide Bridge Station Junction – links SRS H.30 with SRS H.26 via a single line connection. Services can only run to/from an eastbound direction, therefore also linking with SRS H.05 and SRS H.29
- Denton Junction – links SRS H.30 with the Ashton Moss Freight Line (within SRS H.99), permitting access to/from Miles Platting Junction and Manchester Victoria (via Ashton Moss North Junction and Baguley Fold Junction)
- Heaton Norris Junction – links the northern leg of SRS H.30 with SRS H.22 for access to/from Stockport, Crewe (and beyond), Buxton (SRS H.36) and the Hope Valley (SRS H.38 and H.17)
- Edgeley No. 2 Junction – links the southern leg of SRS H.30 with SRS H.22 for access to/from Stockport and Manchester Piccadilly.
- Northenden Junction – links SRS H.30 with the Cheadle Branch for access to/from SRS H.17 at Hazel Grove High Level Junction. The Cheadle Branch is detailed in SRS H.99
- Deansgate Junction – is the location where a single line section merges with a two track section to the north of Navigation Road station. Transport for Greater Manchester's Metrolink tram network runs parallel to the railway network between Deansgate Junction and Altrincham
- Northwich East Junction – permits access to/from Lostock Works (Tata Chemicals) to the southern side of SRS H.30 and access to/from the Middlewich Branch Line, ultimately linking to SRS H.22 at Sandbach
- Northwich West Junction – permits access to/from the Middlewich Branch Line for Sandbach and Crewe (via SRS H.22)
- Hartford Junctions (North, West, East) – a series of junctions that provide access to/from the Winnington Branch Line, which leads to Winnington Works (Tata Chemicals) and Northwich Oakleigh Sidings
- Hartford CLC Junction – links SRS H.30 to the West Coast Main Line (SRS N.04) via the Hartford Chord. Direct access is permitted to/from the north on SRS N.04 and to/from the east on SRS H.30
- Mouldsworth Station – location where two track and single track sections merge
- Mickle Trafford Junction – links SRS H.30 with SRS H.45, with access only available to/from the Chester direction.

There are a total of 15 stations on this route (excluding Stockport and Guide Bridge stations), the busiest of which (in terms of passenger usage) are Altrincham, Knutsford, Northwich, Greenbank, and Hale.

There are several freight facilities on the route, including:

- Northenden Longley Lane (Greater Manchester Waste plc) – at Northenden Junction
- Northenden (Lafarge Tarmac) – to the west of Northenden Junction
- A Goods Loop in the Chester bound (Down) direction three miles west of Northenden Junction
- Lostock Works (Tata Chemicals) – east of Northwich station
- Various Freight Sidings/Passing facilities – vicinity of Northwich station
- Winnington Works (Tata Chemicals) – accessed via the Winnington Branch line (east of Greenbank station)
- Northwich Oakleigh Sidings – accessed via the Winnington Branch line (east of Greenbank station).

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Guide Bridge Station Junction – Heaton Norris Junction (via Stockport); Edgeley Junction Mickle Trafford Junction			
Section start	HN2 4 miles 73 chains, Guide Bridge Station Junction			
Section end	DSM2 35 miles 35 chains, Mickle Trafford Junction			
Route availability	RA8	RA8	RA8	
Gauge	W6, W7	W8, W9	W9	
Signals	Mix of semaphore and colour light signalling	Mix of semaphore and colour light signalling	Subject to the rollout programme of the European Rail Traffic Management System (ERTMS).	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 60 mph	60 mph	60 mph	
Electrification	None	None	None	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Stockport – Chester: 1 hour 18 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Stockport – Chester: 1 passenger train per hour off peak, 2 per hour peak Stockport – Stalybridge: 1 train per week, 1 direction only	Service frequency enhancements between Stockport – Greenbank in line with the proposals developed by the new Northern franchise	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Guide Bridge to Chester (via Manchester Piccadilly)			
Daily paths in one direction (as per WTT)	Freight Market Study Base Year (2011/12), Approximately 8 paths in each direction (Skelton Junction – Northwich)	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals. For further information please see the Freight Market Study (2017)'. With For further information please see the Freight Network Study (2016) & Freight Market Study (2017).

Level crossings on route

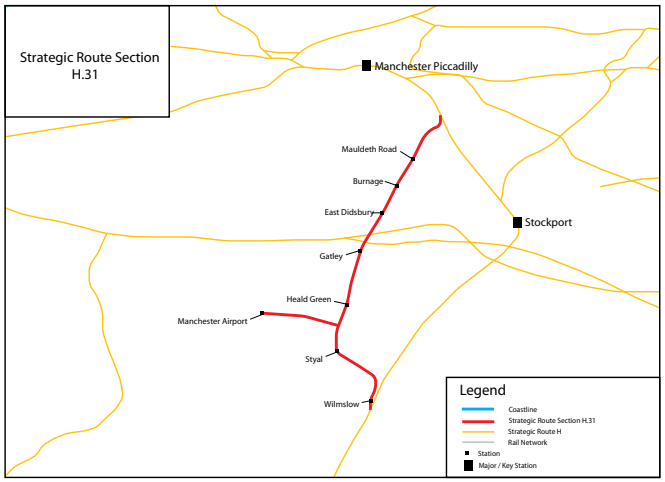
Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	1	As determined by Level Crossing policy	
Automatic:	1		
User:	3		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 5.0							
Project	**Project Description**	**ELR**	**Implementation Date**	**Output change**	**Funder**	**Notes**	**Status**
Train lengthening	Platform extensions	CDM2	2014-2019	Increased capacity	DfT		In development

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable.
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

SRS H.31 Manchester Airport - Wilmslow/Slade Lane Junction



Route specification description

SRS H.31 links Manchester Piccadilly (and the city centre) with suburban areas of south Manchester and Manchester Airport. The route serves several markets, including Long Distance, Inter-Regional, Local, Commuter and Freight. The line is approximately 10 miles long, is fully 25kV overhead electrified and consists of a two track formation.

There are three major junctions on the route:

- Slade Lane Junction – links SRS H.31 with SRS H.22, which forms the main route between Manchester City Centre stations and Manchester Airport.
- Heald Green Junctions – a delta junction formed of three separate junctions: West, North and South. The junction is 'flat' (there is no grade separation), but permits movement between both the north and south of SRS H.31 to/from Manchester Airport. The branch line between the delta of junctions and Manchester Airport is approximately 1.5 miles long.
- Wilmslow South Junction – links SRS H.31 with SRS H.22 at the southern end of H.31, to the south of Wilmslow station. The junction provides access between stations in Cheshire, Crewe and further south with Manchester Airport.

The route has 8 stations (including Wilmslow), the largest of which in terms of passenger usage are Manchester Airport, Wilmslow and Heald Green. Manchester Airport station provides access to Manchester International Airport and Wilmslow also serves as an interchange. Other stations on the route serve suburban areas of Greater Manchester, primarily for commuter markets for Manchester.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Manchester Airport Wilmslow Junction/Slade Lane Junction.			
Section start	STY 9 miles 44 chains, Heald Green North Junction 1 mile 51 chains.			
Section end	STY 0 mile 18 chains, MIA 0 mile 00 chains.			
Route availability	RA8	RA8	RA8	
Gauge	W6, W9, W10	W9, W10	W9, W10	
Signals	Track circuit block.	Track circuit block.	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 75 mph	90 mph	90 mph	
Electrification	25kV OHLE	25kV OHLE	25kV OHLE	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Manchester Airport to: Piccadilly - 13 minutes Wilmslow - 7 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Manchester Airport Manchester Piccadilly : 9 trains per hour in the am peak Wilmslow to Manchester Airport : 1 train per hour except in the morning peak when there are2 trains per hour (the additional one being via Manchester Piccadilly).	Passenger service changes in number of trains per hour: Edinburgh to Manchester Airport Electric Multiple Unit service instead of Diesel Multiple Unit approximately 1 train per hour via Wigan or Bolton. New inter regional services proposed under Northern Hub (further details to be confirmed).	Possible changes to service frequency, in line with with industry aspirations and market requirements	New inter regional services proposed under Northern Hub (further details to be confirmed) The new Northern and TransPennine Express franchises include ambitious commitments to transform rail services in the north of England between now and the end of 2019, with extra services, new trains and a massive increase in capacity to accommodate more passengers while reducing crowding. Network Rail will work with the successful franchise bidders to deliver the outputs of the North of England Programmes and to seek opportunities for further passenger benefits to be delivered as infrastructure schemes are completed during CP6.

SRS H.31 Manchester Airport - Wilmslow/ Slade Lane Junction

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Manchester Airport - Wilmslow/Slade Lane Junction			
Daily paths in one direction (as per WTT)	Freight Market Study Base Year (2011/12), Approximately 13 paths in each direction	As per forecasts in the Freight Network Study (2016)	As per forecasts in the Freight Network Study (2016)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals. For further information, see Freight Network Study (2016) & Freight Market Study (2017).

Level crossings on route

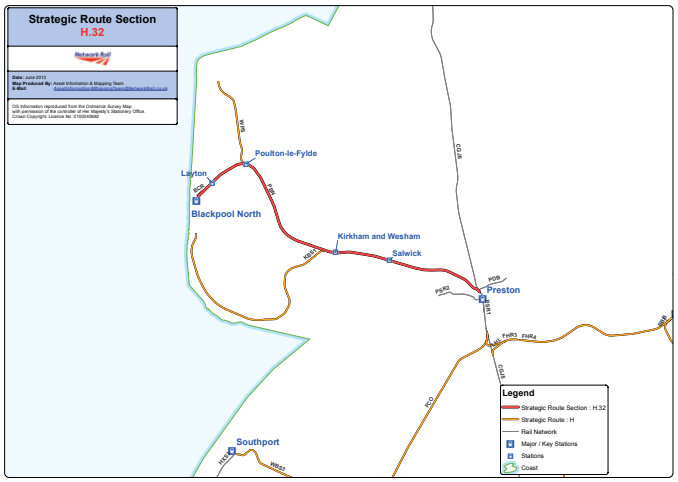
Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:		As determined by Level Crossing policy	
Automatic:			
User:			

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 5.0							
Project	**Project Description**	**ELR**	**Implementation Date**	**Output change**	**Funder**	**Notes**	**Status**
Northern Hub : Manchester Airport station	4th platform	MIA	2015	Increased capacity	DfT		Under construction

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable.
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

SRS H.32 Blackpool North Branch



Route specification description

SRS H.32 links Blackpool and the surrounding area with the rest of the rail network (via Preston), providing important links to the cities of Preston, Liverpool and Manchester, including Manchester Airport. The route serves several markets, including inter-regional, local and commuter. The line is approximately 17.5 miles long, non-electrified and mainly consists of a two-track formation. The route serves commuting towards Preston and Manchester and also tourism to Blackpool.

There are 5 stations on the route, the largest of which (in terms of passenger usage) are Blackpool North and Poulton-Le-Fylde.

There are 5 main junctions on the route:

- Preston Fylde Junction – links SRS H.32 with SRS N.05 immediately north of Preston station.
- Kirkham South Junction – located east of Kirkham and Wesham station where a short four track section (approximately 0.5 miles long) merges with a two track section.
- Kirkham North Junction – located west of Kirkham and Wesham station where the short four track section merges with a two track section. Kirkham North Junction also links SRS H.32 with SRS H.46 (also known as the Blackpool South Branch Line or South Fylde Line).
- Poulton-Le-Fylde Junction – links SRS H.32 with the former Burn Naze Branch (now out of use). The junction remains in-situ despite the closure of the branch line, which previously linked Fleetwood with the rail network.
- Blackpool North station – junction immediately east of Blackpool North station, used to sort services for access to/from station platforms. This junction also provides access between the station and Blackpool Carriage Sidings.

The layout at Kirkham and Wesham station (between Kirkham South and North junctions) consists of four tracks, with the station serving only two of the four lines (the slow lines) on the south of the layout. SRS H.46 is linked directly to the slow lines via a single line connection.

Blackpool Carriage Sidings are located to the east of Blackpool station to provide rolling stock stabling.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Fylde Junction, Blackpool North.			
Section start	PBN 0 mile 33 chains.			
Section end	PBN 17 miles 49 chains.			
Route availability	RA8	RA8	RA8	
Gauge	W6	W6	W6	
Signals	Absolute block	Track circuit block	Subject to the roll out programme of ERTMS (European Rail Traffic Management System).	
Speed **See Sectional Appendix for detailed speed profiles**	75 mph	Passenger: 90/95 mph Fylde Junction to Poulton-Le Fylde, 70 mph Poulton-le- Fylde to Blackpool. Freight: 70 mph.	Passenger: 90/95mph Fylde Junction to Poulton-Le Fylde, 70 mph Poulton-le-Fylde to Blackpool	Proposals to improve Journey Time and Line Speed being developed with electrification, track renewals and associated signalling works, funding to be confirmed.
Electrification	None	OHLE electrified	OHLE electrified	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Preston to Blackpool approximately 26 minutes	Journey time improvements based on raised line speed to 90 mph	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	4 trains per hour throughout the day with the exception of evening peak when there are 6 trains per hour	See Notes	Possible changes to service frequency, in line with with industry aspirations and market requirements	The timetable in the North West is under development to take advantage of the Northern Hub project and Electrification programme opportunities during CP5

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Preston to Blackpool North			
Daily paths in one direction (as per WTT)	1 train per weekday Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Market Study (2017)	As per forecasts in the Freight Market Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

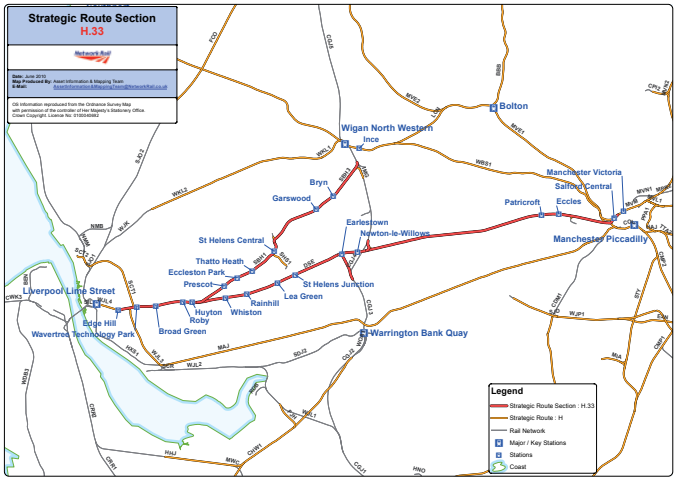
Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	1	As determined by Level Crossing policy	
Automatic:	0		
User:	4		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 5.0							
Project	**Project Description**	**ELR**	**Implementation Date**	**Output change**	**Funder**	**Notes**	**Status**
Electrification of Blackpool line	Electrification of the route between Blackpool and Manchester via Bolton	PBN, MVE2, MVE1, MVM, OLW, COL	2017	Ability to operate electric multiple units	DfT		In development
Blackpool line : increase capacity	Platform extensions at Kirkham and Wesham to accommodate longer trains	PBN	2014 – 19	Increased capacity	DfT		In development
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable. ** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.							

SRS H.33 Edge Hill - Manchester Victoria (via Earlestown)/Wigan



Route specification description

SRS H.33 links Liverpool and eastern Merseyside (including St. Helens) with Wigan, Warrington, Salford and Manchester. The route serves long distance, inter-regional, commuter, local and freight markets. Currently, services via this route also link Merseyside with Manchester Airport. This route is an important commuting route between Liverpool and Manchester and is also the primary freight route to/from the Port of Liverpool.

The main route between Edge Hill and Manchester Victoria is approximately 32 miles long and the branch between Huyton and Springs Branch Junction is approximately 12.5 miles long. There are two other short branches off the main route: one between Earlestown station and Winwick Junction and the other between Parkside Junction and Golborne Junction.

The route is two-track and is currently electrified (25kV overhead).

There are 20 stations on the route (including Edge Hill and Manchester Victoria), the busiest of which (in terms of passenger usage) are Manchester Victoria, Huyton, Newton-Le-Willows, St. Helens Central and Broad Green.

The major junctions on the route are:

- Edge Hill East Junction – links SRS H.33 with SRS H.25 for access to/from Liverpool Lime Street only.
- Bootle Branch Junction – links SRS H.33 with the Bootle Branch Line (freight only) and the Port of Liverpool (access is to/from the west only). This junction also provides access to/from Tuebrook Sidings
- Olive Mount Junction – links SRS H.33 with the Olive Mount Chord, which also provides access to/from the Port of Liverpool (access is to/from the east only)
- Huyton Junction – provides access between the main route of H.33 and the branch line between Huyton and Springs Branch Junction (for Wigan and the West Coast Main Line)
- Earlestown West Junction – provides access between the main route of H.33 and a short branch to/from the West Coast Main Line and Warrington Bank Quay (SRS N.04). The junction permits movement between Merseyside (west end of H.33) and the Warrington area (and beyond)
- Earlestown East Junction – provides access between the main route of H.33 and a short branch to/from the West Coast Main Line and Warrington Bank Quay (SRS N.04). The junction permits movement between Newton-Le-Willows/Manchester and the Warrington area (and beyond)
- Newton-Le-Willows Junction – provides access between the main route of H.33 and a short branch to/from the West Coast Main Line and Wigan North Western (SRS N.04). The junction permits movement between Newton-Le-Willows, Warrington and Merseyside and the Wigan area (and beyond)
- Parkside Junction – provides access between the main route of H.33 and a short branch to/from the West Coast Main Line and Wigan North Western (SRS N.04). The junction permits movement between the Manchester area and the Wigan area (and beyond)
- Eccles Station Junction – links SRS H.33 with the Lafarge Tarmac and Greater Manchester Waste plc freight terminals. There is a goods loop on the 'up' line as part of this junction which permits the recessing of freight services for passenger services to overtake when necessary
- Ordsall Lane Junction – links SRS H.33 with SRS H.27, providing access between Merseyside/Warrington and Manchester city centre (via H.23). Ordsall Lane Junction also provides access across SRS H.27 to link Manchester Victoria with the rest of H.33
- Deal Street Junctions – the location where SRS H.33 and SRS H.35 merge for access to/from Manchester Victoria station and also used to regulate/sort services for the station
- Manchester Victoria West Junction – two independent sets of 'scissor crossovers' – one set on the Fast lines and one set on the Slow lines. This junction is also used to sort services for Manchester Victoria station
- Ince Moss Junction and Bamfurlong Sidings Junction – links SRS H.33 with SRS N.04 providing access between Liverpool/East Merseyside and the West Coast Main Line
- Springs Branch Junction – links SRS H.33 with SRS N.04 providing access between Liverpool/East Merseyside and Wigan North

Western/West Coast Main Line and routes to/from the North

There are former freight lines in the vicinity of St. Helens Central station which remain connected to SRS H.33, although they are no longer used.

SRS H.33 Edge Hill - Manchester Victoria (via Earlestown)/Wigan

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Edge Hill East Junction Deal Street Junction /Springs Branch Junction; Earlestown East Junction Winwick Junction.			
Section start	191 miles 75 chains WJL4, Edge Hill East Junction, 5 miles 77 chains DSE Huyton Junction, 187 miles 10 chains WEE Earlestown East Junction.			
Section end	31 miles 18 chains DSE, Deal Street Junction, 12 miles 54 chains SBH Springs Branch Junction, 185 miles 49 chains WEE Winwick Junction			
Route availability	RA7, RA8	RA8	RA8	
Gauge	W7, W8, W9, W10	W8, W9, W10	W8, W9, W10	
Signals	Track circuit block.	Track circuit block.	Subject to the rollout programme of European Rail Traffic Management System (ERTMS).	
Speed **See Sectional Appendix for detailed speed profiles**	75 mph	100 mph	100 mph	
Electrification	AC 25KV OHLE	AC 25KV OHLE	AC 25KV OHLE	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Liverpool Lime Street to Manchester Victoria : 33 minutes Liverpool Lime Street to Wigan North Western : via Bryn 35 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Liverpool Lime Street to Manchester Victoria - Hourly (half-hourly in the am peak) Liverpool Lime Street Wigan North Western via Bryn - 3 trains per hour in the peak	Possible changes to service frequency, in line with with industry aspirations and market requirements	Possible changes to service frequency, in line with with industry aspirations and market requirements	The north west timetable is being developed to take advantage of the additional capacity and connectivity offered by the Manchester Hub project and electrification programmes for 2016 and 2018.

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Edge Hill to Manchester Victoria			
Daily paths in one direction (as per WTT)	7 trains per day (weekday) Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Market Study (2017)	As per forecasts in the Freight Market Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

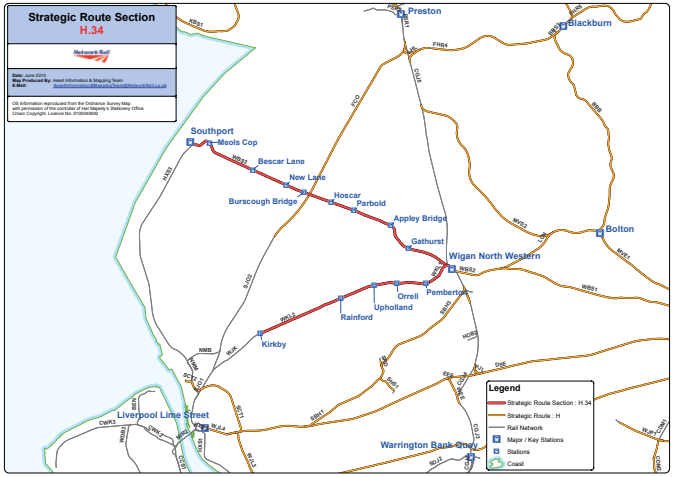
Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	2	As determined by Level Crossing policy	
Automatic:	0		
User:	8		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 5.0							
Project	**Project Description**	**ELR**	**Implementation Date**	**Output change**	**Funder**	**Notes**	**Status**
Journey time improvements	JTI between Liverpool and Manchester	DSE	March 2018	Journey time improvements	DfT		In development
Train lengthening between Edge Hill and Deansgate	Platform extensions to accommodate longer trains on the Edge Hill (exclusive) and Deansgate via Chat Moss route	DSE	2014 - 2018	Increased capacity	DfT		In development
Northern Hub	Provision of Ordsall Chord between Manchester Piccadilly and Manchester Victoria	DSE	2017	Provides a new route and journey opportunity through central Manchester	DfT		In development
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable. ** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.							

SRS H.34 Southport/Kirkby - Wigan Wallgate



Route specification description

SRS H.34 links Wigan (Wallgate station) with Southport (northern branch) and Kirkby (southern branch). The route serves commuter, local and freight markets and links Southport and West Lancashire with Greater Manchester (via SRS H.35).

The northern leg of the route is approximately 17.5 miles long and the southern leg is approximately 12 miles long and both legs are not electrified. The majority of the route is two-track, with the exception of a 5 mile section of single track between Rainford Junction and Kirkby station on the southern leg.

There are a total of 16 stations on the route (including Wigan Wallgate and Southport), the busiest of which (in terms of passenger usage) are Southport*, Wigan Wallgate, Kirkby*, Appley Bridge and Burscough Bridge.

(* denotes station is also served by Merseyrail services and station usage data is not disaggregated between Train Operating Companies)

The main junction on this route is Wigan Wallgate Junction, where the two legs merge for access to/from Wigan Wallgate station. There are carriage sidings located on both sides of the northern leg of the route, adjacent to Wigan Wallgate Junction. Knowsley Freight Terminal is located approximately a mile east of Kirkby station on the southern leg, and is accessed via a single line connection (Note: the terminal connection is on the 5 mile single line section .between Rainford Junction and Kirkby station.). There is a junction outside Southport station used to sort trains into platforms and Merseyrail have carriage sidings to the south of Southport station.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Southport/Kirkby Wigan Wallgate Junction.			
Section start	WBS3 35 miles 27 chains Southport, WKL2 29 miles 40 chains Kirkby.			
Section end	WKL1 18 miles 07 chains Wigan Wallgate.			
Route availability	RA7, RA8	RA8	RA8	
Gauge	W6, W7, W8	W9	W9	
Signals	Mixture of absolute block and track circuit block.	Mixture of absolute block and track circuit block.	Subject to the rollout programme of European Rail Traffic Management System (ERTMS).	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant Linespeed 70 mph	75 mph	75 mph	
Electrification	None	None	None	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Southport to Wigan Wallgate 28 minutes Kirkby to Wigan Wallgate 24 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour (off-peak)	Southport to Wigan Wallgate Approximately half hourly Kirkby to Wigan Wallgate Hourly	Possible changes to service frequency, in line with with industry aspirations and market requirements	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Route section	Southport/Kirkby to Wigan Wallgate			
Daily paths in one direction (as per WTT)	1 train per day (weekday) Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Market Study (2013)	As per forecasts in the Freight Market Study (2013)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

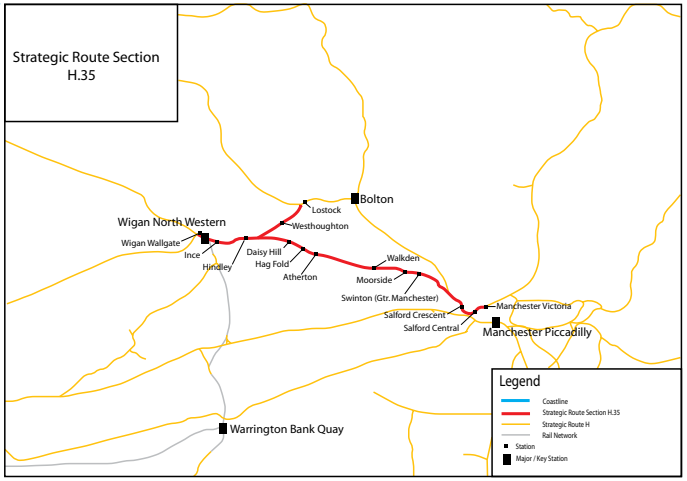
Level crossings on route

Table 4.0			
Type	Current No. of level crossings	2019 No. of level crossings	2043 No. of level crossings
Supervised:	3	As determined by Level Crossing policy	
Automatic:	6		
User:	24		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 5.0							
Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Train lengthening	Platform extensions between Wigan Wallgate (exclusive) to Kirkby and between Wigan Wallgate (exclusive) toSouthport	WKL, WKL2 and WBS3	2014-2019	Increased capacity to accommodate longer trains	DfT		In development
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable. ** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.							

SRS H.35 Wigan Wallgate - Manchester Victoria



Route specification description

SRS H.35 links Wigan Wallgate with Bolton, Salford and Manchester City Centre (at Manchester Victoria station). The route serves commuting and local travel markets, particularly to/from Manchester. The route is split into two parts: a main line between Wigan Wallgate and Manchester Victoria, and a branch between Crow Nest Junction and Lostock Junction.

The main line is approximately 17.5 miles long and the branch is approximately 4 miles long. The whole route is two-track and currently not electrified. There are 13 stations on the route, including Wigan Wallgate, Salford Crescent and Manchester Victoria. The busiest stations (in terms of passenger usage) are Manchester Victoria, Salford Crescent, Wigan Wallgate and Atherton.

The major junctions on the route are:

- Wigan Station Junction – links SRS H.35 with SRS N.04 to the south of Wigan North Western station. The junction provides direct access between the West Coast Main Line and SRS H.35 to/from Wigan North Western and north thereof, and also between SRS N.04 and SRS H.34 to/from south of Wigan.
- Crow Nest Junction – the junction on the main route that meets the branch line to Lostock junction. This provides direct access to Bolton from Wigan, Kirkby and Southport.
- Lostock Junction – links SRS H.35 with SRS H.27, providing direct access between Bolton and Wigan, Southport and Kirkby.
- Windsor Bridge North Junction – links SRS H.35 with SRS H.27, providing access across Salford Crescent station to/from Manchester Victoria.
- Windsor Bridge South Junction - links SRS H.35 with SRS H.27, providing access across Salford Crescent station to/from Manchester Victoria.
- Deal Street Junctions – the location where SRS H.35 and SRS H.33 merge for access to/from Manchester Victoria station and also used to regulate/sort services for the station
- Manchester Victoria West Junction – two independent sets of 'scissor crossovers' – one set on the Fast lines and one set on the Slow lines. This junction is also used to sort services for Manchester Victoria station

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Wigan Wallgate Junction Manchester Victoria /Lostock Junction			
Section start	WBS 17 miles 72 chains/ WBS1 14 miles 64 chains Crows Nest			
Section end	MVE 0 mile 00 chains Manchester Victoria/MVE2 13 miles 52 chains Lostock			
Route availability	RA8	RA8	RA8	
Gauge	W6, W7, W8, W9	W6, W7, W8, W9	W6, W7, W8, W9	
Signals	Mixture of absolute block and track circuit block	Mixture of absolute block and track circuit block of semaphore and colour light	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 60 mph	75 mph	75 mph	
Electrification	None	None	None	Aspiration for electrification between Wigan Station Junction and Lostock Junction for Bolton

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Between 34 and 44 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Wigan Wallgate to Manchester Victoria : 4tph	Possible changes to service frequency, in line with with industry aspirations and market requirements	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Route section	Wigan Wallgate to Manchester Victoria			
Daily paths in one direction (as per WTT)	1 train per week Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Market Study (2017)	As per forecasts in the Freight Market Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

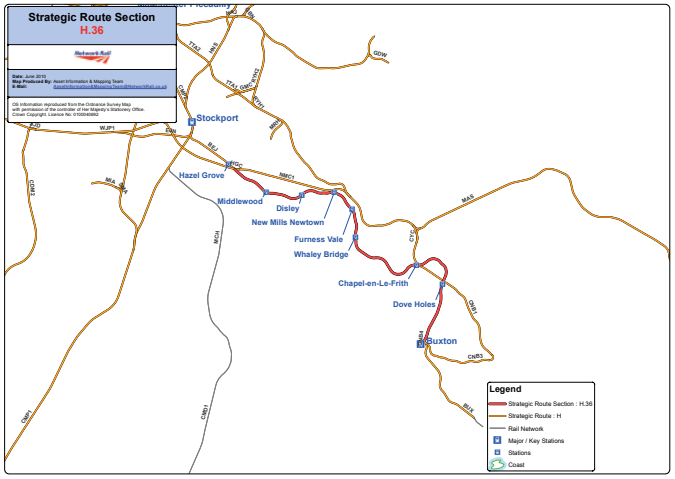
Level crossings on route

There are no level crossings on this route section.

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 4.0							
Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Train lengthening	Platform extensions at Westhoughton to cater for longer trains	LCN	2014-2019	Increased capacity to accommodate longer trains	DfT		In development
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable. ** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.							

SRS H.36 Buxton Branch



Route specification description

SRS H.36 links Buxton with Stockport and Manchester City Centre and is an important commuting route for passengers in the High Peak area. The route is approximately 17 miles long, is not electrified and is two-track throughout. The route serves commuting, local and freight markets.

There are 8 stations on the route, the busiest of which (in terms of passenger usage) are Buxton and New Mills Newtown.

There are 2 main junctions on the route:

- Hazel Grove East Junction – links SRS H.36 with SRS H.38, providing access between H.36 and Stockport (and onwards to Manchester Piccadilly).
- Buxton Station – There is a junction immediately outside Buxton station which links with the Peak Forest freight line (included in SRS H.98/99).

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Buxton Hazel Grove East Junction			
Section start	BEJ 19 miles 09 chains Buxton			
Section end	BEJ 2 miles 35 chains Hazel Grove East Junction			
Route availability	RA8	RA8	RA8	
Gauge	W6	W6	W6	
Signals	Absolute block	Absolute block	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 60 mph	75 mph	75 mph	
Electrification	None	None	None	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Buxton to Hazel Grove 34 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	1 train per hour (2 trains per hour in morning and evening peak) all originating in Buxton running mainly to Manchester Piccadilly (15 trains per day) but also to Clitheroe, Wigan North West, Blackpool North and Arnside	Possible changes to service frequency, in line with with industry aspirations and market requirements	Possible changes to service frequency, in line with with industry aspirations and market requirements	The north west timetable is being developed to take advantage of the additional capacity and connectivity offered by the Northern Hub project and electrification programmes during CP5.

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Route section	Buxton Branch			
Daily paths in one direction (as per WTT)	None. However the route is the only diversionary route for train to exit the Peak Forest branch under perturbation	As per forecasts in the Freight Market Study (2017)	As per forecasts in the Freight Market Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

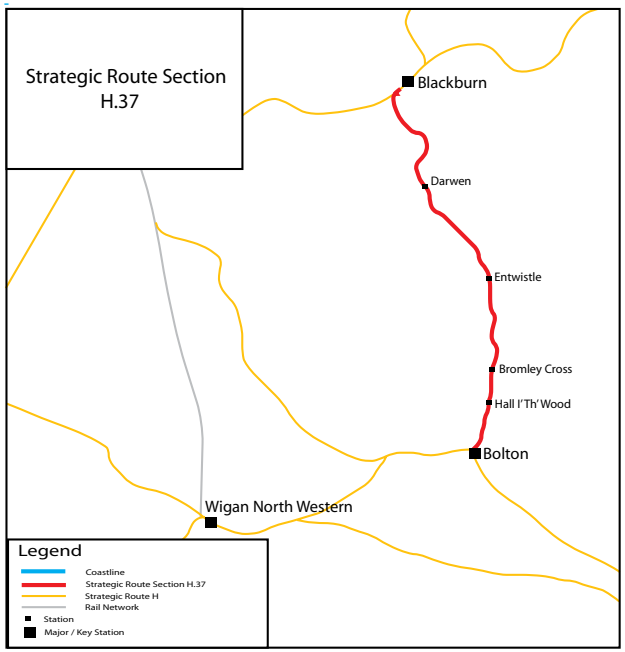
Level crossings on route

Table 4.0			
Type	Current No. of level crossings	2019 No. of level crossings	2043 No. of level crossings
Supervised:	3	As determined by Level Crossing policy	
Automatic:	0		
User:	14		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 5.0							
Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Train lengthening	Platform extensions from Buxton to Stockport (proposed)	BEJ	2014-2019	Increased capacity to accommodate longer trains	DfT		In development
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable. ** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.							

SRS H.37 Bolton - Blackburn



Route specification description

SRS H.37 links Bolton and Blackburn and is an important commuting route that links East Lancashire with Greater Manchester. The route is approximately 14 miles long consisting of a mix of two-track and single track and is also not electrified at present.

The route serves commuting and local markets and has 6 stations (including Bolton and Blackburn), of which Bolton and Blackburn are the busiest in terms of passenger usage.

There are 4 major junctions on the route:

- Bolton West Junction – provides access between Bolton Station (platforms 1 and 3 only) and the main route, linking SRS H.37 with SRS H.27 to/from the Manchester direction only.
- Astley Bridge Junction – location where single line and two-track sections split/merge south of Hall I'Th' Wood station.
- Bromley Cross station – junction immediately north of the station where single line and two-track sections split/merge.
- Blackburn Bolton Junction – links SRS H.37 with Blackburn station and SRS H.44. Access is to/from the Blackburn direction only.

There is a passing loop at Darwen station permitting services to pass each other when travelling in opposite directions.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Blackburn Bolton			
Section start	BBB 10 miles 50 chains Bolton			
Section end	BBB 24 miles 08 chains Blackburn Bolton Junction			
Route availability	RA8	RA8	RA8	
Gauge	W6	W6	W6	
Signals	Track circuit block	Track circuit block	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 60 mph	75 mph	75 mph	
Electrification	None	None	None	Electrification infill between Blackburn and Bolton to be considered.

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	30 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Half-hourly in the peak Hourly off-peak	Possible changes to service frequency, in line with with industry aspirations and market requirements : Lengthening of services in December 2019	Possible changes to service frequency, in line with with industry aspirations and market requirements	The north west timetable is being developed to take advantage of the additional capacity and connectivity offered by the Northern Hub project and electrification programmes during CP5.

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Bolton to Blackburn			
Daily paths in one direction (as per WTT)	1 train per hour between Bolton and Blackburn 1 train per day between Bolton and Wigan TMD Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Market Study (2017)	As per forecasts in the Freight Market Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	1	As determined by Level Crossing policy	
Automatic:	1		
User:	3		

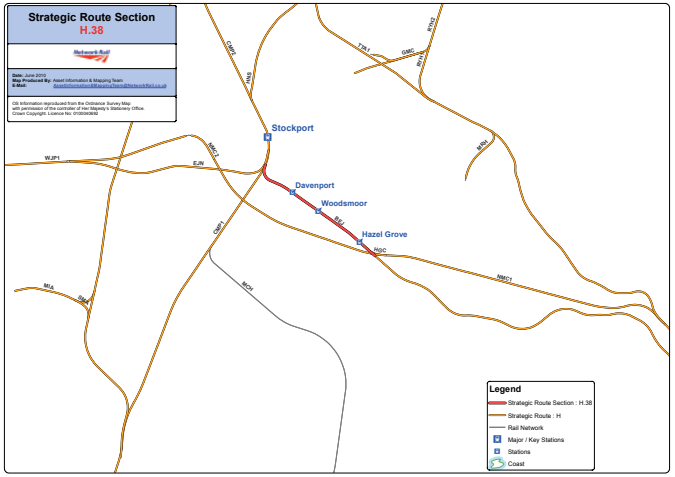
Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Train lengthening	Platform extensions between Hall I'th'wood and Darwen	BBB	2014-2019	Increased capacity to accommodate longer trains	DfT		In development

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable.
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

SRS H.38 Hazel Grove - Edgeley Junction



Route specification description

SRS H.38 links Hazel Grove with Stockport and Manchester and forms part of the main South Transpennine route between Manchester and Sheffield. The route is approximately 2 miles long, fully 25kV overhead electrified and is two-track throughout. The main markets served by the route are commuter, local, long-distance/inter-regional and freight.

There are 3 stations on the route, the busiest of which is Hazel Grove. The two major junctions on the route are Edgeley Junction No. 1 (linking to SRS H.22 for Stockport and Manchester) and Hazel Grove East Junction (linking to SRS H.17 for the Hope Valley and SRS H.36 for Buxton).

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Hazel Grove Edgeley Junction			
Section start	BEJ Hazel Grove 2 miles 35 chains			
Section end	BEJ Edgeley Junction 0 mile 00 chains			
Route availability	RA8	RA9	RA9	
Gauge	W6, W8	W6, W8	W6, W8	
Signals	Track circuit block	Track circuit block	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 75 mph	In development	In development	
Electrification	25kV OHLE	25kV OHLE	25kV OHLE	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	8 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	3/4 trains per hour in morning peak, reducing to half-hourly during the day	Possible changes to service frequency, in line with with industry aspirations and market requirements : See notes	Possible changes to service frequency, in line with with industry aspirations and market requirements	The north west timetable is being developed to take advantage of the additional capacity and connectivity offered by the Northern Hub project and electrification programmes during CP5.

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Hazel Grove to Edgeley Junction			
Daily paths in one direction (as per WTT)	2 trains per day Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Market Study (2017)	As per forecasts in the Freight Market Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

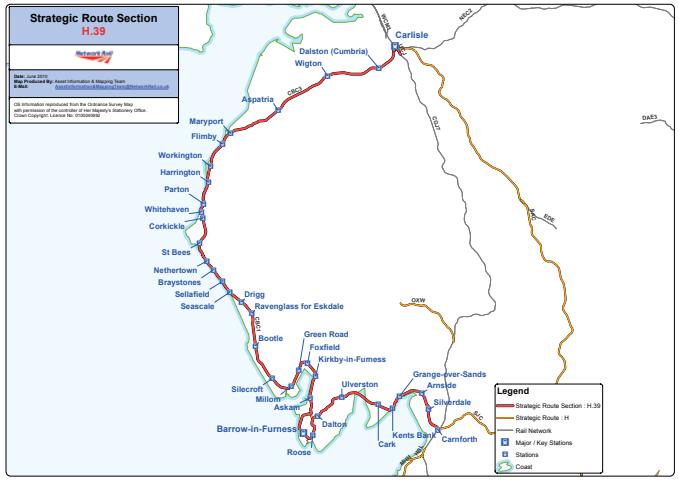
Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	1	As determined by Level Crossing policy	
Automatic:	0		
User:	0		

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

There are no schemes currently planned for Control Period 5.

SRS H.39 Cumbrian Coast



Route specification description

SRS H.39, known as the Cumbrian Coast line, is an important transport link for rural and coastal communities in Cumbria and for Sellafield. The route is approximately 115 miles long, consisting of a mixture of single and two track sections. The majority of the route is not electrified and serves freight, local and commuting and inter-regional markets.

There are 34 stations on the route (excluding Carlisle), the largest of which (in terms of passenger usage) are Barrow-In-Furness, Ulverston, Whitehaven, Sellafield, Millom and Workington.

There are various sidings, yards and other railway facilities adjacent to the line, the most significant of which are:

- Steamtown – sidings and maintenance facilities which are owned and operated by West Coast Railways (a heritage/charter operator).
- North of Carnforth – various, multi-use sidings to the north of Carnforth station.
- Port of Barrow – Approximately a mile south of Barrow-In-Furness station, there is a connection for the Port estate at Salthouse Junction.
- Barrow Depot – Northern Rail maintenance and stabling depot immediately north of Barrow-In-Furness station.
- Low Level Waste Repository – North facing sidings ('down' side of line) for access to/from the waste facility north of Drigg station.
- Sellafield Up Sidings – South facing sidings ('up' side of line) for access to/from the Sellafield site.
- Workington Yard – Access to the yard is via a bi-directional 'loop' adjacent to Workington station. The yard is to the south of Workington station and there are out of use sidings to the south of the yard which used to form part of Workington Steelworks.
- Port of Workington – north-facing connection approximately half a mile north of Workington station.
- Dalston Oil Terminal – immediately south of Dalston station, there is a south facing connection to the BP owned Dalston Oil Terminal.
- Carlisle Currock Depot – A closed freight depot approximately 1 mile south of Carlisle station.

There are several major junctions on the route, including:

- Carnforth North Junction – links SRS H.39 with SRS N.05 immediately south of Carnforth station. The junction movement between the Cumbrian Coast line (H.39) and the West Coast Main Line (N.05) south of Carnforth.
- Carnforth Station Junction – links SRS H.39 with SRS H.42 immediately north of Carnforth station. SRS H.42 links Carnforth (and stations south of) with Settle and further afield, Leeds.
- Dalton Junction – SRS H.39 splits/merges at Dalton Junction: the main route serves Barrow-In-Furness and the secondary route (mainly a freight route) bypasses Barrow-In-Furness and is approximately three quarters of a mile long.
- Salthouse Junction – located on the 'main' route through Barrow, the junction permits access to/from the Port of Barrow. Access is to/from an eastern direction only.
- Park South Junction – SRS H.39 splits/merges at Park South Junction: the main route serves Barrow-In-Furness (which is a single, bi-directional line at Park South Junction) and the secondary route bypasses Barrow-In-Furness (two-track throughout). Park South Junction permits movement to/from a northbound direction only.
- Sellafield station – Immediately south of Sellafield station there is a connection to the Sellafield industrial facility. To the north, two-track (south of Sellafield) and single track (north of Sellafield) sections merge.
- Bransty Junction/Whitehaven station – Bransty Junction merges the single line between Sellafield and Whitehaven and the two-track section between Whitehaven and Parton South Junction.
- Parton South and North Junctions – There is a single line section (approximately three quarters of a mile long) between the two junctions. Both junctions merge two-track sections with the single line section.
- Derwent Junction – This junction permits access to/from the Port of Workington. The connection faces north and is only connected to the 'Down' line (northbound, towards Carlisle). Services to/from the

south are required to stop north of the junction and propel southwards either into the port estate or to Workington station for reconfiguration. Equally, services from the north are required to reconfigure in Workington station then pull forward towards Derwent Junction as per a service from the south.

- Maryport station – The route consists of a short three-track section through Maryport station, despite there only being one platform at the station on the 'down' side of the line. The track is bi-directional through the platform at Maryport.

- Currock Junction – links SRS H.39 with the freight route that links to Bog Junction (for access to/from the south (WCML) via Upperby Bridge Junction) and London Road Junction (for access to/from SRS H.40 (Settle and Carlisle line) and SRS G.13 (Newcastle – Carlisle line)

- Carlisle South Junction – links SRS H.39 with SRS N.05 immediately south of Carlisle station. Access is to/from the northbound direction only.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Carlisle South Junction - Carnforth Station Junction			
Section start	CBC3 27 miles 49 chains Carlisle South Junction			
Section end	CBC1 0 miles 31 chains Carnforth			
Route availability	RA7, RA8	RA8	RA8	
Gauge	W6, W7, W8	W6, W7, W8	W6, W7, W8	
Signals	Absolute block (some single line working)	Absolute block (some single line working)	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 60 mph	75 mph	75 mph	
Electrification	None	None	None	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Lancaster to Carlisle via Barrow - 3 hours 30 minutes Barrow to Manchester - 2 hours 8 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Barrow to Lancaster - broadly hourly with 3 direct servcies to Manchester per day Carisle to Barrow - hourly	Possible changes to service frequency, in line with with industry aspirations and market requirements	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Carlisle South Junction to Carnforth Station Junction			
Daily paths in one direction (as per WTT)	11 trains per day covering various parts of the line Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Market Study (2013)	As per forecasts in the Freight Market Study (2013)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

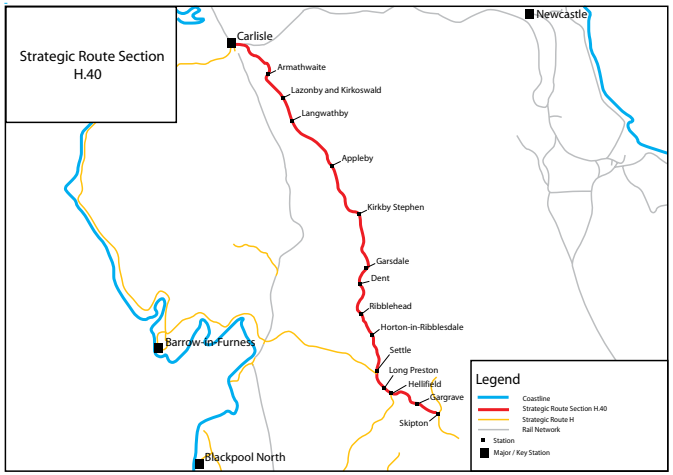
Level crossings on route

Table 4.0		
Current No. of level crossings	**2019 No. of level crossings**	**2043 No. of level crossings**
139	As determined by Level Crossing policy	

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

Although there are no current plans for Control Period 5, there are a number of external development projects in West Cumbria that are scheduled to increase the volume of traffic, predominantly freight , on the Cumbrian Coast Line. Network Rail is working closely with partners to understand the overall ask on the route.

SRS H.40 Settle and Carlisle Line



Route specification description

SRS H.40 links Carlisle with rural communities in East Cumbria and North Yorkshire. The southern end of the route is at Skipton, where H.40 meets SRS H.03 (for onward links to Leeds). The route is approximately 85 miles long, the majority of which is two track. The route is not electrified and caters for freight, local, commuter and seasonal tourism markets.

There are 14 stations on the route (including Skipton), the busiest of which (in terms of passenger usage) are Skipton, Settle, Appleby, Kirkby Stephen and Hellifield.

There are various sidings, yards and other railway facilities adjacent to the line, the most significant of which are:

- Petteril Bridge (Esso) – adjacent to Petteril Bridge Junction, Esso have a rail-linked Oil terminal, but it is currently out of use.
- Howe & Co's siding – approximately 5 miles south of Carlisle, Howe & Co. have a siding on the 'down' side of the line. It can be accessed from both the north and the south.
- Newbiggin – British Gypsum have a terminal on the 'down' side of the line adjacent to Kirkby Thore signal box. There is access to/from the south and direct to the north, but services arriving from the north have to reverse shunt (propel) from the 'up' line into the terminal.
- Appleby – adjacent to Appleby station is a connection to the Eden Valley railway.
- Kirkby Stephen – there are two reversing sidings to the south of the station, one on each side of the line.
- Garsdale – There are 3 sidings to the north of the station on the 'up' side of the line.
- Blea Moor – An 'up' goods loop north of the single-tracked Ribblehead Viaduct.
- Ribblehead – There is a siding on the 'down' side of the line, with a north facing connection.
- Arcow Quarry Siding - a northbound freight connection delivered during 2016.
- Hellifield – West Coast Railways have a siding on the 'down' side of the line that links to the Down Recess sidings. These sidings are connected to the route via the down goods loop (adjacent to Hellifield station). There is also an Up Goods Loop.
- Skipton – There is a connection at Skipton station leading to the Rylstone Tarmac facility and Northern Rail have a carriage siding facility on the 'Up' side of the line.

The major junctions on the route are:

- Petteril Bridge Junction – links SRS H.40 with SRS N.05, permitting access between the route and Carlisle station and the West Coast Main Line. Direct access is to/from the north only. This junction also links SRS H.40 with SRS H.39 via Bog Junction and Currock Junction, which runs underneath the West Coast Main Line to the south of Carlisle station.
- Appleby North Junction – a south facing connection to the Eden Valley Railway and network sidings.
- Settle Junction – links SRS H.40 with SRS H.42 via south facing connections. This junction links Carnforth and the rural communities adjacent to SRS H.42 with Hellifield, Skipton and Leeds. The connection is a single line.
- Hellifield – links SRS H.40 with SRS H.44 via north facing connections. This junction links Hellifield (and stations north) with Clitheroe, Blackburn and other parts of East Lancashire.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Petterill Bridge Junction – Skipton			
Section start	SAC 307 miles 12 chains Petterill Bridge Junction			
Section end	SKW1 221 miles 21 chains Skipton			
Route availability	RA8	RA8	RA8	
Gauge	W6, W7	W6, W7	W6, W7	
Signals	Absolute block and track circuit block	Absolute block and track circuit block	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 60 mph	75 mph	75 mph	
Electrification	None	None	None	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Carlisle – Skipton, approximately 2 hours	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	7 trains per day	Possible changes to service frequency, in line with with industry aspirations and market requirements	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Route section	Settle to Carlisle			
Daily paths in one direction (as per WTT)	27 trains per day Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Market Study (2013)	As per forecasts in the Freight Market Study (2013)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

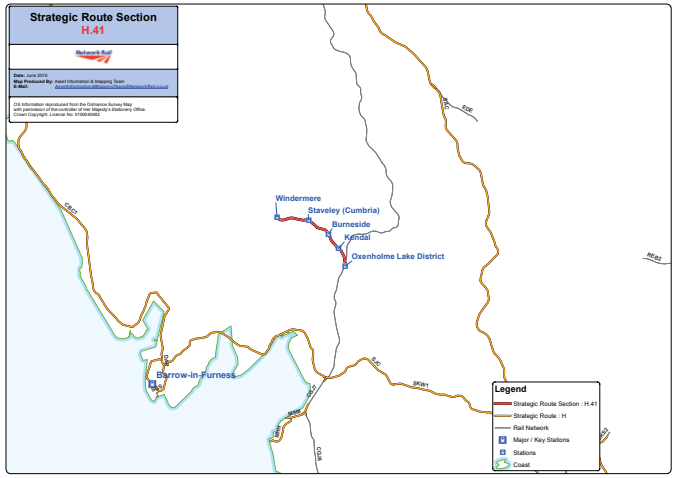
Level crossings on route

Table 4.0			
Type	Current No. of level crossings	2019 No. of level crossings	2043 No. of level crossings
Supervised:	2	As determined by Level Crossing policy	
Automatic:	0		
User:	24		

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

There are no schemes currently planned for Control Period 5.

SRS H.41 Windermere Branch



Route specification description

SRS H.41, known as the Windermere branch, is a single line, non-electrified route approximately 10 miles long. It links Windermere with Oxenholme Lake District station, permitting access between the branch and the West Coast Main Line (for destinations such as Preston, Liverpool and Manchester).

There are 5 stations on the route (including Oxenholme Lake District) with Oxenholme and Windermere being the busiest in terms of passenger usage. Local, Commuter and Inter-Regional/Long Distance markets are served by the route and there are significant tourism flows throughout the year.

The only junction on the route is Oxenholme Junction, which forms part of the infrastructure layout at Oxenholme Lake District station. The junction links the branch with SRS N.05 and is south-facing only.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Oxenholme to Windermere			
Section start	OXW 0 miles 00 chains Oxenholme			
Section end	OXW 10 miles 15 chains Windermere			
Route availability	RA8	RA8	RA8	
Gauge	W6	W6	W6	
Signals	Absolute block	Absolute block	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 60 mph	No change	No change	
Electrification	None	see notes	See notes	DfT Electrification Programme : 2013 announcement to electrify the branch subject to successful business case

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	19 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Hourly	Possible changes to service frequency, in line with with industry aspirations and market requirements	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Windermere Branch			
Daily paths in one direction (as per WTT)	None	N/A	N/A	

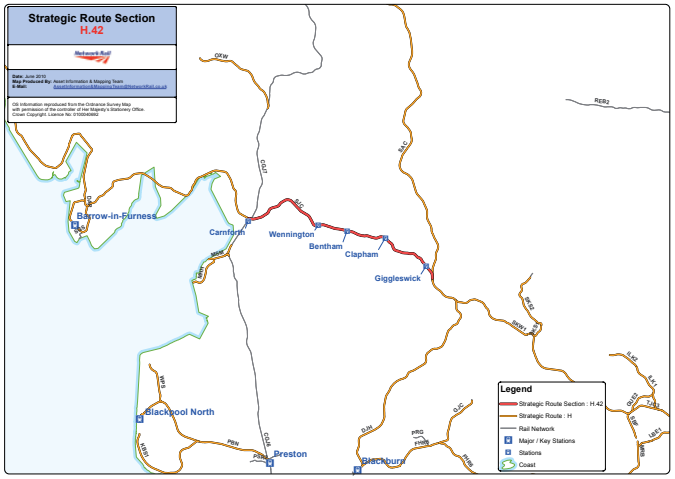
Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	1	As determined by Level Crossing policy	
Automatic:	2		
User:	5		

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

Table 5.0							
Project	**Project Description**	**ELR**	**Implementation Date**	**Output change**	**Funder**	**Notes**	**Status**
Windermere Branch Electrification	Overhead 25kV electrification of the Windermere branch line.	OXW	See Enhancement Delivery Plan update	Increased connectivity, faster journey times, reduced carbon emissions.	DfT	This scheme is subject to business case evalutation	In early development

SRS H.42 Carnforth - Long Preston



Route specification description

SRS H.42 links Carnforth with Settle and is approximately 25 miles long. The route is two track throughout and is not electrified. The route serves local and inter-regional markets and has 4 stations (excluding Carnforth), the busiest of which is Bentham (in terms of passenger usage).

There are two main junctions on the route: Carnforth Station Junction (linking SRS H.39 with SRS H.42) and Settle Junction (linking SRS H.42 with SRS H.40). Both junctions are south facing, with Settle Junction being a single line to/from SRS H.42.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Carnforth Station Junction – Settle Junction			
Section start	SJC 0m 31 Carnforth Station Junction			
Section end	SKW 234m 44 Settle Junction			
Route availability	RA8	RA8	RA8	
Gauge	W6	W6	W6	
Signals	Absolute block	Absolute block	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed See Sectional Appendix for detailed speed profiles	Predominant linespeed 60 mph	No change	No change	
Electrification	None	None	None	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	42 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	5 trains per day	7 trains per day	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Route section	Carnforth to Long Preston			
Daily paths in one direction (as per WTT)	30 trains per day : Settle to Hellifield (runs over short section of route on this SRS between Giggleswick and Long Preston	As per forecasts in the Freight Market Study (2013)	As per forecasts in the Freight Market Study (2013)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

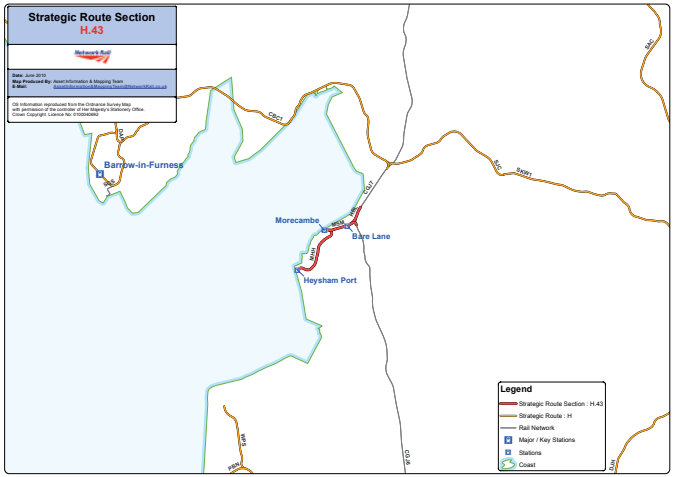
Level crossings on route

Table 4.0			
Type	Current No. of level crossings	2019 No. of level crossings	2043 No. of level crossings
Supervised:	0	As determined by Level Crossing policy	
Automatic:	0		
User:	24		

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

There are no schemes currently planned for Control Period 5.

SRS H.43 Morecambe/ Heysham Port Branch



Route specification description

SRS H.43 connects Morecambe and Heysham with the West Coast Main Line. The route is formed of two lines: the main, two-track route between the West Coast Main Line and Morecambe (approximately 2 miles long) and a short single line section between Morecambe Junction and Heysham Port (approximately 4 miles long). The whole route is not electrified and has three stations, the busiest of which is Morecambe (in terms of passenger usage).

Local, commuter, inter-regional and freight markets are served by the route. Heysham Power Station is located adjacent to Heysham Port station, with a single track connection to the Power Station site half a mile east of Heysham Port station.

The route has 4 main junctions:

- Morecambe South Junction – links SRS H.43 with SRS N.05, with a south facing, single track connection linking the branch with the West Coast Main Line.
- Hest Bank Junction – links SRS H.43 with SRS N.05, with a north facing, single track connection linking the branch with the West Coast Main Line.
- Bare Lane Junction – the junction consists of a two-track section to the west (Morecambe), a short single line section and two separate single line sections that connect to the West Coast Main Line (as described above).
- Morecambe Junction – links the main route with the branch to Heysham Port and Heysham Power Station. The junction faces Morecambe station, resulting in the need for services to/from Heysham to reverse at Morecambe station. The junction is a quarter of a mile east of Morecambe station.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Morecambe/Heysham Port – Morecambe South Junction/Hest Bank Junction			
Section start	MSM 2 mile 10 chains, Morecambe			
Section end	CGJ7 3 miles 10 chains Hest Bank Junction, MSM 0 mile 00 chains Morecambe South Jn MHH 4 miles 01 chains Heysham Port			
Route availability	RA8	RA8	RA8	
Gauge	W8	W9, W10	W9, W10	
Signals	Mixture of absolute block and track circuit block	Mixture of absolute block and track circuit block	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 55 mph	No change	No change	
Electrification	None	None	None	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Morecambe to: Bare Lane - 4 minutes Heysham - 14 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Morecambe to: Bare Lane - 3 trains every 2 hours Heysham - 1 train per day	Possible changes to service frequency, in line with with industry aspirations and market requirements	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Route section	Heysham Port and Sellafield			
Daily paths in one direction (as per WTT)	1 train per day	As per forecasts in the Freight Market Study (2013)	As per forecasts in the Freight Market Study (2013)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

Level crossings on route

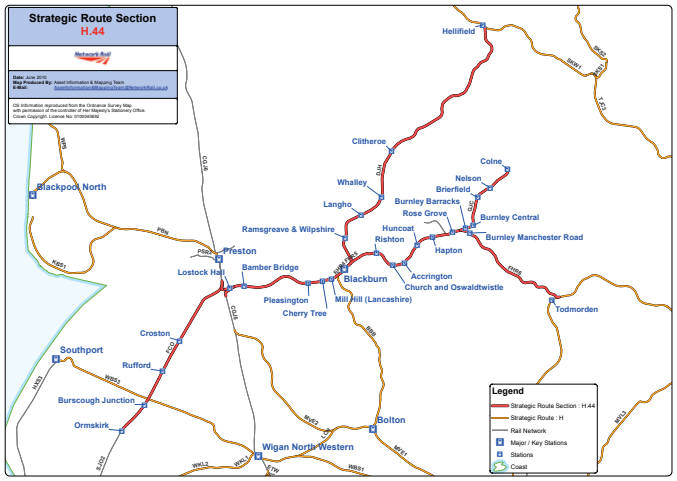
Table 4.0		
Current No. of level crossings	2019 No. of level crossings	2043 No. of level crossings
6	As determined by Level Crossing policy	

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

There are no schemes currently planned for Control Period 5.

SRS H.44 Roses Line and Branches (including Preston to Ormskirk and Blackburn to Hellifield)

Geographic Map



Route specification description

SRS H.44 consists of four route sections, divided as follows:

- Ormskirk to Preston branch line
- 'The Roses Line' – Farington Curve Junction to Hall Royd Junction
- 'The Clitheroe Line' – Daisyfield Junction to Hellifield
- 'The Colne Branch' – Gannow Junction to Colne Station

Ormskirk to Preston branch line

The branch's limits are Farington Curve Junction (East Lancs) and Ormskirk station and the entire route is a single track, non-electrified route. The route is approximately 13.5 miles long and serves local and commuter markets. There are 4 stations on the route of which Ormskirk is the busiest in terms passenger usage (although the data is not desegregated between the main network and the third rail Merseyrail network). Interchange opportunities are provided between the mainline network and the Merseyrail network at Ormskirk where both networks meet (on a single platform), but are segregated by a buffer stop.

'The Roses Line'

The Roses Line is the main line of SRS H.44 and links Central Lancashire, East Lancashire and West Yorkshire. The route serves several markets, namely Long Distance/Inter-Regional, Local, Commuter and Freight. The line is approximately 30.5 miles long, not electrified and is two-track throughout.

The route has 13 stations, the largest of which (in terms of passenger usage) are Blackburn, Accrington, Burnley Manchester Road and Bamber Bridge. Blackburn is the major interchange on the route, linking The Roses Line, The Clitheroe Line and SRS H.37 (for Bolton and Manchester).

The major junctions on the route are:

- Farington Curve Junction – links SRS H.44 with SRS N.04 via a north facing junction. This junction links Preston with SRS H.44 and merges with the Slow Lines of the WCML only.
- Farington Curve Junction (East Lancs) – links the Ormskirk Branch to the Roses Line via a single , north facing connection.
- Lostock Hall Junction – links The Roses Line with a short two-track section between the junction and Farington Junction.
- Farington Junction – links the Roses Line with SRS N.04 via a south facing, single line junction. The route between Farington Junction and Lostock Hall Junction is mostly electrified.
- Blackburn Bolton Junction – links SRS H.44 with SRS H.37, linking Blackburn with Darwen and Bolton. The junction faces east, permitting access to/from the Blackburn direction only. There are a series of freight sidings to the south of the junction.
- Daisyfield Junction – links the Roses Line with the Clitheroe Line via a single, west facing connection. The junction links Blackburn with Clitheroe and provides access further afield to/from Hellifield and SRS H.40.
- Gannow Junction – links the Roses Line with the Colne Branch via a west facing, single line connection. The junction links Colne and Nelson with the rest of East Lancashire serves by the Roses Line.
- Hall Royd Junction – links SRS H.44 with SRS H.10, providing access between East Lancashire and West Yorkshire. The junction is east and west facing. To the east, this forms part of the main route between Blackpool, Preston, Blackburn, Burnley, Bradford and Leeds.

In the west, this forms part of the Todmorden Curve project completed in 2014. This provides direct connectivity between East Lancashire (particularly Burnley) with Manchester via Rochdale. The project will introduce a new junction on the 'Roses Line' (Stansfield Hall Junction) and a new junction on SRS H.10 Manchester Victoria - Mirfield (Todmorden Viaduct Junction).

'The Clitheroe Line'

The Clitheroe Line is a mostly two track branch line, linking Clitheroe with Blackburn to the south and Hellifield to the North. The route serves Local, Commuter and Freight markets and is approximately 23.5 miles long. It is not electrified and has four stations, the busiest

of which (in terms of passenger usage) is Clitheroe. The other three stations are situated between Daisyfield Junction and Clitheroe.

There is a freight railhead at Horrocksford owned by Castle Cement, connected to the Clitheroe Line via a south facing connection to both the Up and Down lines. The two major junctions on the route are Daisyfield Junction (a single line, west/south facing connection with the Roses Line) and Hellifield station (a north facing connection linking SRS H.44 with SRS H.40).

'The Colne Branch'

The Colne Branch is a single line, linking Colne with Burnley, Blackburn and the rest of the mainline network. It is approximately 6 miles long and is not electrified. There are five stations on the route, the busiest of which (in terms of passenger usage) is Burnley Central. Local and Commuter markets are served by the route and the only junction is Gannow Junction, a west facing connection between this line and the Roses Line.

SRS H.44 Roses Line and Branches (including Preston to Ormskirk and Blackburn to Hellifield)

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Farington Curve Junction – Ormskirk/Hellifield/Colne/Hall Royd Junction			
Section start	FCO 25 miles 64 chains Farington Curve Junction			
Section end	FCO 12 miles 15 chains Ormskirk, DJH 34 miles 68 chains Hellifield Junction, GJC 27 miles 37 chains Colne, FHR6 30 miles 54 chains Hall Royd Junction			
Route availability	RA8	RA8	RA8	
Gauge	W6, W7, W8	W8	W8	
Signals	Mixture of absolute block and track circuit block	Mixture of absolute block and track circuit block	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 70 mph	75 mph (potential) Preston to Ormskirk	No change	
Electrification	None	None	None	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Blackburn to Colne : 44 minutes Preston to Ormskirk : 29 minutes Hebden Bridge to Todmorden : 7 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock Blackpool North - Preston - York services operated as a Northern Connect service	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Blackburn to Colne : Hourly Preston to Ormskirk : 1 train every 1-2 hours Hebden Bridge to Todmorden : 3tph	Possible changes to service frequency, in line with with industry aspirations and market requirements	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Roses Line and Branches			
Daily paths in one direction (as per WTT)	Preston to Leeds - 1 train per day Blackburn to Hellifield - 2 trains per day Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Market Study (2013)	As per forecasts in the Freight Market Study (2013)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

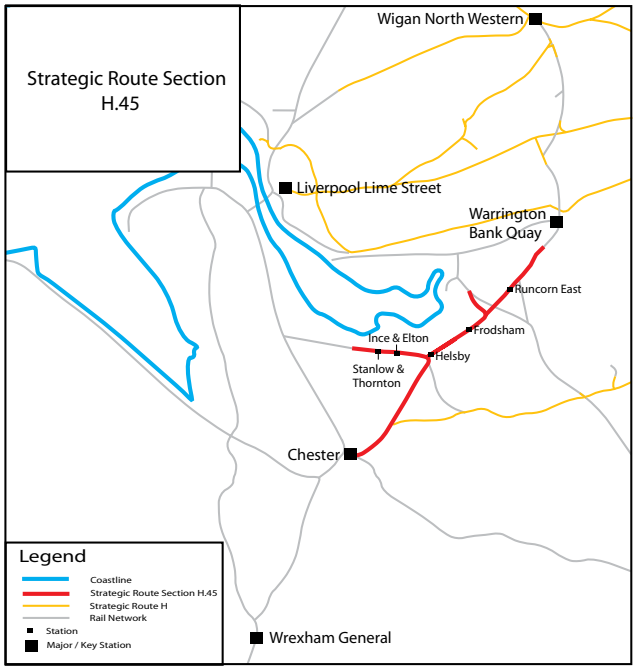
Level crossings on route

Table 4.0		
Current No. of level crossings	**2019 No. of level crossings**	**2043 No. of level crossings**
84	As determined by Level Crossing policy	

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

There are no schemes currently planned for Control Period 5.

SRS H.45 Chester/ Ellesmere Port - Warrington Bank Quay



Route specification description

SRS H.45 links Chester and Ellesmere Port with Warrington Bank Quay and the West Coast Main Line.. The route is split into three distinct sections: the main line (approximately 17.5 miles long), the Ellesmere Port branch (approximately 5 miles long) and the Halton Curve (approximately 1.5 miles long). The route is mostly two-track and mostly non-electrified and serves Freight, Inter-Regional, Local and Commuter markets.

The whole route has 7 stations (including Chester, excluding Warrington Bank Quay), the busiest of which (in terms of passenger usage) are Chester and Ellesmere Port. Both stations serve as interchanges between the Merseyrail and main line networks, and Chester also offers interchange between SRS H.45 and North Wales, Mid-Wales and Crewe.

The main junctions on the route are:

- Chester East Junction – forms part of the track layout at Chester Station for sorting services into platforms to/from SRS H.45 and also to/from SRS N.13 (Crewe – Chester)
- Mickle Trafford Junction – links SRS H.45 with SRS H.30 via a single line, west facing connection. The junction links Chester with Mid-Cheshire stations and also provides a route to/from Stockport and Manchester.
- Helsby Junction – links the main line with the Ellesmere Port branch at Helsby station. The connections are west facing and therefore do not permit direct movement between Chester and Ellesmere Port. The junction links Ellesmere Port with Warrington and the West Coast Main Line (WCML).
- Frodsham Junction – links the main line with the Halton Curve, a single line currently operational in a northbound direction only. The junction is a single line connection from the Down line. There is also an Up Goods Loop at Frodsham Junction.
- Halton Junction – links SRS H.45 (via the Halton Curve) with SRS N.07 via a single line connection onto the Down lineof N.07 only.
- Acton Grange Junction – links SRS H.45 with SRS N.04, linking Chester and Helsby with Warrington Bank Quay and the West Coast Main Line. The junction consists of two south-facing connections between the WCML south of the junction and the Warrington freight area and two north-facing connections between SRS H.45 and the WCML north of the junction. The south facing connections are 25kV overhead electrified, but the north facing connections are not electrified.
- Walton Old Junction – located within the Warrington freight area, this junction links SRS H.45 with a series of freight yards and sidings in the centre of Warrington.
- Warrington South Junction – links SRS H.45 with SRS N.04 at the southern end of Warrington Bank Quay station. This junction links the freight area with the West Coast Main Line for traffic to/from north of Warrington.

There are several freight facilities adjacent to the route; the most notable are:

- Ellesmere Port East Yard and Stanlow Sidings – large complex of sidings and goods lines to the north of the Ellesmere Port Branch, strategically located to link the railway network with the Manchester Ship Canal and several Oil and Coal terminals in the area.
- Kemira Fertilisers – the site is currently out of use, but there are plans to re-introduce the connection at Helsby West Cheshire Junction for use by Quinn Glass.
- Walton Old Sidings – non electrified fan of sidings situated between SRS H.45 and SRS N.04, with a north facing connection at Walton Old Junction. Used by various freight operators to form services and store wagons.
- Manchester Ship Canal (MSC) Sidings – electrified sidings to the south of SRS H.45, with a north facing, single line connection at Walton Old Junction.
- Arpley Yard Area – a mixture of sidings currently leased by DB Schenker, also containing maintenance facilities. The yard has a south facing connection at Walton Old Junction and a north facing connection at Warrington South Junction. It also has connections to other freight lines.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Chester East Junction / Ellesmere Port – Acton Grange Junction			
Section start	CHW1 0 miles 24 chains Chester East Junction			
Section end	HHJ 3 miles 44 chains Ellesmere Port, CHW 16 miles 19 chains Acton Grange Junction			
Route availability	RA8	RA8	RA8	
Gauge	W7, W8, W9	W8	W8	
Signals	Mixture of absolute block and track circuit block	Mixture of absolute block and track circuit block	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 75 mph	No change	No change	Aspiration for 100 mph
Electrification	None	None	Potential 25kV OHLE - see notes	DfT Electrification Task Force will investigate the electrification of this route during CP5 to inform CP6 electrification programme.

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Chester to Warrington Bank Quay : 26 minutes Helsby to Ellesmere Port : 11 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Chester to Warrington Bank Quay is served by ATW : Hourly Helsby to Ellesmere Port is served by Northern Rail Limited : 4 trains per day.	Possible changes to service frequency, in line with with industry aspirations and market requirements	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Chester/Ellesmere Port to Warrington Bank Quay			
Daily paths in one direction (as per WTT)	Helsby – Ellesmere Port: 6 trains per day Chester – Warrington Bank Quay: 10 trains per day. Subject to timetable fluctuations and based on average number of trains in each direction.	As per forecasts in the Freight Market Study (2013)	As per forecasts in the Freight Market Study (2013)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

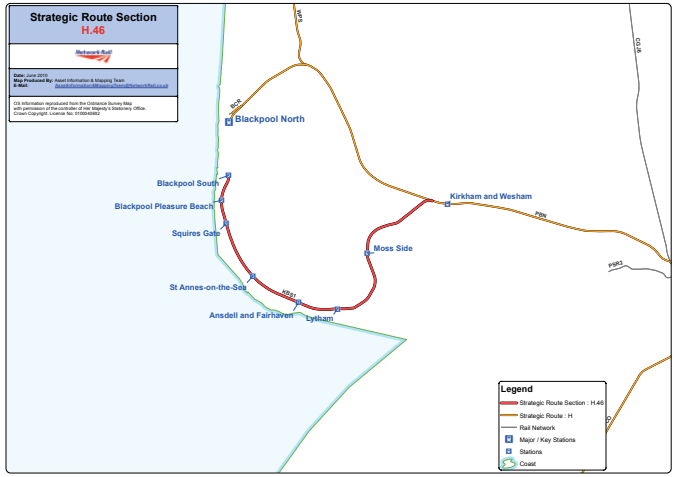
Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	0	As determined by Level Crossing policy	
Automatic:	1		
User:	0		

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

There are no schemes currently planned for Control Period 5.

SRS H.46 Blackpool South Branch



Route specification description

SRS H.46, known as the South Fylde Line, links Blackpool South with the mainline network and serves local, commuter and seasonal tourism markets (for Blackpool Pleasure Beach and major golf tournaments). The route is a single line, approximately 12.5 miles long and is not electrified.

There are 7 stations on the route, the busiest of which (in terms of passenger usage) are Blackpool South and St. Annes-on-the-Sea. The only junction on the route is Kirkham North Junction, which links SRS H.46 with SRS H.32 via an east facing connection (to/from the Preston direction). There are some engineers' sidings adjacent to Kirkham North Junction for use by Network Rail.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Kirkham and Wesham – Blackpool South			
Section start	PBN 7 miles 67 chains Kirkham and Wesham			
Section end	KBS1 20 miles 00 chains Blackpool South			
Route availability	RA8	RA8	RA8	
Gauge	W6	W6	W6	
Signals	Predominantly absolute block	Predominantly absolute block	Subject to the rollout programme of European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 70 mph	No change	75 mph	
Electrification	None	None	None	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	Kirkham and Wesham to Blackpool South : 26 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Kirkham and Wesham to Blackpool South - hourly	Possible changes to service frequency, in line with with industry aspirations and market requirements	Possible changes to service frequency, in line with with industry aspirations and market requirements	

Current Freight Trains (paths per day)

There is no freight traffic on this route.

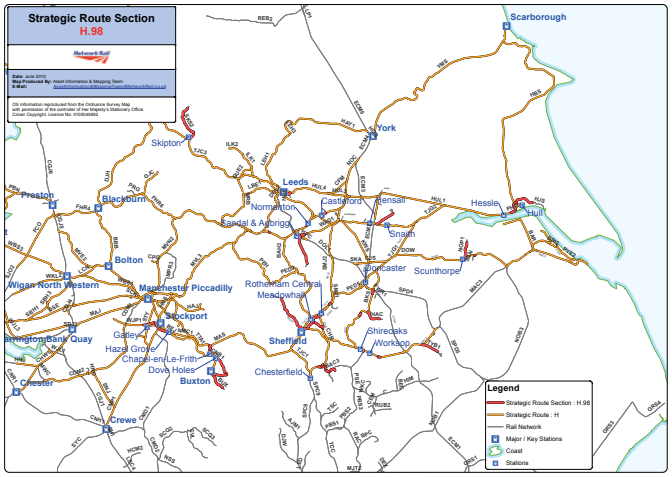
Level crossings on route

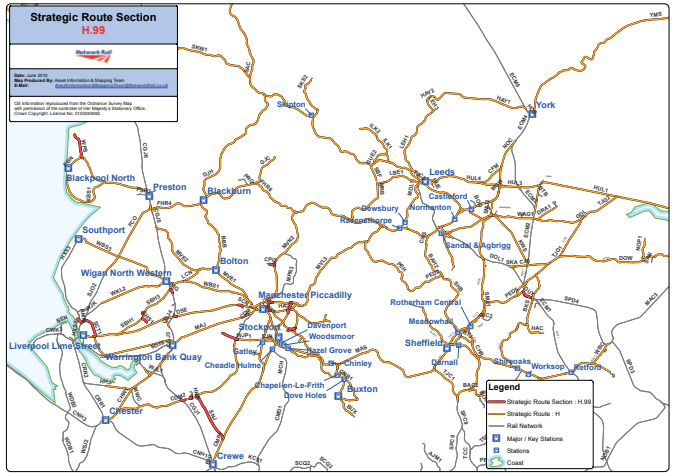
Table 4.0			
Type	Current No. of level crossings	2019 No. of level crossings	2043 No. of level crossings
Supervised:	0	As determined by Level Crossing policy	
Automatic:	1		
User:	5		

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

There are no schemes currently planned for Control Period 5.

SRS H.98 Freight Trunk Routes and H.99 Other Freight Routes





Route specification description

Buxton to Hindlow (BUX)

Single track line known as the Buxton and High Peak Junction line linking the freight terminals at Dowlow and Hindlow with Buxton. See map for further route information.

There are proposals to lengthen the Buxton Up refuge siding by 2018 to cater for longer freight trains. Further capacity improvements to cater for longer trains include minor remodelling adjacent to the quarries at Dowlow and Hindlow by 2018.

Peak Forest Junction to Chinley South Junction (CNB1/2/3/4)

Double track railway as far as Great Rocks Junction then the line splits with a single track towards the freight terminal at Tunstead and a single line towards Buxton. See map below for further route information.

Chinley Chord (CYC)

Single line triangular chord linking Chinley South Junction with Chinley East Junction and Chinley South Junction with Chinley North Junction. See map below for further route information. Some track doubling on the approach to Chinley Chord has recently been completed.

Earles Private Sidings (EPS)

Situated near Hope on the Manchester to Sheffield route. Consists of a down goods loop, a series of sidings with connections at either end that act as an interchange point for an industrial line up to the cement works. Currently nine freight tpd in each direction serve the cement works. The sidings are part of our Network but the siding to the cement works is outside the Network Rail boundary.

New Mills South Junction to Heaton Mersey Station Junction and Cheadle Heath South Junction to Cheadle Junction

Single track section linking the Sheffield to Manchester (Hope Valley) route with the Stockport to Skelton Junction and the former Partington route via Cheadle. This route contains two closed stations in the Cheadle area. See map below for further route information.

Glazebrook East Junction to Woodley Junction (WJP1)

o This single line route diverges from the Hyde route (Manchester to Rose Hill / Marple) at Woodley Junction. It runs for approximately one mile catering for the Manchester waste site and the former tarmac site at Bredbury. The route formerly then continued around the north side of Stockport and formed a junction with the New Mills South Junction and Northenden Junction route. At Northenden Junction the route (WJP1) exists running in a westerly direction towards Skelton junction. Beyond here the line is out of use to Partington Junction (former Shell site) and the Network Rail boundary at 27 miles 440 yards. Beyond Partington Junction the route was closed, although the former route did continue on to Glazebrook East Junction on the Manchester to Liverpool (CLC) route. A small spur serving a freight terminal at Glazebrook is out of use. There are no booked freight services.

SRS H.24 Deansgate to Allerton

Trafford Park Freightliner Terminal

Trafford Park is an intermodal freight terminal located adjacent to the Allerton West Junction – Castlefield Junction to the west of Manchester City Centre (in the vicinity of Manchester United Football Ground station). It is accessed via Trafford Park West Junction, which consists of two east-facing crossings, therefore permitting parallel moves on and off the terminal. The reception, departure and main route within the terminal are overhead electrified (25kV AC), but all other sidings and lines are non-electrified. There is no access from the West (Warrington/Merseyside direction) and the terminal accepts trains of W9 and W10 loading gauge and of RA8 clearance (non-heavy axle weight services).

Services to and from the terminal are operated by Freightliner Intermodal, DB Schenker and GB Railfreight and Trafford Park currently handles 2tph – one arriving and one departing. Forecasts indicate that by the end of the Control Period 5 (2019), the level of traffic will double to 2 arrivals and 2 departures per hour.

SRS H.30 Guide Bridge Junction and Stockport to Mouldsworth

Partington Line Branch for Shell Oil

Accessed from SRS H.30 at Skelton Junction, this line is now out of use.

Winnington Branch- Brunner Mond Oakleigh Sidings (Chemicals) NW3025

The Winnington Branch provides rail access to Winnington Works (Tata Chemicals) and Northwich Oakleigh Sidings from both directions of the Mid-Cheshire Line (NW3023) via single track chords at Hartford West and Hartford East Junctions. The chords merge into a short (5ch) single line at Hartford North Jn before splitting to a two track section for three quarters of a mile. Beyond 1m 03ch the route reduces to a single line for access to the aforementioned sites.

Hartford CLC/West Coast Main Line Chord NW3033

The Hartford Chord links the West Coast Main Line and Mid-Cheshire line north of Hartford station and west of Greenbank station. It is a bi-directional link consisting of a small section of two-track and small section of single line railway. The single line portion is overhead 25kV AC electrified to allow shunting of electric rolling stock off the West Coast Main Line. The two-track section and access to the Mid-Cheshire line is non-electrified and the whole chord is limited to 15mph maximum speed. The route is used for diversionary purposes and also for Network Rail engineering trains.

SRS H.32 Blackpool North Branch NW4005

Burn Naze Branch NW4009

The route between Poulton-Le-Fylde Junction and the former Thornton Power Station is currently out of use. The line was a single track branch with passing loops located at Poulton-Le-Fylde Junction and the former Burn Naze station. The current connection at Poulton-Le-Fylde Junction is planned to be severed as part of the North West Electrification programme on the Blackpool North line, with passive provision for reconnection to the east of Poulton-Le-Fylde station should the branch be re-instated.

SRS H.33 Edge Hill to Manchester Victoria (Via Earlestown) and to Wigan NW2015

Bootle Branch NW2027/9

The main Bootle branch is a two-track, non-electrified railway linking the Edge Hill area with the Port of Liverpool (via a West-facing connection at the Edge Hill end). The line is situated in a variety of cuttings and tunnels and has a 20mph speed limit. The branch ends in the area of Regents Road Level Crossing, where there is a boundary point between the main network and the port.

There is a secondary bi-directional line (The Olive Mount Chord) which provides an east-facing link with NW2015 for traffic heading east towards the West Coast Main Line, Manchester, Yorkshire and the North East. It is connected to the main Bootle Branch line at Edge Lane Jn (approximately half a mile from Bootle Branch Jn).

A variety of freight flows access the port via the branch, including Coal, Containers, Steel and Biomass.

Pilkington Glass Oil Sidings (North West)

Pilkington Glass is adjacent to route NW2023, approximately half a mile south of St Helens Central station. The private sidings can be accessed via the Down Goods Loop.

St Helens Sutton Oak Chemical Branch via Ravenhead Junction NW2025

This route is accessed immediately south of St Helens Central station and is no longer in use.

Ince Moss Goods Branch NW1025

Ince Moss Chord is a single track, non-electrified route linking the St. Helens Branch (NW2023) with the West Coast Main Line Goods Lines at Bamfurlong Junction. Line speed is 20 mph and is TCB controlled from Warrington PSB. Electrification of the chord is due to be completed in 2014 as part of North West Electrification Phase 2. The primary use of this route is for freight trains travelling between Merseyside and the West Coast Main Line.

Up and Down Lowton Branch NW1021

This route links with the Chat Moss (SRS H.33) with the West Coast

Main Line at Golborne Junction for services travelling between Manchester and Wigan North Western. The route is Overhead AC 25 kV electrified and is controlled at Warrington PSB with a 20 mph line speed. Manchester Airport – Scotland Transpennine services have recently begun using the line regularly due to the introduction of electric rolling stock for the services.

The service will revert to using the Bolton route in 2016 following electrification works.

Up Goods Loop – Eccles NW2015

The Eccles Up Goods Loop is located at Eccles station and also provides access to NW2017 (Up and Down Weaste branch line).

The loop has a speed of 40mph.

Castleton to Bolton Line NW7005

Accessed at Castleton South Junction, this diesel only line runs for three quarters of a mile under Network Rail control to the boundary with the East Lancs. Railway Company.

Sandbach North Junction to Northwich West Junction NW3029

The Northwich Branch line is a mainly single, non-electrified railway line between Sandbach South Junction and Northwich South Junction. The route is approximately 8.5 miles long and caters for occasional freight traffic, but is no longer maintained to passenger standard.

British Salt has a rail terminal with a south-facing connection approximately 1.75 miles from Sandbach and there is a passing loop (the 'Middlewich Loop') approximately 3.5 miles from Sandbach, at the site of the former Middlewich station. The prevailing line speed is 20mph (including junctions).

SRS H.98 and H.99 - Freight

Buxton to Hindlow (BUX)

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW9019 Buxton to Brigg's Sidings (Hindlow) (Buxton and High Peak Junction Line No.1)			
Section start	Buxton			
Section end	Hindlow			
Route availability	RA8	RA8	RA8	
Gauge	W6A	W6A	W6A	Increase gauge as appropriate
Signals	No Signaller Token	No Signaller Token	ERTMS	
Speed See Sectional Appendix for detailed speed profiles	20 mph	20 mph	20 mph	
Electrification	Non-electrified	Non-electrified	See Electrification RUS	For longer term strategy - see Electrification RUS

Freight trains (trains per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Trains in one direction (as per WTT)	4	For further information please see the Freight Market Study (2013).		
* Figures are for freight trains in one direction only on an average weekday.				

Level Crossings on route

Table 3.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
There are no level crossings on this route.			

SRS H.98 and H.99 - Freight

Peak Forest Junction to Chinley South Junction (CNB1/2/3/4)

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW9005 Chinley North Jn. to Buxton			
Section start	Peak Forest Junction			
Section end	Chinley South Junction			
Route availability	RA8	RA8	RA8	
Gauge	W6A/W7	W6A/W7	W6A/W7	Increase gauge as appropriate
Signals	Absolute block	Absolute block	ERTMS	
Speed See Sectional Appendix for detailed speed profiles	45 mph 10mph between 161m 110 yards and 163m 220 yards	45 mph 10mph between 161m 110 yards and 163m 220 yards	45 mph 10mph between 161m 110 yards and 163m 220 yards	
Electrification	Non-electrified	Non-electrified	See Electrification RUS	For longer term strategy - see Electrification RUS

Freight trains (trains per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Trains in one direction (as per WTT)	25	For further information please see the Freight Market Study (2013).		
* Figures are for freight trains in one direction only on an average weekday.				

Level Crossings on route

Table 3.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
There are no level crossings on this route.			

SRS H.98 and H.99 - Freight

Chinley Chord (CYC)

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW9003 Chinley East Jn. to Chinley South Jn. (Chord line)			
Section start	-			
Section end	-			
Route availability	RA8	RA8	RA8	
Gauge	W7	W7	W7	Increase gauge as appropriate
Signals	TCB	TCB	ERTMS	
Speed See Sectional Appendix for detailed speed profiles	25 mph	25 mph	25 mph	
Electrification	Non-electrified	Non-electrified	See Electrification RUS	For longer term strategy - see Electrification RUS

Freight trains (trains per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Trains in one direction (as per WTT)	17 tpd on the east bound chord (Chinley South Junction to Chinley East Junction and 8 tpd on the west bound chord (Chinley South Junction to Chinley North Junction.	For further information please see the Freight Market Study (2013).		
* Figures are for freight trains in one direction only on an average weekday.				

Level Crossings on route

Table 3.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
There are no level crossings on this route.			

SRS H.98 and H.99 - Freight

New Mills South Junction to Heaton Mersey Station Junction (NMC1) and Cheadle Heath South Junction to Cheadle Junction (NMC2)

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW9001 Dore West Junction to Edgeley Junction No.1 (Hope Valley lines), NW9017 Hazel Grove High Level Junction to Northenden Junction			
Section start	New Mills South Junction Cheadle Heath South Junction			
Section end	Heaton Mersey Station Junction Cheadle Junction			
Route availability	RA8	RA8	RA8	
Gauge	W7	W7	W7	Increase gauge as appropriate
Signals	TCB	TCB	ERTMS	
Speed See Sectional Appendix for detailed speed profiles	Predominantly 45mph	Predominantly 45mph	Predominantly 45mph	

Freight trains (trains per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Trains in one direction (as per WTT)	7 trains over the single line section between Hazel Grove High Level Junction and Northenden Junction and no booked freight services between Northenden Junction and Skelton Junction	For further information please see the Freight Market Study (2013).		
* Figures are for freight trains in one direction only on an average weekday.				

Level Crossings on route

Table 3.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
There are no level crossings on this route.			

SRS H.98 and H.99 - Freight

Glazebrook East Junction to Woodley Junction (WJP1)

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW9013 Woodley Jn. to Bredbury Sidings			
Section start	Glazebrook East Junction			
Section end	Woodley Junction			
Route availability	RA7	RA7	RA7	
Gauge	Unknown	Unknown	Unknown	Increase gauge as appropriate
Signals	One Train Working	One Train Working	ERTMS	
Speed See Sectional Appendix for detailed speed profiles	15 mph	15 mph	15 mph	
Electrification	Non-electrified	Non-electrified	See Electrification RUS	For longer term strategy - see Electrification RUS

Freight trains (trains per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Trains in one direction (as per WTT)	Nil	For further information please see the Freight Market Study (2013).		
* Figures are for freight trains in one direction only on an average weekday.				

Level Crossings on route

Table 3.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	0	As determined by Level Crossing policy	
Automatic:	0		
User:	1		

SRS H.98 and H.99 - Freight

Sandbach North Junction to Northwich West Junction NW3029

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW3029 Sandbach South Junction to Northwich South Junction			
Route availability	RA8	RA8	RA8	
Gauge	W7	W7	W7	Increase gauge as appropriate
Signals	TCB	TCB	ERTMS	
Speed See Sectional Appendix for detailed speed profiles	20 (15) mph	20 (15) mph	20 (15) mph	
Electrification	0m0ch – 0m44ch is AC overhead electrified. Remainder of route is not.	0m0ch – 0m44ch is AC overhead electrified. Remainder of route is not.	See Electrification RUS	For longer term strategy - see Electrification RUS

Freight trains (trains per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Trains in one direction (as per WTT)	Average is less than 1 tpd	For further information please see the Freight Market Study (2013).		
* Figures are for freight trains in one direction only on an average weekday.				

Level Crossings on route

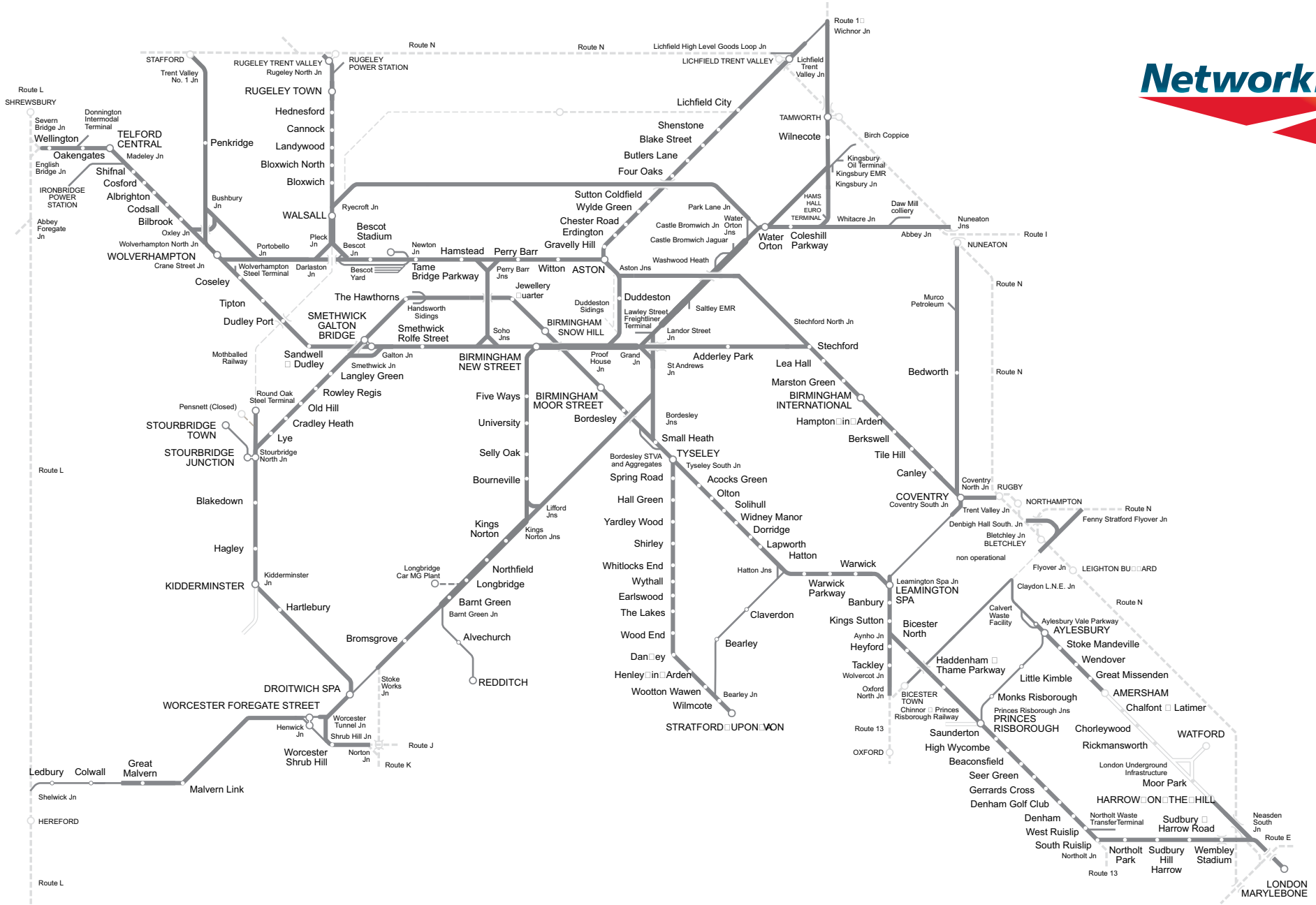
Table 3.0
There are no level crossings on this route.

Glossary

Term	Meaning
AHB	Automatic Half Barrier
CCTV	Closed-circuit television
Control Period 5 (CP5)	The 2014 – 2019 period
Control Period 6 (CP6)	The 2019 – 2024 period
DfT	Department for Transport
ELR	Engineer Line Reference
ERTMS	European Rail Traffic Management System
FOC	Freight Operating Company
Generalised journey time	A measure of the rail service offer that takes account of in vehicle time, service frequency and interchange penalty
GB	Great Britain
GRIP	Governance for Railway Investment Projects
HLOS	High Level Output Specification
HS1	High Speed 1 – the high speed link between St Pancras International and the channel tunnel
HS2	Proposed high speed link between London and Birmingham beyond to Leeds and Manchester
kV	Kilovolt - a unit of potential equal to a thousand volts
LDHS	Long Distance High Speed
LSE	London and South East
LTPP	Long Term Planning Process
MPH	Miles Per Hour
NTS	National Travel Survey
OHLE	Overhead Line Equipment
ORR	Office of Rail Regulation (the Regulator for the rail industry in Great Britain)
RA	Route Availability
RUS	Route Utilisation Strategy
SRS	Strategic Route Specification
SRS N.01	Strategic Route Section N.01
TfL	Transport for London
TOC	Train Operating Company
TPH	Train Per Hour
WCML	West Coast Main Line

Route M : West Midlands & Chilterns

CONTENTS


STAFFORD
Trent Valley No. 1 Jn
RUGELEY TRENT VALLEY
Rugeley North Jn
RUGELEY POWER STATION
Route N
Route N
Lichfield High Level Goods Loop Jn
LICHFIELD TRENT VALLEY
Lichfield Trent Valley Jn
Route 1□
Wichnor Jn
Route L
SHREWSBURY
Severn Bridge Jn
Donnington Intermodal Terminal
Wellington
TELFORD CENTRAL
Madeley Jn
Oakengates
English Bridge Jn
Shifnal
Cosford
Albrighton
Codsall
Bilbrook
Oxley Jn
Wolverhampton North Jn
WOLVERHAMPTON
Crane Street Jn
IRONBRIDGE POWER STATION
Abbey Foregate Jn
Penkridge
Bushbury Jn
RUGELEY TOWN
Hednesford
Cannock
Landywood
Bloxwich North
Bloxwich
WALSALL
Ryecroft Jn
Lichfield City
Shenstone
Blake Street
Butlers Lane
Four Oaks
TAMWORTH
Wilnecote
Birch Coppice
Kingsbury Oil Terminal
Kingsbury EMR
Kingsbury Jn
Sutton Coldfield
Wylde Green
Chester Road
Erdington
Gravelly Hill
Park Lane Jn
Castle Bromwich Jn
Castle Bromwich Jaguar
Water Orton Jns
Water Orton
HAMS HALL EURO TERMINAL
Whitacre Jn
Daw Mill colliery
Coleshill Parkway
Abbey Jn
Nuneaton Jns
NUNEATON
Route I
Washwood Heath
Aston Jns
Portobello Jn
Pleck Jn
Bescot Jn
Bescot Stadium
Bescot Yard
Newton Jn
Hamstead
Perry Barr
Perry Barr Jns
Witton
ASTON
Tame Bridge Parkway
Wolverhampton Steel Terminal
Darlaston Jn
Coseley
Tipton
Dudley Port
The Hawthorns
Handsworth Sidings
Jewellery □uarter
Duddeston Sidings
Duddeston
Saltley EMR
Lawley Street Freightliner Terminal
Landor Street Jn
Stechford North Jn
Murco Petroleum
Route N
SMETHWICK GALTON BRIDGE
Smethwick Rolfe Street
Soho Jns
BIRMINGHAM SNOW HILL
Mothballed Railway
Sandwell □ Dudley
Galton Jn
Smethwick Jn
Langley Green
BIRMINGHAM NEW STREET
Proof House Jn
Grand Jn
St Andrews Jn
Adderley Park
Stechford
Lea Hall
Bedworth
Route N
Marston Green
BIRMINGHAM INTERNATIONAL
Hampton□in□Arden
Berkswell
Tile Hill
Canley
Round Oak Steel Terminal
Pensnett (Closed)
Rowley Regis
Old Hill
Cradley Heath
Lye
STOURBRIDGE TOWN
STOURBRIDGE JUNCTION
Stourbridge North Jn
Five Ways
University
Selly Oak
Bourneville
Bordesley
Bordesley Jns
Small Heath
TYSELEY
Tyseley South Jn
Bordesley STVA and Aggregates
Spring Road
Hall Green
Yardley Wood
Shirley
Whitlocks End
Wythall
Earlswood
The Lakes
Wood End
Dan□ey
Henley□in□Arden
Wootton Wawen
Wilmcote
STRATFORD□UPON□AVON
Acocks Green
Olton
Solihull
Widney Manor
Dorridge
Lapworth
Hatton
Hatton Jns
Warwick
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Route 13
OXFORD
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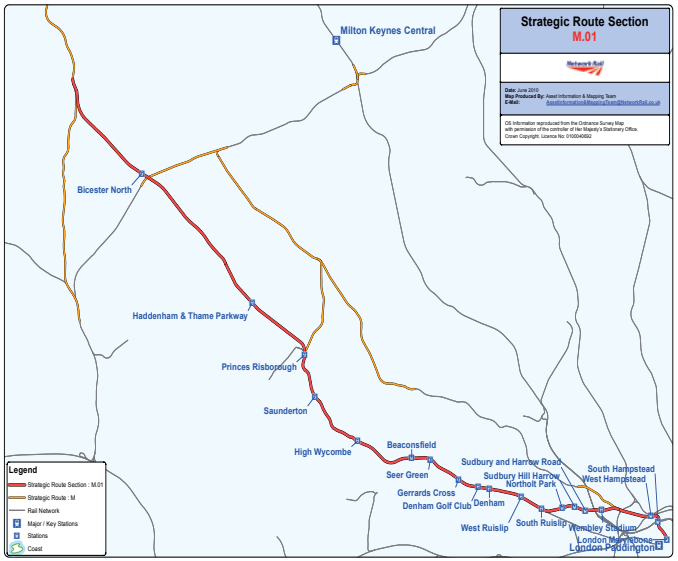
Wolvercot Jn
Tackley
Heyford
Aynho Jn
Kings Sutton
Banbury
Leamington Spa Jn
LEAMINGTON SPA
Bicester North
BICESTER TOWN
Chinnor □ Princes Risborough Railway
Princes Risborough Jns
PRINCES RISBOROUGH
Saunderton
High Wycombe
Beaconsfield
Seer Green
Gerrards Cross
Denham Golf Club
Denham
West Ruislip
South Ruislip
Northolt Jn
Route 13
Northolt Park
Sudbury Hill Harrow
Wembley Stadium
Neasden South Jn
Route E
LONDON MARYLEBONE
COVENTRY
Coventry South Jn
Coventry North Jn
RUGBY
NORTHAMPTON
Trent Valley Jn
Denbigh Hall South. Jn
Bletchley Jn
BLETCHLEY
Route N
Fenny Stratford Flyover Jn
non operational
Flyover Jn
LEIGHTON BU□□ARD
Claydon L.N.E. Jn
Route N
Calvert Waste Facility
Aylesbury Vale Parkway
AYLESBURY
Stoke Mandeville
Wendover
Great Missenden
AMERSHAM
Chalfont □ Latimer
Haddenham □ Thame Parkway
Little Kimble
Monks Risborough
Chorleywood
Rickmansworth
WATFORD
London Underground Infrastructure
Moor Park
HARROW□ON□THE□HILL
Northolt Waste Transfer Terminal
Sudbury □ Harrow Road
Route L
Lifford Jns
Kings Norton
Kings Norton Jns
Longbridge Car MG Plant
Northfield
Longbridge
Barnt Green
Barnt Green Jn
Alvechurch
REDDITCH
Kidderminster Jn
KIDDERMINSTER
Hartlebury
Blakedown
Hagley
Bromsgrove
Stoke Works Jn
DROITWICH SPA
WORCESTER FOREGATE STREET
Worcester Tunnel Jn
Henwick Jn
Shrub Hill Jn
Worcester Shrub Hill
Norton Jn
Route J
Route K
Ledbury
Colwall
Great Malvern
Malvern Link
Shelwick Jn
HEREFORD
Route L

M.01 – London Marylebone to Aynho Junction

M.26 - Wolvercot Jn (Oxford) to Bicester Chord

M.12 – Leamington Spa to Birmingham Snow Hill

Geographic Maps



Route specification description

Strategic Route Sections M1, M.26 and M12 form the Chiltern Main Line, which connects the UK's two largest cities, with stations at London Marylebone, Birmingham Moor Street and Birmingham Snow Hill. It is predominantly a two-track railway, non-electrified route. It provides a strong alternative route to the West Coast Main Line between Birmingham and London.

The recent completion of the East West Rail Phase 1 project has introduced a short section of new track in Bicester (known at the Bicester chord). This new chord links the Bicester line from Oxford to the Birmingham (Snow Hill) to London Marylebone line, at a point south of Bicester North station. This new connection enables Chiltern Trains to provide a new Oxford to London Marylebone service (via Princes Risborough). As part of this project, Bicester Town has been renamed Bicester Village station and a new 'Oxford Parkway' station has been opened in Oxford's northern suburbs at Water Eaton.

An aggregates terminal is located near the Oxford end of the branch, at Oxford Banbury Road. A major rail-connected MoD site is located to the south of Bicester Village station.

Markets: The Chiltern Main Line is a high speed route serving markets between London Marylebone, the Cherwell Valley and Birmingham Snow Hill. It supports three different types of markets - long distance between London Marylebone and Birmingham, London and South East and Regional Urban commuting into key regional centres. The Oxford to London Marylebone market is new but proving popular with passengers. Freight traffic between Aynho Junction and Leamington is part of a key strategic flow from Southampton to the West Coast Main Line.

Stations: Key stations along the route include:

London Marylebone serving over 14 million passengers annually, the station provides a key interchange facility with the London Underground system.

Birmingham Moor Street serving over 6 million passengers annually, and is adjacent to the proposed Birmingham HS2 station at Curzon Street.

Birmingham Snow Hill station serves over 4 million passengers annually and is an important interchange for the Midland Metro.

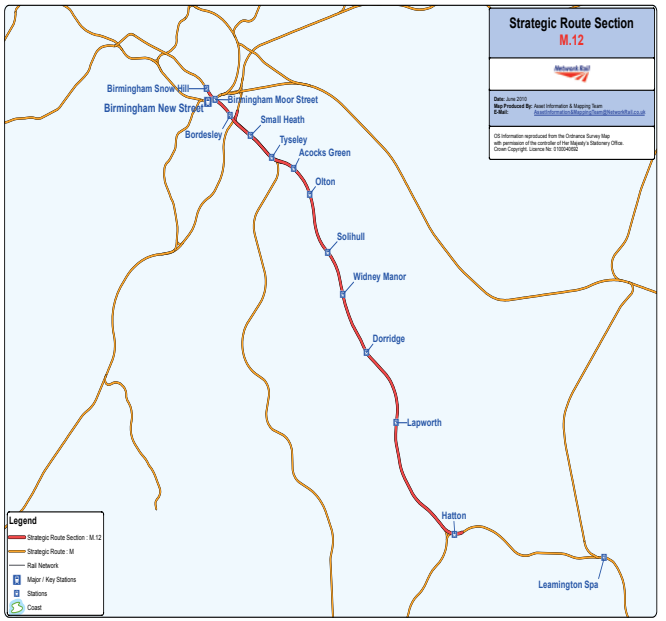
An extension to the Metro has taken the line through the centre of Birmingham, to Birmingham New Street station.

High Wycombe is a key station along the route, serving over 2.5 million passengers annually.

New stations along the route include Oxford Parkway and Bicester Village (previously Bicester Town).

Constraints: Marylebone throat, LUL interface and timetable, not electrified.

Chiltern Railways has a Light Maintenance Depot (LMD) at Wembley which is used to stable trains overnight, refuel trains, and perform light maintenance duties. Tyseley Traction Maintenance Depot (TMD) is used for the servicing, maintenance and repair of London Midland's diesel fleet.



Route capability overview

Table 1.0

Information	Current	2019	2043	Notes
Line of route description	MD701: Marylebone to Aynho Junction GW276: Bicester Eastern Perimeter Road Level Crossing to Oxford North Junction MD401: Heyford to Bordesley Junction (part) MD435: Small Heath South Junction to Birmingham Snow Hill (Stourbridge North Junction)			
Section start	London Marylebone - MCJ1 - 205m 77ch Bicester Eastern Perimeter Road Level Crossing			
Section end	Birmingham Snow Hill – DCL - 129m 36ch Oxford North Junction			
Route availability	RA8 throughout with the exception of the section between Neasden South Junction and Aynho Junction which is RA7. M.26 - RA7	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal work banks. M.26 - RA7	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal work banks.	
Gauge	W6 Marylebone to Neasden South Junction. W7 Neasden South Junction to Aynho Junction. W8 - Wolvercot Jn to Bicester Chord W10 Aynho Junction to Small Heath Junction. W6 Small Heath Junction to Birmingham Snow Hill.	W8 - Wolvercot Jn to Bicester Chord. There are aspirations in the medium to longer term to gauge clear the route from Neasden to Aynho Junction via High Wycombe, to allow W9 and possibly W10 traffic to use the line on a regular basis. Any new structures should be built to W10 / W12 and Electrification clearance.	W8 - Wolvercot Jn to Bicester Chord. W10 / W12 and Electrification clearance. Any new structures should be built to W10 / W12 and Electrification clearance	There could be opportunities to improve gauge clearance as part of future electrication proposals.
Signals	Track Circuit Block (TCB) There is a small section of Absolute Block signalling in the Banbury station area	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	MD701 and MD401: Route between Marylebone and Birmingham has 100mph running on the majority of the route. MD435: Predominantly 60mph	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	See Sectional Appendix for detailed speed profiles
Electrification	None	Consideration should be given to electrification during CP6.	Electrified between London Marylebone and Birmingham Snow Hill	

Current Passenger Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical Journey Time	1. London Marylebone to Birmingham Snow Hill (92 to 100 minutes) 2. London Marylebone to Oxford (64 minutes) 3. Leamington Spa to Birmingham Snow Hill (35 to 40 minutes) 4. London Marylebone to Banbury (50 to 60 minutes) 5. Stratford-upon-Avon/Dorridge to Birmingham Snow Hill (49 minutes (S-u-A) and 23 minutes (Dorridge))			
No. of trains per hour	1. Up to 2 trains per hour (some terminate at Birmingham Moor Street) 2. 2 trains per hour 3. Up to 2 trains per hour (some terminate at Birmingham Moor Street) 4. Up to 3 trains per hour (depends on time of day) 5. 3 trains per hour			

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Bordesley Jn to Leamington			
Daily paths in one direction (as per WTT)	Up to 24 paths	As per forecasts in the Freight Market Study		Freight flows include intermodal services between seaports and terminals at Lawley Street, Hams Hall, Ditton, Garston and Trafford Park.

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	2	As determined by Level Crossing policy	
Automatic:	2		
User:	14		

Proposed enhancement pipeline*

Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
East West Rail link phase 1 (Oxford Parkway to Bicester)	Extension of services from Oxford to London Marylebone :- Connection of the Oxford to Bicester line to the Chiltern Main Line to enable a new Oxford to London Marylebone service.	OXD	2016/17	New journey opportunities	Various funders		Complete
East West Rail link phase 2	Reopening of the Oxford/Aylesbury to Bedford railway between Claydon and Bletchley to create a new route and enable new services and extra capacity	Various	See Enhancements Delivery Plan	Potential new passenger and freight service opportunities	Various funders		In development
Banbury resignalling	Renewal of life expired signalling equipment in the Banbury area and rationalisation of the track layout	DCL	2016	Increased capacity, operational flexibility and improved performance.	Network Rail CP5 Renewals		Complete
Chiltern Main Line Train lengthening (Marylebone Capacity)	Platform extensions at Bicester North, Haddenham and Thame Parkway, High Wycombe, and Princes Risborough to enable operation of longer trains	NAJ2	2016	Increased capacity into London Marylebone	DfT CP5 HLOS		Phase 1 - Complete Phase 2 - Complete
Strategic Freight Network	Improvements to freight loops at Fenny Compton	DCL	See Enhancements Delivery Plan	Increased performance and operational flexibility	DfT CP5 SFN		In development
Chiltern train lengthening	Platform extensions at Seer Green and Gerards Cross with options for further platform extension at Saunderton, Denham, and West Ruislip.	NAJ2	2024	Increased capacity into London Marylebone	TBA		In development
Old Oak Common	Provision of Chiltern platforms at Old Oak Common station and upgrade of route between Northolt Jn and Old Oak.	ANL	Medium term	Connectivity and increased capacity into London	TBA		In development
Chiltern Route Upgrade	Upgraded signalling, potential electrification, train fleet replacement and capacity interventions at key locations	Various	Longer term	Increased capacity, performance and passenger experience	TBA		In development

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party schemes where applicable (some may fall within Control Period 6).
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

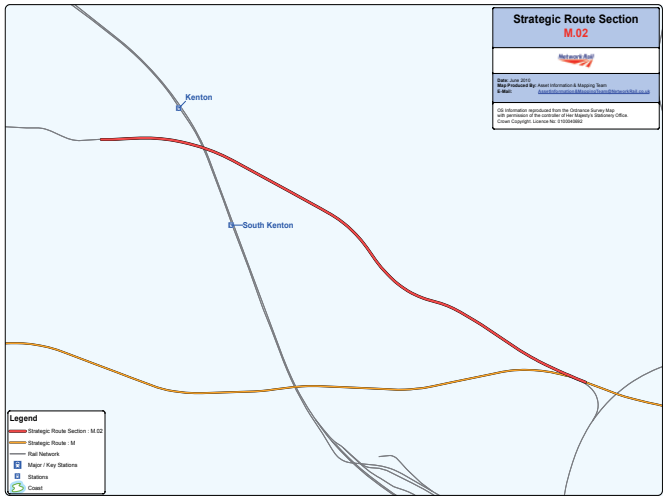
M.02 – Neasden South Jn to Harrow-on-the-Hill

M.03 – Amersham to Aylesbury Vale Parkway

M.04 - Princes Risborough to Aylesbury

Geographic Maps

M.02 Neasden South Junction to Harrow on the Hill



Route Specification description

Strategic Route Sections M2, M3 and M4 form part of the southern section of the Chiltern lines. All SRSs are non electrified and M4 is a single line.

Markets: These SRSs serve the London and South East commuter market, supporting local services from Aylesbury and Aylesbury Vale Parkway to London Marylebone (known as the Metropolitan Line) and on the single line between Princes Risborough and Aylesbury.

Passenger services operate regularly from London Marylebone to Aylesbury Vale Parkway via Amersham, over infrastructure between Amersham and Harrow-on-the Hill (which is owned by London Underground Limited (LUL)). The route on either side of the LUL infrastructure (SRSs M2 and M3), is part of the national rail network and is not electrified.

A passenger service operates in most hours between Aylesbury and Princes Risborough. This is an important route for freight services providing access to the terminal at Calvert (north of Aylesbury). Completion of phase 2 of the East West Rail link will have a significant impact on demand on this route.

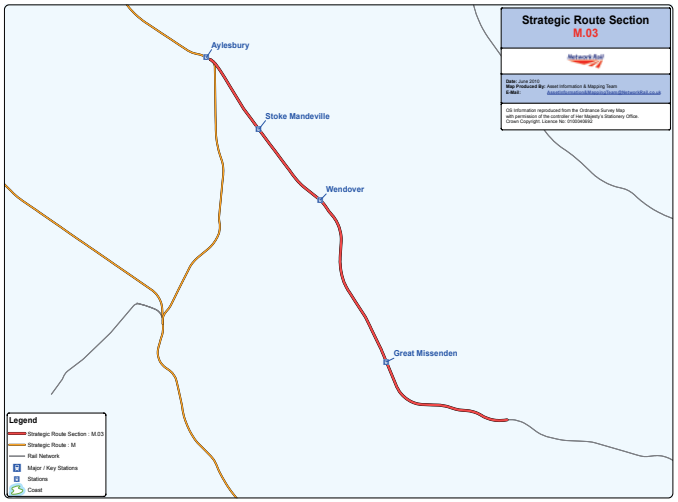
Freight services are operated on the freight only single lines between Bicester Town and Claydon L.&N.E Jn and between Aylesbury and Claydon L.&N.E Jn. The section between Claydon L.&N.E. Jn and Bletchley is currently out of use.

Key stations: Harrow-on-the Hill is a key interchange station with the Metropolitan line.

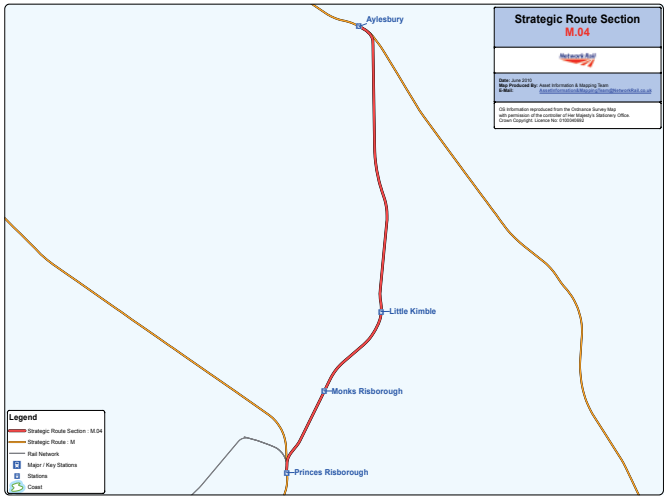
Constraints: A low speed, single line, links services between Aylesbury and Prince Risborough. The single line acts as a constraint to future capacity growth. The mix of traffic and rolling stock on the Metropolitan Line can also act as a capacity constraint.

A waste disposal site is located at Calvert on the line between Aylesbury and Claydon L.&N.E. Jn

M.03 Amersham to Aylesbury Vale Parkway



M.04 Princes Risborough to Aylesbury



Route capability overview

Table 1.0

Information	Current	2019	2043	Notes
Line of route description	MD710: Neasden South Jn to Harrow-on-the-Hill MD712: Amersham to Aylesbury Vale MD720: Princes Risborough to Aylesbury MD725: Aylesbury to Claydon LNE Junction			
Section start	Neasden South Jn MCJ1 200m 65ch			
Section end	Aylesbury Vale Parkway MCJ2 40m 38ch Princes Risborough PRA 24m 40ch			
Route availability	RA8	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal work banks.	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal work banks.	
Gauge	W6: Amersham to Aylesbury, Neasden South Jn to Harrow-on-the-Hill. W7: Princes Risborough to Aylesbury.	Network Rail will look to improve gauge clearance as appropriate when opportunities present themselves in future renewal work banks	W10 / W12 / Electrification clearance	Opportunities for gauge enhancements may exist on the back of future electrification proposals.
Signals	Track Circuit Block (TCB) Electric Token Block between Aylesbury and Claydon LNE Jn	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	MD710: 50/60mph for sprinter vehicles (between Neasden South Jn and Harrow-on-the-Hill. MD712: Prevailing speed of 75mph between Amersham and Aylesbury. MD720: 40mph	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	
Electrification	Non-electrified with the exception of the LUL infrastructure between Amersham and Harrow-on-the-Hill which is electrified by fourth rail	Electrification of the route should be considered as part of any plans to electrify the Chiltern Main Line	Electrification of the route should be considered as part of any plans to electrify the Chiltern Main Line	Review connections to freight terminals. For longer term strategy - see Electrification RUS

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	1. London Marylebone – Aylesbury/ Aylesbury Vale Parkway (1 hour) 2. Aylesbury to Princes Risborough (around 18 minutes)			
No. of trains per hour	1. 1 tph/1tph 2. 1tph	1. >1tph 2. >1tph	Increase to match local service demand for commuting from Aylesbury into Princes Risborough, Greater London areas and London Marylebone.	A review of service mix on the LUL line will help to determine how to deliver the capacity required on the route from Aylesbury into London Marylebone

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Aylesbury to Claydon L.&N.E. Junction			
Daily paths in one direction (as per WTT)	Up to 4 trains paths per day (in one direction)	As per forecasts in the Freight Market Study		

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	0	As determined by Level Crossing policy	
Automatic:	21		
User:	9		

Proposed enhancement pipeline*

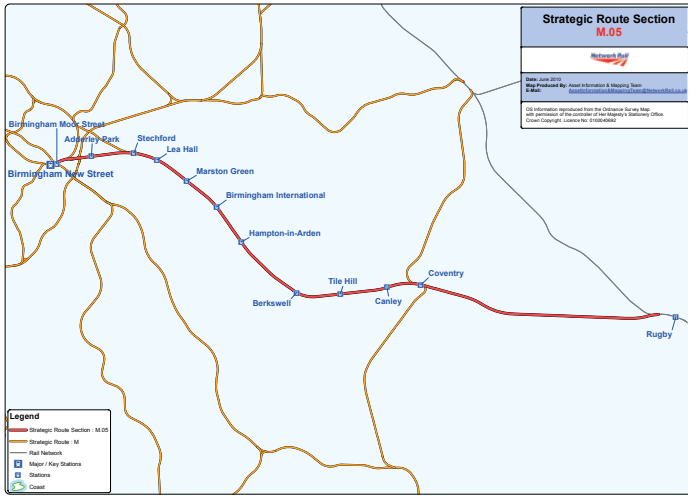
Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Metropolitan line resignalling	Introduction of modern signalling technology between Amersham and Harrow-on-the-Hill	LUL infrastructure	2018	Improved capacity, performance and operational flexibility.	TfL		In development
Metropolitan line electrification	Electrification of the line	LUL infrastructure	Longer term	Improved performance and passenger experience.	TBA	Potentially aligned with Chiltern Route Upgrade.	In development
Princes Risborough - Aylesbury doubling	Doubling of the line between Princes Risborough - Aylesbury	PRA	Longer term	Improved connectivity, capacity and journey times.	TBA	Potentially aligned with Chiltern Route Upgrade.	In development

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party schemes where applicable (some may fall within Control Period 6).
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

M.05 Rugby to Birmingham New Street

Geographic Map



Route specification description

The Rugby to Birmingham New Street SRS is an important route within the West Midlands and is one of the busiest mix use sections of the West Coast Main Line.

Markets: SRS M.05 serves long distance, regional urban and freight markets. Its long distance services operate from London Euston to Birmingham New Street, to the north and also services operate from Reading and the South Coast to the north. Regional urban services serve the commuter market between Birmingham, Coventry Northampton and Rugby. These services also provide access to Birmingham Airport and the NEC via Birmingham International.

There are significant freight flows on the route, which is cleared to W10 gauge between Rugby and Stechford and has RA8 freight capability. Key flows operate to and through the West Midlands from Southampton and London areas.

Stations: Services on this route call at Birmingham New Street, which is currently undergoing a £600m upgrade through the Birmingham Gateway project which will totally transform the passenger experience. This is due to be completed in 2015. Birmingham New Street serves over 32 million passengers annually.

The other major station on this route section is Coventry which serves over 5.5 million passengers annually. The station facilities are dated and the Coventry Station Master Plan identifies options to improve facilities and interchange between transport modes. Funding has been secured through the Local Growth Fund for these improvements to the station.

Birmingham International is a key station on this SRS, serving 4.5 million passengers annually.

Constraints: Capacity on the Coventry corridor is a known constraint. Opportunities to release capacity are likely following the construction of the High Speed 2 line in 2026.

Birmingham Airport has seen an increase in rail access with 23% of passengers currently accessing the airport by rail. There are aspirations for additional early morning services from North Birmingham and the City Centre to Birmingham International for the Airport passenger market. There are also aspirations to increase the number of locations with direct rail services to Birmingham International.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD301: Rugby (to Penkridge) via Birmingham (in part)			
Section start	Birmingham New Street - RBS1 112m73ch			
Section end	Rugby Trent Valley Junction - LEC1 83m18ch			
Route availability	RA8	Network Rail will seek to improve Route Availability as appropriate at opportunities that present themselves in future renewal work banks.	Network Rail will seek to improve Route Availability as appropriate at opportunities that present themselves in future renewal work banks	
Gauge	W10 between Rugby Trent Valley Jn and Stechford Jn W8 between Stechford Jn and Birmingham New Street	Network Rail will seek to increase gauge clearance as appropriate at opportunities that present themselves in future renewal work banks.	W10 / W12	
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	100mph - 110MU/ EPS Birmingham New Street to Tile Hill increasing to MU/ EPS of 125mph from Coventry.	Network Rail will look for opportunities to raise the linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	Network Rail will look for opportunities to raise the linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route	See Sectional Appendix for detailed speed profiles
Electrification	25Kv AC	25Kv AC	25Kv AC	

Current Passenger Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	1. Birmingham New Street to Coventry (20 to 27 minutes) 2. Birmingham New Street to Rugby (32 to 38 minutes)			
No. of trains per hour	1. 7 trains per hour 2. 3 trains per hour	Reduce long distance high speed service journey time to lowest possible in line with linespeed improvements and changes in rolling stock. Reduce local stopping service journey time to lowest possible in line with linespeed improvements and changes in rolling stock. Increase service provision in line with passenger demand.		Longer term plan: preferred industry strategy is HS2 which will release future capacity on this corridor.

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	1. Stechford to Coventry 2. Rugby to Coventry			
Daily paths in one direction (as per WTT)	1. Up to 7 paths 2. More than 7 paths	As per forecasts in the Freight Market Study		The main freight flows over this corridor are intermodal type traffic between the Channel Tunnel/ Felixstowe and West Midlands terminals.

Level crossings on route

There are no level crossings in this route section.

Proposed enhancement pipeline*

Table 5.0

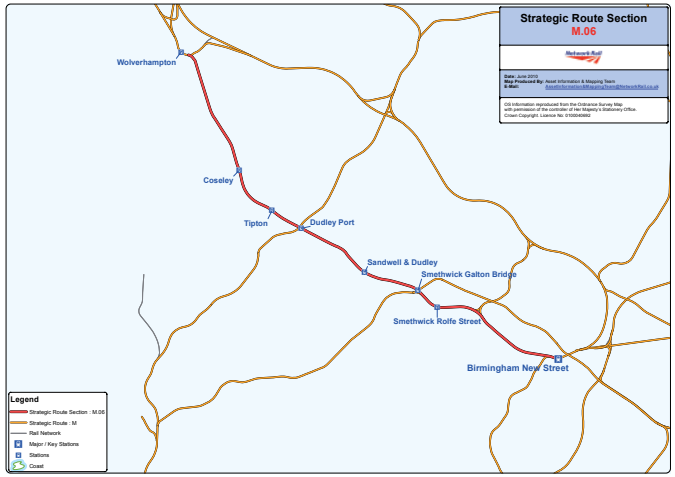
Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Birmingham New Street Gateway	Major redevelopment of Birmingham New Street station including retail development, station environment and facilities. Re-cladding of Navigation Street Bridge	RBS1	2015 2019	Improved passenger capacity, access and performance. Improved station environment and facilities.	Various Funders		Complete In development
Birmingham New Street resignalling	Renewal of life expired signalling equipment in the Birmingham New Street Power Signal Box control area.	Multiple	2019	Improved capacity, performance and operational flexibility	Network Rail Renewals		In development
Coventry Station improvements	Provision of second access to the station, improved facilities and interchange	RBS1	2019	Improved station facilities and interchange	Local Enterprise Partnership		In development
NUCKLE Phase 1 - package 2	Provision of bay platform at Coventry station, loop at Three Spires to enable enhanced frequency between Coventry and Nuneaton.	CNN	CP5/6	Increased capacity	DfT, Local Enterprise Partnership		In development

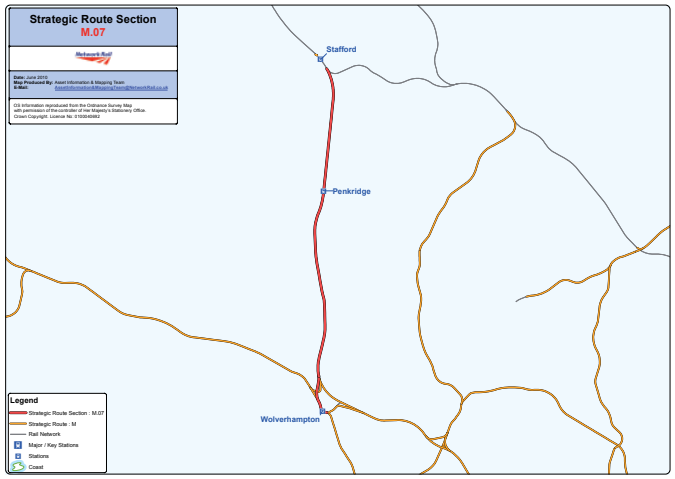
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party schemes where applicable, (some may fall within Control Period 6).
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

M.06 - Birmingham New Street to Wolverhampton

M.07 - Wolverhampton to Stafford

Geographic Maps





Route specification description

Strategic Route Sections M.06 and M.07 connect Birmingham New Street station with Wolverhampton and Stafford. These SRSs are predominantly two track electrified railway.

Markets: Markets served include long distance business and leisure services to London the North West and Scotland via this route. The regional urban market supports commuters and leisure travellers to Stafford, Wolverhampton and Birmingham city centres.

The route beween Stafford and Bushbury Junction forms part of a core diversionary route for W10 freight traffic from the West Coast Main Line.

Stations: Wolverhampton station is at the centre of the route and links the two SRSs. It serves as an interchange station for passengers travelling on both local and intercity type services, and offers an alternative interchange location to Birmingham New Street and stations to the South West . Local commuter, suburban and intercity services all operate to Wolverhampton station making it a very busy station, serving over 4 million passengers per annum.

Smethwick Galton Bridge station is an interchange offering services to Kidderminster, Stourbridge, Solihull, Leamington and the Stratford -upon-Avon lines.

Soho LMD is located on the route and undertakes light maintenance activities and train preparation for London Midland electric multiple units. A Network Rail maintenance depot is located at Sandwell and Dudley.

Wolverhampton Steel Terminal is located on the approach to Wolverhampton station at Monmore Green. The terminal handles steel, typically arriving from the North East of England.

Route capability overview

Table 1.0

Information	Current	2019	2043	Notes
Line of route description	MD301: Rugby to Penkridge via Birmingham (in part) NW1002: Penkridge station to Trent Valley Jn No 1 (Stafford)			
Section start	Birmingham New Street RBS2 0m110ch			
Section end	Trent Valley Junction No 1 RSB3 28m110ch			
Route availability	RA8	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks.	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks.	
Gauge	W8 Birmingham New Street to Wolverhampton. W10 Wolverhampton to Stafford.	Network Rail will look to improve gauge clearance as appropriate at opportunities that present themselves in future renewal workbanks.	Network Rail will look to improve gauge clearance as appropriate at opportunities that present themselves in future renewal workbanks.	
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Varying linespeed between Birmingham New Street and Wolverhampton (40mph, 60/65mph, 75mph). From Wolverhampton to Stafford linespeed is 90 EPS 125mph.	The linespeed varies between Birmingham New Street and Wolverhampton, most notably in the areas around Soho Jn, Sandwell, Tipton, and the approaches to Wolverhampton and Birmingham New Street stations. Future aim to achieve a more even speed profile which will release additional network capacity, improve journey times and reduce traction energy consumption.	Network Rail will look for opportunities to raise the linespeed along the route, where appropriate, in line with the capability of the rolling stock being utilised on the route.	
Electrification	25Kv AC	25Kv AC	25Kv AC	

Current Passenger Trains (paths per day)

Table 2.0				
	Current	2019	2043	Notes
Typical journey time	1. Birmingham New Street to Wolverhampton (17 to 25 mins) 2. Birmingham New Street to Stafford (29 to 33 mins)			
No. of trains per hour	1. 10 trains per hour 2. 3 trains per hour	Increase to match local service demand and long distance passenger journey requirements, as appropriate.		

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Route section	Stafford to Bushbury Junction			
Daily paths in one direction (as per WTT)	Up to 23 paths	As per forecasts in the Freight Market Study		Current freight flows are to Wolverhampton Steel Terminal (Monmore Green) and other services are routed Stafford to Bushbury Junction via the Grand Lines). Biomass traffic operates from Liverpool to Ironbridge via Stafford and Wolverhampton.

Level crossings on route

Table 4.0			
Type	Current No. of level crossings	2019 No. of level crossings	2043 No. of level crossings
Supervised:	0	As determined by Level Crossing policy	
Automatic:	0		
User:	3		

Proposed enhancement pipeline*

Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Birmingham New Street resignalling	Renewal of life expired equipment in Birmingham New Street Power Signal Box control area and transfer of control to the West Midlands Signalling Centre. The project incorporates the area from Birmingham New Street to Dudley Port.	RBS2	2019	Improved capacity, performance and operational flexibility	Network Rail CP5 Renewals		In delivery
Wolverhampton Station Upgrade	Improved concourse facility and integration with Metro tram system.	RBS2, RBS3	CP5	Improved station facilities and interchanges	Local Enterprise Partnership, DfT		In delivery
West Mildlands Interchange (freight terminal)	Third party scheme to establish a new freight terminal at Four Ashes, between Wolverhampton and Penkridge.	RBS3	Medium terrm	Increased freight terminal capacity	Third Party		In development

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party schemes where applicable (some may fall within Control Period 6).
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

M.08 - Birmingham New Street to Barnt Green
M.09 - Barnt Green to Stoke Works Junction
M.19 - Redditch to Barnt Green
M.21 - Camp Hill line

Route specification description

The route between Birmingham New Street and Stoke Works Junction is a highly utilised route, known as the cross city south. It is predominantly a two track railway and is electrified to Barnt Green and Longbridge currently (soon to be extended through to Bromsgrove).

Markets: The route supports high frequency cross-city commuter services, regional urban services to Worcester and Hereford, long distance cross country services and a number of significant freight flows. Cross city services operate to all stations between Birmingham New Street and Longbridge, on a ten minute frequency throughout weekdays and combined with the cross-city north, form the busiest local rail corridor within the West Midlands. A new section of two track railway in the Alvechurch area has enabled an increase in the frequency of services to Reddith - from two to three trains per hour - from December 2014.

Stations: The key stations along this route are Selly Oak, Bromsgrove, Redditch and University. University servces over 2.3 million passengers per annum, attracted by the University campus and nearby Queen Elizabeth hospital.

Constraints: At Kings Norton station junction, the route becomes four track, of which the slow lines are electrified and the two fast lines are non-electrified as far as Longbridge station. The fast lines not being electrified can act as a constraint on the route.

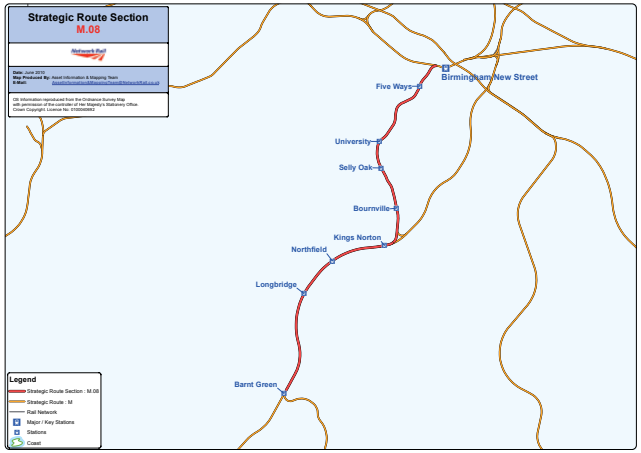
The main route from Barnt Green Junction is two track formation and non-electrified. It continues along the Lickey Incline towards Bromsgrove Station.

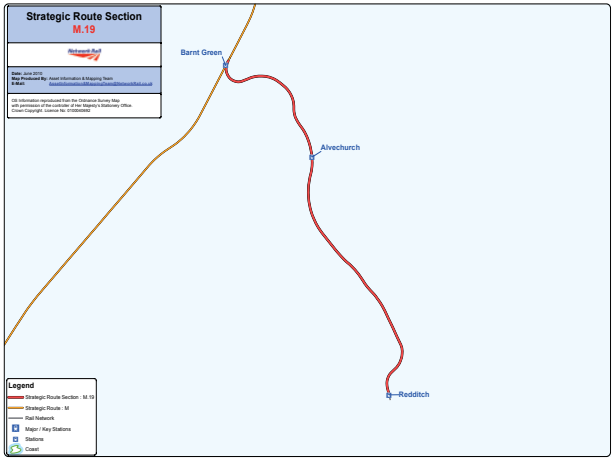
The Lickey Incline is one of the steepest sections of main line railway in the UK and has a 1 in 37.7 gradient for a distance of 2 miles. Some freight trains require the assistance of a banking locomotive to reach the top.

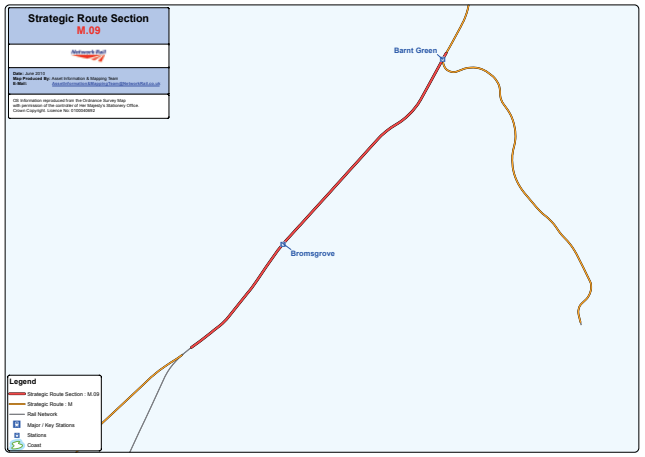
Moseley Tunnel is a gauge constraint on the route.

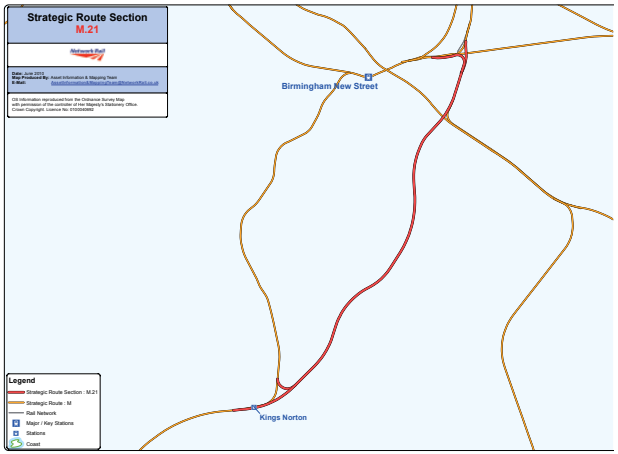
SRS M.21 is the Camp Hill line which runs from Kings Norton station junction and Lifford Junctions to St Andrews and Grand Junctions. The line is used by freight services and by long distance services and as a diversionary route when the line from Kings Norton to Birmingham New Street via University is blocked. It is a two track line and is non-electrified.

Geographic Maps









Route capability overview

Table 1.0

Information	Current	2019	2043	Notes
Line of route description	MD305: Birmingham New Street to Blackwell MD310:Barnt Green to Redditch MD570: Saltley (Landor Street Junction) to Kings Norton (Camp Hill lines) MD580: Lifford East Junction to Lifford West Junction GW400: Barnt Green Junction to Westerleigh via Dunhampstead (in part)			
Section start	Birmingham New Street RBS2 0m5ch			
Section end	Droitwich Spa Junction STO 126m2ch			
Route availability	RA8	Network Rail will improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks.	Network Rail will improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks.	
Gauge	W8 except for Kings Norton/Lifford Jns to Bordesley Jns =W7 and Bordeley Jns to St Andrews Jn = W10 Barnt Green to Redditch = W6a	Enhance the Camp Hill route to W8 (in line with expected growth in freight services and Freight Operator guidance)	W10 / W12	
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Varying speeds, predominantly 60mph to Kings Norton, 90mph to Bromsgrove, 60mph on the Camp Hill lines.	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	See Sectional Appendix for detailed speed profiles
Electrification	Electrified with the exception of the fast lines between Kings Norton and Longbridge, the route between Barnt Green and Stoke Works Jn, and the Camp Hill lines.	Electrification from Barnt Green (51m67ch) to Bromsgrove (56m00ch) to support the extension of cross- city electric services to Bromsgrove in 2016.	Electrification of the fast lines between Kings Norton and Longbridge, the Camp Hill Line, and the up and down main lines between Bromsgrove and Stoke Works Jn as part of Birmingham to Bristol electrification in CP6	Electrification of the Camp Hill line in conjunction with the Birmingham to Derby route will help enable cross country routes to be operated by electric traction. It would also provide a diversionary route for the main Kings Norton to Birmingham New Street route.

Current Passenger Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	1. Birmingham New Street to Longbridge (21 mins) 2. Birmingham New Street to Redditch (39 mins) 3. Birmingham New Street to Bromsgrove (20 mins)			
No. of trains per hour	1. 6 trains per hour 2. 2 trains per hour 3. Hourly (2 trains per hour during peak times)	Increase service to Redditch and Bromsgrove – secure 3 cross-city trains per hour to be extended from Longbridge to each station respectively	Increase service provision in line with passenger demand	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	1. Landor Street to Bordesley Jn 2. Bordesley Jn to Bromsgrove 3. Bromsgrove to Abbotswood Jn			
Daily paths in one direction (as per WTT)	1. Up to 45 paths 2. Up to 21 paths 3. Up to 18 paths	As per forecasts in the Freight Market Study		

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	0	Level Crossing at Alvechurch has been replaced by a footbridge as part of the Redditch Branch enhancement scheme, completed in 2014.	
Automatic:	0		
User:	2 - Cofton		

Proposed enhancement pipeline*

Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Bromsgrove station relocation	Station to be relocated 250 metres from current location to increase capacity and capability for passenger services at Bromsgrove	BAG2	2016	Increased passenger capacity and improved station facilities	Third Party		Under construction
Bromsgrove electrification	Extension of electrification from Barnt Green to Bromsgrove including conversion of Down Goods Loop to passenger status with exit and entry line speed enhancement. This will enable the extension of the Cross City services to Bromsgrove, on a 20 minute frequency. The relocation of Bromsgrove station is a prerequisite for this scheme.	BAG2	2017/18	Increased capacity and performance	DfT CP5 HLOS		In development
Midlands Rail Hub - central Birmingham enhancements	Bordesley Chords, new platforms at Moor Street and Snow Hill, four track approach to Moor Street	Various	Medium term	Up to 10 additional passenger paths into and through central Birmingham	Midlands Connect/ TBC		In development
Midlands Rail Hub - Kings Norton enhancements	Reinstement of central island platforms, imporved station facilities, and remodelled junction layout. Potential for provision of turnback facilitiy.	BAG1	Medium term	Improved interchange opportuniites at Kings Norton	Midlands Connect /TBC		In development

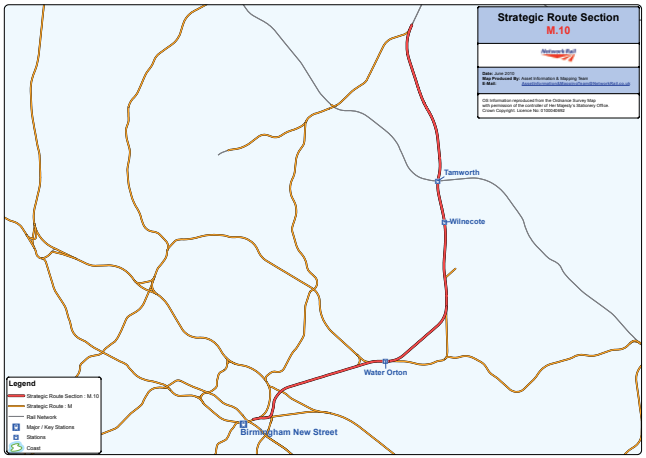
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party schemes where applicable (some may fall within Control Period 6).
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

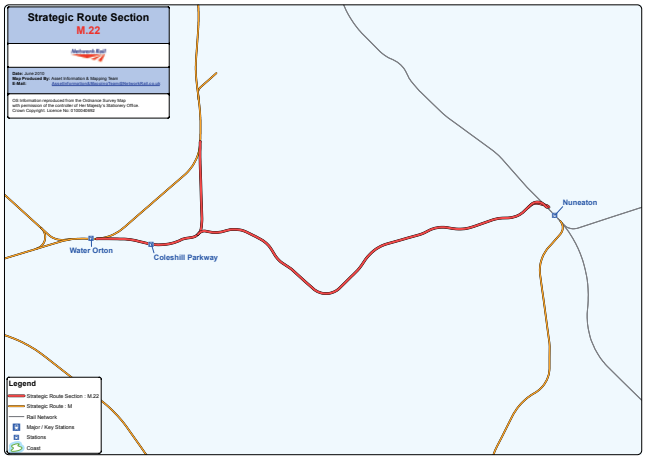
M.10 & M.22 Derby and Nuneaton lines

M.10 - Birmingham New Street to Wichnor Junction

M.22 - Water Orton to Nuneaton

Geographic Maps





Route specification description

The lines between Birmingham New Street and Wichnor Junction and Birmingham New Street and Nuneaton, which form Strategic Route Sections M10 and M22, are key corridors linking the West Midlands to the East Midlands, and beyond. The route between Birmingham New Street and Wichnor Junction forms one of the busiest mixed traffic corridors in the West Midlands.

Markets: The markets served include the long distance market linking the North East with the Midlands, South West England and South Wales. The regional urban market includes commuters from Tamworth to Birmingham.

There are significant freight flows on the route to and from local terminals and marshalling yards, and a substantial volume of freight traffic also traverses the route to and from locations outside of the Midlands.

Stations: The key stations on these routes are Coleshill Parkway, and Tamworth. Tamworth station provides an interchange with services on the West Coast Main Line.

Constraints: There is a capacity constraint in the Water Orton area, including the layout of the station area which creates traffic conflicts. The restrictive access arrangements into the oil terminal at Kingsbury is also a capacity constraint.

There are several major freight terminals and sites on Strategic Route Sections M.10 and M.22 including Lawley Street Freightliner terminal, Washwood Heath yard, Jaguar at Castle Bromwich, Hams Hall Eurterminal, Kingsbury Oil Terminal, Kingsbury EMR and Birch Coppice. Entry into Kingsbury terminal from the north direction is currently restricted leading to slow access in and out of the Kingsbury branch and Birch Coppice.

The line between Water Orton East Junction and Whitacre Junction to Kingsbury Junction (slow lines) is also used as a diversionary route for services if the line between Water Orton East Junction to Kingsbury Junction (fast lines) is blocked.

Impact of HS2 : The HS2 route to Birmingham will run adjacent to the Water Orton corridor, on its new line into Curzon Street station.

Route capability overview

Table 1.0

Information	Current	2019	2043	Notes
Line of route description	LN3501: Derby London Road Jn to Tamworth MD501: Tamworth to Birmingham, Proof House Junction MD545: Kingsbury Jn to Whitacre Jn MD555: Nuneaton North Jn to Water Orton East Jn			
Section start	Proof House Junction DBP3 41m 51ch			
Section end	Wichnor Junction DBP1 16m 22ch Nuneaton North Junction NWO 10m 18ch			
Route availability	RA8	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks	
Gauge	W8, W10	Network Rail will look to improve gauge clearance as appropriate when opportunities present themselves in future renewal workbanks. Currently W8 between Kingsbury and Wichnor Jn. When electrifying line consider delta between current clearance and improving to minimum W10.	W10 / W12	
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 90/125mph Birmingham to Wichnor. Linespeed between Whitacre Jn and Kingsbury Jn is 45mph. Linespeed between Water Orton and Nuneaton is predominantly 70mph.	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	See Sectional Appendix for detailed speed profiles
Electrification	None	Electrification of the route between (Bristol) Birmingham and Derby and of the route between Birmingham and Nuneaton	Electrify Whitacre Jn to Kingsbury Jn, if not part of Birmingham Derby/Nuneaton schemes	

Current Passenger Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	1. Birmingham New Street to Tamworth (16-19 mins) 2. Birmingham New Street to Nuneaton (28-30mins)			A certain number of long distance services serve Tamworth and Nuneaton.
No. of trains per hour	1. 2 per hour 2. 2 per hour	Additional local services in line with demand on the route		

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	1. Kingsbury Jn to Water Orton 2. Whitacre Jn to Nuneaton 3. Whitacre Jn to Water Orton 4. Water Orton to Landor Street			There are also a significant number of through freight flows in each direction.
Daily paths in one direction (as per WTT)	1. Up to 30 paths 2. Up to 36 paths 3. Up to 61 paths 4. Up to 57 paths	As per Freight Market Study forecasts		Current freight flows are to Lawley Street Freightliner Terminal, Hams Hall Terminal, Birmingham International Freight Terminal (Birch Coppice), Kingsbury Oil Terminal, and Washwood Heath Down Sidings

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	0	As determined by Level Crossing policy	
Automatic:	0		
User:	1		

Proposed enhancement pipeline*

Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Water Orton Corridor - HS2 enabling workds	Works to facilitate the construction of the HS2 route	DBP1 DBP2	2019	Building of HS2 adjacent to the existing rail network	HS2		In development
Midlands Rail Hub - central Birmingham enhancements	Bordesley Chords, new platforms at Moor Street and Snow Hill, four track approach to Moor Street	Various	Medium term	Up to 10 additional passenger paths into and through central Birmingham	Midlands Connect/ TBC		In development
Midlands Rail Hub - Water Orton capacity enhancements	Four tracking and imrpoved segregation of passenger and freight flows. mproved signalling headway, improve access from the north to Kingsbury terminal	DBP1 DBP2	Medium term	Increased capacity, improved performance and support additional passenger and freight services	Midlands Connect/ TBC		In development

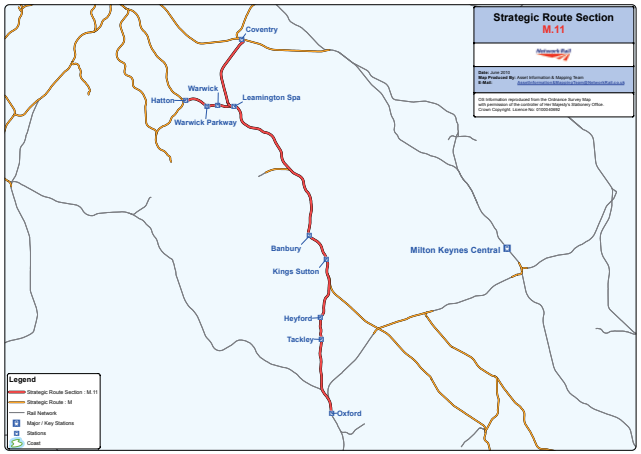
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party schemes where applicable (some may fall within Control Period 6).
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

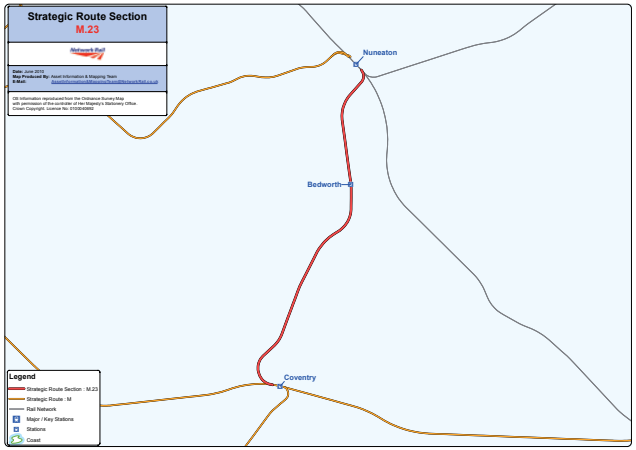
M.11 & M.23 Nuneaton to Wolvercot Jn (Oxford)

M.11- Oxford to Coventry

M.23 - Nuneaton to Coventry

Geographic Maps





Route specification description

The route between Oxford and Coventry (SRS M.11) is a connecting corridor, which forms part of longer distance cross country routes between the North and the South.

Markets: SRS M.11 supports long distance market flows between the South/Manchester and the North East. It also forms a key component of the London Marylebone to West Midlands services. Services from Banbury to London Marylebone support the London and South East market. Regional urban flows into the key towns and cities on the route, supporting commuting and leisure. The route also supports the freight market, including flows between Southampton and the West Coast Main Line.

SRS M.23 links Nuneaton and Coventry, supporting a local passenger service and through freight flows connecting to the West Coast Main Line.

Many freight services are routed via Leamington and Coventry to reach freight terminals in the surrounding area and also to travel to key locations beyond the West Midlands.

Stations: The key stations on these SRSs are Leamington Spa, Coventry and Oxford. New stations are planned on SRS M.23 at Coventry Arena and Bermuda Park.

Constraints: Part of the route between Coventry and Leamington Spa is single track, which constrains capacity over the route. Consideration is being given to double tracking the route in order to meet future capacity requirements. Other constraints include Leamington station and the low linespeeds on the Coventry to Nuneaton line.

These SRS's form a key part of the announcement in the HLOS for the creation of the 'Electric Spine' - a high capacity passenger and freight electrified railway corridor - running from the South Coast through Oxford, Bedford and via the Midland Main Line to the East Midlands and the North West.

There are two freight terminals on the route: Murco Petroleum and Pro Logis Park, freight services operate to these terminals and also use the line to connect from Leamington Spa to the West Coast Main Line, via Nuneaton.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD410: Coventry North Jn to Nuneaton South Jn MD405:Leamington Spa Jn to Coventry South Jn MD401: Heyford to Bordesley Jn (in part) GW200: Didcot to Heyford (in part)			
Section start	Nuneaton South Jn. CNN 9m 34ch			
Section end	Wolvercot Jn. DCL 66m 32ch			
Route availability	RA8	Network Rail will seek to improve Route Availability as appropriate when opportunities present themselves in future renewal works.	Network Rail will seek to improve Route Availability as appropriate when opportunities present themselves in future renewal works.	
Gauge	W10	Network Rail will seek to increase gauge clearance as appropriate when opportunities present themselves in future renewal works.	W12	
Signals	Track Circuit block (TCB)	Track Circuit block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	MD410: 45mph MD405:60HST80mph MD401:75HST90/95mph GW200:90 HST 95mph	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route. There is an aspiration to raise linespeeds on this route to align with the latent capability in the signalling system and to assist the NUCKLE project.	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	
Electrification	None electrified	CP6 and beyond - Electrify route between Oxford and Nuneaton as part of the 'Electric Spine'	Electrified	

Current Passenger Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	1. Coventry to Leamington Spa (11 mins) 2. Coventry to Nuneaton (18 mins) 3. Coventry to Banbury (29 mins)			
No. of trains per hour	1. Hourly 2. Hourly 3. Hourly	Increase to match local service demand for commuting.		

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Wolvercot Jn/Leamington Spa to Nuneaton			
Daily paths in one direction (as per WTT)	Up to 16 paths (one direction)	As per Freight Market Study forecasts		

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	2	As determined by Level Crossing policy	
Automatic:	0		
User:	14		

Proposed enhancement pipeline*

Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Banbury resignalling	Renewal of life expired signalling equipment in the Banbury area and align track renewals to rationalise the track layout.	DCL	2016	Increased capacity, improved performance and operational flexibility	Network Rail CP5 Renewals		Complete
New station at Kenilworth	Construction of a new station at Kenilworth to be served by a local service between Coventry and Leamington	LSC1	2017	Improved accessibility to the railway	Third Party	Warwickshire County Council. Funding from DfT new stations fund and Coventry and Warwickshire L.E.P.	In construction
Nuneaton to Coventry service enhancements (NUCKLE) phase 1 b	Provision of a bay platform at Coventry station. and signalling improvements facilitates half hourly passenger train service frequency	CNN	2018/19	Increased capacity and new service opportunities	Third Party	Coventry City Council. Funding to be confirmed	In development
Leamington to Coventry capacity enhancements	Doubling of single line section between Milverton Junction and Kenilworth to increase capacity on the line.	LSC2	CP6	Increased capacity	TBC		In development

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party schemes where applicable (some may fall within Control Period 6).
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

M.13, M.18 & M.24 Wolverhampton, Walsall and Rugeley corridor

M.13- Stechford to Wolverhampton via Aston

M.18 - Rugeley to Bescot

M24 - Soho Jns to Perry Barr Jns

Route specification description

Strategic Route Sections M13, M18 and M24 make up the Rugeley, Wolverhampton and Birmingham New Street route, including the section between Aston to Stechford which connects two corridors (cross city and WCML). The Walsall to Birmingham New Street section is electrified. These route sections form important diversionary routes for both passenger and freght traffic.

Markets: The Rugeley and Walsall corridor serves a busy commuter market into Birmingham New Street from both Rugeley Trent Valley, Cannock and Walsall. It is recognised that this is a busy corridor for freight traffic, serving a number of freight yards and the power station at Rugeley (which is coal operated), including:

Bescot Down Side and Up Side Yards and Mid-Cannock yard for the transportation of intermodal containers.

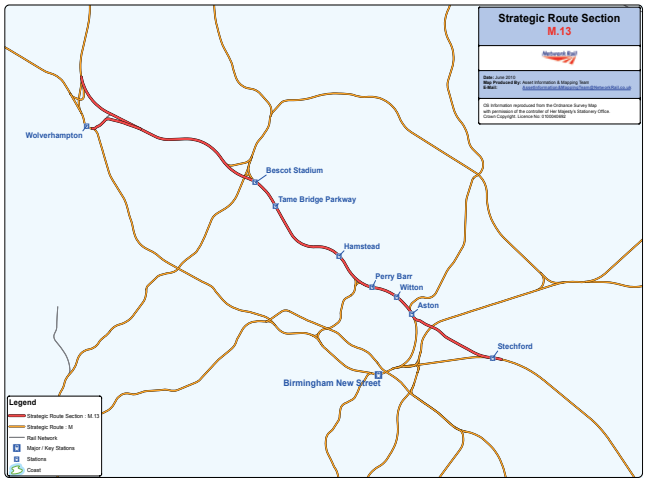
Stations: The key stations on these SRSs are Walsall and Rugeley Trent Valley, where passengers can interchange with local and WCML services.

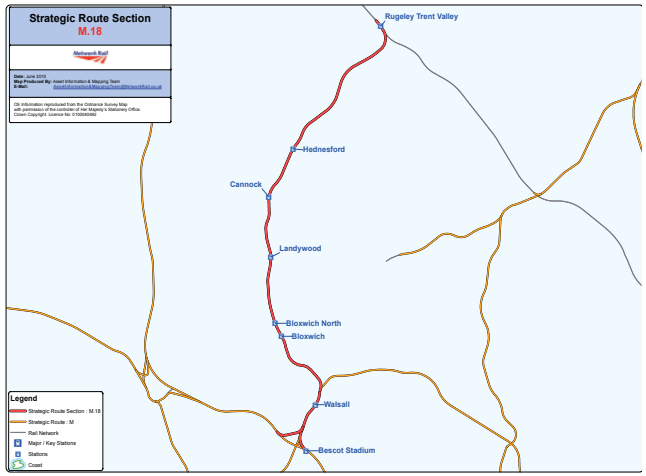
Constraints: The line between Walsall and Rugeley Trent Valley is not electrified with slow line speeds (45 mph). The line (known locally as the Chase line) was re-signalled in 2013 providing enhancements including opportunities for journey time improvements.

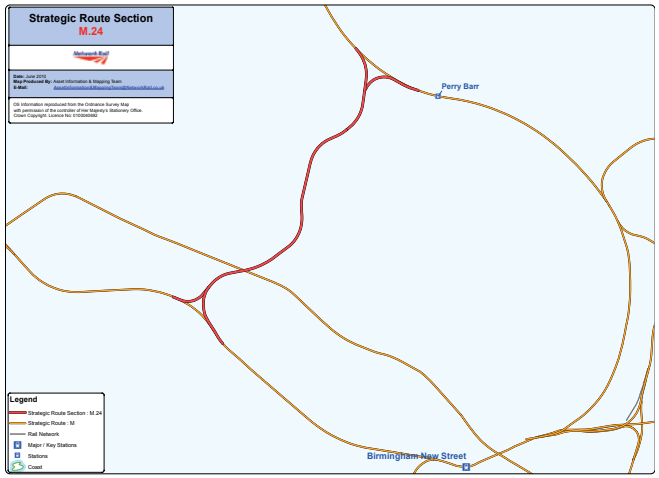
If the route section between Pleck Junction and Rugeley Trent Valley is closed, there are no alternative options for local passenger services. However, freight services (excluding coal) heading north would generally divert via Bushbury Junction and south bound traffic via Aston Junctions or Birmingham New Street for W8 traffic.

The electrification of the Walsall to Rugeley line is under construction, this will enable the conversion of the local passenger service from diesel to electric traction. It will also provide an important diversionary route when the route between Bushbury and Stafford is blocked.

Geographic Maps







Route capability overview

Table 1.0

Information	Current	2019	2043	Notes
Line of route description	MD315: Stechford to Wolverhampton via Aston MD320: Proof House Jn to Bushbury Jn via Bescot MD325: Soho South Jn to Perry Barr North Jn MD345: Bescot Jn to Rugeley North Jn MD365: Portobello Jn to Wolverhampton Crane Street Jn NW1002: Armitage Jn to Preston Fylde Jn NW1004: Rugeley Town to Rugeley North Jn			
Section start	Rugeley Trent Valley, LEC2 124m22ch			
Section end	Stechford, RBS1 109m8ch			
Route availability	RA8	Network Rail will look to improve Route Availability as appropriate when opportunities are identified in future renewal workbanks	Network Rail will look to improve Route Availability as appropriate when opportunities are identifed in future renewal workbanks	
Gauge	M13: W9 and W10 M18: W6, W8 and W10 M24: W8	Network Rail will look to improve gauge clearance as appropriate at opportunities that present themselves in future renewal works.	W10	
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	M13:75 mph M18 and M24:45 mph	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route. M18: 60mph	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	See Sectional Appendix for detailed speed profiles Proposals for increased linespeeds in development for M18 and M24.
Electrification	25Kv AC with the exception of Rugeley North Junction to Walsall North Junction and the slow lines between Walsall station and Pleck Junction	25Kv AC (Walsall – Rugeley electrification)	25Kv AC	There are aspirations for a new station at Aldridge on the Sutton Park line, this would require electrification between Ryecroft Jn and Aldridge.

Current Passenger Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	1. Walsall to Birmingham New Street, 23-29 mins 2. Walsall to Aston, 17 mins 3. Rugeley Trent Valley to Birmingham New Street, 54-57 mins 4. Wolverhampton and Walsall (via Perry Barr), 1 hour 2 mins			
No. of trains per hour	1. 4 trains per hour 2. 2 trains per hour 3. 1 train per hour 4. 2 trains per hour	Increase to match local service demand for commuting.		

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	1. Portobello to Darlaston Jn 2. Rugeley to Ryecroft Jn 3. Pleck Jn to Ryecroft Jn 4.Bescot to Perry Barr 5. Perry Barr to Stechford			
Daily paths in one direction (as per WTT)	1. Up to 25 paths 2. Up to 11 paths 3. Up to 52 paths 4. Up to 9 paths 5. Up to 7 paths	As per Freight Market Study forecasts		

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	1	As determined by Level Crossing policy	
Automatic:	0		
User:	4		

Proposed enhancement pipeline*

Table 5.0

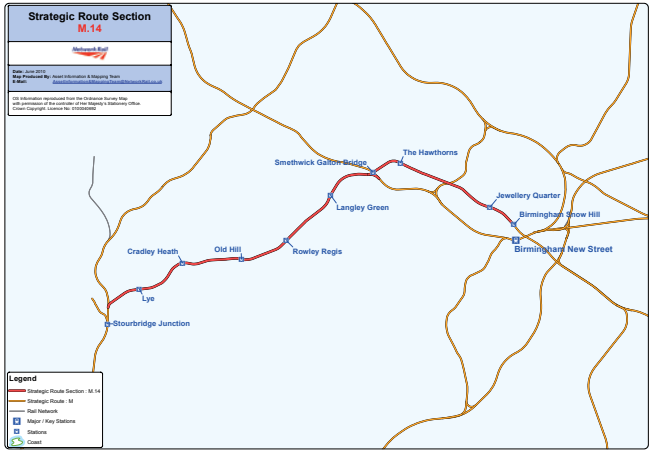
Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Walsall to Rugeley Electrification	Electrification of the route between Walsall and Rugeley	RRN1, RRN2	CP5	Conversion of passenger service from DMU to EMU	DfT CP5 HLOS	Introduction of electrified stock will release diesel units off this route. These units can then be utilised elsewhere to strengthen services in the wider West Midlands area.	Under construction
Walsall - Rugeley journey time improvements	Journey time improvements between Walsall and Rugeley Trent Valley	RRN1 RRN2	CP5	Improved journey times	Network Rail	Candidate scheme for passenger journey time improvement fund.	in development
New station at Aldridge	Electrification between Rycroft and Aldrdge, new turnback platform and associated facilities	CBR2	CP6-7	Improved connectivity	Third Party	West Midlands and Chilterns RUS presents the latest business case analysis. Centro study	Study

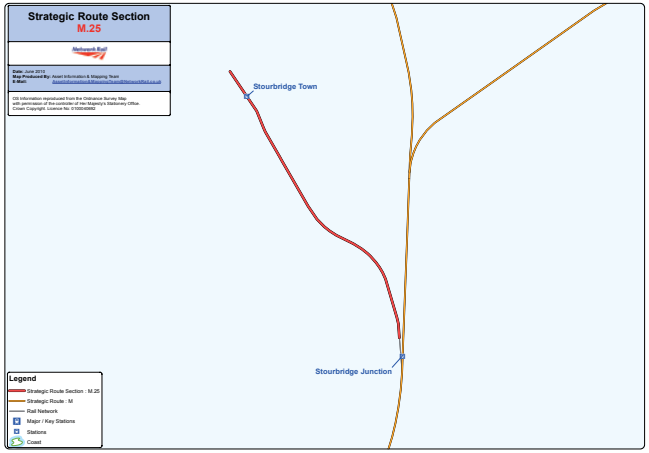
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party schemes where applicable (some may fall within Control Period 6).
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

M.14 Birmingham Snow Hill to Stourbridge Junction

M.25 Stourbridge Town branch

Geographic Maps





Route specification description

Strategic Route Section M14 is a busy commuter corridor within the West Midlands, connecting towns in the Black Country with Birmingham city centre.

Markets: This SRS serves the Worcester, Kidderminster and Stourbridge markets, with a long distance service to London Marylebone in the peaks. It also serves the regional urban market from local Black Country stations into Birmingham Snow Hill. The route has significant freight operations on the route with freight yards located at Handsworth, Round Oak, and Brierley Hill. Key services are metals and metal recycling and vehicle recycling. There are up to seven daily freight services on the route.

Key Stations: Birmingham Snow Hill is a terminus for local commuter services into Birmingham and is also a key destination on the Chiltern Main Line. Stourbridge Junction station is an important station on the route, with six trains an hour calling on route to various locations in the West Midlands and beyond. Stourbridge Town branch line also runs from the station to Stourbridge Town Centre (Strategic Route Section 25). Services on the branch line are operated by very light rail vehicles.

Constraints: The station currently has three platforms in use by heavy rail services, with the fourth platform due to be vacated by Midland Metro when the Metro route extends into the city centre.

Old Hill tunnel is an important structure on the route and is located between Old Hill and Rowley Regis stations. This forms a constraint to running higher gauge freight traffic.

The route between Snow Hill and Stourbridge Junction is not electrified, which acts as a constraint.

Depots and stabling: Chiltern Railways operate a Light Maintenance Depot (LMD) at Stourbridge for stabling and basic service preparation. These are at the north of Stourbridge Junction station, used to stable various maintenance vehicles and trains. There are two networked sidings in use at Birmingham Snow Hill which can be accessed from Platform 1.

Route capability overview

Table 1.0

Information	Current	2019	2043	Notes
Line of route description	MD435 (Small Heath Jn) Birmingham Snow Hill – Stourbridge North Jn MD445 Stourbridge Jn to Stourbridge Town			
Section start	Birmingham Snow Hill DCL 129m21ch			
Section end	Stourbridge Junction OWW 142m16ch			
Route availability	RA8	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks.	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks.	
Gauge	W8 with the exception of the down line between Rowley Regis and Stourbridge North Jn and Old Hill Tunnel (W7)	Network Rail will look to increase gauge clearance as appropriate when opportunities present themselves in future renewal workbanks.	W10 / W12	
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed between 50 and 60mph	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	See Sectional Appendix for detailed speed profiles
Electrification	Non electrified	Development of electrification of the Snow Hill Lines.	Electrified Snow Hill lines network	

Current Passenger Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typica journey time	1. Birmingham Snow Hill to Stourbridge Junction, 26-31 mins 2. Stourbridge Town to Stourbridge Junction, 3 mins			
No. of trains per hour	1. 6 trains per hour 2. 6 trains per hour	Increase to match local service demand for commuting		

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Birmingham Snow Hill to Stourbridge Junction			
Daily paths in one direction (as per WTT)	Up to 2 paths per day (one direction)	As per Freight Market Study forecasts		Freight services include flows to Handsworth, Round Oak Steel Terminal, Brierley Hill and Worcester.

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	2	As determined by Level Crossing policy	
Automatic:	0		
User:	0		

Proposed enhacnement pipeline*

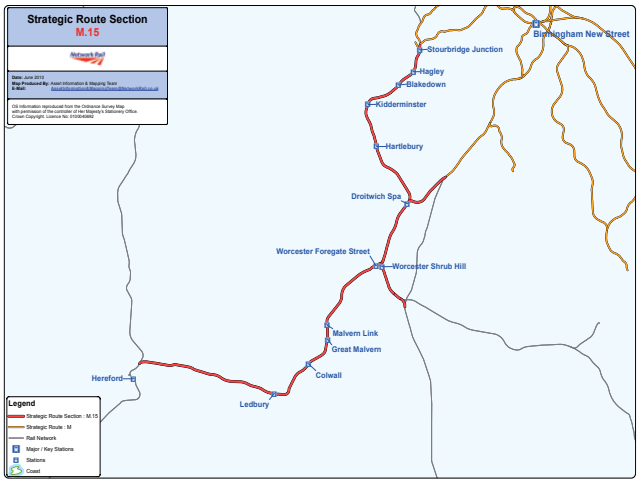
Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Midland Metro extension	Extension of Metro tram services into Birmingham city centre to connect to the redeveloped Birmingham New Street station.	DCL	2016	Improved connectivity.	Third Party	Metro line extension is proposed to continue past Birmingham Snow Hill station along Upper Bull Street, Corporation Street, Stephenson Street to Birmingham New Street Station Gateway	Complete
Midlands Rail Hub - central Birmingham enhancements	Bordesley Chords, new platforms at Moor Street and Snow Hill, four track approach to Moor Street	Various	Medium term	Up to 10 additional passenger paths into and through central Birmingham	Midlands Connect/ TBC		In development
Rowley Regis turnback	Provision of six-car turnback facility and platform to enable the restructuring of the timetable on the Snow Hill lines	DCL	Medium term	Improved journey times to Stourbridge and Kidderminster	Third Party		Aspiration

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party schemes where applicable (some may fall within Control Period 6).
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

M.15 Stourbridge Jn to Worcester and Hereford

Geographic Maps



Route specification description

The route is predominantly a two-track, non-electrified railway which supports the commuter market from north Worcestershire and the Black Country into the West Midlands.

Markets: The SRS serves large conurbations such as Kidderminster and Stourbridge and southwards it offers services from Hereford to Birmingham via Bromsgrove and Hereford to London Paddington via Worcester. There are a small number of daily freight services on this SRS, including steel to Round Oak.

Key stations on the route include Kidderminster, Worcester Foregate Street, Worcester Shrub Hill, Great Malvern and Hereford. Kidderminster station serves the Regional Urban commuter market into Stourbridge and Birmingham and southwards to Droitwich Spa and Worcester.

Worcester has two stations, Foregate Street and Shrub Hill. Foregate Street is situated closer to Worcester city centre and serves over 2 million passengers annually. Both stations serve the Regional Urban Market to Birmingham/Hereford and with long distance services to London Paddington. Shrub Hill station is situated further away from the city and is the larger of the two stations.

Worcester Shrub Hill has a light maintenance depot which undertakes light maintenance activities and train preparation. There is also a Network Rail maintenance depot at Worcester Shrub Hill supporting track and signalling activities.

Hereford station serves the Regional Urban market to Birmingham and has long distance services to London Paddington via Worcester. It is an interchange station with the Welsh Marches Line with services between Manchester Piccadilly and Cardiff or Carmarthen.

Constraints: There are two single line sections between Worcester and Hereford which act as capacity constraints, the SRS is also non-electrified.

The Severn Valley Railway at Kidderminster is a significant tourist attration operating steam train services between Kidderminster and Bridgnorth.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD430: Stourbridge Jn to Territory boundary (Cutnall Green) GW370: Cutnall Green to Droitwich Spa Jn GW300: Droitwich Spa Jn to Worcester Shrub Hill GW340: Worcester Shrub Hill to Shelwick Jn GW370: Shelwick Jn to Hereford			
Section start	Stourbridge Junction station			
Section end	Hereford station			
Route availability	Stourbridge Jn to Worcester Shrub Hill : RA8 Worcester Triangle to Shelwick Jn: RA7 Shelwick Jn to Hereford: RA8	Network Rail will seek to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks.	Network Rail will seek to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks.	Bromsgrove corridor study may indicate requirement for heavier trains on this route in the long-term
Gauge	Stourbridge Jn to Worcester Shrub Hill:W8 Worcester to Hereford: W6	Network Rail will seek to increase gauge clearance as appropriate at opportunities that present themselves in future renewals work.	W10	CP4 Bromsgrove study may indicate requirement for heavier trains on this route in the long-term
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Stourbridge Jn to Worcester Tunnel Junction: 65 – 75 mph Worcester Triangle: 0 – 35 mph Worcester Foregate Street to Hereford: 65 – 75 mph		Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	See Sectional Appendix for detailed speed profiles
Electrification	None	During CP6 - Development of electrification of the Snow Hill Lines.	Electrified Snow Hill lines network	

Current Passenger Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	1. Birmingham Snow Hill to Kidderminster, 45 minutes 2. Birmingham Snow Hill to Worcester Foregate Street/Worcester Shrub Hill,53 minutes 3. Birmingham New Street to Hereford, 85 mins 4. Worcester Shrub Hill to Malvern – from Bristol via Gloucester, 16 minutes			
No. of trains per hour)	1. Half-hourly (all day) 2. Half-hourly in peak (hourly in off-peak) to Foregate Street Approx hourly to Shrub Hill 3. Hourly to Worcester Foregate Street, non- pattern (Up to 10 daily trains) to Worcester Shrub Hill 4. One train every two hours	Increase to match local service demand for commuting.		Hereford turnback scheme (in development) may free up capacity to run extra Hereford to Birmingham New Street via Worcester stations service.

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	1. Margam and Round Oak 2. Cardiff Celsa to Handsworth AMR 3. Aldwarke to Handsworth AMR 4. Cardiff to Brierley Hill			
Daily paths in one direction (as per WTT)	1. 3 daily train paths 2. 2-3 train paths per week 3. 2-3 train paths per week 4. 1-2 train paths per week	As per Freight Market Study forecasts		

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	2	As determined by Level Crossing policy	
Automatic:	0		
User:	3		

Proposed enhancement pipeline*

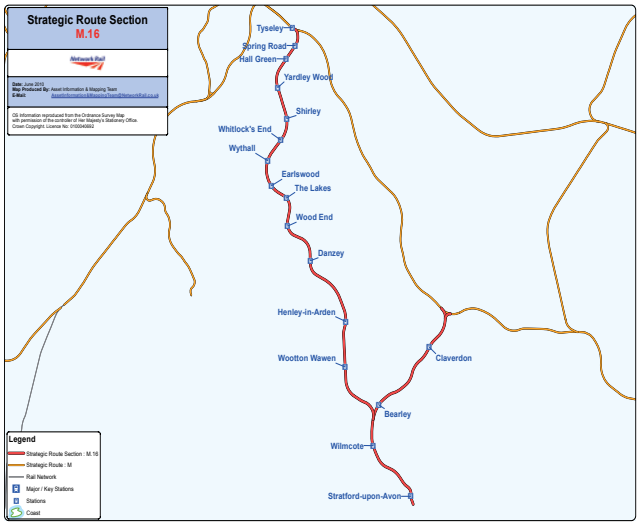
Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Worcester area resignalling	Replacement of signalling in the Worcester area, with opportunities for improved track layouts. Signalling control to be moved to the West Midlands Signalling Centre	Various	Medium term	Improved operational flexibility, improved layout in the Worcester area	Network Rail renewals		In development
Worcester area enhancements	Aligned with the future resignalling there is an opportunity to undertake targeted ehancements in the Worcester area	Various	Medium term	Improved operational flexibility and performance	TBC		In development

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party schemes where applicable (some may fall within Control Period 6).
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

M.16 Stratford-upon-Avon lines

Geographic Maps



Route specification description

The Stratford-upon-Avon lines link the city of Birmingham with Stratford-upon-Avon, and also include the single branch line between Hatton Junction and Bearley Junction.

Markets: The line serves a Regional Urban market supporting access to jobs and leisure. Stratford-upon-Avon is a nationally important tourism centre. Services operate frequently between Birmingham, Whitlocks End and Stratford-upon-Avon but infrequently beween Stratford-upon-Avon and Hatton. There a number of long distance services a day from Stratford-upon-Avon to London Marylebone.

There are no freight markets on this SRS.

Key Stations: Key stations on this SRS are Stratford-upon-Avon, Shriley and Whitlocks End. Stratford-upon-Avon has just under 1 million passengers annually.

A new station Stratford-upon-Avon Parkway was opened in May 2013, and a Birmingham to Dorridge service extended in December 2013 to form a new Dorridge to Stratford upon Avon service.

Constraints: This route is non-electrified and has a single line between Hatton and Bearley Junction. The SRS also has a number of request stop only stations.

Depots and stabling: There is a Train Maintenance Depot at Tyseley which is used for the servicing, maintenance and repair of diesel trains. It is also the location of Tyseley Locomotive works which is both a museum and steam train depot.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD415: Hatton station to Stratford-upon-Avon MD425: Tyseley South Jn to Bearley Jn			
Section start	Tyseley South Jn, TSB 0m 0ch			
Section end	Stratford-upon-Avon station, HSA 8m 77ch			
Route availability	RA8	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks	
Gauge	W7	Network Rail will look to improve gauge clearance as appropriate when opportunities present themselves in future renewal workbanks. Currently W8 between Kingsbury and Wichnor Jn. When electrifying line consider delta between current clearance and improving to minimum W10.		
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 60mph 75mph between Wood End and Bearley Jn	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	See Sectional Appendix for detailed speed profiles
Electrification	None	This route should be considered for Electrification in conjunction with the Chiltern Main Line and the Snow Hill line electrification schemes	Electrified between Birmingham and Stratford-upon-Avon	

Current Passenger Trains (paths per day)

Table 2.0				
	Current	2019	2043	Notes
Typical journey time	Birmingham Snow Hill to Stratford-upon-Avon (around 55 minutes)			
No. of trains per hour	1 per hour	Every 30 minutes	Every 20 minutes	

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Route section	There is no freight currently operating over this route, and there is not expected to be any going in the future. This will be subject to review going forward.			

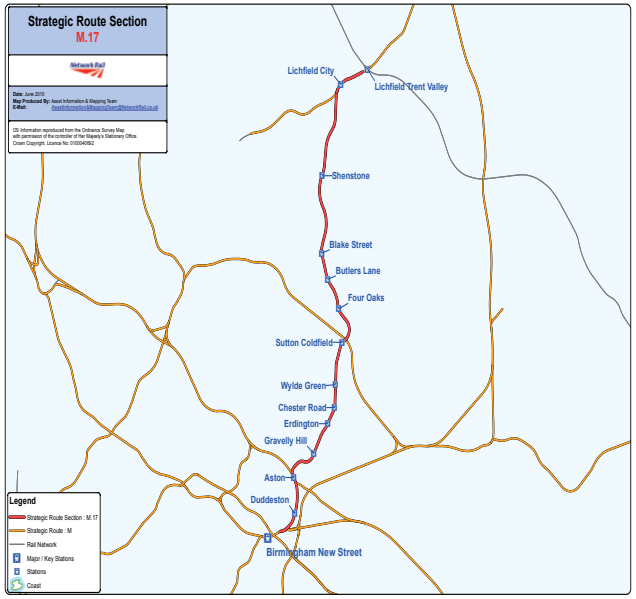
Level crossings on route

Table 4.0			
Type	Current No. of level crossings	2019 No. of level crossings	2043 No. of level crossings
Supervised:	0	As determined by Level Crossing policy	
Automatic:	0		
User:	9		

Proposed enhancement pipleline

There are no planned enhancements.

Geographic Maps



Route specification description

Strategic Route Section M17 runs between Proof House Junction and Lichfield Trent Valley and is known as the Cross-City North line. The route goes north from Aston Junctions, where the line between Wolverhampton and Stechford North Junction crosses. The route is electrified.

Markets: This SRS serves the regional urban market to the north of Birmingham. Combined with the Cross-City South line, it is the busiest local rail corridor within the West Midlands, with a ten minute weekday service from the majority of stations.

Stations: Key stations on this route include Lichfield City and Sutton Coldfield. Lichfield City has 650,000 passengers annually. Aston station acts as an interchange, serving both the Cross-City line and the Walsall Line, (from Wolverhampton to Walsall via Birmingham New Street).

Improved accessibility at Lichfield Trent Valley station is being provided during the period 2014-2019, along with provision of a new waiting shelter.

Constraints: The junctions at Aston are a constraint on capacity on the route.

Depots and stabling: On the line between Proof House and Aston Junctions, there is a former wagon workshop and stabling yard situated at Duddeston. This location is being considered as a potential site for new stabling facilities in the West Midlands.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD320 Proof House Jn to Bushbury (via Bescot) MD340 Aston North Jn to Alrewas			
Section start	Proof House Jn. PBJ 112m 19ch			
Section end	Lichfield Trent Valley Jn. ALC2 18m 13ch			
Route availability	RA8	Network Rail will seek to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks.	Network Rail will seek to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks.	
Gauge	W8	Network Rail will seek to increase gauge clearance as appropriate when opportunities present themselves in future renewal workbanks.	W10 / W12	
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominantly 55/60mph	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	See Sectional Appendix for detailed speed profiles
Electrification	25Kv AC with the exception of Lichfield Trent Valley Jn to Alrewas	CP6 - Electrify Lichfield Trent Valley Jn to Wichnor Jn in conjunction with the Birmingham to Derby Electrification scheme as a key diversionary route	25Kv AC	

Current Passenger Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	1. Birmingham New Street to Four Oaks (around 26 minutes) 2. Birmingham New Street to Lichfield Trent Valley (around 40 minutes)			
No. of trains per hour	1. 6 per hour 2. 2 per hour	Additional local stopping services to Lichfield Trent Valley	Additional local stopping services to Lichfield Trent Valley	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	There is currently no freight services timetabled on this route			
Daily paths in one direction (as per WTT)	None			

Level crossings on route

There are no level crossings in this route section.

Proposed enhancement pipeline*

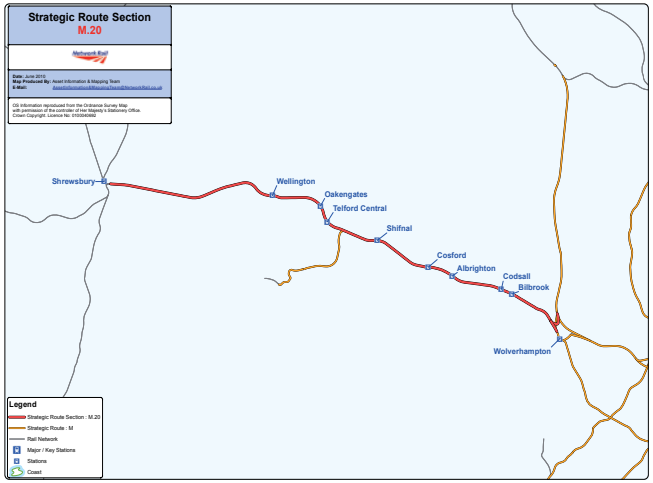
Table 4.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Birmingham New Street resignalling	Renew all life expired signalling equipment in the Birmingham New Street Power Signal Box (PSB) control area and transfer control to West Midlands Signalling Centre. The boundaries of the project includes Aston.	PBJ	2019	Improved performance and operational flexibility	Network Rail Renewals		In development
Derby resignalling	North of Tamworth to Derby station area being project managed by LNE team, transfer of signalling control for Wichnor Jn south (including Central Rivers depot) to West Midlands Signalling control centre	DBP1	CP5/6	Increased capacity, improved performance and operational flexibility	Network Rail Renewals		In development
Lichfield Trent Valley to Wichnor Jn resignalling	Resignalling the route between Lichfield Trent Valley and Wichnor, with signalling control transferred to West Midlands Signalling control centre	BJW3	CP6	Increased capacity, improved performance and operational flexibility	Network Rail Renewals		In development
Aston re-control	Cross City North re-control (Aston to Lichfield Trent Valley station) re-control signalling area to West Midlands Signalling control centre	ALC1ALC2 BJW3	CP5/6	Improved performance and operational flexibility	Network Rail Renewals		In development
West Midlands stabling	Construction of stabling and servicing depot	ALC1	CP6	Stabling provision for electric units	TBC		In development

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party schemes where applicable (some may fall within Control Period 6).
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

M.20 Wolverhampton to Shrewsbury

Geographic Maps



Route specification description

The line between Wolverhampton and Shrewsbury is a two track railway which provides a vital rail link from Mid Wales/Shropshire to the West Midlands. The SRS serves a mix of traffic, rolling stock types and is non electrified.

Markets: Markets served include the Regional Urban market from Shropshire towns to and from Wolverhampton and Birmingham. The route also forms a key corridor for the long distance market from North and Mid Wales, to Birmingham and Birmingham Airport.

Ironbridge at the southerly edge of Telford is a major tourist attraction and there is a significant tourism market at Shrewsbury. Passenger train services on this route has been growing at more than 5% per annum.

There are through freight services from south west ports to East Midlands Power stations on the route, and this SRS route also forms a key freight diversionary route. Telford International Railfreight Park (TIRP) is located at Donnington. Ironbridge Power Station is also located on the route, situated at the end of a branch line from Madeley Junction.

Stations: Key stations along the route include Wolverhampton (interchange station), Wellington, Telford and Shrewsbury.

Station	Footfall p.a. (13/14) ORR data
Shrewsbury	2 million
Telford Central	1.08 million
Wellington	582,000
Wolverhampton	4.75 million

Constraints: The line is non-electrified, with the exception of the route from Wolverhampton North Junction into Oxley Depot . The irregular passenger service pattern is a known constraint to growth, as is the capacity constraint for further services on the Wolverhampton to Birmingham corridor.

Oxley Chord is a non electrified chord line which runs between Oxley (Stafford Road Jn) and Bushbury Jn.

Route capability overview

Table 1.0

Information	Current	2019	2043	Notes
Line of route description	MD801 Wolverhampton North Junction to Abbey Foregate			
Section start	Wolverhampton North Junction WSJ2 143m 52ch			
Section end	Abbey Foregate Junction WSJ2 170m 46ch			
Route availability	RA8	Network Rail will seek to improve Route Availability as appropriate when opportunities present themselves during future renewals work.	Network Rail will seek to improve Route Availability as appropriate when opportunities present themselves during future renewals work.	
Gauge	W6a: Wolverhampton North Junction to Donnington Junction W7: Donnington Junction to Abbey Foregate (Exclusive)	Network Rail will seek to increase gauge clearance as appropriate when opportunities present themselves during future renewals work.	Network Rail will seek to increase gauge clearance as appropriate when opportunities present themselves during future renewals work.	
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed See Sectional Appendix for detailed speed profiles	Prevailing linespeed of 70mph to Donnington Junction with a section of 50mph between Donnington Junction and Abbey Foregate Junction	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	See Sectional Appendix for detailed speed profiles
Electrification	None	Consider Electrification of Wolverhampton to Shrewsbury during CP7	Electrified route between Wolverhampton and Shrewsbury. Consider electrification of Oxley Junction to Bushbury Junction	

Current Passenger Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time	1. Birmingham New Street to Shrewsbury, 55 mins – 1 hour 10 mins 2. Birmingham New Street to Wolverhampton, 17-25 mins 3. Wolverhampton to Shrewsbury, 36/50 mins			
No. of trains per hour	1. 2 trains per hour 2. 10 trains per hour 3. 2 trains per hour	The WM&C RUS has recommended train lengthening of 2 am peak Shrewsbury to Birmingham New Street services and 2 pm peak Birmingham New Street to Shrewsbury services (by 1-car each).	Increase to match local and interurban service demand for commuting.	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Shrewsbury to Wolverhampton			
Daily paths in one direction (as per WTT)	Freight flows include up to 5 trains per week biomass flows (depending on time of year and demand) from Liverpool docks to Ironbridge Power Station. One to two paths per week rail freight from Donnington to Warrington Arpley Yard for onward distribution.	As per Freight Market Study forecasts		

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	0	As determined by Level Crossing policy	
Automatic:	0		
User:	1		

Proposed enhancement pipeline*

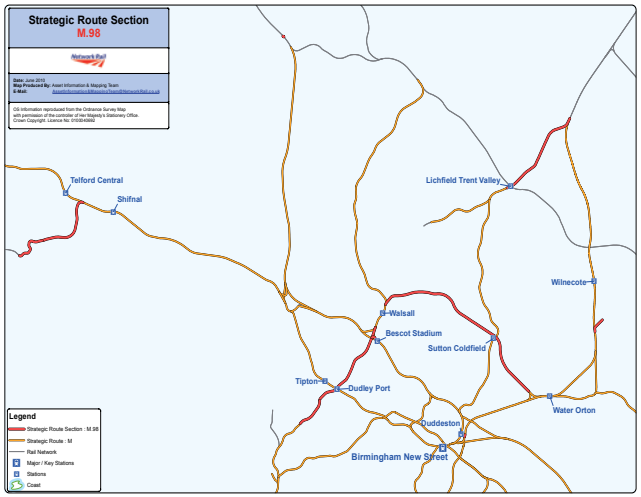
Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Signalling renewal	Wolverhampton resignalling project (including NRDF funded enhancements)	WSJ2	2015	Increased capacity, improved performance and operational flexibility	Network Rail renwewals		Complete

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party schemes where applicable (some may fall within Control Period 6).
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

M.99 Freight Lines

Geographic Maps



Route specification description

Strategic Route Section M.99 is split into two sections - freight trunk routes and other freight lines. Both include freight branch lines.

Freight trunk routes include the key freight corridors within the West Midlands area which provide dedicated freight paths. These corridors have no stations and enable freight flows to operate without major conflict with passenger services.

The key trunk routes comprise:

- Lichfield Trent Valley Junction to Wichnor Junction (BJW3) including Lichfield Trent Valley curve (LTV)

The route runs via Alrewas to Wichnor Junction and is non-electrified. The route is used as a freight route and also for access to a maintenance depot at Central Rivers. When engineering work takes place between Birmingham New Street and Tamworth, the route can be used for diversionary purposes. Lichfield Trent Valley curve is a single track chord connecting to the West Coast Main Line. The route is non-electrified and is primarily a freight route and used for engineering access.

- Castle Bromwich Junction to Ryecroft Junction via Sutton Park (CBR1, CBR2, WOP)

This is a freight only route that connects Walsall to Castle Bromwich and Water Orton, and enables most freight trains to avoid congestion through Birmingham New Street station. It runs through Sutton Park at Sutton Coldfield.

- St Andrews Junction to Landor Street Junction (to Castle Bromwich Jn)(DBP3)

The route supports significant volumes of freight traffic to local terminals including Lawley Street Freightliner terminal and Washwood Heath yard. The route is double track between St Andrews Junction and Landor Street Junction, then becomes four track railway with two dedicated goods lines from Landor Street to Castle Bromwich Junction.

- Kingsbury Jn to Birch Coppice (KBC)

The route which provides rail access to Kingsbury Oil terminal, European Metal Recycling and Birmingham International Freight Terminal (Freightliner) at Birch Coppice is known as the Kingsbury Branch. The branch is currently only accessible from the south, requiring a 15-18 minutes timetable slot for trains from the north to propel on/off the branch at 5mph across the 125mph main lines.

Route capability overview - *Lichfield Trent Valley Junction to Wichnor Junction (BJW3) Including Lichfield Trent Valley Curve (LTV)*

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	LN3340: Alrewas to Wichnor Junction MD355: Lichfield Trent Valley Jn to Lichfield Trent Valley (Chord line)			
Route availability	RA8	RA8	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks	
Gauge	W8	W8	W10	Increase gauge as appropriate
Signals	Absolute Block (Lichfield Trent Valley Signal Box) Track Circuit Black (Alrewas Signal Box) Track Circuit Black (Rugby Signal Control Centre)	Absolute Block (Lichfield Trent Valley Signal Box) Track Circuit Black (Alrewas Signal Box) Track Circuit Black (Rugby Signal Control Centre)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	60 mph (30mph through Wichnor Jn)	60 mph (30mph through Wichnor Jn)	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	See Sectional Appendix for detailed speed profiles
Electrification	None	Electrify in conjunction with Birmingham to Bristol Electrification scheme	25 Kv AC	

Current Freight Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Route section	Lichfield Trent Valley to Wichnor Junction			
Daily paths in one direction (as per WTT)	Up to 14 paths per day	As per Freight Market Study forecasts		

Level crossings on route

Table 3.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	0	As determined by Level Crossing policy	
Automatic:	0		
User:	3		

Route capability overview *Castle Bromwich Jn to Ryecroft Jn via Sutton Park (CBR1, CBR2) including Water Orton West Junction to Park Lane Junction (WOP)*

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD560 Water Orton West Junction to Park Lane Junction MD565 Castle Bromwich Jn to Ryecroft Jn			
Route availability	RA8	RA8	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks	
Gauge	W10	W10	W10	
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	MD560 – 30mph MD565 – 45mph	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	See Sectional Appendix for detailed speed profiles
Electrification	None	Electrification to Aldridge if new station proposal progressed. Consideration of electrification in CP6 as an 'in-fill' to the Electric Spine if Nuneaton to Birmingham and Leamington to Solihull/Birmingham is electrified.	Electrify as appropriate in line with the Network RUS Electrification Strategy. This will enable future freight services to be converted to electric traction which may help to enable more efficient operation.	

Current Freight Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Route section	Ryecroft Junction to Park Lane junction			
Daily paths in one direction (as per WTT)	Up to 41 paths	As per Freight Market Study forecasts		

Level crossings on route

There are no level crossings in this route section.

Route capability overview - *St Andrews Junction to Landor Street Junction to Castle Bromwich Jn (DBP3)*

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Part of MD501 Tamworth to Birmingham, Proof House Junction and MD570 Saltley (Landor Street Junction) to Kings Norton Junction (Camp Hill lines)			
Route availability	RA8	RA8	Network Rail will seek to improve Route Availability as appropriate when opportunities present themselves during future renewals work.	
Gauge	W8	W8	W10	
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Up Goods line – 45mph Down Goods line -20mph Up and Down Main line – 40 mph	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	See Sectional Appendix for detailed speed profiles
Electrification	None	Consider electrification as part of Birmingham to Derby and Birmingham to Bristol Electrification	Consider electrification as part of Birmingham to Derby and Birmingham to Bristol Electrification	

Current Freight Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Route section	1. St Andrews Jn to Landor St Jn 2. Landor St Jn to Castle Bromwich Jn			
Daily paths in one direction (as per WTT)	1. 18 2. 50	As per Freight Market Study forecasts		

Level crossings on route

There are no level crossings in this route section.

Route capability overview - *Kingsbury Jn to Birch Coppice (KBC)*

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	Part of MD501 Tamworth to Birmingham Proof House Jn			
Route availability	RA8	RA8	Network Rail will seek to improve Route Availability as appropriate when opportunities present themselves during future renewals work.	
Gauge	W8	W8	W10.	
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	5mph into the branch, 15 mph Birch Coppice Exchange sidings	Improve access into the branch from the north so that it removes the need for a time consuming shunt move on the main line (see notes)	Raise linespeed as appropriate in line with infrastructure characteristics and capability of rolling stock	See Sectional Appendix for detailed speed profiles.The CP5 candidate scheme for enhancements on the Water Orton Corridor proposes improvements to the access into Kingsbury. The intervention is to release freight and passenger capacity on the route and improve performance by removing the time consuming shunt move to / from the main line on to the Kingsbury branch. risk.
Electrification	None	None	Electrify as appropriate in line with the Network RUS Electrification Strategy. This will enable future freight services to be converted to electric traction which may help to enable more efficient operation.	

Current Freight Trains (paths per day)

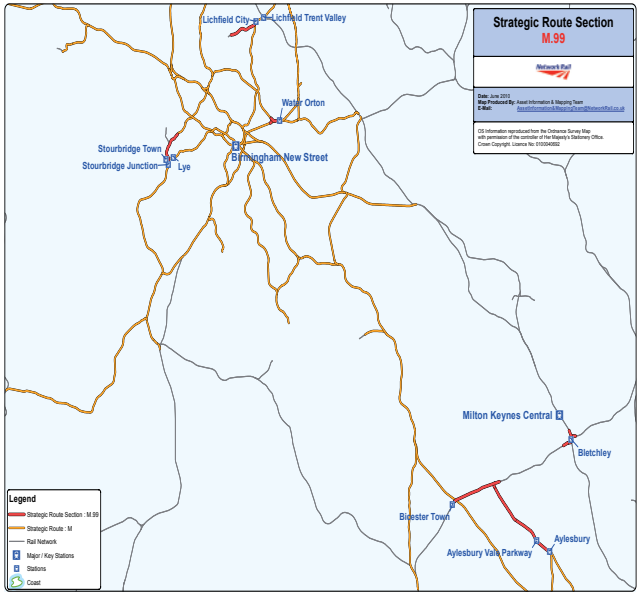
Table 2.0				
	Current	**2019**	**2043**	**Notes**
Route section	Kingsbury Jn to Birch Coppice			
Daily paths in one direction (as per WTT)	36	As per Freight Market Study forecasts		

Level crossings on route

There are no level crossings in this route section.

M.99 Other Freight Lines

Geographic Maps



Route specification description

Other Freight Lines - in addition to the freight trunk routes that run within Route M, there are a number of other freight lines which support freight traffic flows within the route:

- Aylesbury to Claydon LNE Junction (MCJ2, MCJ3)

The route is single track with a set of loops into the Waste Recycling Group's Calvert Waste Transfer terminal. The terminal is served by freight trains carrying containerised domestic waste which are transported to the site for landfill. Freight trains run to the terminal from the Aylesbury and Bicester Village directions. This section of line will form part of the East West Rail phase 2 project in CP6.

- Madeley Junction to Ironbridge line (MJI1 & MJI2)

The Madeley branch is accessed from the Wolverhampton to Shrewsbury line at Madeley Junction. The Ironbridge Power Station (which was operated by E.ON UK) has recently closed. Currently, the future use of the branch line is under review.

- Stourbridge North Jn to Round Oak Steel terminal (OWW)

The section between Stourbridge and Round Oak is used by freight traffic to access Round Oak steel terminal.

Other lines within the West Midlands and Chilterns Route which are classed as 'other freight routes' include the access routes and sidings for the following freight sites:

- Washwood Heath Yard (disused)
- Northolt Waste Transfer Terminal
- Saltley EMR
- Prologis Park
- Bordesley STVA and Aggregates
- Bescot Yard and Bescot stadium

The following lines are out of use:

- Round Oak to Pleck Junction, Walsall

The rail line between Round Oak and Walsall forms part of the wider Stourbridge to Walsall and Lichfield route which is a potential freight corridor within the West Midlands to link the North East to the South West. The section of the line between Round Oak and Pleck junction (Walsall) is currently not in use. There are aspirations to reopen the line for passenger light rail and freight use.

- Lichfield City to Anglesea Sidings

This line is currently out of use but there are long-term aspirations to re-open it to provide a dedicated freight route between Walsall and Lichfield which avoids the busy passenger routes within the West Midlands.

- Claydon LNE Junction to Bletchley

The section of line beyond Claydon LNE Junction to Bletchley is currently out of use. The East West Rail Phase 2 project will see this route re-opened to passenger and freight services in CP6.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD725 Aylesbury to Claydon L&NE Junction			
Route availability	RA8	RA8	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks	
Gauge	W6a W8 prohibited between former Calvert Junction and Claydon L&NE Junction. W7: Aylesbury to Claydon L.N.E. Jn W7 W8 15mph at Bridge No. 179 [42m 76ch] on Single Line.	W6a W8 prohibited between former Calvert Junction and Claydon L&NE Junction. W7: Aylesbury to Claydon L.N.E. Jn W7 W8 15mph at Bridge No. 179 [42m 76ch] on Single Line.	W10	
Signals	Electric Token Block	Electric Token Block	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	30mph	Raise linespeed as appropriate in line with infrastructure characteristics and capability of rolling stock	Raise linespeed as appropriate in line with infrastructure characteristics and capability of rolling stock	See Sectional Appendix for detailed speed profiles
Electrification	None	Consider electrification in CP6 as part of EWR services between Milton Keynes and London Marylebone.	Electrify as appropriate in line with the Network RUS Electrification Strategy.	Electrify as appropriate in line with the Network RUS: Electrification. This strategy recommends that consideration be given to electrifying between Aylesbury and Claydon following the reopening and electrification of the route between Claydon and Bletchley. This will enable a new passenger service to run with electric traction.

Current Freight Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Route section	Aylesbury to Claydon LNE Junction			
Daily paths in one direction (as per WTT)	Up to 2 trains paths per day (in one direction)	As per Freight Market Study forecasts		

Level crossings on route

Table 3.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	0	As determined by Level Crossing policy	
Automatic:	0		
User:	1		

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD810 Madeley Jn to Ironbridge National Power station			
Route availability	RA8	RA8	Network Rail will seek to improve Route Availability as appropriate when opportunities present themselves during future renewals work.	
Gauge	W6a	W6a	W10.	
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	25mph	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	Network Rail will look for opportunities to raise linespeed along the route, where achievable, in line with the capability of the rolling stock being utilised on the route.	See Sectional Appendix for detailed speed profiles
Electrification	None	None	Electrify as appropriate in line with the Network RUS Electrification Strategy. This will enable future freight services to be converted to electric traction which may help to enable more efficient operation.	Electrifying between Wolverhampton and Shrewsbury and between Oxley Junction and Bushbury Junction would also be necessary see Route Specification M.20.

Current Freight Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Route section	Madeley Junction to Ironbridge			Ironbridge power station due to close in 2015
Daily paths in one direction (as per WTT)	5 per day	As per Freight Market Study forecasts		

Level crossings on route

There are no level crossings in this route section.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD450 Stourbridge North Junction to Round Oak via Kingswinford Junction South			
Route availability	RA8	RA8	Network Rail will look to improve Route Availability as appropriate when opportunities present themselves in future renewal workbanks	
Gauge	W8	W8	W10	
Signals	Track Circuit Block (TCB)	Track Circuit Block (TCB)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	10-15mph .	Raise linespeed as appropriate in line with infrastructure characteristics and capability of rolling stock	Raise linespeed as appropriate in line with infrastructure characteristics and capability of rolling stock	See Sectional Appendix for detailed speed profiles
Electrification	None	None	Electrify as appropriate in line with the Network RUS Electrification Strategy. This will enable future freight services to be converted to electric traction which may help to enable more efficient operation.	

Current Freight Trains (paths per day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Route section	Stourbridge North Junction to Round Oak			
Daily paths in one direction (as per WTT)	Around 3 trains per day to Round Oak plus aggregates/scrap metal traffic to Brierley Hill.	As per Freight Market Study forecasts		

Level crossings on route

There are no level crossings in this route section.

Glossary

Term	Meaning
AC	Alternating Current
AHB	Automatic Half Barrier
Control Period 5 (CP5)	The 2014-2019 period
Control Period 6 (CP6)	The 2019-2024 period
DfT	Department for Transport
EPS	Enhanced Passenger Speed - permissible line speed category
ERTMS	European Rail Traffic Management System
FOC	Freight Operating COmpany
Generalised Journey time	A measure of te rail service offer tha takesaccount ofin vehce time , service frequency and intercange penalty
GRIP	Governance for Railway Infrastructure Projects
HLOS	High Level Output Specification
HS2	Proposed high speed link between London and Birmingham beyond to Leeds and Manchester
HST	High Speed Train (also HST permissible line speed category)
kV	Kilovolt - a unit of potentual equal to a tousand volts
LDHS	Long Distace Hgh Speed
LEP	Local Enterprise Partnership
LMD	Light Maintenance Depot
LSE	London andSouth East
LTPP	Long Term Planning Process
LUL	London Underground Limted
MPH	Miles Per Hour
MU	Multiple Unit (also MU permissble line speed category)
NRDF	Network Rail Discretionary Fund
OLE	Overhead Line Equipment
ORR	Office of Rail Regulation (the regulatior for the rail idustry in Great Britain)
RA	Route Availability
RUS	Route Utilisation Strategy
SFN	Strategic Freight Network programme fund
SRS	Strategic Route Section
TfL	Transport for London
TMD	Traction Maintenance Depot
TOC	Train Operating Company
TPH	Trains Per Hour
WCML	West Coast Main Line

Route N : West Coast Main Line

Interface with other routes (refer to separate Strategic Route Specifications documents)

Scotland Route:	SRS Q.01 Glasgow Central to Carstairs
Sussex Route:	SRS B.13 West London Line - Milton Keynes to East/South Croydon
Anglia Route:	SRS E.01 Richmond to Willesden Jn - Acton Branch (freight line)
	SRS E.02 North London Line - Willesden Junction to Gospel Oak
LUL Network:	Bakerloo Line on DC lines - Harrow & Wealdstone to Queens Park
Wales Route:	SRS L.04-05 Newport to Crewe
	SRS L.13-14 Chester to Holyhead
East Mids Route:	SRS I.01 St Pancras International to Bedford
	SRS I.11 North Staffs Junction to Stoke-on-Trent

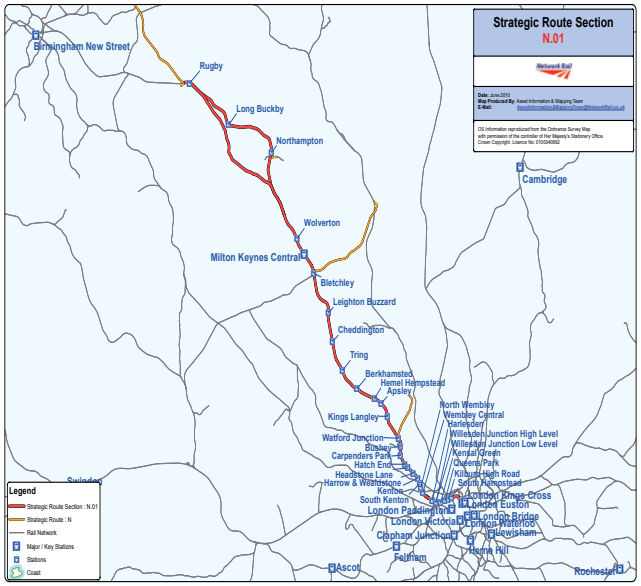
Route O: Merseyside

Interface with other routes (refer to separate Strategic Route Specifications documents)

Scotland Route:	SRS Q.01 Glasgow Central to Carstairs
Sussex Route:	SRS B.13 West London Line - Milton Keynes to East/South Croydon
Anglia Route:	SRS E.01 Richmond to Willesden Jn - Acton Branch (freight line)
	SRS E.02 North London Line - Willesden Junction to Gospel Oak
LUL Network:	Bakerloo Line on DC lines - Harrow & Wealdstone to Queens Park
Wales Route:	SRS L.04-05 Newport to Crewe

SRS N.01 Euston to Rugby

Geographic Map



Route specification description

Markets : Euston to Rugby is focused on long distance and commuter markets to and from London, together with key freight services and flows serving more northerly destinations. The long distance passenger services are operated between London Euston and Glasgow Central/Edinburgh, to the West Midlands (Coventry, Birmingham and Wolverhampton), Manchester Piccadilly (via Crewe and Stoke), Liverpool, Chester and North Wales. Some services have additional stops during peak times to serve intermediate stations on the route between Rugby and Stafford. Overnight sleeper services run between London Euston and Glasgow, Edinburgh, Inverness, Aberdeen and Fort William.

Regional urban services operate between London Euston and Tring, Milton Keynes Central, Northampton, Birmingham New Street and Crewe via Stoke on Trent. An hourly service operates between East/ South Croydon and Milton Keynes Central via Kensington Olympia although in certain hours the service begins at Clapham Junction, and only operates as far as Watford Junction. This line is known as the West London Line and has Southern services operating on it.

Arriva London operates services on the London Overground network on the the DC lines between Watford Junction and London Euston. Arriva London services also interface at Willesden Junction for the North London Line (Anglia Route) services to Gospel Oak and Stratford. London Underground Limited services operate on the DC lines between Harrow and Wealdstone and Queens Park and then into Central London via the Bakerloo Line.

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

This SRS plays a key role in distributing freight traffic that has arrived in the UK via the Channel Tunnel and deep sea ports. Traffic operates to a key terminal at Daventry, which continues to expand its infrastructure facilities as the freight market grows.

Capability : This SRS is 82 miles long, with 25kV overhead line electrification (OHLE), and is a four track railway from London Euston to just north of Hanslope Junction near Roade (60m 24ch). Here, the four track railway diverges, with two tracks going direct to Rugby and two going via Northampton. The 23 mile loop via Northampton to Rugby is an electrified, two track railway, with a linespeed of 75mph. The four track section from Euston to Hanslope Junction has a mix of fast and slow lines. The fast lines operate with 125mph Enhanced Permissible Speeds (EPS), with between 75 mph and 100 mph permissible speeds on the slow lines. The EPS facility allows trains that are fitted with a 'tilt' system mechanism, to operate quicker than conventional trains and gives shorter journey times. The SRS also includes the section of line that runs from Wembley Yard South Junction towards Mitre Bridge Junction. This allows the 'Southern' trains going to and from the West London Line to pass under the WCML.

There are a significant number of freight terminals, depots and sidings on this SRS, including the Willesden Euroterminal, Wembley Freight Operating Centre, Stonebridge Park Royal Mail terminal and Daventry International Rail Freight Terminal. Maintenance depots, stabling and carriage sidings on the route are located at: Camden, Wembley, Willesden, Bletchley, and Northampton Riverside and Northampton Kings Heath Depot.

A Rail Operating Centre (ROC) was opened at Rugby and forms part of Network Rail's overall Operating Strategy, which will manage, control and operate services efficiently on the network.

Constraints: There are a number of tunnels between London and Rugby which act as a capacity constraint. Other constraints include; in the London Euston station throat there is a peak-hour constraint caused by some platform lengths being shorter than others, occupation times, and platform end conflicts. Some services such as the overnight sleeper services from Scotland can only use certain platforms due to the train length. Platform 10 at Watford Junction can only accommodate eight-car trains, limiting the length of peak time services. Capacity is also constrained on the St Albans Abbey single line, due to the one train working operation.Single line sections on the Bletchley to Bedford line also create capacity constraints.

Key stations: The key stations on the route include:

Station	Line	Footfall p.a. (15/16) ORR data
London Euston	Fast	45.5 million
Watford Junction	Fast	8.8 million
Milton Keynes	Fast	6.9 million
Rugby	Fast	2.3 million

High Speed 2 : In 2017, the government passed the Hybrid Bill for Royal Assent to begin construction of High Speed Two (HS2). HS2 will provide increased capacity (at high speeds) from London to the Midlands and the north. Stage 1 of the HS2 line, will create a High Speed link between London, Birmingham and Lichfield. The terminus station for HS2 in London, will be at Euston. The High Speed Line is planned to open in 2026. During the construction period, London Euston station will need to operate differently to today's planned timetable. When the HS2 line is opened, it will release potential capacity on this SRS for both passenger and freight services, initially at the southern end of the WCML.

In 2016, the Department of Transport announced the process for re-letting the InterCity West Coast Franchise, which involves a competition between bidders for the right to operate WCML services. In response to the timing of the ICWC franchise renewal and the introduction of high speed services from London to Birmingham (and beyond), the DfT has created a new style franchise for this unique situation – known as the West Coast Partnership. The WCP will take a different approach to the established model of franchising and offers a partnership arrangement that will be responsible for:

- the operation of the Intercity West Coast Service (ICWC) classic services from 2019
- the preparation of the introduction of new high speed services (HS2)
- the operation of the new high speed services from 2026.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD101 Euston to Madeley MD105 Hanslope Junction to Rugby (via Northampton) MD165 North Pole Junction to Acton Wells Junction (on Willesden Relief lines)			
Section start	London Euston Station			
Section end	Rugby Station			
Route availability	RA8	RA8	RA8	
Gauge	W10 W9 (Willesden Relief Lines)	W10 – All structures to be W12 when renewed	W12	When electrifying the line or constructing new overbridges, clear to W10/W12 gauge
Signals	Colour Light Track Circuit Block TASS fitted (Tilt Authorisation & Speed Supervision on Fast Lines) (except Northampton loop)	Colour Light Track Circuit Block TASS fitted (Tilt Authorisation & Speed Supervision on Fast Lines) (except Northampton loop)	ERTMS	See Network Specification
Speed See Sectional Appendix for detailed speed profiles	Predominantly 125mph EPS on Fast lines Between 75 mph and 100 mph Permissible Speed on Slow lines Northampton loop - predominantly 75mph	* No major changes anticipated (See Notes) Incremental linespeed improvements where possible, in line with infrastructure characteristics and capability of rolling stock (e.g. London Midland 110 mph project)	A review of the WCML capacity and linespeeds, as HS2 released capacity workstream (known as Capacity Plus - WCML Phase 1).	* A review of the Track S&C programme on the WCML South, may provide opportunities for speed increases during CP5 and CP6
Electrification	25kv OHLE	25kv OHLE	25kv OHLE	

Passenger train service levels (trains per hour / day)

Table 2.0

	Current	2019	2043	Notes
Typical journey time *from London to:* *(Fastest journey based on May 2017 Timetable)*	***Fast services:*** Watford Junction - 14 minutes Milton Keynes Central - 30 minutes Rugby - 48 minutes ***Semi-fast services:*** Watford Junction - 47 minutes Hemel Hempstead - 24 minutes Berkhamsted - 28 minutes Bletchley - 36 minutes Milton Keynes Central - 30 minutes Rugby - 1 hr 22 minutes Northampton - 51 minutes Milton Keynes/(Mitre Bridge Jn) to Croydon - 40 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock.	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock.	Consideration will be given to reducing journey times and improving connectivity between key regions on the WCML South, during the development of the HS2 Phase 1 project. (Capacity Plus - WCML Phase 1).
No. of trains per hour **Long Distance High Speed** **Regional Urban** **Sleeper**	*from London to:* Manchester - 3tph Birmingham - 3tph (1tph through to Scotland) Liverpool - 1tph Chester/North Wales - 1tph Scotland (Glasgow/Edinburgh alternate) - 1tph Milton Keynes - 4tph Crewe (via Trent Valley) - 1tph Birmingham - 3tph Northampton - 3tph Milton Keynes Central - 2tph Watford Junction - 5tph Tring - 4tph Milton Keynes Central – East/South Croydon - 1tph Euston – Aberdeen/Inverness/Fort William -1 train per day Euston – Edinburgh/Glasgow - 1 train per day	Possible changes to service frequency, in line with industry aspirations and market requirements.	Changes in services to take advantage of capacity along the route created by a new High Speed Line.	

Current Freight Trains (paths per day)

Table 3.0				
Route section	**Current**	**2019**	**2043**	**Notes**
	Euston to Rugby (Milton Keynes Central and Daventry to Rugby)			
Daily paths in one direction (as per WTT)	Up to 73 paths per day in one direction*	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only, as at 2013/14 timetable.				

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	1 CCTV Mitre Bridge (SRS B.13)	As determined by Level Crossing policy	
Automatic:	-		
User:	1 Traincrew operated crossing - Church Street level crossing at Wolverton Works siding		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

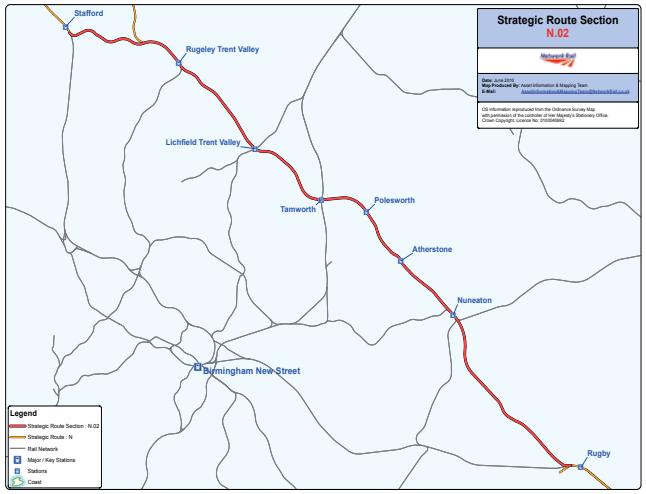
Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Watford Junction area : resignalling enhancements	Enhancements to junction speeds and station layout,as part of the CP5 resignalling programme	LEC1	2014/15	Increased capacity and improved performance	NRDF	Project is part of a major investment programme, renewing the infrastructure in the Watford Junction area.	Completed
Watford Junction : station capacity	Development of GRIP 2 Study on station passenger capacity	LEC1	2015/16	Increased passenger capacity to reduce station congestion	CP6 Development Fund		GRIP Study Completed
Bletchley Station redevelopment	Connecting to local developments in the sation area (third party scheme)	LEC1	East West Rail timescales (see SRS N.12)	Station scheme to improve connections to the local businesses in the area	Local Growth Fund and DfT	Identified as a priority in the Strategic Economic Plan for SEMLEP (Growth deal), and now incorporated into the scope of the East West Rail project.	In development
West Coast power supply upgrade	Upgrade of the existing power supply	LEC2/ LEC3	CP5	Delivery of an upgraded traction power supply system to support the North West Electrification programme and the operation of the Stafford service specification	DfT	A power supply upgrade and distribution system between North Wembley and Strickland (Cumbria)	In delivery
Metropolitan Line Extension : Re-opening of the disused Croxley branch line	Extension of the Metropolitan line from Croxley to Watford Junction mainline station, plus provision of two new stations	CWJ, WCG, CCG	CP5-6	Increased capacity	Third party	Project includes closure of the current Watford Metropolitan line station	In development
Track S&C and plain line renewals workbank for CP5	Renewal, refurbishment and rationalisation of track S&C and plain line assets across the SRS area	Various	2014-2019	Renewal and refurbishment of life expired assets	Network Rail Renewals	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	In development

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable.
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

SRS N.02 Rugby to Stafford

Geographic Map



Route specification description

The section between Rugby and Stafford is referred to as the 'Trent Valley Lines' and is served by a mix of traffic types, covering a number of key markets.

Markets: Most of the stations along the route are covered by the long distance market, including services to/from London, the North West and Scotland but these are quite limited in number. Services between key regions are served by semi-fast services on the slow lines, which operate hourly between Euston and Crewe. Connectivity is provided to the long distance and commuter markets by good interchange opportunities at a number of stations along the route : Rugby, Nuneaton, Tamworth, Lichfield Trent Valley and Rugeley Trent Valley. Passengers wishing to travel to Birmingham, Coventry, Bedworth, Walsall and the East Midlands, can do so by interchanging onto CrossCountry and London Midland services from these stations.

There is a mix of freight traffic operating over this section, transporting a variety of products to/from ports and domestic terminals. Currently, there are a number of coal trains per day that serve Rugeley Power Station.

Capability: The section is a 51 mile stretch of electrified track. It is predominantly a four track railway (two fast lines and two slow lines) between Rugby and Colwich Junction 127m 05ch (with a seven mile section of only three track railway, between Brinklow Junction (87m 72ch) and Attleborough South Junction (95m 09ch). The main line splits at Colwich Junction (127m 05ch) with a two track railway continuing towards Stafford. This section includes a 710 metre long Tunnel at Shugborough and the other line goes on to Stoke-on-Trent (SRS N.08). The SRS becomes a four track railway once again at Whitehouse Junction (130m 47ch) just south of Stafford.

Fast line speeds on this section range from 110 to 125 mph and the slow lines operate at speeds between 60 mph and 110 mph.

Stations : The key stations on this SRS are Nuneaton, Tamworth and Lichfield Trent Valley, which have annual footfall of between 1.3 and 1.5 million passengers each.

Constraints: Trent Valley Junction at Stafford (133m 06ch) is a key junction constraint, as this is where the line from Birmingham and Wolverhampton joins the WCML. The three track section of railway between Brinklow Junction and Attleborough South Junction, creates a capacity and planning constraint on this section. Colwich Junction is a capacity constraint on the route due to the number of low speed crossovers at this location, particularly for services operating to Stoke on Trent (where four lines reduce to two lines).

High Speed 2: The new HS2 line is planned to join this SRS at Handsacre Junction, just north of Lichfield Trent Valley and is scheduled to operate high speed services over this section by 2026.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD101 Euston to Madeley			
Section start	Rugby station			
Section end	Stafford station			
Route availability	RA8	RA8	RA8	
Gauge	W9 and W10	W10 - All structures to be W12 when renewed	W12	When constructing new overbridges, clear to W10/ W12 gauge.
Signals	Colour Light Track Circuit Block TASS fitted (Tilt Authorisation & Speed Supervision on Fast Lines)	Colour Light Track Circuit Block TASS fitted (Tilt Authorisation & Speed Supervision on Fast Lines)	ERTMS	See Network Specification
Speed See Sectional Appendix for detailed speed profiles	Predominantly 125mph EPS on Fast lines, Predominantly 75mph Permissible Speed on Slow lines, with some sections between 75 - 110 mph through Tamworth and Lichfield	Incremental linespeed improvements where possible in line with infrastructure characteristics and capability of rolling stock.	Incremental linespeed improvements where possible in line with infrastructure characteristics and capability of rolling stock	Speed across junctions to be as close as possible to that on either side of it, to avoid trains having to slow down, particularly onto diverging routes
Electrification	25kV OHLE	25kV OHLE	25kV OHLE	

Passenger train service levels (trains per hour / day)

Table 2.0

	Current	2019	2043	Notes
Typical journey time *from Rugby to:* *(Fastest journey based on May 2017 Timetable)*	Nuneaton - 11 minutes Atherstone - 18 minutes Tamworth - 24 minutes Lichfield Trent Valley - 30 minutes Rugeley Trent Valley - 39 minutes Stafford - 50 minutes	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	HS2 phase 1 dedicated line joins the WCML at Handsacre Junction (north of Lichfield). Consideration will be given to reducing journey times and improving connectivity between key regions on the WCML South, during the development of the HS2 project phases.
No. of trains per hour **Long Distance High Speed** **Sleeper**	*from London to:* Manchester - 3tph Liverpool - 1tph Chester/North Wales - 1tph Scotland - 1tph Crewe (via Trent Valley) - 1tph The Euston to Crewe hourly service provides connectivity between a number of regions along the Trent Valley Euston to Aberdeen - 1 train per day Euston to Inverness - 1 train per day	Possible changes to service frequency, in line with industry aspirations and franchise requirements.	Take advantage of capacity created by a new high speed line	

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Route section	Rugby to Stafford			
Daily paths in one direction (as per WTT)	Up to 52 train paths per day in one direction*	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals
* Figures are for freight trains in one direction only.				

Level crossings on route

There are no level crossings on this route section.

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

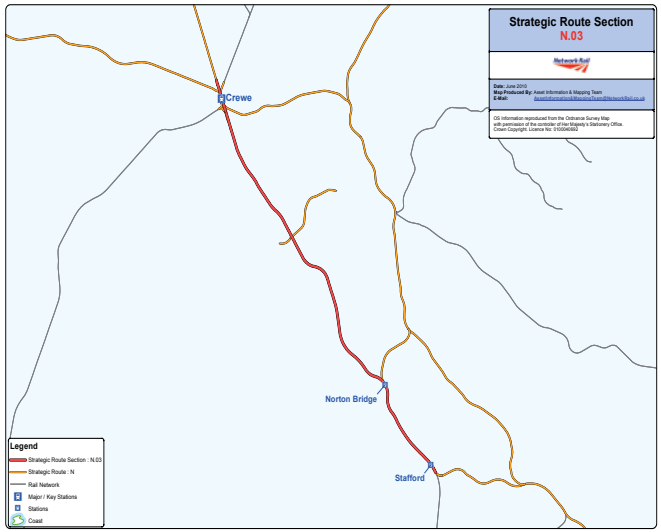
Table 4.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Stafford area improvements project:	Stafford to Crewe linespeed improvements	LEC3, LEC4 , LEC5	2015/16	Increased speed on the slow lines between Doxey (Stafford) and Crewe Basford Hall,from 75 mph to 100 mph	DfT (CP4 Delivery Plan)	The scope of the project also includes: * Stafford area resignalling * linespeed improvements on the fast lines in the Norton Bridge area * provision of Stafford freight loop, and * remitted renewals in the Stafford station area	Completed
	Norton Bridge Junction - grade separation	LEC2	2016/17	Additional capacity on the WCML through the Stafford area, including grade separation of Norton Bridge Junction			Completed
Nuneaton to Coventry rail upgrade (NUCKLE)	Rail upgrade scheme along the Nuneaton to Coventry line, increasing capacity by introduction of a higher frequency service	CNN	CP5	Increased service frequency from one to two trains per hour, through the day, all week. Provision of a new bay platform at Coventry station and two new stations along the line at Ricoh Arena and Bermuda Park.	Major Schemes Fund	This is a third party scheme being promoted by Coventry City Council with support from Warwickshire County Council and CENTRO	In delivery / Part-completed
West Coast power supply upgrade	Upgrade of the existing power supply	LEC2/ LEC3	CP5	Delivery of an upgraded traction power supply system to support the North West Electrification programme and the operation of the Stafford service specification	DfT	A power supply upgrade and distribution system between North Wembley and Strickland (Cumbria)	In delivery
Colwich area remodelling : development	Combined signalling and track renewals at Colwich Junction, near Stafford	LEC2	2014-2019	CP5 development of works at Colwich Junction	Network Rail Renewals	Network Rail renewals	In development
Network Rail : renewals workbanks	Asset renewal workbanks	Across SRS	2014-2019	Align and integrate major renewals as part of Network Rail workbanks as appropriate across the SRS	Network Rail Renewals	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	In development

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable.
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

SRS N.03 Stafford to Crewe

Geographic Map



Route specification description

This route section is a highly utilised section of the West Coast Main Line and serves a number of key markets.

Markets: The long distance market includes services to/from London, the North West, North Wales and Scotland. Regional urban services include CrossCountry services to Wolverhampton, services to Birmingham and Manchester and commuter services to Liverpool.

There is an important freight market operating across this key trunk route, serving a mix of traffic from Scotland, the North West, West Midlands as well as services running between the north and south of the WCML.

There is a maintenance depot at Crewe Carriage Shed, as well as Crewe Basford Hall being a key hub for National Delivery Service infrastructure services. Basford Hall yard is utilised by freight operators for marshalling and driver changeovers and acts as a key regulating point on the WCML.

Stations : There are good interchange opportunities at Stafford and Crewe stations, providing a range of services to the East and West Midlands, to Chester and to a range of long distance services. Stafford serves 2.3 million passengers annually and Crewe serves 3.8 million.

Capability: N.03 is a 25 mile, electrified section of track consisting of four lines (two fast lines and two slow lines) between Stafford and Crewe. Fast line speeds on this section range from 110 to 125 mph and the slow lines operate at speeds up to 75 mph. Doxey Junction and Norton Bridge are key junctions along this section of route. Doxey Junction is located just north of Stafford station and is used by services travelling towards Wolverhampton and Birmingham. At Norton Bridge South Junction the line diverges towards Stoke-on-Trent (N.08).

Constraints: Crewe Station is constrained due to a large number of crossing moves north and south of the station, which limits both passenger and freight capacity and performance.

Major projects CP5: The Stafford area improvement project has been completed and removes a major bottleneck on the West Coast Main Line through the Stafford area.

High Speed 2: Crewe Hub - A review of the long term strategy for Crewe has been undertaken by HS2, in conjunction with DfT and Network Rail. Options for an integrated solution catering for all markets is being developed, concentrating on the growing the economic region of Crewe and beyond.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD101 Euston to Madeley NW1001 Norton Bridge (exclusive) to Preston (Fylde Junction)			
Section start	Stafford Station			
Section end	Crewe Station			
Route availability	RA8	RA8	RA8	
Gauge	W10	W10 - All structures to be W12 when renewed	W12	
Signals	Colour Light Track Circuit Block TASS fitted (Tilt Authorisation & Speed Supervision on Fast Lines)	Colour Light Track Circuit Block TASS fitted (Tilt Authorisation & Speed Supervision on Fast Lines)	ERTMS	
Speed **See Sectional Appendix for detailed speed profiles**	Predominantly 125mph EPS on Fast lines Predominantly 75mph Permissible Speed on Slow lines	Incremental linespeed improvements where possible, in line with infrastructure characteristics and capability of rolling stock 100mph to be delivered on the Slow Lines between Stafford and Crewe	Incremental linespeed improvements where possible, in line with infrastructure characteristics and capability of rolling stock	Speed across junctions to be as close as possible to that on either side of it to avoid trains having to slow down, particularly onto diverging routes
Electrification	25kV OHLE	25kV OHLE	25kV OHLE	

Passenger train service levels (trains per hour / day)

Table 2.0

	Current	2019	2043	Notes
Typical journey time *(Fastest journey based on May 2017 Timetable)* Stafford – Crewe	***Fast services*** 18 minutes ***Semi-fast services:*** Journey time between 19 and 43 minutes (depending upon stopping patterns and Operator)	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Consideration will be given to reducing journey times and improving connectivity between key regions on the WCML South, during the development of the HS2 project phases.
No. of trains per hour **Long Distance High Speed** **Sleeper**	*from London to:* Manchester - 3tph Liverpool - 1tph Chester/North Wales - 1tph Scotland - 1tph Crewe (via Trent Valley) - 1tph Euston to Aberdeen - 1 train per day Euston to Inverness - 1 train per day	Possible changes to service frequency, in line with industry aspirations and market requirements	Changes in services to take advantage of capacity along the route created by a new High Speed Line	

Current Freight Trains (paths per day)

Table 3.0

	Current	2019	2043	Notes
Route section	Stafford to Crewe			
Daily paths in one direction (as per WTT)	Up to 47 train paths per day in one direction	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

Level crossings on route

There are no level crossings on this route section.

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

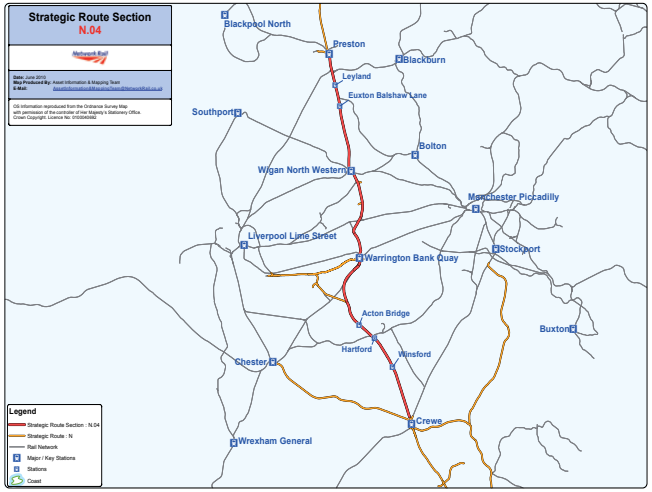
Table 4.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Stafford area improvements project:	Stafford to Crewe linespeed improvements	LEC3, LEC4 , LEC5	2015/16	Increased speed on the slow lines between Doxey (Stafford) and Crewe Basford Hall,from 75 mph to 100 mph	DfT (CP4 Delivery Plan)	The scope of the project also includes: * Stafford area resignalling * linespeed improvements on the fast lines in the Norton Bridge area * provision of Stafford freight loop, and * remitted renewals in the Stafford station area	Completed
	Norton Bridge Junction - grade separation	LEC2	2016/17	Additional capacity on the WCML through the Stafford area, including grade separation of Norton Bridge Junction			Completed
West Coast power supply upgrade	Upgrade of the existing power supply	LEC2/ LEC3	CP5	Delivery of an upgraded traction power supply system to support the North West Electrification programme and the operation of the Stafford service specification	DfT	A power supply upgrade and distribution system between North Wembley and Strickland (Cumbria)	In delivery
Signalling Renewals workbank for Control Period 5	Resignalling, recontrol and renewal of life expired assets	Various	2014-2019	Crewe DU CP5 workbank including : Gresty Lane resignalling Beeston Castle Steel works	Network Rail Renewals	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	In development/ delivery
Network Rail : renewals workbanks	Asset renewal workbanks	Across SRS	2014-2019	Align and integrate major renewals as part of Network Rail workbanks as appropriate across the SRS	Network Rail Renewals	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	In development/ delivery

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable.
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

SRS N.04 Crewe to Preston

Geographic Map



Route specification description

This route section is a highly utilised section of the West Coast Main Line and serves a number of key markets.

Markets: The long distance market includes services to/from London, the North West, North Wales and Scotland. Regional urban services include the commuter market to Manchester, Liverpool, and Birmingham and the leisure market to Lancaster and the Lake District. There are two daily sleeper trains that run between Euston and Aberdeen and Euston and Inverness.

There are a number of freight services (container traffic and bulk services) on this route section, operating to terminals in the North of England and to Scotland. The Warrington area is a hub for wagon load (chemicals) freight activity in the North West.

Capability: This 51 mile electrified section of route, between Crewe and Preston, is a mixture of two and four track lines. At Weaver Junction (174m 53ch), the line diverges towards Runcorn and Liverpool (N.07). The linespeed is predominantly 125mph EPS and 110mph Permissible Speed (PS) on the Fast Lines and 75mph on the Slow Lines. At Warrington Bank Quay station, the route becomes four lines. Linespeed drops to 80mph on the Fast lines and 60mph on the Slow Lines at different points north of Warrington Bank Quay. At Winwick Junction (185m 49ch) there are only two tracks for three miles until Golbourne Junction (187m 76ch), where four lines return until Wigan North Western Station (6m 47ch). The route is a two track railway for another eight miles until Balshaw Lane Junction(14m 18ch) and continues until Preston station at 21m 57ch.

Stations: Key stations on the SRS include Crewe, Warrington Bank Quay, Wigan North Western and Preston. There are interchange opportunities at Crewe, with a wide range of services to the East Midlands, Wales and the North West, and at Wigan North Western and Preston for local services in the North West (including to Blackpool, Barrow-in-Furness and Manchester Airport). Warrington Bank Quay and Wigan North Western both serve 1.6 million passengers annually.

Constraints: Capacity is constrained on the double track sections of route, particularly the five mile two track railway just north of Crewe between Winsford and Hartford. There are a number of junctions on the route which also restrict capacity due to the mix of speeds, rolling stock capability and the number of crossing movements.

The Northern Hub and North West Electrification programmes will affect a number of lines into Preston station. This will impact on the frequency and nature of some services provided in CP5 in the Preston area.

High Speed 2: the HS2 project will extend the initial route from London to Birmingham, further North with the creation of a 'Y' network by 2033. Building on the initial Phase 1, Phase 2A intends to provide additional infrastructure allowing services to join the WCML south of Crewe in 2027. In 2033, Phase 2B will complete the 'Y' network, with the project extending the HS2 line further beyond Crewe to Manchester Piccadilly and at Golbourne Junction, south of Wigan. These enhancements will provide significant (incremental) journey time improvements and offer some released capacity to support other markets. The precise details of the Phase 2A and 2B infrastructure layouts and service provision are still the subject of development at this time.

Preston station - the station and local infrastructure has been identified as one of eleven stations on the rail network where interventions are required to be investigated to understand and address crowding at the station and track capacity into the station by the end of Control Period 5 (2019). Preston serves 5.8 million passengers annually. Preston will be served by HS2 services post 2026, and an integrated plan is being developed by the industry.

Crewe area: A review of the long term strategy for Crewe has been undertaken by HS2, in conjunction with DfT and Network Rail. Options for an integrated solution catering for all markets is being developed, concentrating on the growing the economic region of Crewe and beyond.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW1001 Norton Bridge (exclusive) to Preston (Fylde Junction) NW1019 Acton Grange Junction to Warrington south Junction (Helsby Lines) NW1021 Winwick Junction to Golbourne Junction (via Earlestown)			
Section start	Crewe station (158m 00ch)			
Section end	Preston station (21m 57ch)			
Route availability	RA8	RA8	RA8	
Gauge	W9 & W10	W10 - All structures to be W12 when renewed	W12	
Signals	Colour light Track circuit block TASS fitted (Tilt Authorisation & Speed Supervision on Fast Lines)	Colour light Track circuit block TASS fitted (Tilt Authorisation & Speed Supervision on Fast Lines)	European Rail Traffic Management System (ERTMS)	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 125 mph Enhanced Permissible Speed (EPS) on Fast Lines (with some sections between 80 - 110 mph) 75 mph Permissible Speed (PS) on Slow Lines	Maximum linespeeds Fast Lines - 125 mph EPS railway	Network Rail will look for opportunities to raise linespeeds along the route, where achievable, in line with the capability of the rolling stock being utilised and the funding available.	Potential linespeed increase on slow lines, as part of Preston renewals and potential journey time improvements may be identified as part of the HS2 project.
Electrification	25kV OHLE	25kV OHLE	25kV OHLE	

Passenger train service levels (trains per hour / day)

Table 2.0

	Current	2019	2043	Notes
Typical journey time *(Fastest journey based on May 2017 TT)*	*Crewe to:* Winsford - 7 minutes Hartford - 10 minutes Acton Bridge - 16 minutes Warrington Bank Quay - 17 minutes Wigan North Western - 28 minutes Preston - 41 minutes	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour Long Distance High Speed	*London to:* Liverpool - 1 tph Scotland - 1tph *Birmingham to:* Scotland - 1 tph Crewe - 1 tph	Possible changes to service frequency, in line with industry aspirations and franchise requirements	Take advantage of capacity created by a new high speed line	
Regional Urban	Birmingham New Street Liverpool - 2 tph *Manchester Airport to:* Scotland - 1tph Blackpool North - 1tph Preston - 3tph Lancaster - 2tph Preston to Barrow-in-Furness - 10 trains per day Barrow-in-Furness to Preston - 9 trains per day Barrow-in-Furness - 2 trains per day (with 3 trains in opposite direction) Windermere to Manchester Airport - 1 train per day Windermere to Preston - 3 trains per day Buxton/Hazel Grove/Manchester Piccadilly to Preston - 2tph			
Sleeper	1 train per day between Euston and Aberdeen and Euston and Inverness			

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Crewe to Preston			
Daily paths in one direction (as per WTT)	Up to 37 paths per day in one direction	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	0	As determined by Level Crossing policy	
Automatic:	0		
User:	1 - Norton Bridleway (R/G) 177m 40ch (south of Acton Grange Junction)		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

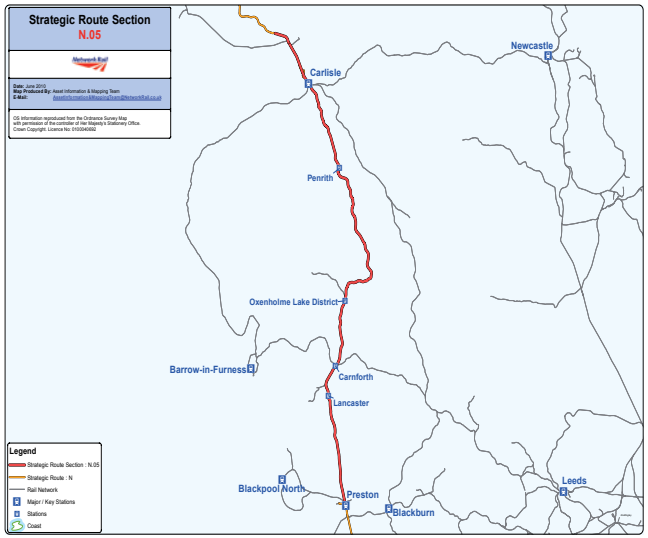
Table 5.0

Project	Project Description	ELR	Implement-ation Date	Output change	Funder	Notes	Status
North West Electrification	Electrification of routes into Preston, to introduce a new electrified diversionary route	Various	2015-2019	Increased capacity and potential journey time reduction. Operational flexibility.	DfT		In development/ delivery
Northern Hub	A number of infrastructure interventions to increase capacity, and journey time improvement schemes	Various	2015-2019	Increased capacity and journey time reduction.	DfT		In development/ delivery
Track S&C and plain line renewals workbank for CP5	Renewal, refurbishment and rationalisation of track S&C and plain line assets across the SRS area	Various	2015 - 2019	Renewal and refurbishment of life expired assets Enhancements will be considered as appropriate at each location	Network Rail Renewals	Enhancement opportunities will be reviewed in conjunction with the S&C renewals planned in CP5, subject to available funding and where an industry business case can be proven.	In development
Signalling Renewals workbank for Control Period 5	Resignalling, recontrol and renewal of life expired assets	Various	2014-2019	Crewe DU CP5 workbank including : Gresty Lane resignalling Beeston Castle Steel works	Network Rail Renewals	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	In development
CP6 development work : Resignalling	Development of prioritised resignalling projects	Various	2014-2019	Renewal and refurbishment of life expired assets Review of potential enhancements aligned to the renewal works planned in CP6	Network Rail Renewals	Opportunities will be taken to align renewals with enhancements, where an industry business case can be prove.	Development work ongoing

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable.
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

SRS N.05 Preston to Border
(near Gretna Junction)

Geographic Map



Route specification description

This section of route is 101 miles long, is overhead electrified and predominantly a two track railway. It passes through some winding and steeply graded topography, such as Shap summit and has a number of capacity constraints along the route.

Markets: The long distance market includes services to/from London, the North West, the West Midlands and Scotland. Regional urban services include the markets between Preston, Lancaster, Barrow-in-Furness, Windermere, Oxenholme Lake District, Penrith and Carlisle. There are two daily sleeper trains that run between Euston, Glasgow, Edinburgh, Aberdeen Fort William and Inverness.

The route is also a key freight link between England and Scotland, with Carlisle Kingmoor Yard located on this section of route. This freight yard acts as a key National Delivery Service terminal for the use of railway infrastructure services, in addition to other freight uses.

Stations: There are opportunities for interchange at Preston, with local services to Liverpool, Blackpool, Manchester and the North West. Carlisle acts as a local interchange with services to the Cumbrian coast, the Settle and Carlisle Line and services to Dumfries and Newcastle-upon-Tyne.

The stations at Penrith and Oxenholme Lake District act as gateways to the Lake District National Park. Lancaster provides connections to Morecambe, Heysham, Barrow-in-Furness the Cumbrian Coast line and Leeds.

Constraints: The differential speeds between passenger services and slower freight trains constrain capacity. Use of diesel traction, instead of electric traction, restricts the speed of freight services and there are also limited passing loops, with many of the existing ones being restrictive in length.

The Carlisle station area has capacity limited by its restrictive layout and low linespeeds.

The two track section north of Preston limits additional capacity.

Projects: The Northern Hub and North West Electrification programmes will affect a number of lines into Preston station. This will impact on the frequency and nature of some services provided in the Preston area during CP5.

High Speed 2 : It is recognised that the long distance Anglo-Scottish market continues to grow and the capacity and capability of this SRS is critical to meeting this demand. HS2 Ltd are introducing new high speed services from 2026 and the Industry is working together to develop a strategy to accommodate growth in passenger and freight markets.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW 4001 Preston Ribble Junction to Cove LC			
Section start	Preston station (21m 57ch)			
Section end	North of Gretna Junction 12m 30ch			
Route availability	RA8	RA8	RA8	
Gauge	W9 & W10	W10 - All structures to be W12 when renewed	W12	
Signals	Colour light Track circuit block TASS fitted (Tilt Authorisation and Speed Supervision on Fast Lines)	Colour light Track circuit block TASS fitted (Tilt Authorisation and Speed Supervision on Fast Lines)	ERTMS	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed 125mph Enhanced Permissible Speed (EPS) on the Fast lines (with some sections of 80 - 110mph) 75 mph Permissible Speed on the Slow Lines	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock	
Electrification	25kV OHLE	25kV OHLE	25kV OHLE	

Passenger train service levels (trains per hour / day)

Table 2.0

	Current	2019	2043	Notes
Typical journey time *(Depending on stopping patterns, fastest journey based on May 2017 Timetable)*	*Preston to:* Lancaster - 14 to 20 minutes Carnforth - 24 to 30 minutes Oxenholme Lake District - 27 to 30 minutes Penrith - 48 to 56 minutes Carlisle - 1 hour 04 to 1 hr 12 minutes	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour Long Distance High Speed Regional Urban Sleeper	London Euston to Scotland (Glasgow) - 1tph Birmingham/Wolverhampton to Scotland (Glasgow/ Edinburgh) - 1tph *Manchester airport to:* Scotland (Edinburgh via Preston) - 1 tph Blackpool North - 1tph Barrow-in-Furness - 2 trains per day (3 tpd in opposite direction) *Preston to:* Manchester airport - 2tph Barrow-in-Furness - 2 hourly Windermere - 1 train per day Liverpool to Blackpool - 1 per day Euston to Aberdeen - 1 train per day Euston to Inverness - 1 train per day	Possible changes to service frequency, in line with industry aspirations and franchise requirements	Take advantage of capacity created by a new high speed line	HS2 Ltd proposals are for an hourly London Euston to Scotland service north of Preston from 2026, increasing to two services in 2033. Additional proposals considering how to best serve communities north of Preston are being developed.

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Preston to Border (near Gretna Junction)			
Daily paths in one direction (as per WTT)	Up to 31 paths per day in one direction	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	3 - Hest Bank Level Crossing (CCTV) 3m 11ch south of Carnforth - Bolton-le-Sands Level Crossing (CCTV) 5m 08ch south of Carnforth - Floriston Level Crossing (CCTV) 6m 08ch (south of Mossband Junction)	As determined by Level Crossing policy	
Automatic:	0		
User:	Long Ashes Level Crossing 53m 16ch North of Penrith		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

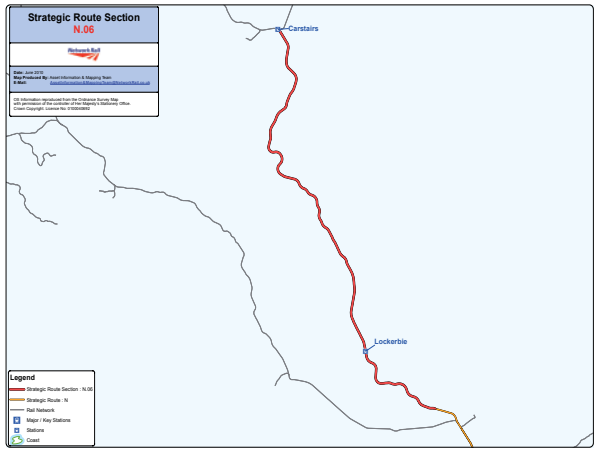
Table 4.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Oxeholme remodelling	Renewal of life expired assets, refurbishment and remodelling of layout at Oxeholme	CGJ7	2015-2019	Remodelled layout and renewal of life expired refurbishment	Network Rail		
Track S&C renewals workbank for Control Period 5	Renewal of life expired assets, refurbishment, and rationalisation of track S&C and plain line across the SRS	Various	2015-2019	Renewal and refurbishment of life expired assets	Network Rail Renewals	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	In development/delivery
CP6 development work : Track S&C	Development of Carlisle S&C renewals	Various	2015-2019	Renewal and refurbishment of life expired assets Review of potential enhancements aligned to renewal works planned in CP6	Network Rail Renewals	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	CP5 development

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable.
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

SRS N.06 Border (near Gretna Jn) to Carstairs South Junction

Geographic Map



Route specification description

This route section between the border and Carstairs South Junction, is a 61 mile stretch of two track electrified railway. The geography is challenging and is dominated by the steep gradient at Beattock summit.

Markets: The long distance market includes services to/from London, the North West, the West Midlands and Scotland. Regional urban services include the markets between Lockerbie, Carstairs and north to Scotland. The route is intensively used by Virgin Trains on the core WCML and Transpennine Express (TPE) for services supporting Manchester Airport. It is also served by the Caledonian Sleeper service. There is heavy freight use of this route for traffic to/from Mossend, Coatbridge and Grangemouth terminals.

Capability: There are a number of passing loops at Quintinshill, Lockerbie, Beattock Summit, Beattock and Abington, where freight services are regulated to ensure a robust timetable for passenger services. At Carstairs South Junction the line splits and goes towards Glasgow and Edinburgh.

Key stations: The only passenger station on the route is Lockerbie, which has an infrequent service provision (north and south).

Constraints: The mix of high speed passenger services and slower freight traffic limits capacity on the route. The capability of the different rolling stock types and the double track formation, also has a significant impact on capacity along the SRS.

Route capability overview

Information	Current	2019	2043	Notes
Line of route description	SC0001 Gretna Junction to Glasgow Central via Beattock			
Section start	North of Gretna Junction 12m 30ch			
Section end	Carstairs South Junction - 73m 17ch			
Route availability	RA10	RA10	RA10	
Gauge	W10	W10 - All structures to be W12 when renewed	W12	
Signals	Colour light Track circuit block TASS fitted (Tilt Authorisation & Speed Supervision on Fast Lines)	Colour light Track circuit block TASS fitted (Tilt Authorisation & Speed Supervision on Fast Lines)	Colour light Track circuit block TASS fitted (Tilt Authorisation & Speed Supervision on Fast Lines) ERTMS 2028	
Speed **See Sectional Appendix for detailed speed profiles**	Prevailing linespeed of 125 mph Enhanced Permissible Speed (EPS) on Fast Lines, with sections of between 95 and 120 mph 75 mph Permissible Speed on Slow Lines	First Trans-Pennine services operated by 110 mph electric traction - Class 350's Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock	Raise linespeed to highest possible in line with infrastructure characteristics and capabiity of rolling stock	
Electrification	25kV OHLE	25kV OHLE	25kV OHLE	

Passenger train service levels (trains per hour / day)

Table 2.0

	Current	2019	2043	Notes
Typical journey time *(fastest journey based on May 2017 Timetable)*	Carlisle to Lockerbie - 18 minutes	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour Long distance Regional Urban Sleeper	*to Scotland:* London - 1tph Birmingham - 1tph Manchester Airport - hourly service (alternating Edinburgh/Glasgow Central) Euston to Aberden - 1 train per day Euston to Inverness - 1 train per day	Possible changes to service frequency, in line with industry aspirations and franchise requirements	Possible changes to service frequency, in line with industry aspirations and franchise requirements	HS2 proposal for two additional trains per hour by 2033.

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Border (near Gretna Jn) to Carstairs South Junction			
Daily paths in one direction (as per WTT)	Up to 32 paths per day in one direction	As per forecasts in the Freight Network Study (2017) and Scotland Route Study (2016)	As per forecasts in the Freight Network Study (2017) and Scotland Route Study (2016)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

Level crossings on route

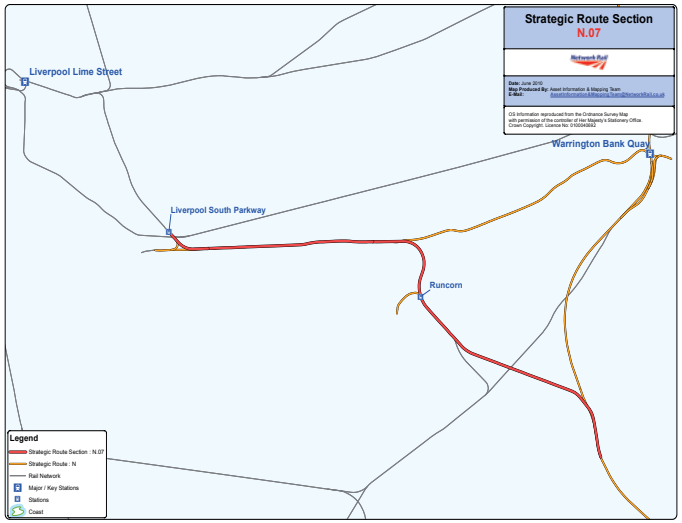
Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	1 - Cove Level Crossing (CCTV) 13m 20ch near Border	As determined by Level Crossing policy	
Automatic:	0		
User:	1 - Bodsbury Crossing (R/G) 51m 47ch		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 5.0							
Project	**Project Description**	**ELR**	**Implementation Date**	**Output change**	**Funder**	**Notes**	**Status**
Carstairs Junction remodelling	Carstairs area improvements: renewal of life-expired assets and requirements for HS2 services from 2026	WCM1 WCM2	CP6	Improved capacity and linespeed on the route	Network Rail	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	In development
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable. ** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.							

SRS N.07 Weaver Junction to Liverpool South Parkway

Geographic Map



Route specification description

SRS N.07 leaves the core WCML at the high speed Weaver Junction and continues on to Liverpool South Parkway station.

Markets: The SRS supports the regional urban and commuter markets within the North West and Liverpool area, and the long distance market to London (either directly or via good connecting stations further along the WCML). This route is a key freight corridor serving terminals at Ditton, the Halewood Car plant, and Garston terminal.

Key stations: There are two stations on the SRS, Runcorn and Liverpool South Parkway. Runcorn is served by three trains per hour to Liverpool Lime Street, two trains per hour also serving Liverpool South Parkway, Crewe, and the West Midlands. Liverpool South Parkway station offers opportunities for connections into the well served local Merseyrail network and to the North West, as well as having a direct bus link to Liverpool John Lennon Airport.

Capability: This 13 mile electrified section of line is a two track railway through Runcorn as far as Ditton East Junction (182m 67ch), where it becomes four tracks to Liverpool South Parkway. The two track railway passes Halton Junction (179m 20ch), where the line from Frodsham joins and then passes through Runcorn station before becoming four tracks to Liverpool South Parkway.

The Runcorn Folly Lane non-electrified single line branch, runs off this route section and is described in N.99. The Arpley Junction to Ditton line joins this section at Ditton East Junction.

Constraints: Linespeeds on this SRS are generally lower than the core WCML main line speeds, predominantly 80 mph from the 187 mile post at Sutton Weaver, into Liverpool South Parkway. On the slow lines, the maximum permissible speed is 75 mph. Further capacity constraints exist either side of this SRS, between Crewe and Weaver Junction and between Edge Hill and Liverpool Lime Street. This impacts on the ability to increase capacity on the route .

The impact of the electrification programme in the North West and introduction of new services as part of the Northern Hub interventions, will be minimal on this route section. However, there will be a small number of changes to journey times and calling patterns as a result.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW2001 Weaver Junction to Liverpool Lime Street			
Section start	Weaver Junction 174m 73ch			
Section end	Liverpool South Parkway 187m 77ch			
Route availability	RA8	RA8	RA8	
Gauge	W9 & W10	W10 - All structures to be W12 when renewed	W12	
Signals	Colour light Track circuit block TASS fitted (Tilt Authorisation & Speed Supervision on Fast Lines)	Colour light Track circuit block TASS fitted (Tilt Authorisation & Speed Supervision on Fast Lines)	ERTMS	
Speed **See Sectional Appendix for detailed speed profiles**	Prevailing linespeed 100 mph Enhanced Permissible Speed (EPS) on Fast lines up to Sutton Weaver (178 mile) Some sections of SRS operate at 80 -95 mph Up an Down Ditton Lines - 75 mph	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock	
Electrification	25kV OHLE	25kV OHLE	25kV OHLE	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time *(Fastest journey based on May 2017 Timetable)*	*Crewe to:* Runcorn - between 18 and 26 minutes Liverpool South Parkway - between 27 and 36 minutes	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour Long distance Regional Urban	London Euston to Liverpool - 1 tph Birmingham New Street to Liverpool South Parkway - 2tph	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	Take advantage of capacity created by a new high speed line	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Weaver Junction to Liverpool South Parkway			
Daily paths in one direction (as per WTT)	Up to 25 paths per day in one direction	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

Level crossings on route

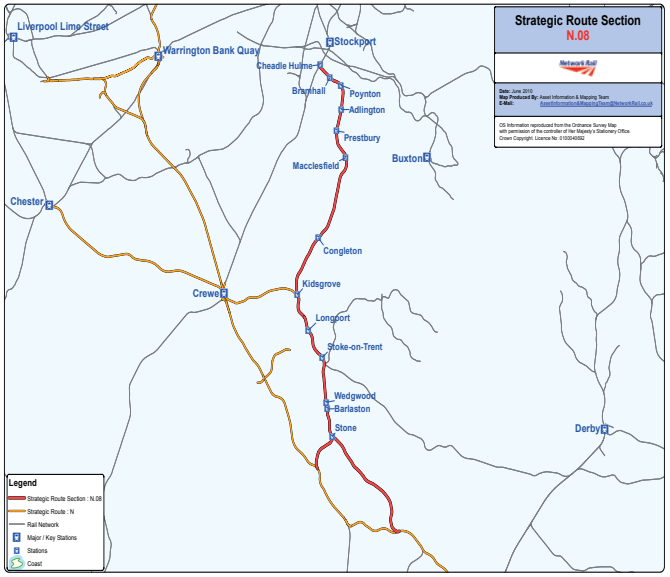
There are no level crossings in this route section.

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

Table 4.0							
Project	**Project Description**	**ELR**	**Implementation Date**	**Output change**	**Funder**	**Notes**	**Status**
Ditton Intermodal Freight Connection	New freight connection at Ditton	WJL1	2017	Infrastructure to accomodate new freight connection	Halton B.C..		In delivery
Weaver to Wavertree remodelling	Signalling renewals and re-control of the route between Weaver Junction and Wavertree Junction, including a number of S&C renewals	WJL2	2018	Maximise capacity and capability of assets along the Weaver to Wavertree section, including potential increased linespeeds and layout changes	Network Rail	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	In delivery
Halton Curve	Delivery of infrastructure to accomodate frequent passenger service	FJH	2018	Enables 1tph to operate between Liverpool Lime Street and Chester via the Frodsham Branch	Merseytravel		In delivery

SRS N.08 Norton Bridge/ Colwich Junction to Cheadle Hulme

Geographic Map



Route specification description

Markets: There is a wide mix of service types, with long distance, regional urban and local services, all using the same section of railway. These services are currently provided by a number of Operators, providing journey opportunities to London, Manchester, Crewe, Stoke-on-Trent and the West Midlands. There are also a number of freight services that use the route. The mix of stopping patterns and capability of rolling stock on the route, creates a capacity constraint. There is also a wide range of line speeds along the route, these different speeds act as a constraint.

Capability: The 45 mile electrified route is predominately a two track railway from Colwich Junction to Cheadle Hulme, with the 3.6 mile two track railway from Norton Bridge, joining it at Stone Junction. From Norton Bridge, the linespeed is 75mph until approaching Stone station when it is reduced to 25mph. From Colwich Junction the linespeed is only 45mph and 50mph leaving the West Coast Main Line. The speed then fluctuates along the route, due to a number of level crossings. At Kidsgrove, the line towards Crewe (N.09) diverges. Immediately past Cheadle Hulme station (Route H), the line from Crewe joins, where there is a short section of two track railway (towards Stockport) until Adswood Road Junction. This short two track section acts as a constraint on this SRS.

Along the route between Stone and Stoke-on-Trent, there are two small stations (Wedgwood and Barlaston) which are currently not served by rail, but are provided with a substitute bus service.

Major projects CP5: The Stafford area improvement project has been completed and removes a major bottleneck on the West Coast Main Line through the Stafford area.

High Speed 2: From 2026, HS2 Ltd propose to introduce services from Handsacre Junction to Manchester, with options for routeing via Stoke or Crewe.

Route capability overview

Table 1.0

Information	Current	2019	2043	Notes
Line of route description	NW5008 (MD110) Norton Bridge to Stone NW5009 (MD115) Colwich to Cheadle Hulme			
Section start	Norton Bridge North Junction (3m 57ch) Stone Junction (27m 00ch) Colwich Junction (38m 58ch)			
Section end	Cheadle Hulme (0m 00ch)			
Route availability	RA8	RA8	RA8	
Gauge	W10 W6a Ex (W12) Norton Bridge N Jn	W10	W12	
Signals	Colour light Track circuit block TASS fitted (Tilt authorisation and speed supervision on Fast Lines)	Colour light Track circuit block TASS fitted (Tilt authorisation and speed supervision on Fast Lines)	ERTMS	
Speed **See Sectional Appendix for detailed speed profiles**	Predominant linespeed from Norton Bridge to Stone is 75 mph (Permissible Speed) From Colwich Junction - Stoke-on-Trent 95 - 125 mph (Enhanced Permissible Speed) Low linespeeds around Stoke-on-Trent to Kidsgrove Mix of speeds between Kidsgrove and Cheadle Hulme	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock	There are numerous fluctuations in speeds along the route Several parts of the route are not an EPS railway
Electrification	25kV OHLE	25kV OHLE	25kV OHLE	

Passenger train service levels (trains per hour / day)

Table 2.0

	Current	2019	2043	Notes
Typical journey time *(Fastest journey based on May 2017 Timetable)*	*Stafford to:* Stone - 8 minutes Stoke-on-Trent - 15 - 20 minutes Macclesfield - 35 - 39 minutes *Stoke-on-Trent to:* Kidsgrove - 7 to 11 minutes Congleton - 14 minutes Manchester - 43 minutes	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour Long Distance High Speed Regional Urban	London to Manchester - 3tph South West to Manchester - 2tph London Euston to Crewe (via Trent Valley) - 1 tph Derby to Crewe -1tph Stoke-on-Trent to Manchester - 1tph	Possible changes to service frequency, in line with industry aspirations and franchise requirements	Take advantage of capacity created by a new high speed line	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Norton Bridge/Colwich Junction to Cheadle Hulme			
Daily paths in one direction (as per WTT)	NB to Stone Junction - 1 path Colwich Jn to Cheadle Hulme - 3 paths	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	6 (CCTV) Aston-by-Stone Level Crossing 28m 63ch (towards Stone) Church Lane Level Crossing 27m 63ch Meaford Crossing Level Crossing 27m 18ch Barlaston Level Crossing 24m 50ch Wedgwood Level Crossing 23m 76ch Mow Cop Level Crossing 11m 30ch (nr Congleton)	As determined by Level Crossing policy	
Automatic:	None		
User:	1 - Highfields Level Crossing 33m 42ch (north of Colwich Jn)		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

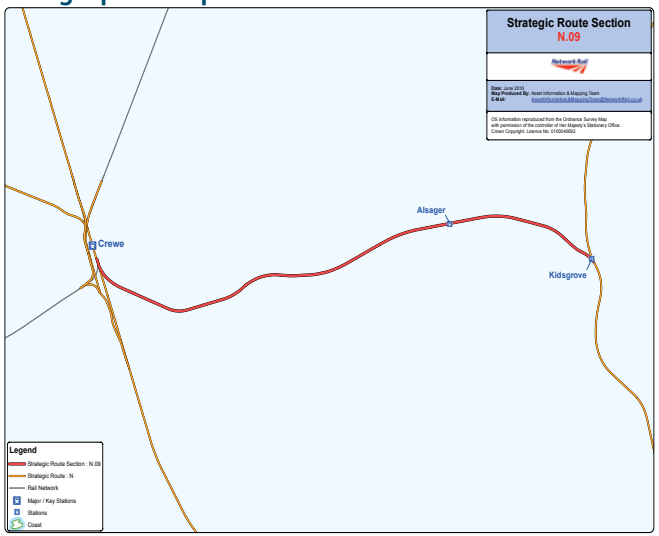
Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Macclesfield resignalling	Resignalling, recontrol and renewal of life expired assets, including associated S&C renewals where appropriate	CMD1	2014-2019	Renewal of life expired assets, including potential enhancements : e.g. journey time reduction	Network Rail Renewals	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	In development
Network Rail : renewals workbanks	Asset renewal workbanks	Across SRS	2014-2019	Align and integrate major renewals as part of Network Rail workbanks as appropriate across the SRS	Network Rail Renewals	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	In development/delivery

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable.
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

SRS N.09 Crewe to Kidsgrove

Geographic Map



Route specification description

Markets: This SRS is a short connecting corridor between Crewe and Kidsgrove, serving Alsager along the route. Passengers can interchange at Crewe for a number journey opportunities, and at Kidsgrove the line diverges for services to Manchester Piccadilly and to Stoke-on-Trent. A long distance service from Crewe to London Euston is operated by London Midland and East Midlands Trains also serve the route on the Derby to Crewe service group. Both of these services call at Alsager on an hourly basis. This route is supported by a high number of leisure passengers, as well a significant number of students accessing education in the area.

Freight services also operate on this route.

Capability: the route section is eight miles of electrified line - five miles of two track railway and three miles on a single section, at the Crewe end of the line (between North Stafford Junction 7m 52ch and Barthomley Junction 4m 67ch). Whilst a short route, the electrification capability provides a vital diversionary route to the adjacent WCML. The route is utilised in times of planned and unplanned disruption, particularly by long distance services that normally operate on the core WCML.

It also has strategic diverionsary relevance for HS2 Ltd, as the Phase 1 proposal routes trains along the WCML between Crewe and Stafford.

A key constraint on this section is the aforementioned short single line section near Crewe, which restricts capacity and operational flexibility.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW1005 Kidsgrove to Crewe South Junction			
Section start	Crewe South Junction (8m 25ch)			
Section end	Kidsgrove (0m 05ch)			
Route availability	RA8	RA8	RA8	
Gauge	SB1C (W9)	SB1C (W9)	W10	
Signals	Colour light Track Circuit Block	Colour light Track Circuit Block	ERTMS	
Speed **See Sectional Appendix for detailed speed profiles**	70 mph Single line section at Crewe - 60 mph	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock	
Electrification	25kV OHLE	25kV OHLE	25kV OHLE	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time *(Fastest journey based on May 2017 Timetable)*	*Crewe to:* Alsager - 9 minutes Kidsgrove - 14 minutes	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour Long distance Regional Urban	London Euston to Crewe - 1tph Derby to Crewe - 1tph	Possible changes to service frequency, in line with industry aspirations	Possible changes to service frequency, in line with industry aspirations	

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Route section	Crewe to Kidsgrove			
Daily paths in one direction (as per WTT)	Up to 2 paths per day in one direction	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

Level crossings on route

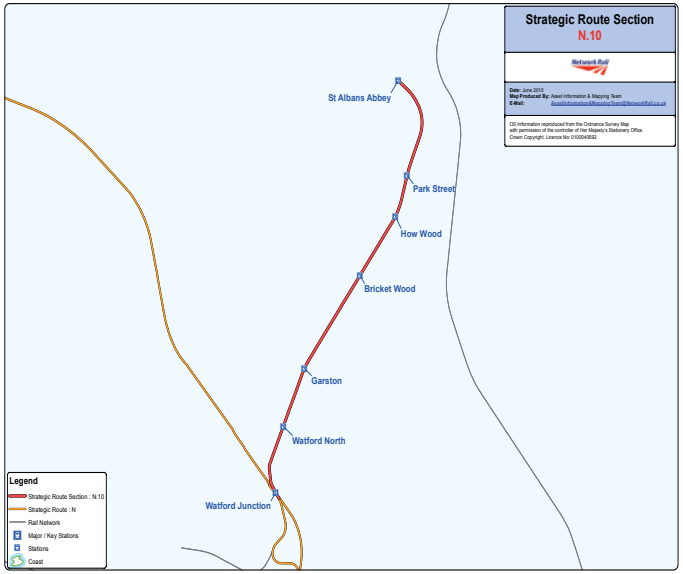
Table 4.0			
Type	Current No. of level crossings	2019 No. of level crossings	2043 No. of level crossings
Supervised:	2 - Alsager Station Level Crossing (CCTV) 2m 33ch Radway Green Level Crossing 4m 07ch	As determined by Level Crossing policy	
Automatic:	None		
User:	4 - Coopers Level Crossing 1m 35ch (north of Kidsgrove) Home Farm Level Crossing 3m 01ch Lower Radway Green Level Crossing 4m 26ch Barthomley Level Crossing 4m 77ch		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 5.0							
Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Network Rail : renewals workbanks	Asset renewal workbanks	Across SRS	2014-2019	Align and integrate major renewals as part of Network Rail workbanks as appropriate across the SRS	Network Rail Renewals	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	In development/ delivery
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable. ** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.							

SRS N.10 Watford Junction to St Albans Abbey

Geographic Map



Route specification description

Markets: This SRS serves a commuter market, at a number of small, local stations along the route. The key passenger flow is into Watford Junction station in the peak (for the Watford area) and for interchange opportunities onto the DC Lines into London, or onto the core WCML. The service is known locally as the 'Abbey Flyer'.

There are no freight services operating on the route.

The St Albans Abbey line was designated a 'Community Rail Line' in 2005. This means it is supported by a Community Rail Partnership : CRP (a number of organisations and a collection of local groups), who actively promote train services and undertake initiatives like station adoption schemes. The CRP works towards increasing community involvement and revenue on the line, and highlights areas that could reduce the cost of running the service/line.

Capability: The line is electrified and is six and a half miles long. It is a single line, with only one train allowed to operate over it at any one time. The linespeed of the route is 50 mph, with a level crossing at Watford North. Due to a number of these restrictive characteristics, capacity is constrained on the line. However, the industry recognises the continued aspirations of local and national government for an increase in service frequency. Rail industry stakeholders have also confirmed aspirations for through services from St Albans Abbey to London.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD130 Watford Junction to St Albans Abbey			
Section start	Watford Junction (0m 00ch)			
Section end	St Albans Abbey (6m 45ch)			
Route availability	RA7	RA7	RA7	
Gauge	W6a	W6a	W6a	
Signals	Colour Light Track Circuit Block Single line section - one train working	Colour Light Track Circuit Block Single line section - one train working	Colour Light Track Circuit Block Single line section - one train working	
Speed **See Sectional Appendix for detailed speed profiles**	50 mph	Maximum speed available for rolling stock on the route	Maximum speed available for rolling stock on the route	
Electrification	25kV OHLE	25kV OHLE	25kV OHLE	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time *(Fastest journey based on May 2017 Timetable)*	*Watford Junction to:* Watford North - 2 minutes Garston - 5 minutes Bricket Wood - 8 minutes How Wood - 10 minutes Park Street - 12 minutes St Albans Abbey - 16 minutes	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	One train working on single line (non-clockface) - approximately 2 trains every three hours		Possible changes to service frequency, in line with industry aspirations	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Watford Junction to St Albans Abbey			
Daily paths in one direction (as per WTT)	None	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

Level crossings on route

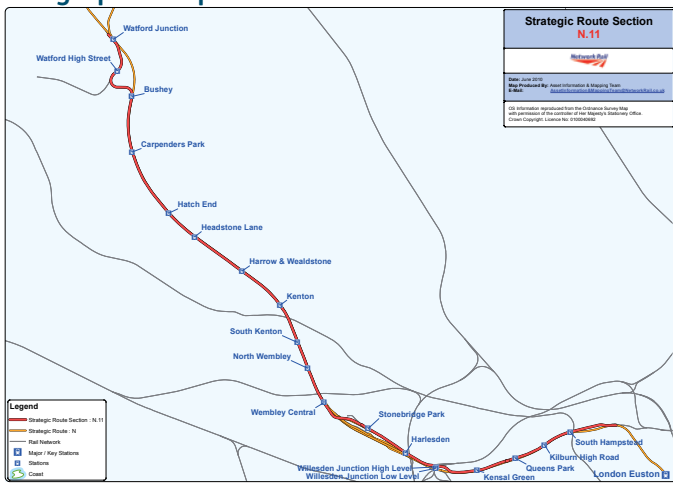
Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	0	As determined by Level Crossing policy	
Automatic:	1 ABCL (Watford North) 0m 78ch		
User:	0		

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

There are no schemes currently planned for Control Period 5.

SRS N.11 Euston to Watford Junction (DC Lines)

Geographic Map



Route specification description

Markets: This SRS is known as the Direct Current (DC) lines which operate between London Euston and Watford Junction. The DC lines is a London and South East commuter railway, providing high frequency London Underground and Overground services. This commuter line runs alongside the core WCML for most of its length (17 miles) and is 750v DC electrified.

The route is operated by Arriva London and London Underground Limited (LUL). Arriva London provide an 'all stations' service on the DC lines between London and Watford Junction running via Watford High Street. At Willesden Junction, Arriva London services stop at the low level platforms at the station. The London Underground services operate on the Bakerloo line, which link central London via Queens Park to all stations to Harrow and Wealdstone. These services share the track with London Overground services as far as Queens Park, before branching off onto dedicated track on the LUL, via the Bakerloo line.

There are no freight services that operate on the DC Lines.

Capability: Linespeeds on this route are low (around 45 mph), but this does not act as a serious constraint due to the 'all stations' stopping pattern. The route is very highly utilised with little scope for additional train services on the current infrastructure.

The DC lines are controlled from the Wembley Mainline signalling control centre.

Planned projects: Trains on the DC lines have been lengthened from 4 to 5-car capability, in order to accommodate increasing demand on this route. This has provided extra passenger capacity for Arriva London services between Willesden Junction and Gospel Oak/Stratford.

There is a plan to provide through Metropolitan line underground services between London and Watford Junction via Croxley Green, a scheme known as the Metropolitan Line Extension. This will provide direct access to the underground network and to the north west of London for passengers on the WCML (without the need for travelling to Euston station).

Transport for London have long-term plans (2020) to upgrade the Bakerloo line and install a new signalling system and control centre on parts of the line. This may increase service frequencies and reduce journey times on the route.

Route capability overview

Table 1.0

Information	Current	2019	2043	Notes
Line of route description	MD120 Camden Junction to Watford Junction DC Lines Watford High Street Junction to Croxley Green			
Section start	Camden Junction (1m 39ch)			
Section end	Watford Junction (17m 49ch)			
Route availability	RA8	RA8	RA8	
Gauge	W6a	W6a	W6a	
Signals	Colour light Track Circuit Block Train stop system	Colour light Track Circuit Block Train stop system	Colour light Track Circuit Block Train stop system	
Speed **See Sectional Appendix for detailed speed profiles**	45 mph	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock	Bakerloo line upgrade (2020), may reduce journey times on the route.
Electrification	3rd rail DC 750v 4th rail between Harrow & Wealdstone and Kilburn High Rd	3rd rail DC 750v 4th rail between Harrow & Wealdstone and Kilburn High Rd	3rd rail DC 750v electrification or 25kV AC overhead electrification	

Passenger train service levels (trains per hour / day)

Table 2.0

	Current	2019	2043	Notes
Typical journey time *(Fastest journey based on May 2017 Timetable)* *London Overground*	*London Euston to:* South Hampstead - 6 minutes Kilburn High Road - 7 minutes Queens Park - 9 minutes Kensal Green - 11 minutes Willesden Junction - 14 minutes Harlesden - 16 minutes Stonebridge Park - 18 minutes Wembley Central - 21 minutes North Wembley - 23 minutes South Kenton - 25 minutes Kenton - 27 minutes Harrow & Wealdstone - 29 minutes Headstone Lane - 32 minutes Hatch End - 34 minutes Carpenders Park - 37 minutes Bushey - 40 minutes Watford High Street - 43 minutes Watford Junction - 47 - 52 minutes	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour - LOROL **LUL**	London Euston and Watford Junction - 3tph Bakerloo line services - DC Lines between Queens Park and Harrow & Wealdstone : 12 trains per hour	Possible changes to service frequency, in line with industry aspirations and franchise requirements	Possible changes to service frequency, in line with industry aspirations and franchise requirements	2020 : Bakerloo line upgrade planned: * new signalling system and control centre * increased capacity * reducing journey times across route

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	DC Lines : Euston to Watford Junction			
Daily paths in one direction (as per WTT)	None	None	None	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.

Level crossings on route

There are no level crossings on this route section.

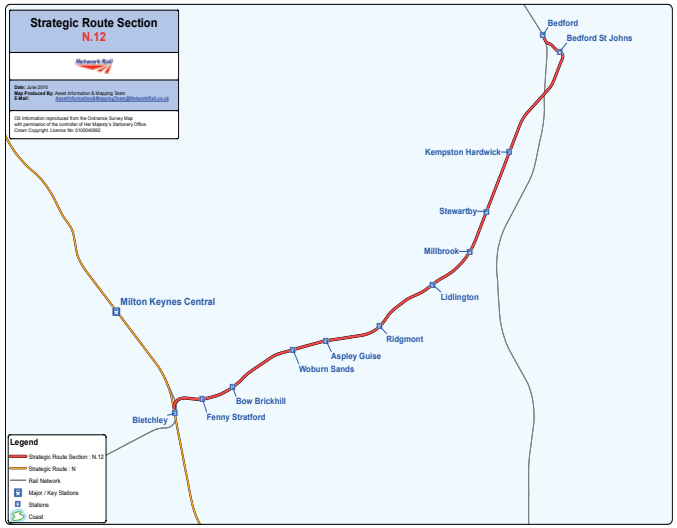
Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 4.0							
Project	**Project Description**	**ELR**	**Implementation Date**	**Output change**	**Funder**	**Notes**	**Status**
LOROL train lengthening project : increased capacity	5-car capability of LOROL Class 378s on DC Lines	CWJ	December 2015	Increased passenger capacity	TfL	Services being strengthened by additional carriages to cater for increased demand on the line	Completed
Metropolitan Line Extension : Re-opening of the disused Croxley branch line	Extension of the Metropolitan line from Croxley to Watford Junction mainline station, plus provision of two new stations	CWJ, WCG, CCG	CP5-6	Increased passenger capacity	Third party	Project includes closure ofthe current Watford Metropolitan line station	In development

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable.
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

SRS N.12 Bletchley to Bedford

Geographic Map



Route specification description

Markets: A shuttle service operates on this 15 mile section, serving commuters into Bletchley and Bedford town centres. Passengers for longer distance services can connect onto the Midland Main Line at Bedford, for services to London St Pancras and the West Coast Main Line at Bletchley, for services to London Euston.

All of the ten local stations along the route, are served on an (approximate) hourly basis.

There are a number of freight services operating over the route.

Capability: The route is a two track railway (non-electrified), with a linespeed of 60 mph. The route is constrained by short single line sections at both ends of the line (one mile long at Bletchley and ¼ mile long at Bedford). Numerous level crossings are located on the route due to the rural nature of the countryside it travels through. These include CCTV, automatic half barrier and user worked crossings. The line is controlled from the Signalling Control Centre at Marston Vale. Forders sidings is located around the 12 mile post area.

Planned projects: There are plans for the re-introduction of passenger services from Oxford and Aylesbury to Milton Keynes and from Oxford to Bedford via Bletchley in the future, driven by the East West Rail Phase 2 project. The primary objectives of this project are to improve East - West connectivity and the creation of jobs and growth in the local areas. A re-opened railway will provide local transport links supporting regional growth and will ease traffic congestion hotspots in Oxford, Bletchley, Princes Risborough, Milton Keynes and Bedford. The EWR project will redevelop Bletchley station to cater for the growth in passenger numbers from the ne EWR services and to provide integration and connectivity with the WCML.

There are a number of third party aspirations for strategic freight terminals along the SRS at Apsley Guise and Ridgmont.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD140 Bletchley to Bedford station junction			
Section start	Bletchley (0m 0ch)			
Section end	Bedford (15m 67ch)			
Route availability	RA8	RA8	RA8	
Gauge	W8	W10	W12	
Signals	Colour light Track Circuit Block	Colour light Track Circuit Block	ERTMS	
Speed **See Sectional Appendix for detailed speed profiles**	60 mph 25 mph on a short section at the Bletchley end	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock	
Electrification	None	None	None	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time *(Fastest journey based on May 2017 Timetable)*	*Bletchley to:* Fenny Stratford - 3 minutes Bow Brickhill - 7 minutes Woburn Sands - 11 minutes Aspley Guise - 14 minutes Ridgmont - 18 minutes Lidlington - 21 minutes Millbrook - 24 minutes Stewartby - 28 minutes Kempston Hardwick - 32 minutes Bedford St Johns - 38 minutes Bedford - 44 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	Bedford to Bletchley commuter service 1 train per hour	If East West Rail Phase 2 is implemented, there are proposals to increase services on this route.	If East West Rail Phase 2 is implemented, there are proposals to increase services on this route.	The full scope for East West Rail is currently being developed.

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Bletchley to Bedford			
Daily paths in one direction (as per WTT)	Up to 3 paths per day in one direction	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	9 (CCTV) Fenny Stratford Level Crossing 1m 13ch Bow Brickhill Level Crossing 2m 05ch Woburn Sands Level Crossing 4m 11ch Ridgmont Level Crossing 6m 59ch Lidlington Level Crossing 8m 49ch Millbrook Level Crossing 10m 02ch Stewartby Brickworks Level Crossing 11m 33ch Wootton Broadmead Level Crossing 12m 08ch	As determined by Level Crossing policy	
Automatic:	3 (AHB) Marston Level Crossing (AHBC-X) 9m 02ch Green Lane Level Crossing (AHBC-X) 11m 17ch Kempston Hardwick Level Crossing (AHBC-X) 12m 77ch		
User:	3 (User) Woodleys Farm Level Crossing 3m 54ch Pony Crossing Level Crossing 3m 20ch Berry Lane Level Crossing 5m 33ch		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

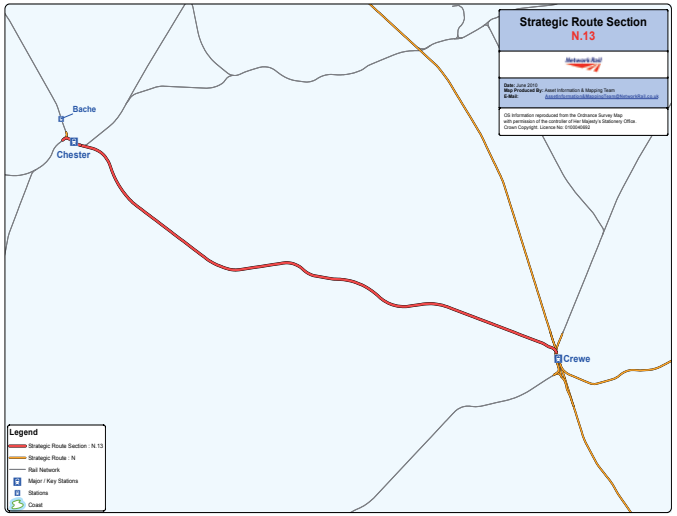
Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Network Rail : renewals workbanks	Asset renewal workbanks	Across SRS	2014-2019	Align and integrate major renewals as part of Network Rail workbanks as appropriate across the SRS	Network Rail Renewals	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	In development/delivery
East West Rail : Phase 2	Re-instatement of disused line between Oxford and Aylesbury to Bletchley and Milton Keynes	BBM	2014-2019	Improve East - West connectivity by provision of new journey opportunities and increased service frequency	DfT	Project will promote the creation of jobs and growth in the local areas	In development

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable.
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

SRS N.13 Crewe to Chester

Geographic Map



Route specification description

Markets: This SRS forms one section of the North Wales Line, which runs along the coast from Chester to Holyhead. It serves a number of key passenger markets and has a limited number of freight services operating over it. A key passenger market is the long distance service which operates from Chester to London Euston, which is an hourly, fast direct service. Chester passengers can also travel to London via a frequent service from Crewe.

Regional Urban services are provided by Arriva Trains Wales (ATW), operating the Holyhead to Crewe and Manchester service group, which serves commuters travelling to Chester and Crewe. Chester also provides interchange opportunities for the Merseyrail network. Crewe acts as a key interchange station providing journey opportunities to the West Midlands, the North and Scotland. ATW also serves Chester and Crewe to Birmingham International, for connections to Birmingham Airport.

Capability: The route is a two track (non-electrified) section of 21 miles in length. The linespeed is predominantly 90 mph but constrained with short sections of 65mph and 75mph. Along the SRS is Christleton Tunnel, which is located around 177miles 52chains and is 160 yards long. There are no other stations between Crewe and Chester.

Chester maintenance depot is located just to the north of the station.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW3001 Crewe North Junction to Holyhead			
Section start	Crewe North Junction (158m 18ch)			
Section end	Chester East Junction (178m 67ch)			
Route availability	RA8	RA8	RA8	
Gauge	W6a Ex (W7)	W8	W10	
Signals	Colour light Track circuit block (except Crewe Steelworks - absolute block)	Colour light Track circuit block	ERTMS	
Speed **See Sectional Appendix for detailed speed profiles**	Predominantly 90 mph 65 mph on approaches to Chester station	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock	Raise linespeed to highest possible in line with infrastructure characteristics and capability of rolling stock and/or with potential electrification scheme	
Electrification	None	Identified as a tier 1 category A scheme in electrification RUS.	Potential electrification during future Control Periods	

Passenger train service levels (trains per hour / day)

Table 2.0				
	Current	**2019**	**2043**	**Notes**
Typical journey time *(approx timings based on May 2017 TT)*	Crewe to Chester: Between 19 and 24 minutes	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey times to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour Long distance Regional Urban Commuter	 London Euston to Chester - 1 tph (VT) Birmingham Intl to Llandudno - two hourly (ATW) Crewe - Chester - 1 tph (ATW)	Possible changes to service frequency, in line with industry aspirations and franchise requirements	Possible changes to service frequency, in line with industry aspirations and franchise requirements	

Current Freight Trains (paths per day)

Table 3.0				
	Current	2019	2043	Notes
Route section	Crewe to Chester			
Daily paths in one direction (as per WTT)	Up to 3 paths per day in one direction	As per forecasts in the Freight Network Study (2017)	As per forecasts in the Freight Network Study (2017)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

Level crossings on route

Table 4.0			
Type	Current No. of level crossings	2019 No. of level crossings	2043 No. of level crossings
Supervised:	None	As determined by Level Crossing policy	
Automatic:	None		
User:	1 - Dairy House Farm LC 161m 42ch		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 5.0							
Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Signalling Renewals workbank for Control Period 5	Resignalling, recontrol and renewal of life expired assets	Various	2014-2019	Crewe DU CP5 workbank including : Crewe to Chester line, and Beeston Castle and Crewe Steel works	Network Rail Renewals	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	In development/delivery
Network Rail : renewals workbanks	Asset renewal workbanks	Across SRS	2014-2019	Align and integrate major renewals as part of Network Rail workbanks as appropriate across the SRS	Network Rail Renewals	Opportunities will be taken to align renewals with enhancements, where an industry business case can be proven	In development/delivery
* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable. ** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.							

SRS N.99 Freight lines

Route specification description

There are a number of freight lines along the WCML Strategic Route. For ease of reference, the key information on freight issues have been grouped together in this SRS.

Freight markets

Key freight flows on the WCML are **intermodal**, both deep sea intermodal from the ports and domestic intermodal from inland terminals for internal distribution. There are also a number of intermodal flows which originate in Europe and use the Channel Tunnel. Coal is mainly routed via the Settle to Carlisle route. There are also other flows on the route ranging from timber, construction, metals, automotive and mail traffic.

Deep sea intermodal flows are container flows to and from ports. The main import locations into the UK are Southampton, Thameshaven and Felixstowe. The major flow over the WCML is from Southampton to the Midlands terminals at Birch Coppice, Hams Hall, Lawley Street and Daventry, and to the North West terminals at Garston, Trafford Park and Ditton, and to further destinations in Scotland.

The flows from Felixstowe to the Midlands and North West terminals operate via the North London Line joining the West Coast Main Line at Willesden Junction or via Peterborough joining the West Coast Main Line at Nuneaton.

Channel Tunnel intermodal traffic consists of traffic from Spain, Italy, France, Belgium, Germany and other EU countries. This traffic operates to single destinations in the UK such as Trafford Park, Daventry, Hams Hall and other terminals. Traffic is limited to a current maximum of W9 loading gauge due to constraints in southern England. However, some freight began to use High Speed One in recent years and this brings the prospect of larger loading-gauge traffic into the UK for onward movement via the West Coast Main Line.

Domestic intermodal traffic is the movement of containerised consumer goods within the UK. Daventry International Rail Freight Terminal is the national hub of Anglo-Scottish intermodal traffic. Key flows include time sensitive supermarket traffic which operates between Daventry and Mossend and Grangemouth and Coatbridge.

Mail traffic - There are two Royal Mail trains a day between Willesden and Shieldmuir in Scotland. These flows are operated by 100mph rolling stock and are very time sensitive.

There are a number of **bulk flows** across the WCML. Bulk flows include coal, aggregates and china clay. Coal flows are expected to respond to future generator demand, based on coal imports and closures of plants reflecting the decreased role of coal in the UK energy mix. However, this will be supplemented by the introduction of biomass traffic. Most coal flows from Scotland to power stations in England are routed from Gretna to Carlisle and then diverted off the WCML route and onto the Settle and Carlisle line. There are also flows between Liverpool Dock, Fiddlers Ferry and Ratcliffe power stations but again these are reducing.

Aggregate flows are highly dependant on the health of the construction industry and demand tends to be project driven. Aggregate flows traverse the route and operate to terminals at Northampton, Bletchley, Watford and Willesden. At the north end of the route aggregates are conveyed from Shap and Hardendale quarries to Teeside, Manchester and Sheffield and there is a new siding at Helwith Bridge (S&C line) serving Arcow and Dry Rigg quarries. There are china clay trains operating over the route, originating in the South West, while there is also a china clay flow through the Channel Tunnel from mainland Europe, with destinations of Stoke-on-Trent and Irvine in Scotland.

There are a number of other flows across the WCML, these include automotive flows from Halewood (Liverpool) to Southampton and Wembley, scrap metal from Mossend (Glasgow) to Liverpool and a depot at Willesden, timber from Carlisle to Chirk and waste flows to Folly Lane (Runcorn). Nuclear traffic is located in Cumbria and operates via the WCML. Military traffic operates through a daily spine service down the WCML from Scotland calling at Longtown.

Freight expansions

There are planned expansions at various ports throughout the country which will have an effect on the WCML. These include developments at Liverpool, Felixstowe, Bathside Bay, Thames Gateway and Southampton. This will have a significant effect on freight services, particularly intermodal growth.

Third party proposals exist for freight expansion at Ditton and at Daventry terminals (DIRFT3), along with two Strategic Freight Interchanges on the Northampton loop.

Constraints

There are constraints on potential freight growth on the route, particularly around the Crewe independent lines and on the two track only section north of Preston. Across the route there are a number of loops, some of these are not long enough for current/future freight requirements, and are not always located in the most appropriate location. Significant growth in both passenger and freight traffic will not be able to be accommodated North of Preston in the future. While long-distance passenger service levels remain unchanged, there will be some scope for freight traffic to grow in line with the 2023 forecasts, depending on the traction type, tonnes hauled and time of day at which new freight paths are required.

The following is a list of freight lines, trunk routes and other lines which support freight traffic flows across the West Coast Main Line:

- MD135 **Harlesden Junction to Willesden Carriage Shed South** – Line allowing access to the Carriage shed from the south. Freight services and empty stock passenger services use this route and are tabled later in this SRS.
- MD180 **Rugby Trent Valley to New Bilton** – This is a non-electrified section of line that is located to the North of Rugby and is currently used as sidings.
- MD233 **Nuneaton North Chord** - This is a single chord line at Nuneaton. This allows trains using the existing flyover from Nuneaton South Junction to directly access the West Coast Main Line to travel north. This allows freight trains to cross the West Coast Main Line without disrupting the four running lines, and benefits the Felixstowe to Manchester/Scotland freight services.
- NW1009 **Basford Hall Junction to Sydney Bridge Junction (Independent Lines)** – This electrified line runs between Basford Hall Junction to the south of Crewe around a number of sidings complexes before diving under the West Coast Main Line and joining the Crewe to Manchester line.
- NW1011 **Gresty Lane to Salop Goods Junction (Independent Lines)** – Runs between Gresty Lane and Salop Goods Junction and Salop Goods Junction and forms part of the network of the Crewe Independent lines tabled later in the SRS.
- NW1013 **Crewe Sorting sidings North to Gresty Lane** - Runs between Crewe Sorting Sidings and Gresty Lane and forms part of the network of the Crewe Independent lines tabled later in the SRS.
- NW1015 **Salop Goods Junction to Crewe North Junction (Chester Independent Lines)** – Runs between Salop Goods Junction to Crewe North Junction, towards Chester, and forms part of the network of the Crewe Independent lines tabled later in the SRS.
- NW1017 **Salop Goods Junction to Crewe Coal Yard (Liverpool Independent Lines)** – Runs between the West Coast Mainline to the North of Crewe, the up line dives under the WCML while the down line runs adjacent to the WCML and dives under the lines to Chester, towards Salop Goods Junction, and forms part of the network of the Crewe Independent lines, tabled later in the SRS.
- NW1025 **Bamfurlong Sidings Junction to Ince Moss Junction (Ince Moss Goods lines)** – this is a non electrified curve just under a mile long with a short section of single line at the Ince Moss Junction end.
- NW1027 **Preston South Junction to Strand Road** – this non electrified single line section of track is one mile long leading to Preston Docks.
- NW2003 **Runcorn to Runcorn Docks Branch (Folly Lane)** - this non electrified section of single line track is 69 chains long and has had improved signalling alterations undertaken to support the Energy From Waste plant built in 2012.
- NW2009 **Arpley Junction to Ditton East Junction** – This eight mile section of non electrified double track line leads from Warrington to Ditton East (in the Liverpool area). Fidders Ferry power station is served by this route in addition several other freight terminals. There is a proposal for a new rail chord to connect the Arpley branch lines to the Ditton Goods lines. This will provide easier access to the route and is driven by a major regeneration project in the Warrington area. Tabled later in the SRS.
- **Skew Bridge Junction – Preston North Junction** – Goods only lines between CGJ5 - 20m 41ch and CGJ6 - 0m 21ch. Line speeds on this section are between 20 and 35mph.
- **Carnforth South Junction – Carnforth North Junction -** Goods only lines between CGJ7 - 5m 56ch to CGJ7 - 6m 12ch, the line speed over this section is 15mph.
- **Carlisle Goods Lines** – There are a number of goods lines within the Carlisle area with line speeds of 20mph.
- **Caldew Junction – Kingmoor Junction – Floriston Junction – Mossband Junction** – Goods only lines between Caldew Junction (north of Carlisle) and Mossband Junction (towards Gretna Green). These lines serve the Carlisle Kingmoor area complex. Line speeds on these goods lines are between 10mph and 25mph, which restrict the capability and capacity.

The following is a more detailed look at capability of three key freight lines on the WCML:

- Harlesden Junction to Willesden Carriage Shed South
- Crewe Independent Lines
- Arpley Junction to Ditton East Junction

Harlesden Junction to Willesden Carriage Shed South

Table 1.0 : Route capability overview				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	MD135 Harlesden Junction to Willesden Carriage Shed South (WCL)			
Route availability	RA8	RA8	RA8	
Gauge	W10 (except traffic to/from the Up and Down high level goods line - W6a)	W10 (except traffic to/from the Up and Down high level goods line - W6a)	W10 (except traffic to/from the Up and Down high level goods line W6a)	Increase gauge as appropriate
Signals	Colour light (Track circuit block)	Colour light (Track circuit block)	ERTMS	
Speed See Sectional Appendix for detailed speed profiles	15 to 20 mph	Raise linespeed as appropriate	Raise linespeed as appropriate	
Electrification	AC	AC	AC	

Table 2.0: Freight trains (per day)				
Days of week	**Current**	**2019**	**2043**	**Notes**
Route section	Harlesden Junction to Willesden Carriage Shed South (WCL)			
Number of trains per day	Significant number of daily trains serving the Wembley Yard and Wembley Carriage sidings	As per forecasts in the Freight Market Study (2013)	As per forecasts in the Freight Market Study (2013)	

Crewe Independent Lines

Table 1.0 : Route capability overview				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW 1009 Basford Hall Junction to Sydney Bridge Junction (Independent Lines) NW 1011 Gresty Lane to Salop Goods Junction (independent Lines) NW 1013 Crewe Sorting sidings north to Gresty Lane NW 1015 Salop Goods Junction to Crewe North Junction (Chester Indpendent Lines) NW 1017 Salop Goods Junction to Crewe Coal Yard (Liverpool Independent Lines)			
Route availability	RA8	RA8	RA8	
Gauge	NW 1009 - W9 NW 1011 - W6a NW 1013 - W6a NW 1015 - W6a NW 1017 - W9	NW 1009 - W9 NW 1011 - W6a NW 1013 - W6a NW 1015 - W6a NW 1017 - W9	NW 1009 - W9 NW 1011 - W6a NW 1013 - W6a NW 1015 - W6a NW 1017 - W9	Increase gauge as appropriate
Signals	Colour light (Track circuit block)	Colour light (Track circuit block)	ERTMS	
Speed **See Sectional Appendix for detailed speed profiles**	10 to 15 mph	Raise linespeed as appropriate	Raise linespeed as appropriate	*See Sectional Appendix for detailed speed profiles*
Electrification	AC	AC	AC	

Table 2.0: Freight trains (per day)				
Days of week	**Current**	**2019**	**2043**	**Notes**
Route section	Crewe Independent Lines			
Number of trains per day	Significant number of daily freight trains serving all of the various yards at Crewe	As per forecasts in the Freight Market Study (2013)	As per forecasts in the Freight Market Study (2013)	

Arpley Junction to Ditton East Junction

Table 1.0 : Route capability overview				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW 2009 Arpley Junction to Ditton East Junction			
Route availability	RA8	RA8	RA8	
Gauge	W9 & W10	W9 & W10	W9 & W10	Increase gauge as appropriate
Signals	Absolute block	Track circuit block	ERTMS	
Speed See Sectional Appendix for detailed speed profiles	20 to 40 mph	Raise linespeed as appropriate	Raise linespeed as appropriate	*See Sectional Appendix for detailed speed profiles*
Electrification	None	None	None	

Table 2.0: Freight trains (per day)				
Days of week	**Current**	**2019**	**2043**	**Notes**
Route section	Arpley Junction to Ditton East Junction			
Number of trains per day	Significant number of daily freight trains serving Arpley Yard, Fiddlers Ferry Power Station, Ditton and Widnes Yard	As per forecasts in the Freight Market Study (2013)	As per forecasts in the Freight Market Study (2013)	

Table 3.0: Level crossings on route			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	1	As determined by Level Crossing policy	
Automatic:	None		
User:	7		

Glossary

Term	Meaning
AHB	Automatic Half Barrier
CCTV	Closed-circuit television
Control Period 5 (CP5)	The 2014 – 2019 period
Control Period 6 (CP6)	The 2019 – 2024 period
DfT	Department for Transport
ELR	Engineer Line Reference
ERTMS	European Rail Traffic Management System
FOC	Freight Operating Company
Generalised journey time	A measure of the rail service offer that takes account of in vehicle time, service frequency and interchange penalty
GB	Great Britain
GRIP	Governance for Railway Investment Projects
HLOS	High Level Output Specification
HS1	High Speed 1 – the high speed link between St Pancras International and the channel tunnel
HS2	Proposed high speed link between London and Birmingham beyond to Leeds and Manchester
kV	Kilovolt - a unit of potential equal to a thousand volts
LDHS	Long Distance High Speed
LSE	London and South East
LTPP	Long Term Planning Process
MPH	Miles Per Hour
NTS	National Travel Survey
OHLE	Overhead Line Equipment
ORR	Office of Rail Regulation (the Regulator for the rail industry in Great Britain)
RA	Route Availability
RUS	Route Utilisation Strategy
SRS	Strategic Route Specification
SRS N.01	Strategic Route Section N.01
TfL	Transport for London
TOC	Train Operating Company
TPH	Train Per Hour
WCML	West Coast Main Line

Route O :Merseyrail

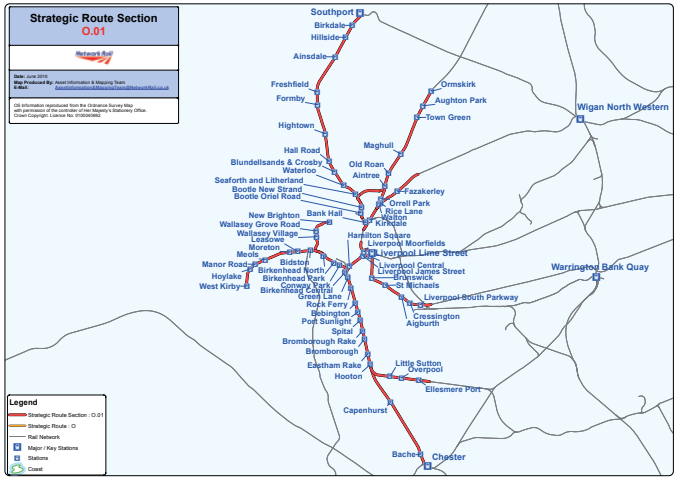
Route O: Merseyside

Interface with other routes (refer to separate Strategic Route Specifications documents)

Scotland Route:	SRS Q.01 Glasgow Central to Carstairs
Sussex Route:	SRS B.13 West London Line - Milton Keynes to East/South Croydon
Anglia Route:	SRS E.01 Richmond to Willesden Jn - Acton Branch (freight line)
	SRS E.02 North London Line - Willesden Junction to Gospel Oak
LUL Network:	Bakerloo Line on DC lines - Harrow & Wealdstone to Queens Park
Wales Route:	SRS L.04-05 Newport to Crewe
	SRS L.13-14 Chester to Holyhead
East Mids Route:	SRS I.01 St Pancras International to Bedford
	SRS I.11 North Staffs Junction to Stoke-on-Trent

SRS O.01 Merseyrail

Geographic Map



Route specification description

The Merseyrail route is a predominantly 3rd rail DC electrified network spread over the Wirral, Merseyside, north Cheshire and south west Lancashire. Additionally, the route contains the North Mersey Branch and lines to Birkenhead docks, which are not electrified. The DC network is split in two sections: the Wirral Line and the Northern Line

There are four terminus stations on the Wirral Line: New Brighton, West Kirkby, Chester and Ellesmere Port. All stations on this route are directly connected to Hamilton Square in Birkenhead, and the central Liverpool stations of James Street, Moorfields, Liverpool Lime Street and Liverpool Central, which are served by a one-way, clockwise loop line underneath Liverpool City Centre. Liverpool Lime Street Low Level forms an important link to the mainline Liverpool Lime Street station for interchange with services to a wide range of destinations. Chester is an interchange station for services to Wales, Manchester and London and Bidston station acts as a local interchange station with the Wrexham to Bidston line (also known as the Borderlands Line). There is a disused line serving the Birkenhead Docks with access to this line from Rock Ferry and north of Birkenhead North train maintenance depot. There are a small number of freight services which operate on the Wirral Line between Ellesmere Port docks and Ellesmere Port, including a number of coal services serving Fiddlers Ferry Power Station.

The Northern Line operates from Hunts Cross in the south to Liverpool Central and Moorfields, with northerly branches serving Southport, Kirkby and Ormskirk. The Northern Line at Hunts Cross West Junction meets the Manchester to Liverpool line (also known as the CLC line), where it has to cross the major traffic route to serve Hunts Cross station. This is the only part of the network that directly interacts with the rest of the national network. There are a number of stations that offer the opportunity for interchange on the Northern line, with links to local services at Southport and Kirkby towards Wigan, at Ormskirk towards Preston, and Hunts Cross for stations between Liverpool Lime Street and Manchester. The route also serves Liverpool John Lennon Airport via Liverpool South Parkway, which has a regular bus shuttle service to the airport. The North Mersey Branch is designated as suitable only for engineering trains, and runs between the Bootle area and Aintree.

Merseyrail services are provided by Class 507 and 508 rolling stock which operate as either three or six-car sets. With the fleet expected to be life expired by 2020 consideration is now being given to the replacement strategy including suitable depot, maintenance and stabling requirements.

Five of the central stations are located underground; Liverpool Central and Moorfields serve both the Wirral and Northern lines with platforms at two levels. Birkenhead Hamilton Square, James Street and Liverpool Lime Street Low Level serves the Wirral line exclusively. Some of these stations are very busy and suffer from overcrowding, particularly in the morning and evening peaks and on Saturday's. This overcrowding is most acute at Liverpool Central on the Northern Line platforms.

The underground nature of the central network introduces a number of constraints on to the route; the loop line features very tight curvature in the tunnels which causes high rates of rail wear, this also has an impact on the rolling stock that is able to operate on this route. Other constraints on the network include a number of flat junctions, some of which are highly utilised.

This network is an extremely effective means of transport and Merseyside has the third highest rail modal share in the UK. Passenger growth under the current operator Merseyrail has reached a level that is unprecedented in recent history, while train punctuality is routinely in the top two or three of all UK rail franchises.

Route capability overview

Table 1.0				
Information	**Current**	**2019**	**2043**	**Notes**
Line of route description	NW8001: Hunts Cross West Jn – Southport NW8003: Paradise Jn – James Street/Mann Island Jn NW8005: Sandhills Jn – Ormskirk NW8007: Bootle Jn – Aintree Emergency Ground Frame (North Mersey Branch) NW8009: Walton Jn – Kirkby NW8011: Mann Island Jn – West Kirby (via Loop) NW8013: Canning St Jn – Hooton South Jn NW8015: Bidston East Jn – New Brighton NW8017: Canning St North – Rock Ferry South (Canning St Lines) NW3011: Chester West Jn – Hooton South Jn NW3013: Hooton South Jn – Helsby Junction			
Northern Line Terminii and city centre stations	Hunts Cross, Kirkby, Ormskirk, Southport, Moorfields, Liverpool Central.			
Wirral Line Terminii and city centre stations	Chester, Ellesmere Port, West Kirby, New Brighton, Hamilton Square, James Street, Moorfields, Lime Street, Liverpool Central.			
Route availability	RA6, RA7, RA8	RA8	RA8	
Gauge	W6, W7, W8	W8	W8	
Signals	Colour light	Colour light	ERTMS	
Speed **See Sectional Appendix for detailed speed profiles**	Varying linespeeds: largely 35-45mph in central sections, with 60mph existing in most outlying areas and a 70mph section between Hooton and Chester on the Wirral Line.	Incremental linespeed improvements where possible in line with infrastructure characteristics and capability of rolling stock	Incremental linespeed improvements where possible in line with infrastructure characteristics and capability of rolling stock	Merseytravel's New Rolling Stock programme will introduce a completely new fleet to the network and therefore linfrastructure characteristics should be improved (where possible) to match rolling stock capability.
Electrification	750V DC (Third Rail) electrified except North Mersey Branch and Canning Street Lines.	750V DC (Third Rail) electrified except North Mersey Branch and Canning Street Lines.	750V DC (Third Rail) electrified except North Mersey Branch and Canning Street Lines.	For longer term strategy - see Electrification RUS

Passenger train service levels (trains per hour / day)

Table 2.0

	Current	2019	2043	Notes
Typical journey time	*Liverpool Central to:* Chester - 40 minutes Ellesmere Port - 37 minutes West Kirby - 32 minutes New Brighton - 23 minutes Southport - 44 minutes Hunts Cross - 17 minutes Ormskirk - 32 minutes Kirkby - 18 minutes	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	
No. of trains per hour	*Liverpool Central to:* Chester - 4tph Ellesmere Port - 2tph West Kirby - 4tph New Brighton - 4tph Southport - 4tph Hunts Cross - 4tph Ormskirk - 4tph Kirkby - 4tph	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	Reduce journey time to lowest possible in line with linespeed improvements and changes in rolling stock	

Current Freight Trains (paths per day)

Table 3.0				
	Current	**2019**	**2043**	**Notes**
Route section	Ellesmere Port docks - Ellesmere Port			
Daily paths in one direction (as per WTT)	7 trains per day	As per forecasts in the Freight Market Study (2013)	As per forecasts in the Freight Market Study (2013)	Unlike passenger services, some freight trains may not always operate to the same timetable every week. Depending on the volume and pattern of demand, freight trains may only operate 'as required', and/or may run between different terminals.
* Figures are for freight trains in one direction only.				

Level crossings on route

Table 4.0			
Type	**Current No. of level crossings**	**2019 No. of level crossings**	**2043 No. of level crossings**
Supervised:	Northern Line - 4 Wirral Line - 7 Other lines - 1	As determined by Level Crossing policy	
Automatic:	Northern Line - 11 Wirral Line - 3 Other lines - 0		
User:	Northern Line - 1 Wirral Line - 0 Other lines - 0		

Proposed infrastructure investment in Control Period 5 (2014 – 2019)*

Table 5.0

Project	Project Description	ELR	Implementation Date	Output change	Funder	Notes	Status
Station improvement schemes	Station improvement schemes across the SRS in line with planned renewals	Various	CP5	Improved station environment and facilities	Network Rail		In development
S&C Track renewals	Renewal of Mann Island Junction (near James Street station)	MIR1	CP5	Improved asset reliability	Network Rail		In development

* In addition to the proposed enhancement programme, this table includes other Network Rail funded schemes, renewals and third party scheme where applicable.
** The precise timing and scope of renewals will remain subject to review to enable us to meet our overall obligations as efficiently as possible, consistent with the reasonable requirements of operators and other stakeholders.

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Network Rail Limited
1 Eversholt Street
London NW1 2DN

Tel: 020 7557 8000

www.networkrail.co.uk