East of Leeds Corridor

STRATEGIC ADVICE

What is the optimum service pattern for local services?

What service improvements are required to accommodate forecast passenger and freight growth?

March 2026

Eastern Region

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GLOSSARY

Abbreviation or term	Definition
AM Peak	In this report refers to the hour from 08:00 to 08:59 unless stated.
Bay platform	A terminating platform at a station which also has other platforms. Used to terminate and turn back services. Examples include Platforms 7 and 14 at Leeds which are east-facing bays for services to/from the east.
CAS	Common Analytical Scenario: future passenger demand growth scenario specified by the Department for Transport.
Class 4	Freight train permitted to run at a maximum speed of 75mph.
Class 6	Freight train permitted to run at a maximum speed of 60mph.
CTT3	Concept Train Timetable 3: concept timetable which delivers train service outputs of Transpennine Route Upgrade.
DDG	Demand Driver Generator: socio-economic data supplied by the Department for Transport for use in passenger demand forecasts.
DfT	Department for Transport: central government department responsible for transport policy.
DMU	Diesel Multiple Unit: self-propelled passenger train running on diesel fuel.
Down Line	Refers to direction of travel. On the East of Leeds corridor 'Down' generally refers to the north and east bound lines towards York and Hull unless otherwise stated.
ECML	East Coast Main Line: main line running from London King's Cross to Edinburgh Waverley via York and Newcastle.
ECS	Empty Coaching Stock: refers to passenger trains running out of service to / from depots and sidings.
EMU	Electric Multiple Unit: self-propelled passenger train running on electric.
Five Towns	The five towns of Castleford, Featherstone, Knottingley, Normanton and Pontefract to the northeast of Wakefield.
GBR	Great British Railways: publicly owned body which will be responsible for passenger services and rail infrastructure in the future.
GDP	Gross Domestic Product: unit of economic output.
GVA	Gross Value Added: unit of economic productivity.
HEYCA	Hull and East Yorkshire Combined Authority: the Mayoral Combined Authority formed of East Riding of Yorkshire and Hull City Councils.
LDHS	Long-Distance High-Speed passenger services.
LESP	Leeds Existing Station Programme

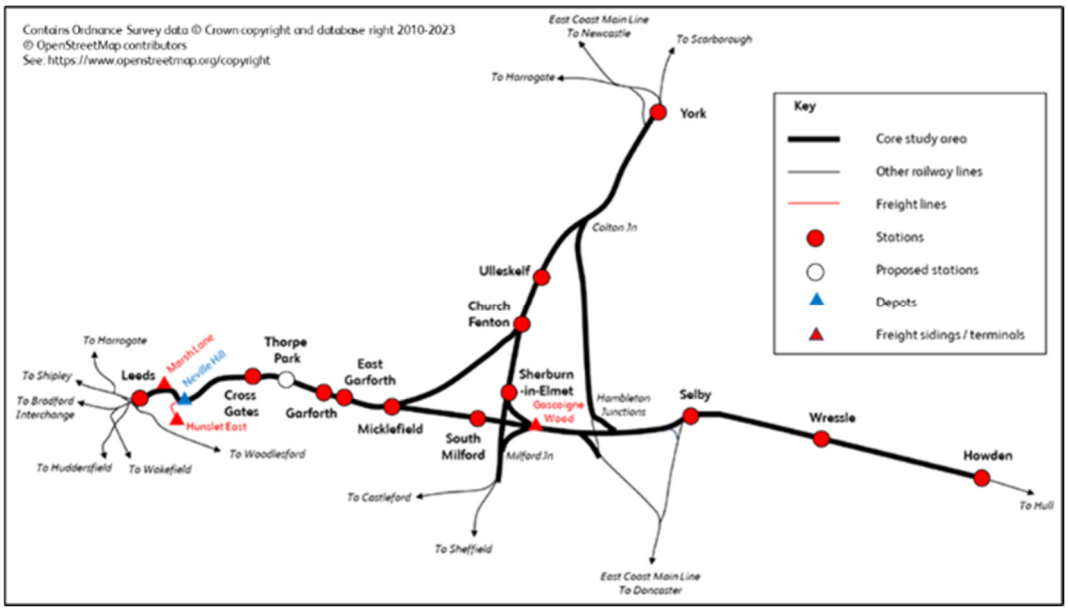
Abbreviation or term	Definition
Load Factor	Throughout this report refers to demand as a proportion of seated capacity on specific trains.
Local (train)	In this report refers to a train service which makes more than one call between Leeds and Selby or York.
MOIRA	Rail industry demand forecasting program. OR93 refers to the version of the program referenced in this report which covers the North of England.
NPPF	National Planning Policy Framework
NPR	Northern Powerhouse Rail: government programme to transform rail connectivity across the North of England.
OLE	Overhead Line Equipment: system used to transmit electricity at 25kV to power electric trains.
PDFH	Passenger Demand Forecasting Handbook: guidelines which set out the standard demand forecasting methodology in the rail industry.
PiXC	Passengers in Excess of Capacity: a measure used in crowding statistics reported by the DfT. Defined as the number of standard class passengers on a train service that are in excess of the standard class capacity, which may include a 'Standing Allowance' (see separate entry below).
PM Peak	In this report refers to the hour from 17:00 to 17:59 unless stated.
Regional (train)	In this report refers to a train service which makes a maximum of one call between Leeds and Selby or York.
SDO	Selective Door Operation. System which limits the number of doors which open at a station, allowing a train longer than the available platform to call at the station.
Sprinter	Diesel multiple unit rolling stock of Class 150, 155, 156 and 158
Sprinter Differential	Higher permissible speed limit which applies to Sprinter rolling stock.
Standing Allowance	Assumption applied to the PiXC measure (see separate entry above): allows for standing passengers provided the journey time is 20 minutes or less, and that passenger numbers do not exceed the combined seated and standing capacity. For local trains the acceptable standing allowance is defined as 1.5 passengers per m^2 of standing space.
stkm	Single track kilometre.
tpd	Trains per day run by specified service.
tph	Trains per hour run by specified service.
TfN	Transport for the North: the sub-national transport body covering the north of England.
TPR	Timetable Planning Rules. Timings and rules used for development of timetable.

Abbreviation or term	Definition
TRU	Transpennine Route Upgrade: a multi-billion-pound programme of railway improvements between Manchester, Leeds and York.
Up Line	Refers to direction of travel. On the East of Leeds corridor 'Up' generally refers to south and west bound lines towards Leeds unless otherwise stated.
WYCA	West Yorkshire Combined Authority: the Mayoral Combined Authority formed of Bradford, Calderdale, Kirklees, Leeds and Wakefield Councils.
YNYCA	York and North Yorkshire Combined Authority: the Mayoral Combined Authority formed of North Yorkshire and City of York Councils.

EXECUTIVE SUMMARY

Network Rail has developed this Strategic Advice with detailed inputs from the wider rail industry, Transport for the North (TfN) and the Mayoral Combined Authorities of Hull and East Yorkshire (HEYCA), West Yorkshire (WYCA) and York and North Yorkshire (YNYCA).

The Strategic Advice has identified ways to optimise stopping patterns between Leeds, York and Howden and whether service improvements are needed to accommodate passenger and freight growth up to 2050. It is intended to be a building-block for future programmes, such as Northern Powerhouse Rail (NPR), which the Government reiterated their commitment for in January 2026 after this analysis was completed. The proposed service changes and infrastructure interventions identified by this study will need to be further analysed with funders to assess their value for money and affordability.



Existing and future needs of the corridor demonstrate the case for change…

The corridor forms the main route from Leeds and West Yorkshire towards the north and east, and is the primary link for regional journeys from the Midlands and North West towards the North East of England. The East of Leeds corridor has suffered poor performance over several years, resulting from the mix of fast and stopping services and the use of poorer accelerating and short formed rolling stock on local services.

Previously the primary focus for this corridor has been on enhancing longer distance linkages as part of the Transpennine Route Upgrade (TRU) and NPR programmes. However, there is a need to assess requirements for all services on the corridor, including local stopping trains and freight. To this end, the post-TRU service pattern has been taken as a starting point for considering service requirements up to 2050.

Market analysis has identified several possible points which could be addressed as part of future planning scenarios. Existing demand shows the relative importance of regional flows, including on the Blackpool North<>York train. This leads to a conclusion that journey times on the regional services should be protected by running as fast as possible to the east of Leeds. Limiting regional calls on the corridor to Thorpe Park and focussing that station's fast services on York could allow several service changes.

Future housing development will be focussed on the eastern edge of Leeds, the Selby area and Howden, and services need to also cater for these emerging markets. The York<>Hull

corridor has a relatively low rail mode share, although previous enhancements, such as the move to a regular hourly service instead of the previous 75-minute service interval, have generated significant demand growth. This suggests there is further scope to grow the market in a capacity and resource efficient way.

…post-TRU service outputs see residual standing on local services into Leeds…

The TRU programme delivers some additional infrastructure to the east of Leeds, including electrification between Leeds and York and infrastructure provision for 4-car local services. At peak times local trains will continue to offer a 'skip-stopping' pattern which will enable the specified services to fit on the assumed infrastructure. Partners have expressed a preference through this strategic advice to consider a more regularised service offer to passengers in future scenarios.

Forecasts post-TRU show increasing levels of standing on local trains into Leeds. Accommodating forecast rates of growth will not be possible without resulting in trains having Passengers in Excess of Capacity (PiXC) by 2039. This is likely to drive the need for longer local trains between York and Leeds and / or changes to stopping patterns. TRU already provides infrastructure capability for lengthening local services from 3-car to 4-car trains. Simply adding services is unlikely to produce a reliable timetable without further infrastructure interventions.

…and there are options to minimise standing in a network constrained scenario...

The analysis undertaken by this study shows that, in a network constrained scenario, 4-car trains would be needed on both Selby and York routes to cater for demand into Leeds by 2039 under a central growth forecast. Lengthening the York<>Leeds trains would not drive any additional infrastructure requirements over and above that provided by the TRU programme.

Service changes could also potentially improve local connectivity by amending calling patterns. Fast links from Thorpe Park to York could be provided by calling the Scarborough trains instead of Hull services and switching the Garforth call to Thorpe Park in the Blackpool trains. This would allow Scarborough services to swap into the semi-fast path of one of the Hull trains west of Leeds, speeding up Manchester to Hull journey times. This also enables Hull services to pick up intermediate calls at South Milford and for calls to be reinstated at Howden to better connect identified markets.

These future service choices should be further examined through appropriate rail industry forums, such as those for North of England timetables.

This scenario accepts a level of standing which will fall within the standing allowance specified by the PiXC regime. This means that rolling stock on local services would need to be configured with an internal layout that supports an increased proportion of standing passengers.

Service changes to cater for a Network Constrained Scenario:
Lengthening Leeds<>York trains to provide sufficient capacity, either as 284 seat 4-car Cl.331 trains with additional peak services, or lengthening Leeds<>York/Selby trains to 408 seat 6-car trains (Cl.195 on Selby or Cl.331 on York services) to potentially improve reliability by removing train paths. The choice between options comes with trade-offs, including a capacity enhancement on the Blackpool train to allow that train to make additional peak time calls.
Mirroring the AM peak enhancements into Leeds and York in the PM peak away from Leeds and York would effectively separate out regional and local markets. There is no demand need for the Leeds>York AM peak extra service, but this may need to be retained for rolling stock positioning moves.
Serving the proposed Thorpe Park station with faster trains towards York instead of Hull to reflect forecast demand and to support modal shift from car into York relieving congested strategic road networks.

Service changes to cater for a Network Constrained Scenario:
Consequently, the 1 trains per hour (tph) Manchester<>Hull would run fast west of Leeds (calling only at Huddersfield), with the 1tph Scarborough train switching to run semi-fast and including calls at Thorpe Park. This also reflects the comparative sizes of the regional markets from Scarborough or Hull to Manchester.
Reallocating the calls at Thorpe Park onto York services enables the Hull services to make additional calls without impacts on journey time east of Leeds. This could allow an hourly call to be reinstated at Howden (to regularly connect new housing with employment in Leeds) and at South Milford (enhancing frequency to 2tph throughout the day). Thorpe Park retains connections to Selby on the local train, where there are onward connections towards Hull.
Standardising service patterns on the York to Selby corridor. This takes the opportunity to improve journey times from Hull to York via the East Coast Main Line (ECML), whilst backfilling local connectivity between Selby and York via Sherburn-in-Elmet.

Central and High Growth scenarios have been developed with Partners…

Two scenarios have been developed from the network constrained scenario which accommodate different levels of growth. These aim to better separate out the regional and local markets to varying degrees. They make several changes which crucially includes the York / Selby local trains serving all stations between Leeds and Micklefield, with the York service also calling at Church Fenton.

The changes identified here will need to be subjected to further analysis to assess their impacts on revenue, costs and operating subsidy. As they represent alternative choices for the service pattern on the corridor, this study has not identified a specific horizon year for when these changes would be necessary before 2050.

Service changes to cater for a Central Growth scenario:
Carrying forward the changes from the network constrained scenario with 284 seat, 4-car local trains and peak extra trains inbound to Leeds and York in the AM peak and outbound in the PM peak.
Calling the Leeds<>York train at all stops between Leeds and Church Fenton, with the peak extra train calling at Ulleskelf and all stations except Church Fenton. This provides consistent local calling patterns which have been specified in collaboration with local Partners.
Reducing the number of calls on the Blackpool North<>York train in off-peak periods. This protects journey times on cross-Leeds longer distance, higher revenue regional markets.
Providing 204 seat 3-car Cl.195 trains on the York<>Hull trains and running fast between York and Selby via ECML. This delivers Partner requirements of York<>Hull journey times of under an hour.
Enhancing the Selby>York AM peak extra train to 1tph in both directions throughout the day. This backfills local connectivity lost by speeding-up the York<>Hull train west of Selby, and provides an improved service offer to target modal shift by better competing with car and bus.

To cater for higher levels of growth, 6-car trains will be required on local services to Leeds to provide sufficient total capacity whilst better separating out the local and regional markets. There are also opportunities to target the growing market between Hull and York.

Service changes to cater for a High Growth scenario:
Lengthening of Leeds<>York / Selby services, including peak extras, to 408 seat 6-car trains (Cl.195 for Selby, Cl.331 for York). This would mean services continuing west of Leeds, as the east facing bay platforms are unable to accommodate 6-car trains. It is recommended that the bay Platform 3 at Selby is lengthened to accommodate these trains, although analysis shows these trains could be extended east of Selby to either Howden or Hull if required.
Provide a second York<>Hull train by extending the hourly central growth York<>Selby train to Hull. This meets a long-standing Partner aspiration for a second train each hour between York and Hull and targets modal shift in an already growing market. The York<>Hull train via Sherburn-in-Elmet would require lengthening to a 248 seat 4-car Cl.195 train from 2044 to minimise standing into York from the south.

Service changes to cater for a High Growth scenario:
Removing local calls east of Leeds from the Blackpool North<>York train throughout the day. This protects journey times on cross-Leeds longer distance, higher revenue regional markets and effectively completes the segregation of regional and local markets onto separate services.

…a more Transformational scenario adds train paths to the corridor…

Under this scenario the number of train paths between Leeds and Micklefield increases to 14tph in each hour, whilst 12tph would operate north of Church Fenton, with an hourly train from Hull to York via the ECML. This enhances the stopping services from both York and Selby into Leeds to 2tph all day whilst the Sheffield<>York via Pontefract train has been regularised to run hourly throughout the day.

This scenario has been developed from Mayoral Combined Authority policies and plans. The case for additional local and regional trains over and above those levels identified in the constrained, central and high growth scenarios will need to be made by those Partners proposing the enhancements.

…and all three scenarios drive the need for greater network capability and resilience…

TRU optimises the service patterns against available infrastructure, and any service changes beyond that are likely to drive interventions. The future scenarios represent different target states for the network by 2050. The policy choices around which of the target states to aim for determines what level of infrastructure will be necessary and by when.

In the central and high growth scenarios capacity analysis shows that faster trains need to be able to overtake the slowest trains west of Micklefield. This drives the need to four-track sections of route alongside other interventions at York, Selby and Leeds discussed below. Analysis suggests that the four-tracking would be needed between Cross Gates and Micklefield, but constructability is likely to be challenging due to the urban nature of the route through Garforth. A shorter length of four-tracking covering the western part of this upgrade would enable the train services to be accommodated, but this would potentially impact on journey times on some stopping and regional services.

There are opportunities to further optimise the length of four-tracking trading off journey time and performance against deliverability and cost whilst considering any future changes to connectivity requirements.

As well as four-tracking, some smaller-scale interventions would be required at York and Selby, in addition to the Leeds Existing Station Programme (LESP) Platform 14 extension at Leeds. This would include additional crossovers in the southern station throat at York and removal of signal overlaps to allow more flexibility for signalling trains into/out of the bay platforms. At Selby the platform reoccupation margin of the bay Platform 3 could be reduced by relocating the facing crossover from Leeds closer to the station.

In the higher growth scenario, platforms at several stations would need to be lengthened to cater for longer local trains. There are choices around the local train services from Leeds to Selby, and of these choices terminating at Selby is recommended. This means that the proposed crossover at Selby would be utilised over longer-term horizons. Performance risks and increased operating costs (from additional rolling stock and staff) from extending eastwards can be avoided. Leeds<>Howden would be served with reinstated calls on a fast service from Leeds to/from Hull, and this would also provide a direct Manchester link, establishing the station as a railhead for a wider catchment.

In addition to the two scenarios above, the more transformational scenario could also be accommodated with the longer length of four-tracking, although it would require additional interventions at York, Hull and Sheffield. However, this gives some indication that the longer

section of four-tracking will support a range of potential service structures and provides timetabling flexibility and operational resilience whilst offering some scope to grow beyond the high growth scenario in the future if required.

Electrification will enable faster journey times and promote cost efficiencies…

Electrification from Micklefield to Selby would allow all local services into Leeds to use high performing electric rolling stock. There are opportunities around increased efficiencies in terms of capacity utilisation, journey time benefits and reduced operating costs.

Extending electrification to Selby should also deliver short infill schemes, including Church Fenton to Selby, Hambleton North Curve and Hambleton South Curve. This would deliver benefits to the Leeds<>Selby and York<>Selby service and provide a springboard for further electrification east towards Hull. Electrifying to Hull, including the route from Temple Hirst to Selby, would offer further opportunities for efficiencies.

The use of lighter Electric Multiple Units (EMUs) and a standard fleet on the York<>Hull and Leeds<>York/Selby services rather than several micro-fleets will reduce ongoing operating costs. Interworking services on the Leeds/York/Hull triangle should be explored to identify operational efficiencies. Coupled with the infill scheme between Temple Hirst and Selby, this would allow longer distance trains from London to Hull to switch to electric operation. As battery technology continues to evolve then some, but not all, of these benefits may also be realised by battery bi-mode units and this should be kept under consideration.

As part of the electrification package opportunities to remove the Sprinter Differential speed limits should also be investigated. This will maximise the journey time benefits possible from electrification whilst minimising disruption to passengers by delivering the two elements as a package at the same time.

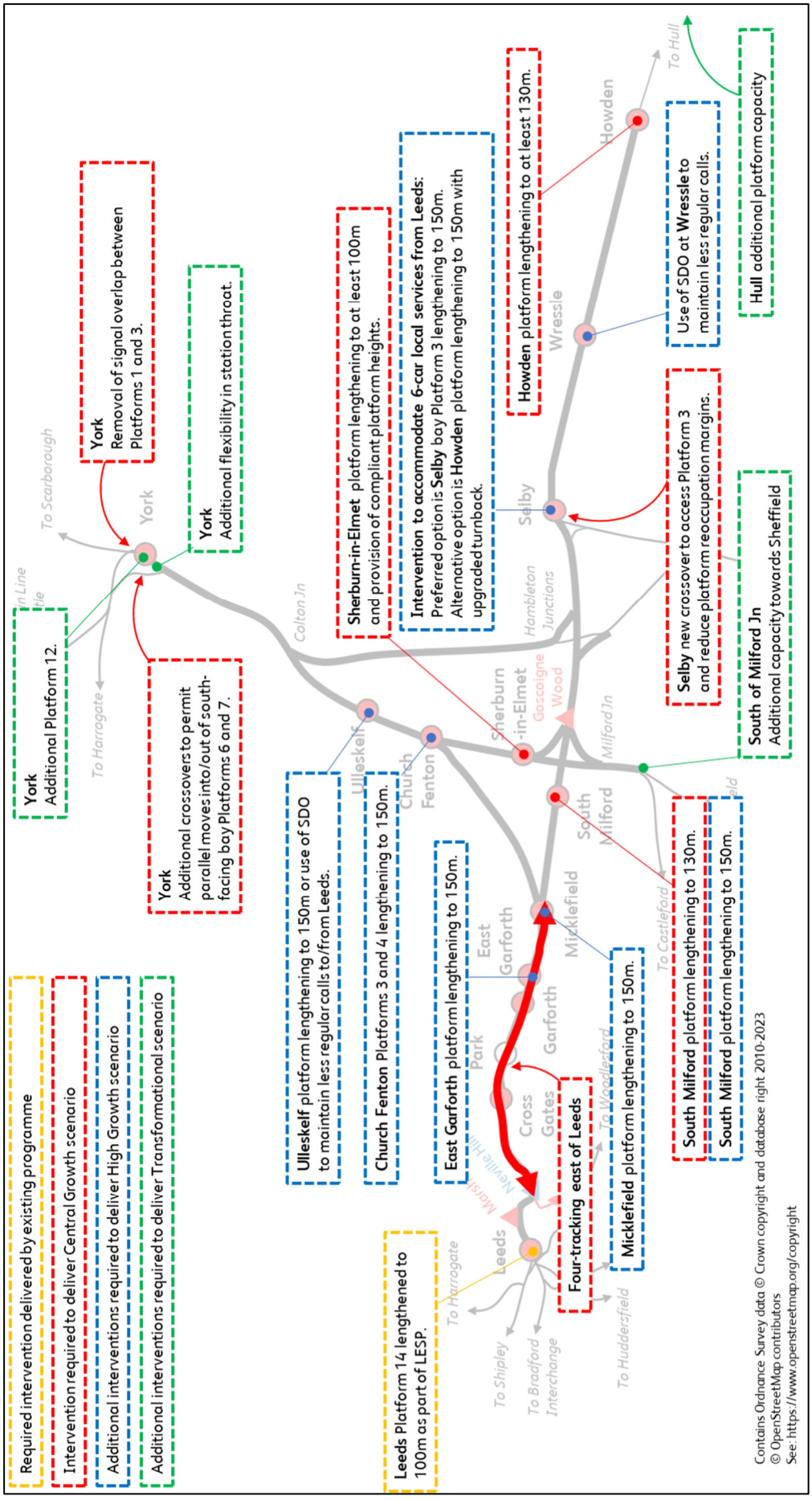
Next steps should focus on:

This Strategic Advice has identified post-TRU scenarios for the corridor. This has developed future service specifications and identified several interventions to accommodate these. The identified interventions will help inform and influence future choices on the corridor, including for programmes such as TRU and NPR.

There are choices for Government around which post-TRU scenario to endorse by 2050, as this will inform the interventions required on the corridor. This choice, alongside the analysis and findings in this Strategic Advice, need to be considered and reflected in future enhancement programmes such as NPR.

The recommendations of this Strategic Advice are to:
Work with the TRU programme to explore the findings of the market analysis and scenarios.
Decide which of the four future scenarios is most appropriate for 2050 and incorporate those proposed service changes into future planning of the network.
Seek to take forwards the interventions required for that scenario as part of the most appropriate programme.
Explore and further develop the case for phased electrification of the route from Micklefield / Church Fenton <> Selby and Hull, including Hambleton Junctions and Temple Hirst Junction to Selby.
Use the outputs of this advice to inform continued development of the NPR programme. The local service enhancements should be tested alongside any changes to regional services as part of NPR option development.
Further work is required to identify the various trade-offs required on services through Sherburn-in-Elmet to recommend a target end-state.

Interventions required to deliver future train service scenarios on the East of Leeds corridor



1. Context

1.1 Strategic Advice

Strategic Advice is the process through which Network Rail meets its licence obligation to plan the future rail network. It identifies the priorities of passengers and freight users and makes the case for rail investment to meet future needs.

This Strategic Advice has been undertaken to answer the following questions:

1. What is the optimum stopping pattern for services:
    a. between Leeds, York and Howden via Micklefield and Selby?
    b. south of York to Sherburn-in-Elmet and Selby?
2. What future train service improvements are required to accommodate forecast passenger and freight growth?

Policy aspirations to route London <> Leeds trains via Hambleton Jn and the East of Leeds corridor are noted. To provide a consistent approach in assessment of any assumptions, feasibility and potential outputs, the services associated with this routeing choice fall outside of the scope of this strategic advice.

This Strategic Advice has been developed with detailed inputs from service specifiers, passenger and freight operators, as well as Transport for the North (TfN) and the Mayoral Combined Authorities of Hull and East Yorkshire (HEYCA), West Yorkshire (WYCA) and York and North Yorkshire (YNYCA). The recommendations made in this report identify options to optimise the use of train, track and station capacity. This means better understanding the trade-offs between objectives such as service frequency, shorter journey times and improving train performance.

1.2 Geographic Scope

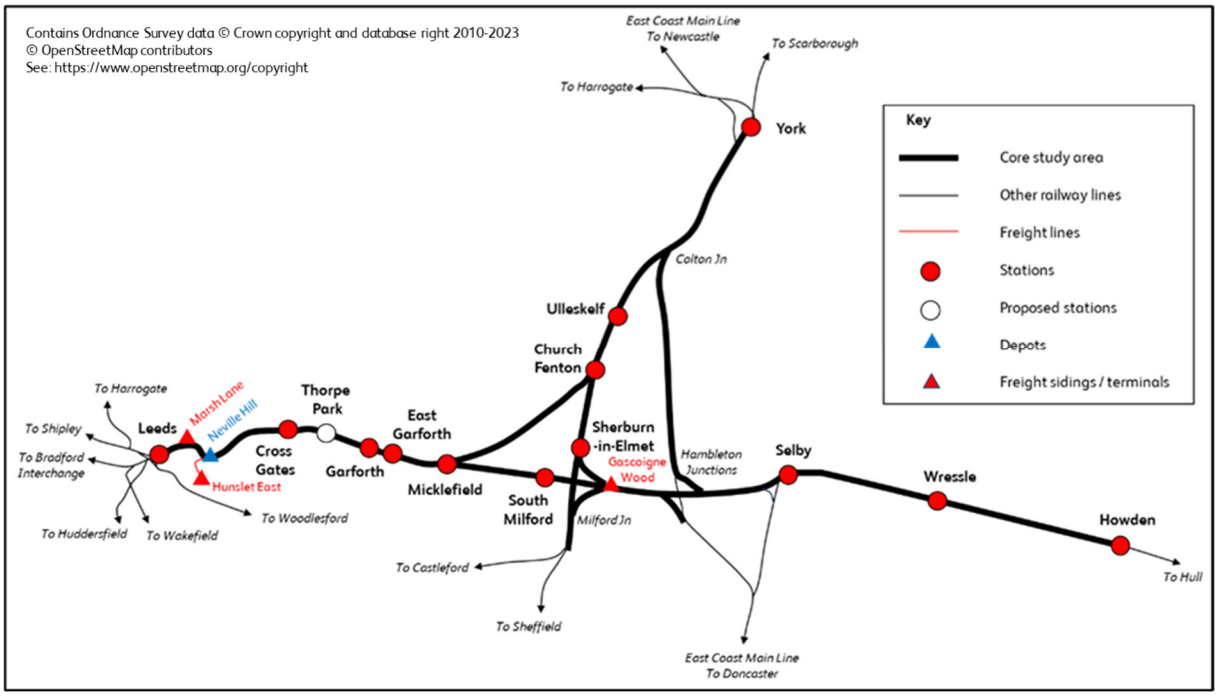
The scope of the study includes the lines running to the east of Leeds towards York and towards Hull as far as Howden. It also includes lines from Church Fenton via Sherburn-in-Elmet towards Selby and Milford Junction. For completeness, the route from Selby to York via the East Coast Main Line (ECML) is also included, and this includes the Long Distance High Speed (LDHS) services via the ECML as per the December 2025 timetable. The study area is shown in Figure 1 below.

The corridor forms the main route from Leeds and West Yorkshire towards the north and east, and is the primary link for regional journeys from the Midlands and North West towards the North East of England. It also provides the main route to the north and west from Hull and East Yorkshire.

It provides links into the cities of Leeds, York and Hull and the largest intermediate markets include Selby (population 19,475) and Garforth (population 15,150) which are both free-standing towns. The line also serves the smaller towns and villages between Selby, York and Leeds; only one station, Cross Gates, is within the suburbs of east Leeds.

WYCA are currently developing a business case for a new station at Thorpe Park. This would serve the office park and new housing developments located in the East Leeds Extension to the north and east of Cross Gates as well as offering a park and ride option accessed from M1 J46. This work therefore considers future demand at Thorpe Park sourced from WYCA's business case for the station.

Figure 1: Geographic scope of this Strategic Advice.



1.3 Strategic Context

Previously the primary focus for this route has been on enhancing Cross-Pennine linkages between Manchester, York and Hull via Leeds. This has included plans to accommodate additional longer-distance services, as part of both the Transpennine Route Upgrade (TRU) and Northern Powerhouse Rail (NPR) programmes. However, there is a need to assess requirements for all services on the corridor, including local stopping services into both Leeds and York and freight services through the area.

1.4 Policy Objectives

This Strategic Advice has been prepared with due regard to the relevant national and regional planning policies and priorities which are summarised below.

1.4.1 Government Priorities

The Government's five key priorities[1] for the transport system, set out in July 2024, are:

- Improving performance on the railways and driving forward rail reform;
- Improving bus services and growing usage across the country;
- Transforming infrastructure to work for the whole country, promoting social mobility and tackling regional inequality;
- Delivering greener transport; and
- Better integrating transport networks.

1.4.2 Northern Powerhouse Rail

In January 2026 the Government announced the Northern Growth Plan, which is backed by their commitment to NPR and a funding envelope of £45 billion to deliver rail improvements across the north, subject to business case. This aims to generate economic growth by

[1] https://www.gov.uk/government/news/transport-secretary-sets-out-5-key-priorities-to-deliver-the-biggest-overhaul-to-transport-in-a-generation

bringing productivity in the North of England up to the national average. NPR will support this aim by providing faster and more frequent rail services across the north.

The first phase of the project will see improvements between Leeds, York, Bradford and Sheffield in the 2030s. The second phase will provide a new route between Liverpool, Manchester Airport and Manchester, whilst the third phase will improve Cross-Pennine connectivity between Manchester and Leeds, Bradford and Sheffield.

Development of NPR will continue to assess the Government's desired outputs and any interventions that may be required. Option development will continue to focus on improved performance levels for the railway. This Strategic Advice will be used to develop possible future service patterns and inform future options and choices for the NPR programme between Leeds and York.

1.4.3 Sub-National Policy

Transport for the North

TfN's Strategic Transport Plan vision supports three overarching objectives. Table 1 below summarises these objectives and how rail supports their delivery.

Table 1: How rail supports the TfN Strategic Transport Plan.

Objective	Rail Contribution
Transforming Economic Performance	• Faster journey times between major cities. • Increased capacity and gauge clearance for freight trains.
Rapid Decarbonisation of Surface Transport	• Rolling programme of electrification. • Investment in rolling stock, including bi-mode trains.
Reducing Transport-Related Social Exclusion	• Action to address poor performance. • Improved network resilience. • Consistent minimum standard for stations, with better modal integration.

Yorkshire's Plan for Rail

The White Rose Agreement signed in March 2025 represents a collaboration between the Mayoral Combined Authorities of South Yorkshire, West Yorkshire and York and North Yorkshire. This includes plans to achieve 'good growth', with improvements to rail connectivity being one of the five key pledges.

Yorkshire's Plan for Rail sets out how investment in the rail network can help to deliver economic growth across the region. Table 2 below summarises the issues and solutions identified in the plan.

Specific schemes identified in the plan which are relevant to the East of Leeds study include:

- Electrification of Leeds to Selby in the 2030s and on to Hull by the 2040s;
- New station at Thorpe Park to help unlock development; and
- Redevelopment of York station to enable passenger throughput to double by 2050.

Table 2: Yorkshire's Plan for Rail: issues and solutions.

Context for Investment
- Region is not meeting its growth potential, with the economy being £25 billion smaller than its potential. - Rail connectivity helps by providing connections between labour markets and key economic centres. - Rail currently underperforms and doesn't meet passengers' and business needs. It is an "*unacceptable offer and a barrier for growth*". - The Plan for Rail offers a "*credible and affordable phasing plan that helps to fix our broken rail and transport network*". - Government support is needed to deliver Local Growth Plans. These set out how to unlock growth and prosperity across the region by closing the productivity gap.
Propositions
- New trains and sufficient rolling stock to deliver reliable services. - Development of strategic schemes, including NPR. - Frequency enhancements to boost connectivity. - Infrastructure improvements to provide more capacity, including 'no regrets' capacity enhancements around Leeds and York. - Accessible stations and new stations. - Rail devolution: powers and funding to enable Mayoral Strategic Authorities to deliver an integrated public transport network.

Source: Yorkshire's Plan for Rail

1.4.4 West Yorkshire Combined Authority

The WYCA Rail Strategy identifies that rail journey times from local stations towards York are uncompetitive when compared with car. There are aspirations to address this, including:

- Frequency at local stations to be increased from 2 trains per hour (tph) to 4tph, with 2tph to each of York and Selby;
- Long distance services from west of Leeds to Selby and Hull to be increased from 1tph to 2tph;
- Local and intercity trains to serve Thorpe Park; and
- Sheffield<>York via Pontefract service to be enhanced to 1tph as a priority, with a longer-term aim of increasing to 2tph.

Direct trains between Castleford and York are now provided by the hourly Manchester to York service via Huddersfield and Wakefield, which provides capacity via diversionary routes whilst TRU is delivered. WYCAs aspiration is for this service to be retained over the longer term.

WYCA's mass transit vision includes consideration of the East Leeds corridor. It specifies interchange opportunities between mass transit and local rail at both Cross Gates and the proposed Thorpe Park railway station. The Vision identifies that buses will remain important to East Leeds and will be "*recast to feed and integrate with mass transit*". Further clarity on how mass transit will impact on rail demand from Thorpe Park and Cross Gates and how rail can best contribute to the overall public transport offer on the corridor is expected in the future.

1.4.5 York and North Yorkshire Combined Authority

YNYCA are in the process of developing a Local Transport Plan. Transport opportunities and priorities are set out in the *Local Growth Plan*. This references the Yorkshire Plan for Rail, and more specifically identifies the need for platform lengthening at Sherburn-in-Elmet to enable additional train services to call and provide better connectivity to the adjacent employment sites. YNYCA also support the aspirations from WYCA's Rail Strategy identified above.

1.4.6 Hull and East Yorkshire Combined Authority

HEYCA is newly created and therefore has had limited time to develop its future policies. In the absence of these policies, reference has been made to the local transport plans for Hull City Council and East Riding of Yorkshire Council. Both these plans identify the need for rail enhancements, including electrification from Leeds to Hull, and rail gauge enhancements to the Port of Hull.

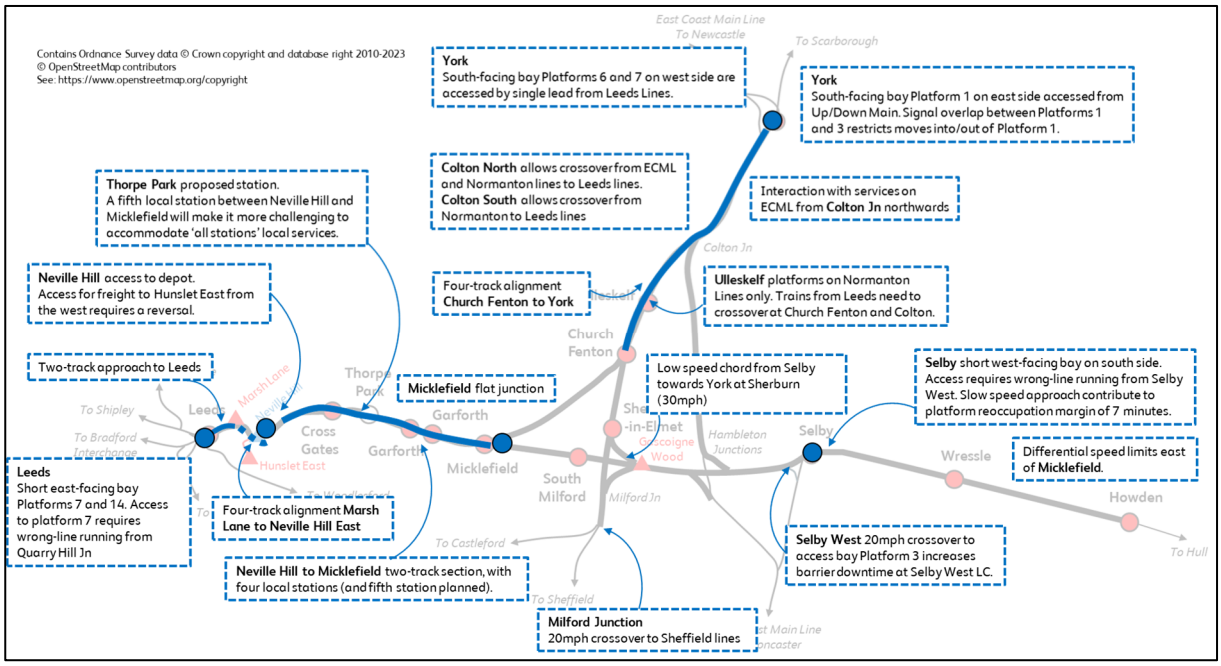
National, regional and local policies have been referenced when developing future scenarios, through a review of rail priorities.

2. BACKGROUND

2.1 Route Capability

The key features of the route through the study area in 2026 are summarised in Figure 2.

Figure 2: Key features on route between Leeds, York and Howden.



At Leeds there are two east-facing bay platforms; Platform 7 is on the northside of the station and can accommodate a train of 4x24m long carriages, whilst Platform 14 on the southside can accommodate a train of 3x24m long carriages. Westbound access to Platform 7 involves wrong line running from Quarry Hill Junction, and this limits capacity by preventing eastbound trains from departing Leeds at the same time.

The East of Leeds line is mainly two-tracks through to Micklefield and on to Selby / Howden and Church Fenton. There is a short section of four-tracking from Marsh Lane to Neville Hill, with the additional tracks used as a goods loop and for access to/from Neville Hill depot.

East of Neville Hill there are four local stations within 9km, with a fifth station planned at Thorpe Park. The quantity and mix of trains operating on this two-track section make it difficult to accommodate calls at all stations in the local services. At peak times the current timetable includes a skip-stop pattern for local services, which impacts on local connectivity.

The line north of Church Fenton to York is four-tracked, with two pairs of lines (which are termed the Leeds lines and the Normanton lines) with crossovers at Church Fenton and at Colton Junction. North of Colton Junction the Normanton lines join the ECML from Doncaster, and there are interactions with LDHS services from London. Ulleskelf, which doesn't have a regular hourly service, only has platforms on the Normanton lines. This reduces timetable flexibility, especially when services to/from Leeds call at the station as these need to cross to/from the Leeds lines at Church Fenton.

At York there are three south-facing bay platforms. Those on the western side of the station (Platform 6 and 7) are accessed by a single lead from the Leeds lines, and this means that only one train can enter/exit the two platforms at a time. The bay platform on the eastern side (Platform 1) is affected by signal overlaps, which means that there are restrictions on movements into and out of the platform when a train is occupying or departing from the adjacent through Platform 3.

From Micklefield to Howden the route is subject to 'Sprinter Differential' speed restrictions, where typically lighter but poorer performing 'Sprinter' Diesel Multiple Unit (DMU) rolling stock can run at speeds around 10-15mph higher than other trains (although newer and better performing Cl.195 DMUs are also permitted to travel at these speeds). Poorer acceleration of the older 'Sprinter' units means that although they can travel at higher speeds, they do take longer to reach that speed. Regional trains, such as Class 185 and Class 802 units cannot utilise these higher speed limits due to higher axle weights compared to Sprinter rolling stock.

At Selby the west-facing bay Platform 3 is located on the south side of the station. Access is by crossing to the west-bound line from Selby West Junction and this limits capacity by conflicting with any westbound service on the approach. The bay platform can accommodate a train of up to 5x24m long carriages but has a long reoccupation margin of 7 minutes to reflect the approach from Selby West and includes 'wrong line' running for around 1.2km (¾ mile) on the approach to the platform.

Early route setting increases the length of time the barriers are lowered at Selby West (Doncaster Road) level crossing. This is exacerbated by the low-speed crossover west of the crossing which is restricted to 20mph and is used to access the bay Platform 3. Barrier down time at Selby West remains a concern for North Yorkshire Council's highways team due to its impact on road congestion in Selby, and any future rail service changes at Selby should consider the impacts on the crossing and associated road congestion.

The level of service and mix of stopping patterns make the route difficult to timetable reliably, with adverse impacts on connectivity between local stations. Bay platforms at Leeds and Selby are relatively short which limits the length of local services, whilst infrastructure constraints at York places limits on how the bay platforms can be used.

2.2 Passenger Services

As of the December 2025 timetable, the East of Leeds corridor caters for a range of services, including:

Longer distance or regional services	
Non-stop between Leeds and York	• 1tph Plymouth<>Edinburgh via Wakefield, Leeds and Newcastle • 3tph from Liverpool / Manchester via Huddersfield and continuing north and east to Scarborough / Redcar / Newcastle. Certain services call at Garforth eastbound in the PM peaks.
Non-stop between Leeds and Selby	• 1tph Manchester<>Hull via Huddersfield, calling at Selby, with the 07:57 arrival at Leeds calling additionally at South Milford.
Between Selby and Hull	• 8 trains per day (tpd) London King's Cross<>Hull. 1tpd calls at Selby and Brough, the others call at Selby, Howden and Brough.
Local services	
Providing one or more intermediate calls	• 1tph Blackpool North<>York via Blackburn, Halifax and Bradford, calling at Garforth and Church Fenton. The Church Fenton call is driven by difficulties timetabling the call on Leeds<>York local services. Certain services call additionally at Cross Gates and/or Micklefield.
Providing calls at local stations on the East of Leeds corridor	• 1tph Leeds<>York with 1tph peak extra in both directions in the AM peak and 1tph towards York in the PM peak • 1tph Halifax<>Hull with two extra trains from Selby to Leeds arriving in the morning peak.

Providing calls at local stations south of York	• 1tph York<>Hull via Sherburn-in-Elmet and Selby, with most services continuing beyond Hull to Bridlington and 1tph peak extra from Selby into York in the AM peak. Certain journeys throughout the day run fast between York and Selby via the ECML which leaves gaps in the service provision at Sherburn-in-Elmet. • 1tph Manchester Piccadilly<>York via Huddersfield and calling at Wakefield Kirkgate, Normanton and Castleford. • 3tpd Sheffield<>York calling at Pontefract Baghill, Sherburn-in-Elmet, Church Fenton and Ulleskelf. This operates with a single unit diagram to provide an AM peak arrival into and a PM peak departure from York.

Under the December 2025 timetable this means that there are up to 8 passenger trains in each direction in a typical hour between Leeds and Micklefield. This increases to 11 passenger trains arriving at Leeds between 08:00 and 08:59 and 9 passenger trains departing from Leeds between 17:00 and 17:59. This frequency alongside the mix of stopping patterns make the existing route difficult to timetable reliably. This means that at peak times those trains calling at local stations into Leeds skip calls at certain stations rather than providing an all-stations service.

In pre-COVID timetables up to five fast trains each hour were provided between Manchester and Leeds, with the fifth train continuing to York and Newcastle. This increased the number of passenger trains between Leeds and Micklefield to 9 in each direction in a typical hour.

The York<>Hull trains usually operate through Sherburn-in-Elmet, although five northbound and six eastbound trains run fast via the ECML with a journey time up to 15 minutes faster between Selby and York dependent on time of day. This means that two different paths to/from Hull need planning to maintain both routeings, and this an inefficient use of capacity.

In certain hours the faster journey times towards Hull come at the expense of service frequency at Sherburn-in-Elmet, whilst in other hours the local calls are provided by the Sheffield<>York trains. This leads to some gaps in an otherwise hourly service at Sherburn-in-Elmet in the early afternoon; there are no arrivals from York between 11:57 and 13:59 or between 14:27 and 16:01, and no departures towards York between 13:42 and 15:41. Earlier and later trains and providing an hourly service throughout the day would better cater for shift workers at the industrial estates adjacent to Sherburn-in-Elmet station.

To cater for demand at local stations, longer distance services make peak time calls. This comes at the expense of slower journey times. Peak time stopping services into Leeds must skip calls at certain stations to fit around faster trains.

2.3 Passenger Demand

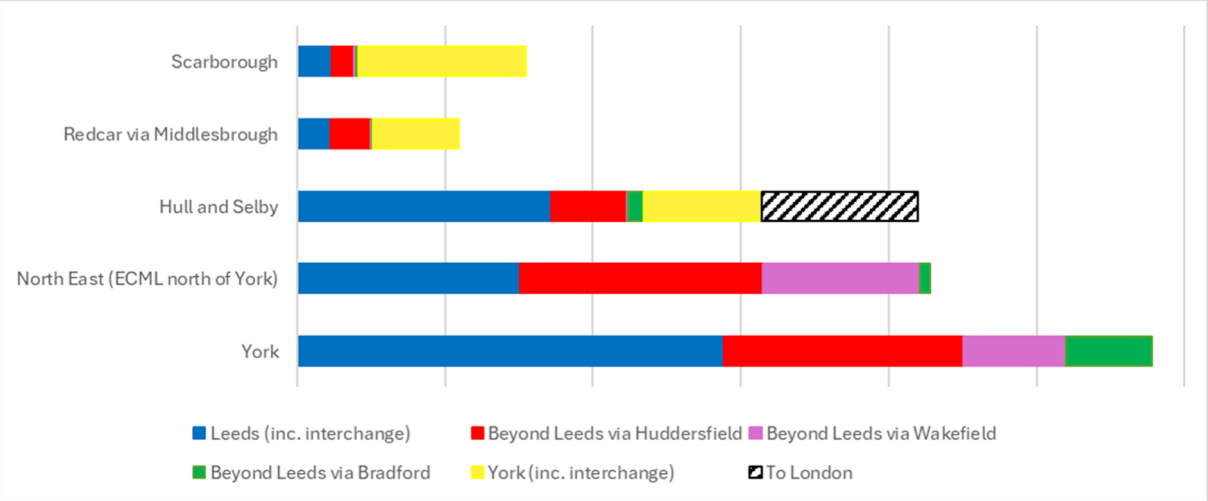
The services on the East of Leeds corridor carry a mix of both regional and local demand. This includes around 6.7 million regional journeys[2], 1.9 million journeys to local stations on the corridor[3] and 1.1 million regional journeys from Hull, Brough and Selby[4]. Demand figures are likely to be supressed due to timetable changes and blockades associated with ongoing TRU works, and this needs to be recognised when considering the data within the following section.

[2] Demand travelling 'end-to-end' on the corridor, plus demand from Selby to Leeds and beyond.
[3] Total demand to/from Cross Gates, Garforth, East Garforth, Micklefield, South Milford, Howden, Sherburn-in-Elmet, Church Fenton and Ulleskelf, plus demand to York from Wakefield, Normanton, Castleford and Pontefract.
[4] Demand to York and the north, towards London and the south and between the three stations.

2.3.1 Regional Demand

Regional demand, as shown in Figure 3, is dominated by flows to and from Leeds (3.2 million). Other important flows are towards the North West of England via Huddersfield (2.1 million) and towards Sheffield and the Midlands via Wakefield (0.9 million).

Figure 3: Regional demand on the East of Leeds corridor by origin and destination.



Source: MOIRA OR93. Demand is year to September 2024 across Leeds<>Cross Gates screenline. Demand from Redcar, Scarborough and Hull / Selby routes to York and Hull / Selby to London added for completeness.

Demand has been reported by origin to the north and east, and this shows that:

- North East and York to Leeds (2.2 million), the North West (1.6 million) and West Midlands (0.9 million) are the largest markets, and trains serving these flows should run as fast as possible between Leeds and York.
- The Hull / Selby to Leeds market (1.1 million, of which 256,000 continue towards Manchester) warrants two Cross-Pennine trains each hour, based on the relative size of the market, along with opportunities to consider faster journey times.
- Flows from York to Bradford, Halifax and Lancashire[5] (291,750 per year in total) are higher than the equivalent flows from both Middlesbrough and Scarborough towards Leeds and Manchester.
- The majority of the market south from Redcar via Middlesbrough is either to or interchanging at York; it has a combined market to Leeds and Manchester of 245,000 per year, and trains serving these markets should also run non-stop between Leeds and York.
- Scarborough also has a significant market to York, accounting for more than 70 % of demand on those trains approaching York. It's combined market to Leeds and Manchester (193,800 per year in total) is smaller than that from both Redcar and Hull, with only 75,000 per year continuing west towards Manchester.

Under the December 2025 timetable certain regional services make either intermediate or peak time extra calls between Leeds and York / Selby. Service outputs may look to separate out these markets, whilst also providing fast regional links from the proposed new station at Thorpe Park. This analysis suggests that in order of priority the Scarborough, Middlesbrough then Blackpool trains should make intermediate calls between Leeds and York (i.e. the trains serving the smallest markets should make the intermediate calls).

[5] Includes Burnley, Accrington, Blackburn, Preston, Kirkham & Wesham, Poulton-le-Fylde and Blackpool

Despite these findings, the Scarborough and Middlesbrough services typically run non-stop on the East of Leeds corridor, whilst the Blackpool North<>York train makes at least two intermediate calls between Leeds and York.

The markets between Sheffield / Wakefield and York are currently served by several routes. The faster route from Sheffield to York is via Doncaster (1tp2h in 48 minutes); the routes via Leeds (1tph in 70 minutes) and via Pontefract (3tpd in 76-82 minutes) are slower. Around 117,000 trips of the overall market of ~240,000 is assigned via Leeds and the East of Leeds corridor. Reinstating the route via Doncaster to a full hourly service in the future will mean that the market is likely to favour the shorter journey times via that route.

From Wakefield to York the route from Kirkgate via Castleford (1tph in 39 minutes) is marginally faster than the route from Westgate via Leeds (1tph in 45 minutes). Around 29,000 trips of the overall market of 64,000 is assigned via Leeds and 35,000 is assigned via Castleford. The service via Castleford was introduced from December 2023; evidence suggests that the full demand impacts of this service have not yet been realised and the markets it serves are continuing to grow.

Regional demand should be protected and separated from the local market by running trains between York and Leeds non-stop where possible, and this includes Blackpool North <>York services. The Hull to Leeds and Manchester market, should be served with 2tph fast in addition to local services from Selby to Leeds.

2.3.2 Local Demand

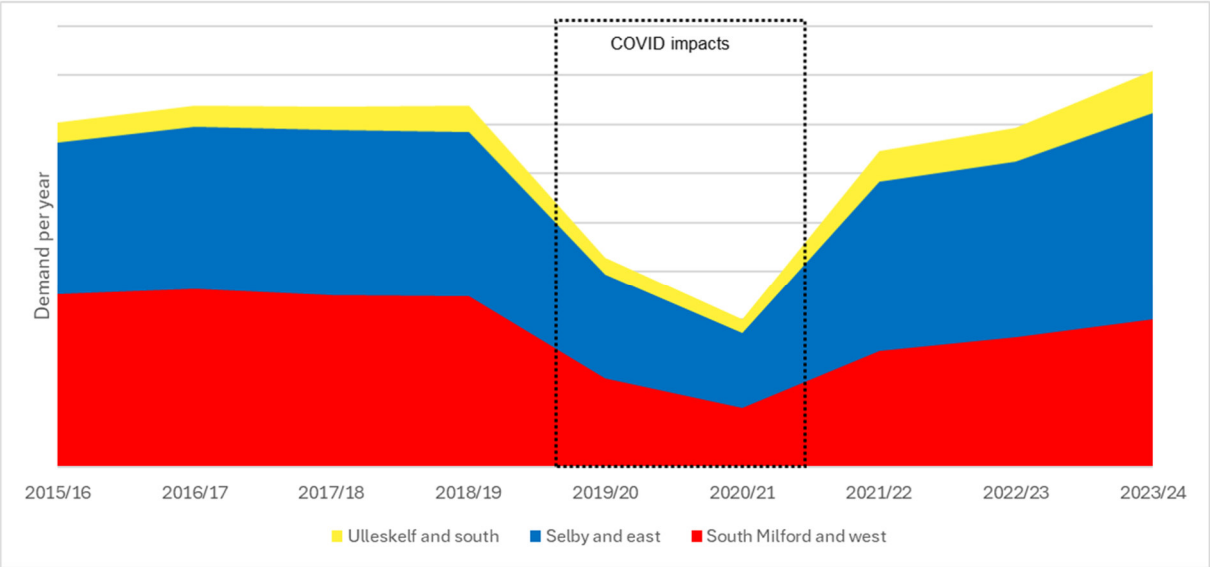
Local demand is dominated by trips from local stations to Leeds (or beyond), which accounts for 1.7 million trips per year. Demand into York from local stations accounts for 0.8 million trips per year. Further details are shown in Appendix A.

Leeds is the predominant destination from stations west of Selby whilst York is the predominant destination for stations between Ulleskelf and Sherburn-in-Elmet. Demand into York from the Five Towns area is a new and growing direct market. Flows between local stations are by contrast much lower.

The COVID-19 pandemic has resulted in significant changes to demand levels and travel patterns. In the four years prior to 2018/19, local demand had grown by around 5 % before recording significant reductions in both 2019/20 and 2020/21. Local demand has since recovered, and is now 10 % higher than pre-COVID levels, as shown in Figure 4.

However, this masks a range of impacts affecting specific stations. Leeds/York<>Hull, and the Five Towns<>York has seen substantial growth (given the latter is a new service), whilst demand at stations west of South Milford (excluding Micklefield) remains between 15 % and 25 % lower than 2018/19 levels. This reflects the importance of commuting flows from these stations, and the resulting changes in working patterns post-COVID.

Figure 4: Total local demand growth between Leeds, York and Hull.



Source: MOIRA OR93. Demand is year to September from local stations in the East of Leeds study area.

Major destinations for local demand are to Leeds (from Selby and stations to west) and York (from Selby and stations south of York). There are relatively small flows between local stations.

2.3.3 Demand Profile

Analysis of arrival and departure data from autumn 2024 at Leeds has allowed a daily demand profile to be developed, as shown in Figure 5 overleaf. These are derived from Department for Transport (DfT) train counts.

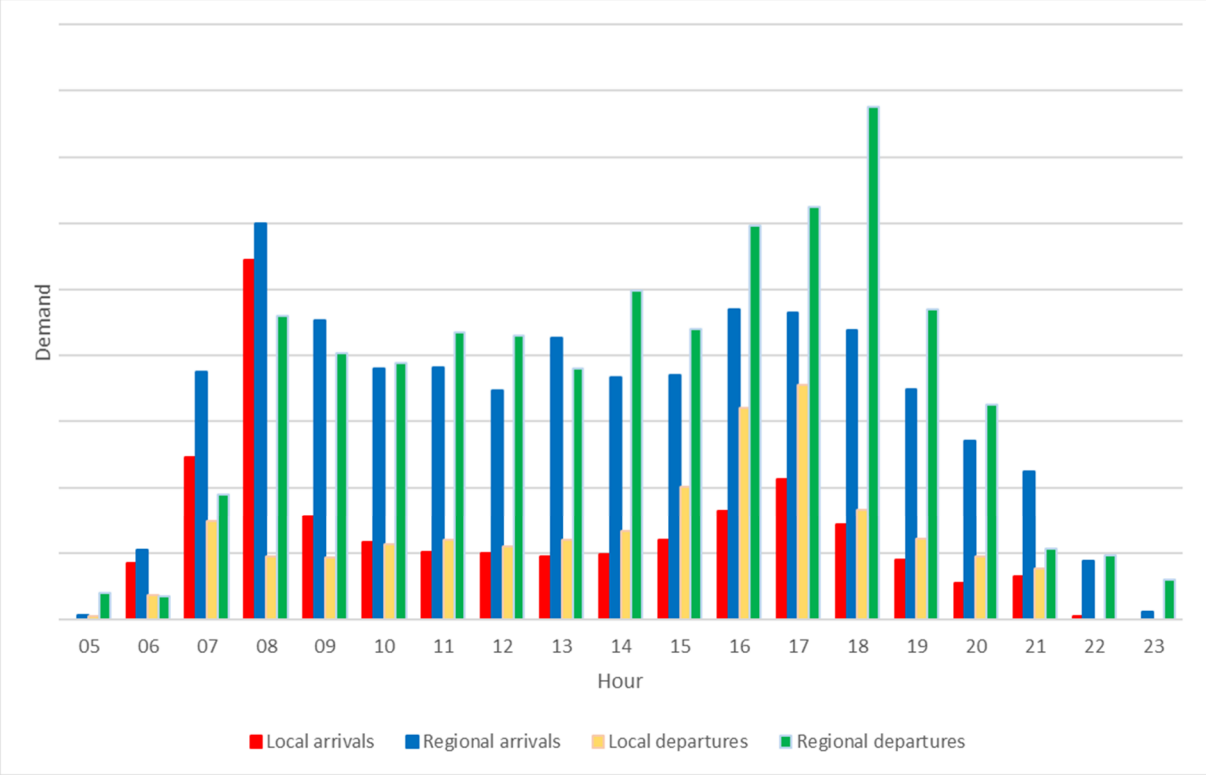
This shows significantly different demand profiles for local and regional trains, although it is noted that some regional services currently make additional local calls between Leeds and Selby / York at peak times. This is particularly prevalent in the PM peak departures where at 18:00 the falling demand for local services is offset by a corresponding increase in regional demand, with the regional services accommodating the additional demand.

For local demand, hourly AM peak arrivals are around a third higher than PM peak departures. The profile suggests a much shorter, pronounced peak in AM arrivals; PM peak departures are lower but spread across a longer three-hour period. Departures in the period between 16:00 and 18:59 reach only around two-thirds of the demand on AM peak arrivals, which shows the impacts of a reduced number of peak extra local services in the PM hours, with additional demand catered for by extra calls on regional services.

The regional departures see a much higher peak in the PM which lasts over several hours, with the highest demand reached between 18:00 and 18:59. The three hours from 16:00 all see demand similar or greater than that for arrivals in the 08:00-08:59 AM peak.

When considering local flows, the AM peak into Leeds shows the highest level of demand throughout the day, and this should be the focus for further analysis. The level of demand in the PM peak spread across local and regional services suggests that a mirror of the AM peak extra services should be provided to adequately cater for demand; without these additional services the regional trains need to make additional calls at local stations with knock-on impacts on journey times and potentially performance due to the lower density rolling stock layouts on regional services.

Figure 5: Weekday arrivals and departures to/from East of Leeds corridor.



Source: DfT train counts, Tuesday to Thursday in autumn 2024. Local trains include Leeds<>Selby/York, Halifax<>Hull and Blackpool North<>York.

Analysis of Automatic Passenger Count (APC) data provided by Northern has allowed a similar exercise to be undertaken for the route south of York. This has shown the relative size of the peak and off-peak markets. This suggests that although demand is high in the traditional weekday peaks, leisure travel has boosted off-peak travel so that demand on Friday and Saturday mornings is higher than the weekday peaks. This now results in the highest demand being recorded on services on the Hull<>York corridor on Saturdays.

Demand profiles indicate that the AM peak frequency enhancements into Leeds should be mirrored in the PM peak from Leeds to adequately separate out regional and local markets. There is also a need to further examine the York<>Hull corridor to appropriately cater for demand.

2.3.4 Train Counts

Baseline demand used in our forecasting work has been derived from video counts undertaken in October 2024. These counts recorded boarding and alighting on all services calling at intermediate stations between York, Selby and Leeds in the morning peak hour. A validation exercise has been undertaken to provide reassurance that the count data provides a reasonable representation of demand. This shows that the video counts and the DfT counts are within 1 % when considering demand alighting at Leeds, whilst comparisons with APC data provides reassurance that the count data is providing an accurate snapshot of demand.

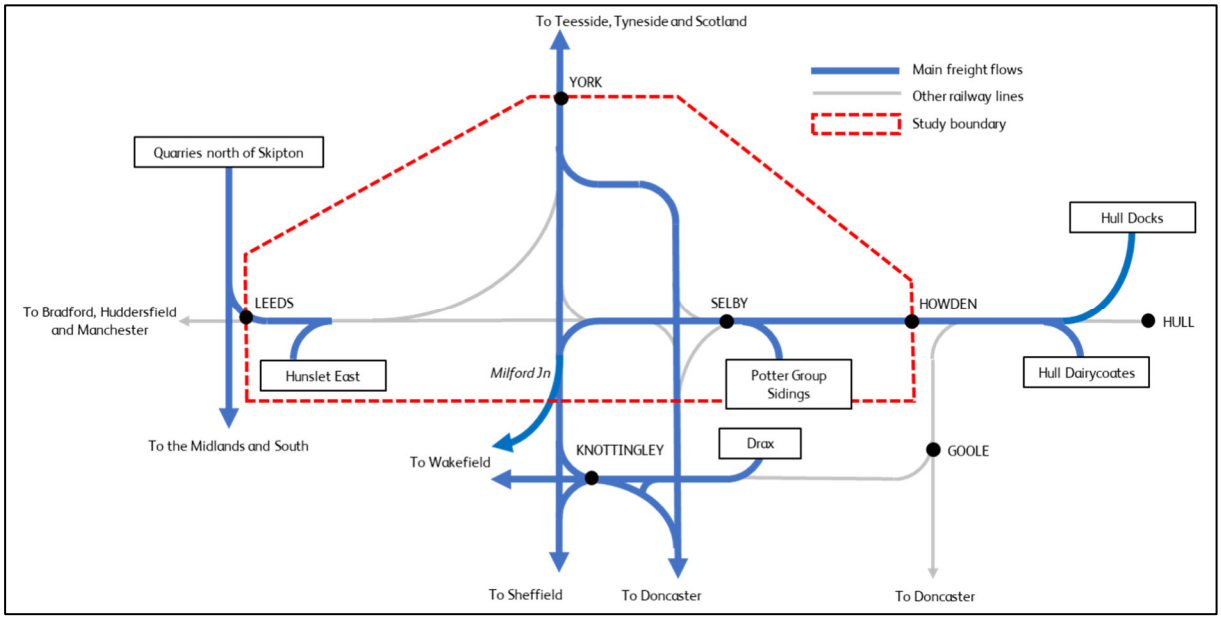
Comparisons with APC data on the corridor south of York provides a slightly different picture. Here the train count data is higher than that recorded by Northern's APC data in the traditional weekday morning peak. However, the counts do show similar levels of demand to that observed by APC on Friday and Saturday mornings. As these are now known

to be the busiest periods into York from the south using count data which matches well to those totals is considered to offer a robust approach.

2.4 Freight

The main freight flows through the study area are shown in Figure 6 below.

Figure 6: Main freight flows through the study area.



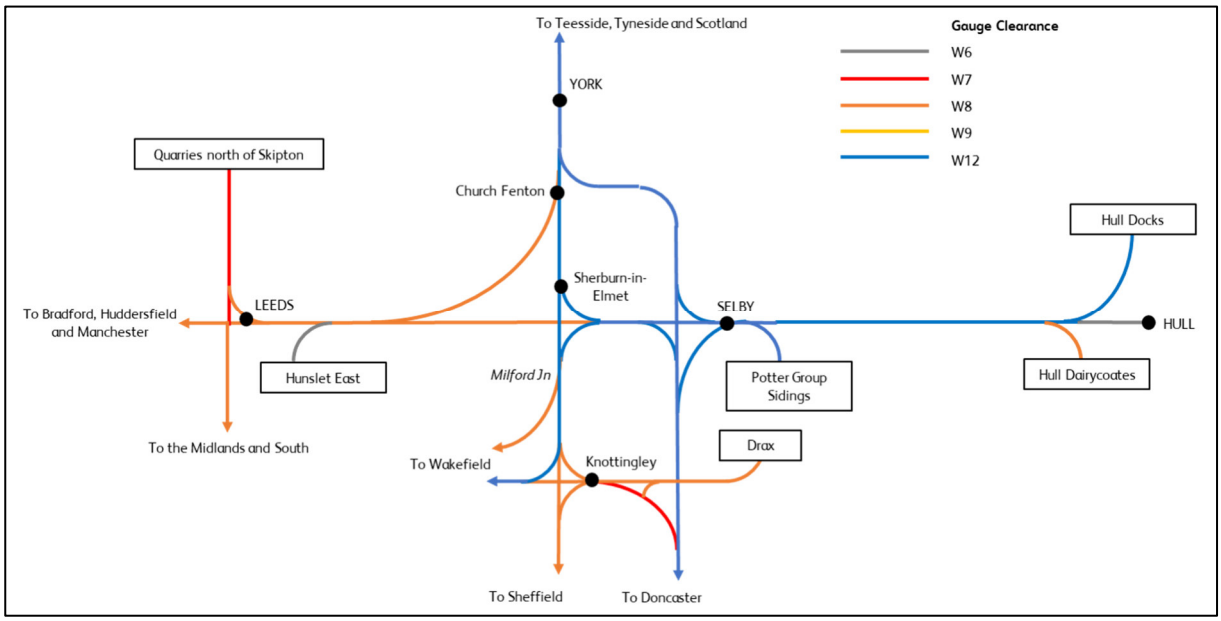
At Leeds this includes regular flows of aggregates from the quarries to the north of Skipton towards the south. Some of this traffic routes through Leeds station, reversing at Neville Hill to access the terminal at Hunslet East. There are limited flows on the route east of Neville Hill towards either York or Hull.

The lines from York via Milford Junction towards Knottingley provide a route for steel traffic between Teesside, South Yorkshire and onwards to South Wales. This route is also used for biomass trains between the terminal at Tyne Dock and Drax Power Station, south of Selby. Paths through the Knottingley area provide links from Drax to terminals at Immingham, Hull and Port of Liverpool, some of which do not pass through the East of Leeds study area.

Intermodal trains from Doncaster towards Teesside and Scotland typically operate via the ECML. East of Milford Junction towards Hull is used by aggregate flows to/from Dairycoates as well as biomass flows between Drax and the Port of Hull. Aggregate flows from north of Skipton to Dairycoates typically avoid the Leeds<>South Milford line by routeing via Milford Junction. Freight to the terminal at Selby is less regular and can route either via the ECML or via Milford Junction.

Much of the study area is gauge cleared to W8, with the ECML and links into Selby and Gascoigne Wood cleared to W12. Further gauge clearance is being designed as part of TRU (shown in Figure 7) and this would clear the route between Wakefield and Colton Junction via Ferrybridge and Sherburn-in-Elmet and between Selby and Hull to W12. This will enable direct Cross-Pennine flows from Liverpool to the East Coast Ports, including Hull, but is subject to business case.

Figure 7: Gauge clearance for freight through the study area post-TRU.



2.5 Depots and Stabling

The East of Leeds corridor provides access to the train maintenance depot at Neville Hill. This is an important servicing and stabling point for various operators. Access is only typically provided to/from Leeds; a ground frame is available which permits access towards the east, but this is not used during regular operations. Access to the depot is via low-speed turnouts which are limited to 15mph.

Neville Hill Traction Maintenance Depot.

Empty Coaching Stock (ECS) moves from the depot are typically outbound in the morning before start of service and inbound as services ramp-down in the evening. Neville Hill is currently used to stable Electric Multiple Unit (EMU) stock from the Leeds North West routes between the peaks, and this requires additional train paths.

Analysis of the existing timetable shows that there are a small number of ECS moves between Leeds and the depot at Neville Hill throughout the day. However, as part of the TRU works a new EMU depot will be provided at Shipley, and this will be used to stable units used on the Leeds North West routes.

It is currently unclear whether the same number of paths will be required to/from Neville Hill during the day once the depot at Shipley opens. Therefore, within capacity analysis work for this Strategic Advice, ECS moves have been retained to/from Neville Hill to represent a 'worst case' scenario. Once future operations become clear then these assumptions should be revisited.

Detailed consideration of future changes to rolling stock, for example new fleets and their impacts on depot and stabling requirements have not been considered within the scope of this study.

2.6 Level Crossings

Level crossings are one of Network Rail's biggest safety concerns due to the risk posed by the interactions between people, vehicles and the railway. Network Rail continues to explore ways to reduce level crossing risks, including closure. However, as this usually involves the provision of an alternative bridged route, the financial implications can be significant and require a robust economic case to support investment.

Level crossing locations in the study area are shown in Figure 8; the operational issues associated with them is summarised in Table 3.

Selby West Level Crossing with queuing traffic.
Source: Routeview

Figure 8: Level crossings within the study area.

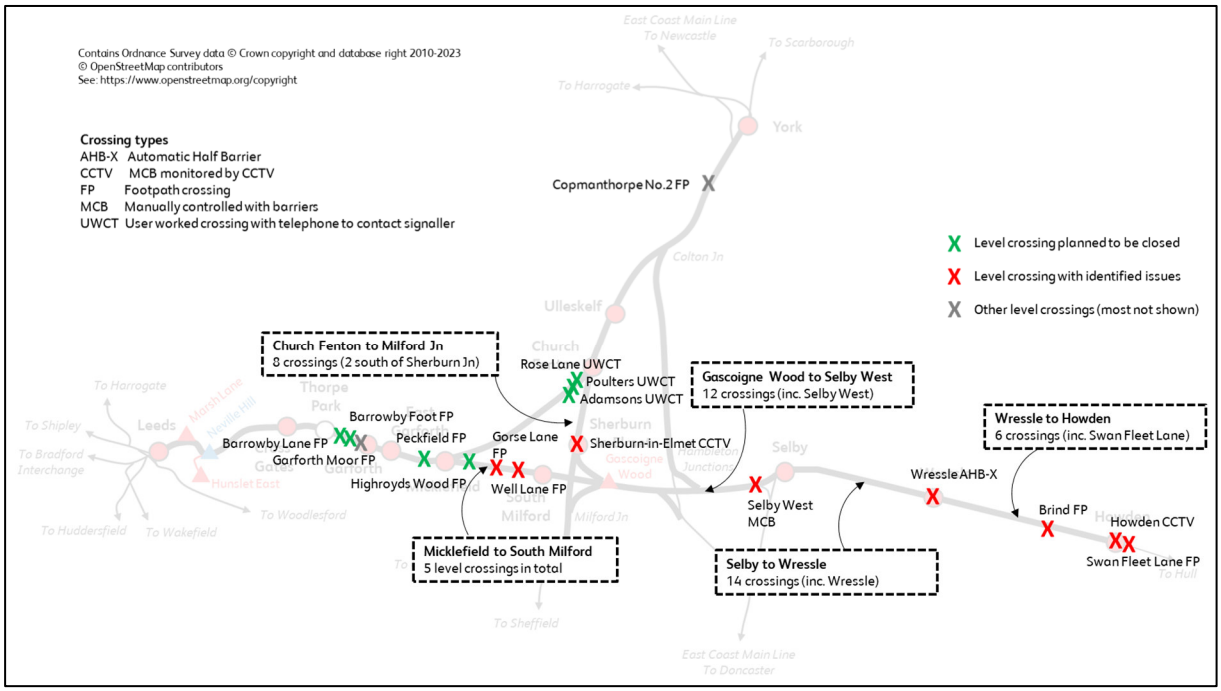


Table 3: Level crossings where issues have been identified.

Crossing	Issues
Sherburn-in-Elmet	Longer trains may straddle the crossing in northbound direction, with the potential for barrier down time to be excessive increasing the risk of misuse.
Gorse Lane	Unprotected footpath crossing with limited sighting for users. Requires frequent de-vegetation work.
Well Lane	Footpath crossing with significant numbers of encumbered users and stile facing the wrong direction. Potential need for gate-to-gate enhancement.
Selby West	Long barrier down time linked to early route setting by signallers. Any increase in train movements will increase workload further and exacerbate the problem. This crossing has been highlighted by YNYCA for its significant impact on road congestion in Selby.
Wressle	Crossing barriers cannot be raised with train at station platforms. Road curves immediately south of crossing which raises highway safety issues.

Crossing	Issues
Brind	User worked crossing classed as high risk with typically long wait times to cross. Telephones and miniature stop lights to be installed.
Howden	Both crossings are close to Howden station, and there is no access between the car park (on the north side) and the westbound platform (on the south side) if the barriers are lowered. Any additional services will result in longer barrier down times. Any mitigation should consider an integrated solution for both crossings.
Swan Fleet Lane	

The Leeds to York route will see level crossings either closed or replaced by footbridges as part of TRU. This includes three crossings at Church Fenton to be replaced by a bridge, with a further four between Leeds and South Milford planned for closure in 2026.

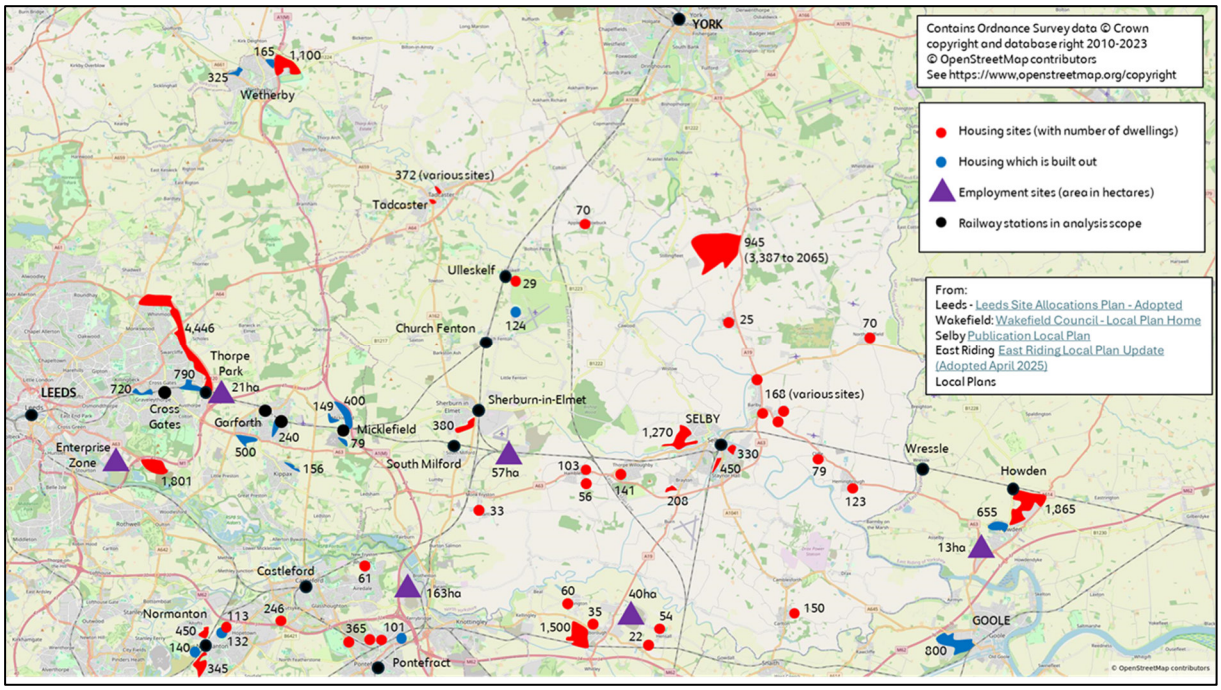
Level crossing impact assessments would be required to understand the safety implications of introducing faster, longer or additional services. Proposals for service changes should also consider how additional barrier down time will impact on waiting times of pedestrian and vehicle users.

3. Drivers of Change

3.1 Land Use and Development

A review of the relevant local development plans has been undertaken. The outputs, in terms of new housing and employment sites, is summarised in Figure 9 below.

Figure 9: Future land use developments in the study area.



Source: Local Development Plans and Transport for the North's Development Log.

This shows that future housing and employment sites outside of Leeds and York city centres are concentrated to the northeast of Leeds, in the corridor between Selby and York, and at Howden. In the Leeds area, this suggests that the proposed station at Thorpe Park is best placed to cater for future housing growth and its service offer should reflect this.

A more southerly band of development, albeit with lower overall housing numbers, is focussed on the Pontefract to Goole corridor. This includes the employment sites of the former power stations at Ferrybridge and Eggborough. There is some evidence from station catchment data that rail demand from these areas currently accesses the rail network at stations between Garforth and Howden, or at Knottingley, instead of using the less regular service offer between Knottingley and Goole. East Riding of Yorkshire Council, WYCA and YNYCA amongst other groups have commissioned a study looking at future options for the Knottingley to Goole route, which will consider how to best serve development in this corridor.

The North Yorkshire Local Plan is currently being prepared, with the Council having undertaken a 'call for sites' and now considering the suitability of the suggested sites. The proposals have been presented in terms of five possible growth scenarios, and these have spatial implications for the towns and villages south of York which interface with this study area. The Local Plan is not yet sufficiently complete to offer a complete picture of where future developments will be concentrated. It does however offer an indication that Selby and the larger towns and villages south of York will be the focus of development under a range of scenarios.

At the eastern edge of the study area, Howden is a focus for development within East Riding. Comparatively there are no major housing developments proposed in Goole. This change in focus for new developments offers the opportunity to improve the rail service from Howden, including reinstating regular links towards Leeds to encourage modal shift to rail and developing a rail head for the southwestern areas of the East Riding.

Proposed reforms to the National Planning Policy Framework (NPPF)[6] were announced in December 2025 and government is currently consulting on the proposed changes. This creates a presumption in favour of sustainable development for housing and mixed-use development around 'well-connected' rail stations with service frequencies of 2tph or more. It also creates mandatory minimum development densities within a reasonable walking distance of these stations.

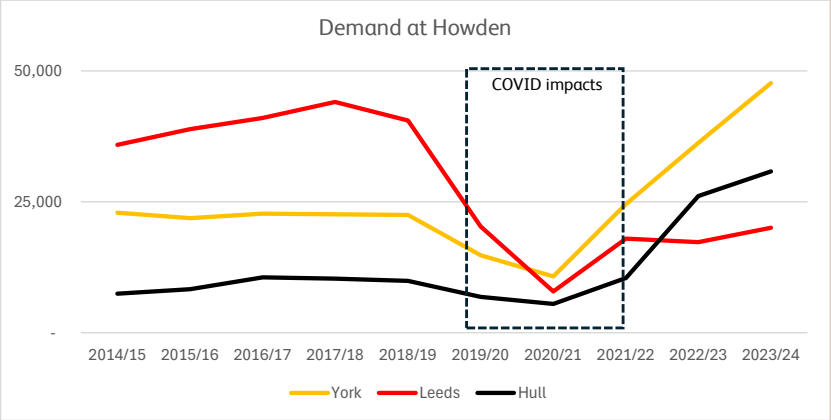
This means that significant areas of land through the study area could be unlocked for development as most stations have 2tph or more in each direction. This gives the study area a significant opportunity for transit-orientated development beyond that currently identified within local partners' plans. As the NPPF evolves, it will be important for the rail industry to work closely with local partners to enable joined-up outcomes on the corridors.

Thorpe Park, Selby and Howden will be the focal points for future housing development, and future services should aim to better serve these potential markets.

[6] National Planning Policy Framework: proposed reforms and other changes to the planning system - GOV.UK https://www.gov.uk/government/consultations/national-planning-policy-framework-proposed-reforms-and-other-changes-to-the-planning-system

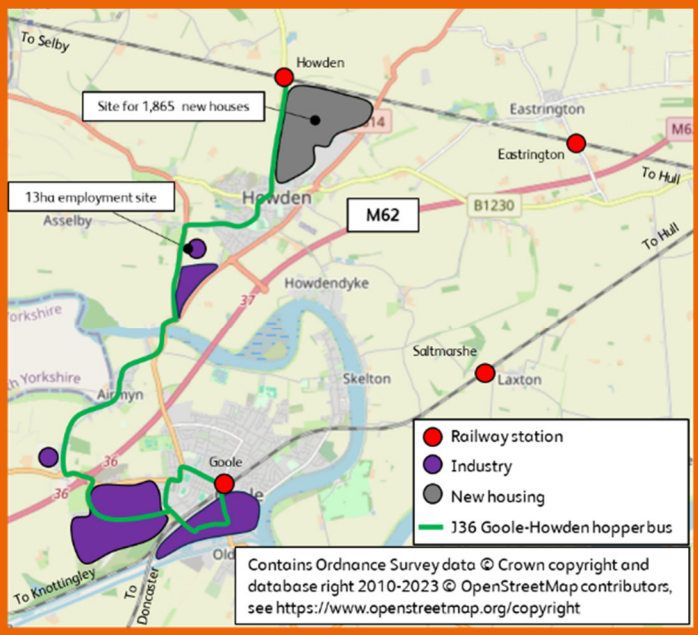
Enhancing direct services between Howden and Leeds

From the December 2019 timetable change the service between York and Hull was regularised to 1tph. One of the consequences of this change was the removal of regular hourly services between Howden and Leeds. This has contributed to a significant change in the market at Howden, with the formerly dominant market to Leeds losing more than half of its demand whilst demand to both York and Hull has grown significantly, as shown in the graph below.



Reinstating calls on existing services towards Leeds, whilst retaining those on the York service, would deliver an improved service offer from Howden. This would have limited impacts on operating costs and would not increase train movements across the level crossings between Selby and Howden.

Howden will be a focal point for development in the East Riding of Yorkshire, with plans for 1,865 new houses between the Town Centre and station. Providing regular direct services to Leeds will better connect the new housing with nearby major employment markets.



A hopper bus currently connects Howden station, the town centre, wider hinterland and Goole station via the main local employment sites every 30 minutes with an end-to-end journey time of just under 30 minutes. The routeing is shown in the map on the left.

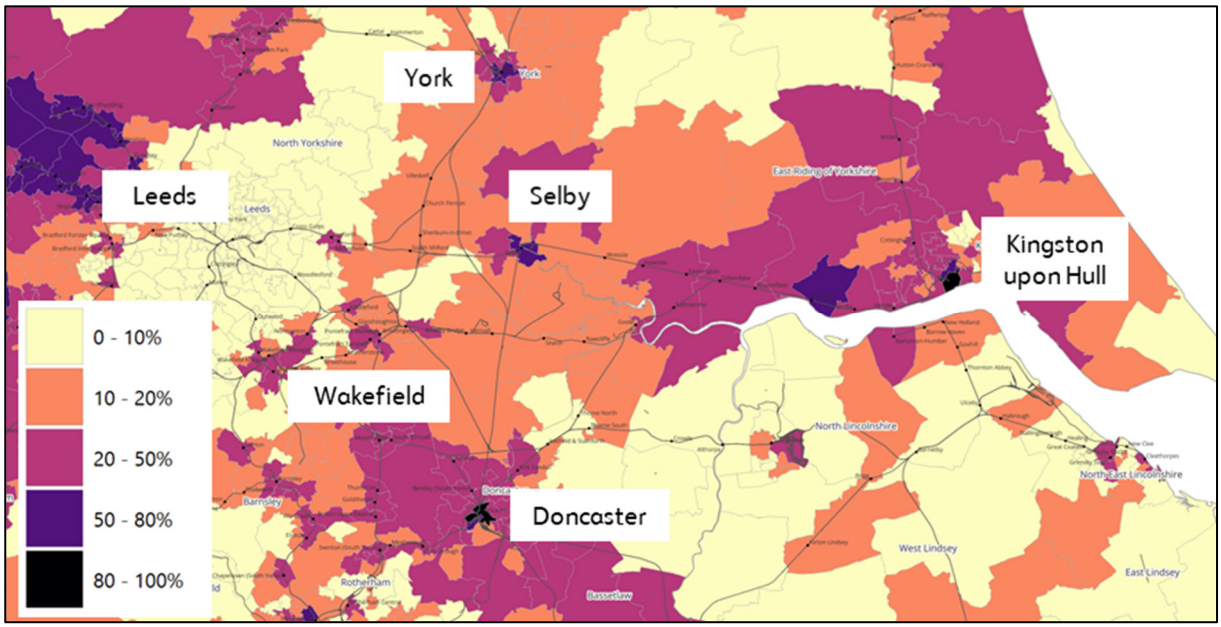
Connecting this bus with enhanced rail services to/from Leeds will allow better connectivity for Howden and the wider hinterland. Direct trains between Leeds and Howden could offer a rail journey time of around 35-40 minutes, dependent on calling patterns. Opportunities to enhance bus journey times could also be further investigated.

Improved rail services via Howden should be coupled with improvements to surface access and car parking at Howden station alongside further integration with the hopper bus service. This could then provide an attractive rail offer for demand between Leeds, Howden and much of its wider catchment area. This will help drive modal shift which will contribute to reducing congestion on the strategic road network towards West Yorkshire.

3.2 Mode Share

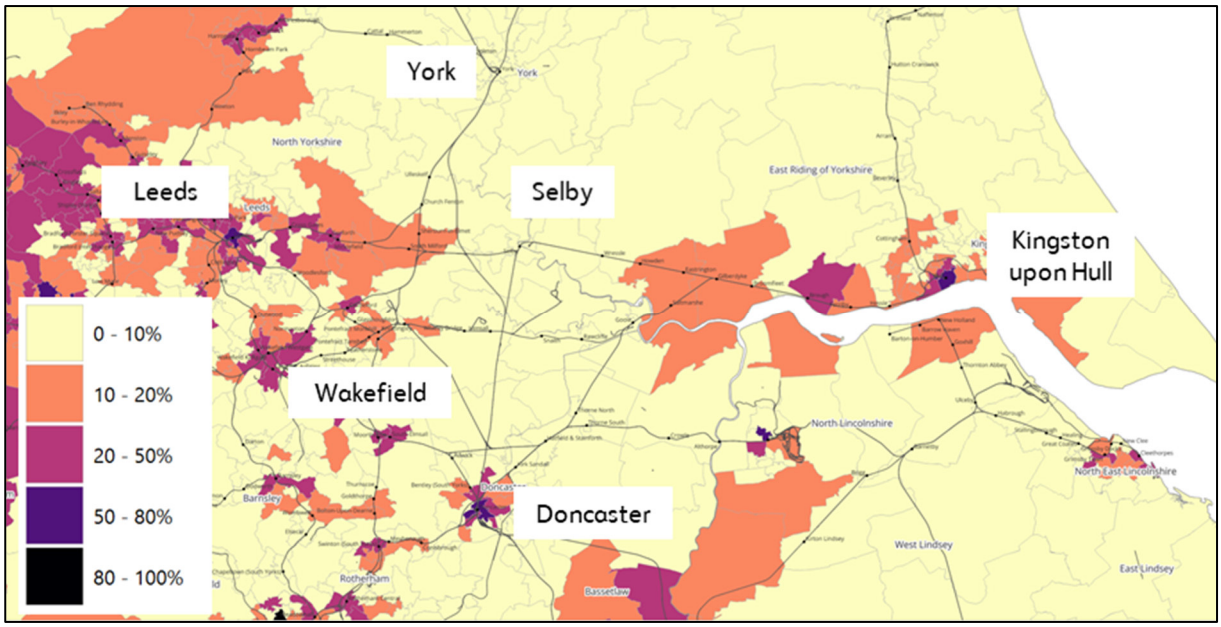
Analysis of Mobile Network Data (MND) has been undertaken to show the percentage of journeys by rail to the areas surrounding both Leeds and York stations, as shown in Figure 10 and Figure 11 below.

Figure 10: Rail mode share to destinations within a 20-minute walk of Leeds station.



Source: Mobile Network Data, average mode share on weekdays only from 2023 to 2025. Contains Ordnance Survey data © Crown Copyright and database right.

Figure 11: Rail mode share to destinations within a 20-minute walk of York station.



Source: Mobile Network Data, average mode share on weekdays only from 2023 to 2025. Contains Ordnance Survey data © Crown Copyright and database right.

This shows that:

- Rail takes higher market share on longer distance journeys, and it takes a high mode share into Leeds from Hull, Brough, Selby and York:
- Howden shows a relatively high mode share despite its poor rail service offer and demonstrates a case for change to standardise to an hourly service toward Leeds; and

- Rail mode share falls away on the approaches to Leeds due to competition with other modes through the eastern suburbs, with the Garforth area standing out as having a higher rail mode share.

Trips towards York show similar patterns:

- High rail mode share from both Leeds and Hull City Centres. This is despite the poor frequency and long journey time from Hull.
- Decay in mode share away from Hull City Centre is more noticeable, especially on the rail line towards Beverley. This is because these areas are nearer York by road versus Hull. There are direct rail services but their route via Hull means they have an extended journey time.
- Growing market from Wakefield and Castleford, reflected in relatively high rail mode share from these areas into York.
- Relatively low rail mode share from Selby despite the distance into York. This is driven by competition with commercial bus services and the park and ride sites at York. This compares unfavourably to the Selby<>Leeds market, where similar conditions apply, but the rail mode share reflects the 2tph plus peak extra rail service.

The differences in mode share to Leeds and to York are driven by the comparative offer of road and rail, as shown in Table 4.

Table 4: Selected rail and road journey times in the study area.

Arriving in the AM peak between 08:00 and 08:59	By Rail	By Road	Reduction in rail journey time to match typical road journey times
From Leeds to York	7tph in 22-31 mins	45-75 mins	n/a
From Castleford to York	1tph in 28 mins	45-65 mins	n/a
From Selby to York	2tph in 31-35 mins	30-55 mins	1-5 mins
From Howden to York	1tph in 42 mins	40-65 mins	2 mins
From Hull to York	1tph in 70 mins	60-100 mins	10 mins
From Selby to Leeds	3tph in 22-37 mins	45-75 mins	n/a
From Howden to Leeds	43 mins*	45-75 mins	n/a
From Hull to Leeds	2tph in 55-67 mins	75-120 mins	n/a

Source: December 2025 timetable and Google Maps *noting that although there is an AM peak arrival into Leeds from Howden there are only 4 trains to and 3 from Leeds per day.

Rail journey times into York are at least 10 minutes slower on the Hull route compared to road when unconstrained. Routes into York and Leeds from other origins offer equivalent or faster journey times than road.

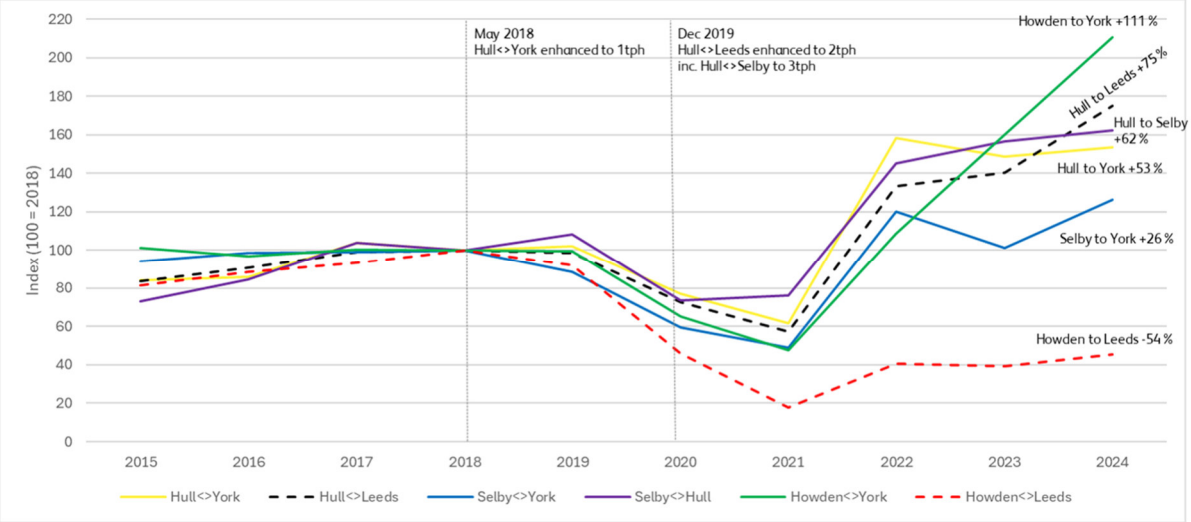
There may be scope to provide faster journey times between Hull and York to induce modal shift and grow the market further. This has the potential to help alleviate congestion on several important routes, including the M62 between Howden and Leeds, the A1079 between Hull and York, the A19 between Selby and York as well as the junctions between the latter routes and the A64 York Outer Ring Road.

Rail has a low mode share on the Hull to York corridor, resulting from less frequent services and uncompetitive journey times compared to road. A more competitive rail offer to the stations identified will help to encourage modal shift, which in turn will help to alleviate congestion on the main roads into York and Hull and towards Leeds.

3.3 Impacts of Recent Service Changes

The East of Leeds corridor has seen service changes over recent years, including standardising the York<>Hull service to hourly in May 2018, and later trains between York and Selby. From December 2019 the Halifax<>Selby service was extended to Hull, providing a second train each hour between Leeds and Hull and a third train each hour between Selby and Hull. One of the consequences of this service change was the removal of regular calls at Howden on Leeds services. The impacts of these services in terms of demand are shown in Figure 12 below, and the change in the Howden<>Leeds market can clearly be seen.

Figure 12: Demand response of service changes east of Selby.



Source: MOIRA OR93. Demand is year to September.

In general, there has been a stronger demand response towards York compared to Leeds, although this is from a much lower demand base. The impacts of the COVID-19 pandemic on demand can also be seen in 2020 and 2021.

A second platform alongside station refurbishment and a new footbridge at Castleford opened in December 2023 as part of planning for diversionary routes for TRU. This has enabled a Manchester<>York via Castleford service to be introduced, increasing from 4tpd on opening to hourly from December 2024. It is the first regular direct service to connect Castleford and York for over 50 years and fills a local connectivity gap identified in policy aspirations.

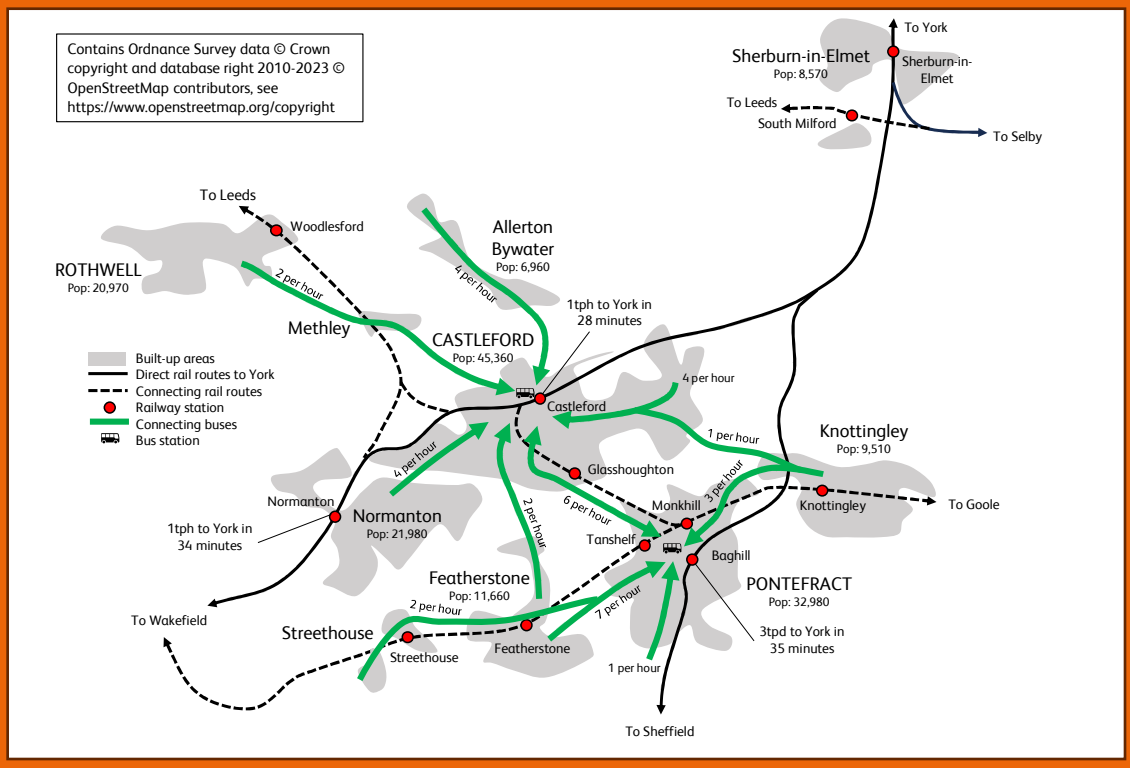
The demand response of the new service is still to be fully realised. Ticket sales data has shown strong growth, and this has continued through 2025. Further opportunities to enhance the service by providing additional calls at Sherburn-in-Elmet and Church Fenton would better connect the workforce in Castleford to nearby employment opportunities, although this would require enhancement works at Sherburn-in-Elmet and Church Fenton to enable Class 185 rolling stock to provide passenger calls.

There has been a decrease in demand between Leeds and Howden as regular calls have been removed. Standardising Howden calls to hourly has the potential to restore the market. Minor service enhancements between Hull and York have generated significant levels of growth. Enhancing the service offers further opportunities for demand growth, generating additional rail revenue.

Direct links between York and the Five Towns

The Five Towns are in the northeast of Wakefield District, around 30km southwest of York. The area includes the larger towns of Castleford, Pontefract and Normanton and the smaller settlements of Featherstone and Knottingley. The area has a combined population of more than 125,000, but this is dispersed throughout the towns.

Railway geography makes it challenging to offer a single service from York which caters effectively for the whole of the area. The long-standing but infrequent Sheffield<>York train serves Pontefract, whilst the recently introduced Manchester<>York train offers an hourly service to Wakefield, Normanton and Castleford. The smaller settlements of Featherstone and Knottingley remain reliant on connections, either by bus or by rail via interchange at Castleford as shown below.



Bus journeys across the Five Towns tend to be slow and in some cases service frequency is poor. The last services depart early in the evening and there is relatively poor integration, particularly between bus and train at Pontefract. In contrast, there are much stronger bus and rail connections at Castleford, where the bus station is only a short walk from the railway station.

As a result of policy decisions to adopt bus franchising, local bus services are to be specified as part of West Yorkshire's Weaver Network. In the medium-term this could include retiming and or re-routeing services to better connect trains and buses, and improved wayfinding between railway stations and bus stops. This could enable timely connections to make the overall public transport offer more attractive. This offers benefits to the rail industry through maximising the catchment area of services, and to the bus industry by allowing many more journey opportunities via a timely interchange at a central hub. This is particularly important for journeys to and from York, where rail offers the only regular public transport option from the area.

This more integrated approach would help to maximise the catchment area for rail journeys from the Five Towns towards York. Alongside this, WYCA's Rail Strategy has identified potential improvements to rail connectivity around the Five Towns. Of relevance is the desire to prioritise an enhancement to the York<>Sheffield service to 1tph all day every day, also supported by YNYCA, alongside the retention of the Manchester<>York via Castleford service. The interactions between these services need to be considered alongside other aspirations for service enhancements between Hull and York and improved access to growing employment opportunities at Sherburn-in-Elmet.

York to Manchester Piccadilly train at Castleford. *Source: TRU*

As the railway industry moves towards the creation of Great British Railways, the new structure will enable more integrated commercial and operational decisions across both track and train and provide mayoral strategic authorities with a more formal role in planning the network. This joined-up approach is designed to improve customer satisfaction, strengthen performance, support demand and revenue growth, and reduce the overall subsidy requirement to run the railway.

This means that the service aspirations need to be viewed in light of choices to be made around the best use of finite network capacity on the lines south of York through Sherburn-in-Elmet. Further work is therefore recommended to define how these aspirations can together form a target end state for services through Sherburn-in-Elmet towards the Five Towns and Selby, setting out the trade-offs associated with both existing and potential future service patterns.

3.4 Demand Forecasting

3.4.1 Short Term Growth

Northern Trains unveiled their '30 by 30' plan in November 2025, and this aims to grow annual journeys by 30 million by the end of 2030. It includes plans for:

- 10 million extra journeys through background growth;
- 10 million extra journeys through improved performance and the ambition for 90% of trains arriving within 3 minutes of booked time and less than 2% of services being cancelled; and
- 10 million extra journeys through improved connectivity, ticketing and multi-modal integration.

For context, the Office for Rail and Road recorded 91.8 million journeys on Northern in the year to March 2025. This means that the plan aims for growth of nearly 33% in the years to 2030, but these impacts are unlikely to be spread evenly across Northern's geography.

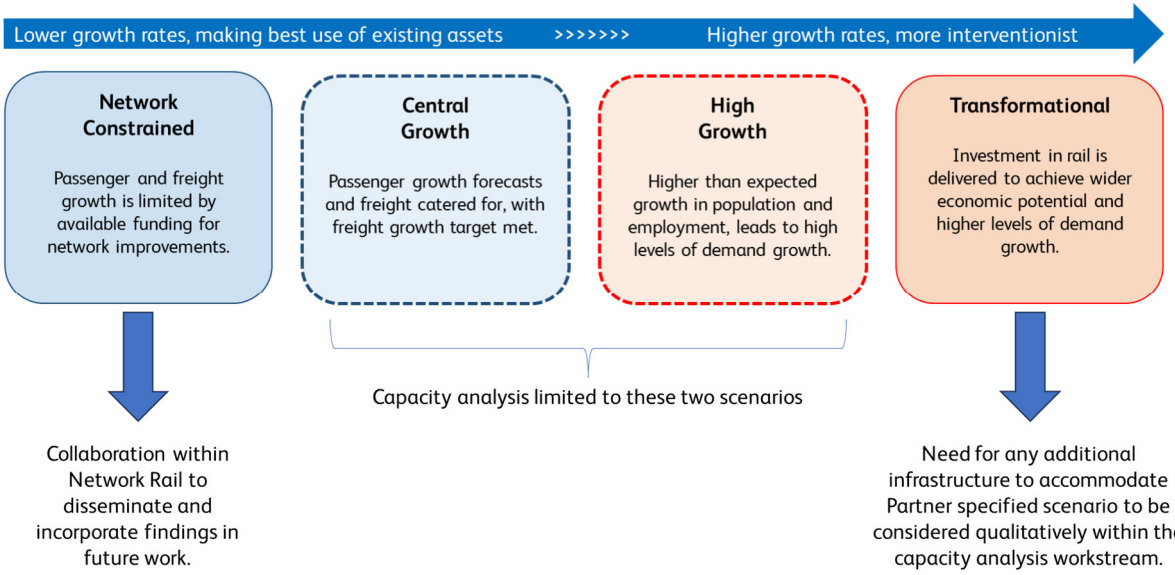
3.4.2 Longer Term Growth

A range of demand forecasting scenarios have been developed for use in Eastern Region Strategic Advice to provide a level of consistency across workstreams. These range from a network constrained scenario, where growth is limited by a lack of investment funds, to a

much more optimistic and interventionist scenario, where investment in rail stimulates wider economic impacts.

The use of multiple scenarios helps to manage uncertainty around future levels of demand and economic growth. These scenarios are summarised in Figure 13 below.

Figure 13: Four scenarios considered in East of Leeds Strategic Advice.



The **central growth** scenario has been developed from DfT Demand Driver Generators (DDG) data and uses this data and applies the Passenger Demand Forecasting Handbook (PDFH) methodology to calculate factors to grow demand up to 2050. This scenario delivers 43 % demand growth between 2024 and 2050, and this represents growth of 1.4 % per year.

The **high growth** scenario applies a more optimistic view of economic growth as specified in the DfT Common Analytical Scenarios (CAS)[7]. It includes a return to the long-term productivity growth trend and increasing levels of prosperity – with Gross Domestic Product (GDP) 10 % higher and employment 12 % higher than under the central growth scenario. Under this scenario 79 % demand growth is forecast between 2024 and 2050, which represents growth of 2.3 % per year.

3.4.3 Demand Forecasting and Uncertainty

By modelling both central and high growth scenarios, an element of uncertainty around future employment and productivity can be considered. However, there are important points to note around these scenarios.

Separate plans and developments through the lifetime of this study have added to forecasting uncertainty. These include firstly updated growth plans such as Northern's '30 by 30' and secondly on assumptions around journeys to work and office-based workers returning regularly to the office throughout the week. The impacts of the November 2025 Budget, including revised economic forecasts, the freeze in regulated rail fares and impacts on road costs (such as the potential for mileage-based pricing for electric vehicles) are not included in this study. This makes it more important to plan for a range of future demand forecasts.

Growth scenarios developed by TfN typically fall in the range between the central and high growth scenarios adopted for this study. The exception to that is their *Urban Zero Carbon*

[7] https://assets.publishing.service.gov.uk/media/65a6bc74867cd8000d5ae9b3/tag-uncertainty-toolkit.pdf

scenario. This is a much higher rate of growth that is more aspirational which is considered as part of the transformational scenario.

3.4.4 Future Load Factors

These forecasts show the level of passenger demand that the corridor needs to accommodate up to 2050. To give an estimation of future train loadings, the central growth forecasts have been applied to the DfT train counts at Leeds; the forecast loads (demand as a proportion of seated capacity) on local services are shown in Appendix B, assuming no change to assigned rolling stock capacities.

Central growth forecasts show that as well as standing on peak time trains, trains adjacent to the traditional AM and PM peak periods will become increasingly busy. There is likely to be 'peak spreading' as demand spills over from the busiest hours into adjacent time periods.

Local demand is forecast to grow at between 1.4 % and 2.3 % per year up to 2050. Even the lower rates of growth will result in high levels of standing and drive the need to lengthen local services by 2040 based on existing rolling stock provision.

3.5 Transpennine Route Upgrade

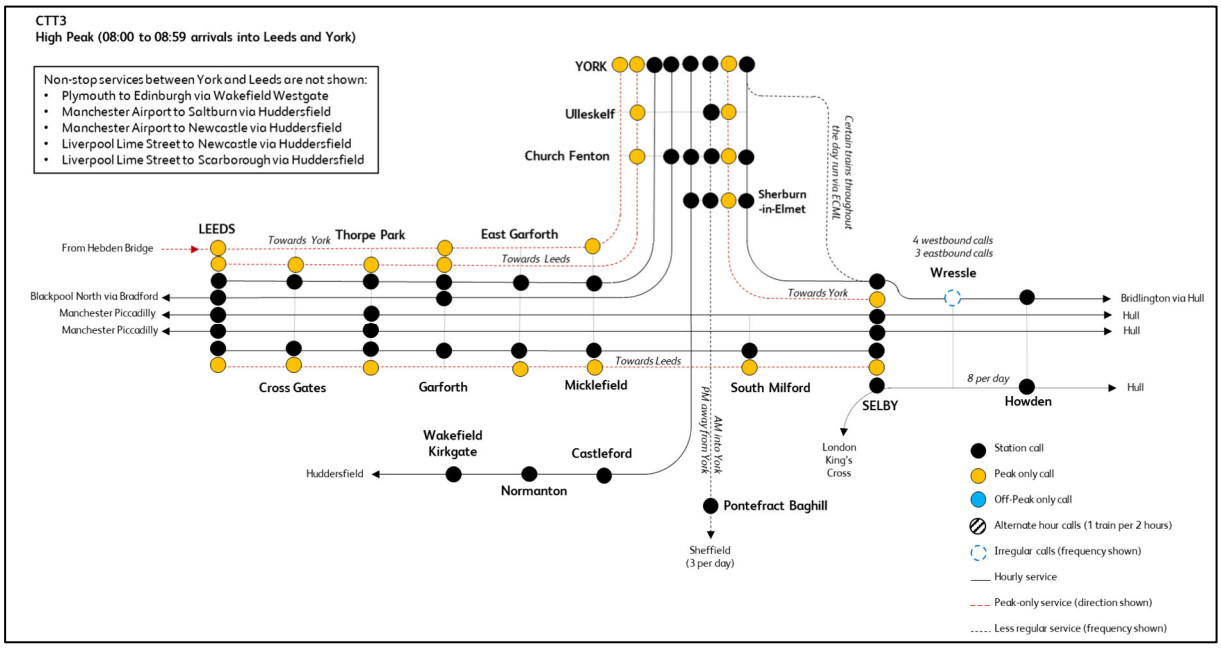
3.5.1 Development of timetable

Network Rail has led work on behalf of the industry to develop Concept Train Timetables to realise the train service outputs of TRU. TRU will enhance Cross-Pennine longer distance services to include 4tph between Manchester and York, with 2tph each hour between Manchester and Hull. Changes compared to the December 2025 timetable on this corridor include:

- Reinstatement of a fourth Cross-Pennine service from Manchester to York via Leeds;
- Halifax<>Hull train is replaced by a second Manchester<>Hull train to the east of Leeds. Both Manchester<>Hull trains operate as semi-fast services west of Leeds and call at Thorpe Park, Selby and Brough to the east;
- To preserve connectivity, a Selby<>Leeds stopping service is provided all day, increasing frequency from Selby in the off-peak periods; and
- Connectivity between Howden and Leeds and some extra calls at South Milford are lost due to changes to services between Leeds and Hull described above.

The proposed service pattern is shown in Figure 14 below which shows peak time extra services providing a 'skip-stopping' pattern to allow these services to also call at Thorpe Park.

Figure 14: Train service specification post-TRU delivery.



Source: TRU Concept Train Timetable 3 (CTT3).

This Strategic Advice has considered previous findings from CTT3 and used available evidence to inform service choices for future Concept Train Timetable development in the near term.

3.5.2 Infrastructure Interventions

To deliver this level of service infrastructure enhancements are required as part of the TRU programme. Platform 14 at Leeds will also need to be lengthened to 100m; delivery of this enhancement is linked to the provision of a new central footbridge as part of the Leeds Existing Station Programme (LESP). Together these form the baseline infrastructure included in the capacity analysis work. Separately, the station at Thorpe Park which is funded by WYCA is assumed to be opened.

The post-TRU timetable is optimised around the available infrastructure. Amending the train service specification on such an optimised timetable will have knock-on impacts as changes to calling patterns are likely to drive infrastructure requirements.

3.5.3 Future demand on local services post-TRU

Post-TRU there will be a change of rolling stock on services to the east of Leeds, with 3-car EMUs operating local York services[8] and 4-car bi-mode trains on Selby services[9]. However, it remains unclear how long these bi-mode units will be, which may affect required platform lengths. TRU infrastructure is designed around the needs of 4-car trains on stopping services.

Forecasts and future load factors are shown in more detail in Appendix C. These show that with the post-TRU service pattern and assuming the central rate of growth, local trains will see standing into Leeds from 2034 with increasing levels of crowding up to 2050. The York<>Leeds service will exceed the standing allowance and result in Passengers in Excess of Capacity (PiXC) above total on-train capacity at Cross Gates by 2039.

[8] Equivalent capacity to 3-car Cl.331 EMUs with 204 seats
[9] Equivalent capacity to 2x2-car Cl.195 DMUs with 248 seats

This means that accommodating forecast rates of growth will not be possible without higher capacity or longer local trains and/or changes to stopping patterns unless greater levels of standing are accepted. If a higher rate of growth is achieved, then the standing allowance is likely to breached earlier with higher levels of PiXC. This would require an earlier decision on the trade-off between breaching standing allowances or lengthening local trains. This also means that rolling stock on the local services will need to be configured with an internal layout that supports an increased proportion of standing passengers.

On the approach to York from the south, CTT3 specifies 3-car trains[10] on the Selby<>York and Hull<>York service. Demand forecasting suggests that the Hull train will begin to see standing inbound from Church Fenton by the 2040s.

The post-TRU service pattern will see residual standing on local services into Leeds in the mid-2030s and York from in the 2040s. Unless a breach of the PiXC standing allowance is accepted from 2039, then accommodating forecast rates of growth into Leeds will not be possible without longer local trains and/or changes to stopping

3.6 Stations

3.6.1 Leeds

Local services towards the east typically use either Platforms 7 or 14 (if starting at Leeds), whilst the Halifax<>Hull and Blackpool North<>York trains typically use Platforms 9 or 11 eastbound and Platform 12 westbound. Regional services use the through platforms which are located on either the central or southern islands.

Platform 7 has level access to the main north entrance. Platforms 9/11 are located on the central island and Platforms 12 and 14 are located on the southern island. Although the island platforms have access to the eastern overbridge it is not step-free and does not allow direct access to the southern entrance; the step-free route uses the west overbridge and there are known congestion hotspots at the foot of the escalator and stairs to the overbridge and at both entrances to the station.

To cater for forecast passenger growth, LESP aims to remodel the station; this will reduce congestion and provide an improved passenger experience. This includes improvements to vertical circulation by providing a new central overbridge and enhancements to the existing entrances.

3.6.2 Thorpe Park

WYCA continue to promote a new station at Thorpe Park, between Cross Gates and Garforth. This will add a fifth local station on the East of Leeds corridor and introduce further challenges to accommodate the mix of stopping, semi-fast and fast services. It also raises the question of whether regional services should be provided at both Garforth and Thorpe Park, or whether one should take precedence over the other.

Impression of proposed Thorpe Park station.
Source: WYCA Outline Business Case

[10] Equivalent capacity to 3-car Cl.170 DMUs with 189 seats, which has 15 fewer seats than an equivalent length 3-car Cl.195 DMU

WYCAs plan is for Thorpe Park to be a strategic park and ride site, with a large car park accessed from M1 J46. This will require calls on regional services to offer faster services to York as well as to Leeds.

A business case for the proposed station is currently being prepared by WYCA. Network Rail have taken the emerging forecasts from the business case and incorporated them into the demand forecasts using an approach that has been endorsed by WYCA. It considers new-to-rail demand, abstraction from the existing stations at Garforth and Cross Gates, and the impacts of longer journey times on demand from the Garforth stations into Leeds.

The predominant flow from Thorpe Park is predicted to be to/from Leeds. In common with demand at other stations to the east of Leeds demand will be higher towards York rather than towards Selby and Hull, and this should be reflected in the service offer from the station.

Demand comparisons alongside other strategic considerations are shown in Table 5 below.

Table 5: Cross Gates, Thorpe Park and Garforth station characteristics.

	Cross Gates	Thorpe Park	Garforth
Demand 2024/25	438,780	635,000 (forecast)[11]	508,900[12]
Car Parking Spaces	20	~300 (planned)	250
Highway Access	Local roads	M1 J46 and A6120	via Town Centre and residential street which leads to primary school
Future Development	Limited (Green Belt / Urban Development)	~4,450 houses and 21 ha employment land	Limited (Green Belt)
Existing Train Service	2tph / 3-4tph peak	n/a	3tph / 4-5tph peak

Constrained access to Garforth Station via residential street.

If only one station on the corridor is to receive calls in regional services, then Thorpe Park would represent the optimal choice. However, this does need to be balanced by the need to provide adequate capacity and service frequency at Garforth, particularly in the peaks. Continued assessment of the demand impacts at Garforth following the opening of Thorpe Park will be necessary to optimise future service patterns.

YNYCA continue to express a preference for faster regional services to link Thorpe Park and York, both for travel to and connections at York. Longer distance park and ride to York from the northern and eastern suburbs of Leeds via Thorpe Park has the potential to drive modal shift to rail. This will help reduce road congestion on the busy M1 / A64 corridor between Leeds and York particularly at the A1(M) / A64 Bramham Crossroads interchange and the junctions on the A64 York Outer Ring Road.

[11] WYCAs demand estimate at the time our analysis was undertaken was 635,000 based on a 4tph service offer with TRU infrastructure in place. This is consistent with the baseline assumptions used in this Strategic Advice and is therefore the level of demand we have assumed at Thorpe Park. Network Rail understands that the demand forecasting and business case for Thorpe Park now suggest lower baseline demand based on an interim service offer of 2tph. Network Rail demand assumptions therefore remain consistent with a post-TRU service pattern which offers 4tph from the new station.

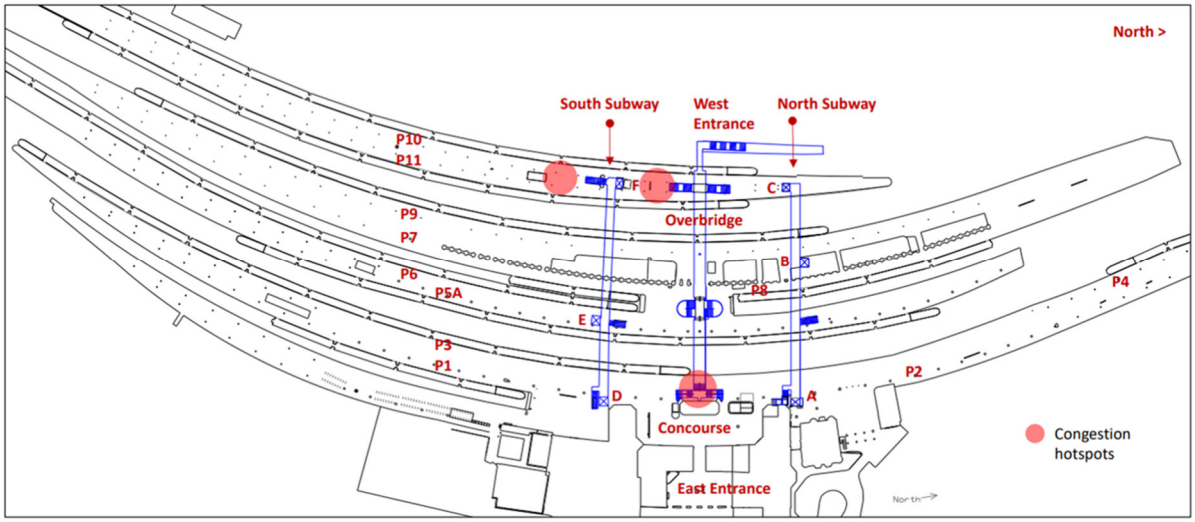
[12] Thorpe Park is likely to abstract demand from nearby stations; this table shows how forecasts at Thorpe Park compare to current footfall at adjacent stations.

The mix of regional and local services at Garforth and Thorpe Park is an important consideration. Thorpe Park should replace Garforth as the regional hub in future scenarios, particularly connecting east toward York.

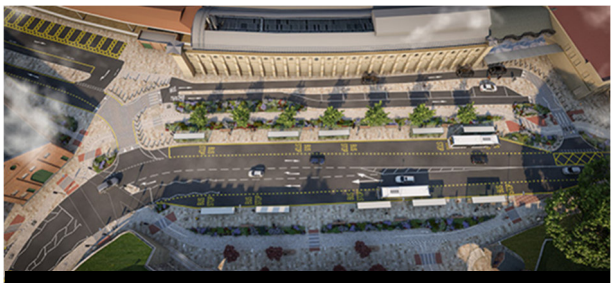
3.6.3 York

Existing access on the eastern side of York station is provided through a central portico onto a central concourse and through the car park onto Platform 4 north of the concourse. A western entrance is provided which links directly onto the overbridge. Separately there are step-free subways between platforms which includes lifts, although these offer a relatively poor pedestrian environment. This leads to congestion on the approaches to the lifts and stairs, especially on the Platform 10 / 11 island, and around the stairs between the concourse and the overbridge, as shown in Figure 15 below.

Figure 15: Pedestrian access through York station.



Further impetus for a more detailed look at pedestrian flows at York station is driven by new development and access changes around the station. York Station Gateway plans several changes to the frontage around the existing eastern entrance. Interchange with bus services will in future be south of the existing portico whilst a new car park will also be provided in that area. This will impact on pedestrian flow through the eastern entrance and outside the station.



Plans for front of York station. *Source: YNYCA*

On the western side of the station the York Central development includes plans for up to 2,500 new homes and 112,000m^2 of office, leisure and retail use. This is likely to significantly increase the number of people using the western entrance and central overbridge. Ongoing work is looking at how a new western entrance will integrate into the surrounding developments and deliver step-free access from the west. This includes consideration of changes to pedestrian flows into and through the station.

An assessment of York station's ability to cater for further growth from longer distance rail service enhancements is beyond the scope of this Strategic Advice. Analysis of the future needs of the station is most appropriately undertaken through the ECML Route Study, which will consider the impacts of future rail programmes.

3.6.4 Selby

Selby has recently benefitted from an Access for All scheme which included the installation of lifts and refurbishment of its Grade II listed footbridge. This is the first stage of a series of proposed enhancements. Selby Gateway will form the next stage of works and plans to deliver a package of improvements for the station and surrounding area funded by the Transforming Cities Fund. This will include a new eastern entrance to the station behind the bay Platform 3 including the delivery of a new car park and associated access.

Selby: lift and future access behind Platform 3.

3.6.5 Howden

Howden benefits from the J36 Hopper bus connecting the railway station to the Town Centre, employment areas and Goole. However, there is no formal turning circle for the bus service at the station.

The current car park is relatively small with space for approximately 50 vehicles; it is gravelled and parking is informal with spaces not marked out. The car park is to the north side of the level crossing, which means from the Town Centre driving over the level crossing to park and then walking back over the level crossing if accessing the westbound platforms for services to Leeds, York and London. There is no alternative route between the car park and westbound platform.

Howden: gravel surfaced, informal car parking.

The current arrangement introduces delay where level crossing barriers are lowered, and this can increase passenger frustration and risk of misuse of the level crossing. This is exacerbated by most passengers having to cross over the level crossing on their journeys. The length of barrier downtime and risk of misuse may increase if additional services are provided on the route.

Howden: access from car park across level crossing to westbound platform.

Alongside any improvement to rail services, an enhanced car parking offer and formalised facilities for the shuttle bus should be considered to cater for increased demand. This should be monitored alongside demand impacts resulting from any service changes.

3.7 Performance

The East of Leeds corridor has experienced poor performance over several years. This is partly due to the mix of fast and stopping services operating on a predominantly two-track railway, and the lack of overtaking opportunities for faster services during times of perturbation. Fast services converge at Leeds from several routes, including Cross Country from Birmingham via Sheffield and Cross-Pennine routes via either Huddersfield or Bradford. This makes the corridor vulnerable to reactionary delay cascading across the network.

Local services on the corridor fall below the required performance level. Eastern Region has a current target of 85.5% of services arriving within three minutes, with local services recording levels consistently below this between Leeds, York and Selby as shown in Table 6. Similar issues are observed with longer distance services, shown in Table 7, which also show relatively poor time to three minutes at the key stations of Leeds and York.

Table 6: Local services arriving within time to three minutes, Monday to Friday.

	1Bxx Blackpool North to York	2Txx Leeds to York	2Kxx Halifax to Hull	2U Manchester to York via Castleford	2Yxx Sheffield to York	2Rxx Bridlington to York
Huddersfield				50.8%		
Halifax	66.5%		88.9%			
Bradford Int.	66.8%		75.5%			
Leeds	53.6%	71.4%	73.3%			
Cross Gates		67.4%	53.8%			
Garforth	52.0%	66.7%	43.7%			
East Garforth		65.5%	46.0%			
Micklefield		56.3%	34.0%			
South Milford			28.5%			
Selby			42.0%			60.8%
Wakefield Kirk.				42.9%		
Castleford				34.5%		
Pontefract Bag.					71.2%	
Sherburn-in-Elm.					76.4%	66.5%
Church Fenton	45.2%				77.5%	62.9%
York	37.9%	54.3%		56.0%	67.7%	47.8%

Source: Network Rail, May 2025 timetable period.

Table 7: Regional services arriving within time to three minutes, Monday to Friday.

	1Sxx Plymouth to Edinburgh	9Exx Liverpool to Newcastle	1Pxx Manchester Airport to Redcar	1Pxx Manchester Victoria to Scarborough	1Kxx Liverpool to Hull
Huddersfield		44.1 %	54.0 %	75.8 %	64.0 %
Wakefield Westgate	35.6 %				
Leeds	36.2 %	48.8 %	58.8 %	74.8 %	63.1 %
York	47.9 %	48.9 %	51.2 %	55.3 %	
Selby					57.4 %
Hull					60.0 %

Source: Network Rail, May 2025 timetable period.

Cross-Leeds services typically show poor time to three minutes when arriving at Leeds towards York and Hull. This is particularly evident on longer-distance services from Birmingham (1Sxx Plymouth>Edinburgh) and on the Cross-Pennine routes via Huddersfield (9Exx Liverpool>Newcastle) and via Bradford (1Bxx Blackpool>York). Due to the diverse routes used by services approaching Leeds from the west, and the number and mix of service on the east of Leeds corridor there is a risk of importing delay around the network.

On local services performance typically deteriorates on departure from Leeds and on arrival at York. Poor reliability east of Leeds is a particular issue for the Halifax>Hull trains, where performance deteriorates significantly as trains move further east. This is partly due to services presenting late at Leeds and the timetable constraints imposed by the number and mix of fast and stopping services east of Leeds. The use of poorer performing rolling stock means there is little scope for recovery on departure from Leeds on local services.

Where local services are short-formed delays are likely to be cascaded, with station dwell times exceeded due to delays in passengers boarding and alighting. Similar issues result from the use of relative short trains with end doors. Units with wide doors at 1/3 and 2/3 intervals along the train with appropriate internal layouts, including sufficient aisle and circulation space, permit greater levels of standing for the commuter market whilst still allowing efficient passenger boarding and alighting. This could potentially help to alleviate this issue. Specifying services with these units, which also offer improved performance, is important when developing efficient and robust scenarios for the East of Leeds corridor.

Performance on the corridor falls below the Eastern Region target. Future scenarios should include higher performing rolling stock with appropriate layouts to help deliver better performance and reliability. Scenarios should also examine opportunities to optimise calling patterns to meet market needs and infrastructure capability.

3.8 Rolling Stock

Forecast load factors show that the York and Selby local services towards Leeds will experience crowding through the 2040s. The York train is forecast to breach the PiXC total capacity at Cross Gates by 2039.

This means that rolling stock of sufficient length and of appropriate design for a high-density commuter service should be provided on local services between Leeds, York and Selby. This needs to be of sufficient length with appropriate numbers of seats and standing space. Units with wide doors at 1/3 and 2/3 intervals along the train with appropriate internal layouts, including sufficient aisle and circulation space, will permit greater levels of

standing for the commuter market whilst still allowing efficient passenger boarding and alighting. This could potentially help to alleviate issues around long station dwell times.

Leeds<>York trains will be electrified as part of TRU, and rolling stock for local services is assumed to be equivalent to Cl.331 3-car EMUs. These trains will be high performing with better acceleration and deceleration rates compared to diesel traction, which is more suitable for a commuter line with frequent station stops.

Leeds<>Selby local trains are assumed to be 4-car bi-mode units, and this will allow them to operate on electric mode between Leeds and Micklefield. Currently available low floor bi-mode units (such as Cl.755) include space for engines. Despite these units offering accessibility benefits from level boarding, space is taken for engines at the expense of seats. To provide the same capacity as a 4-car Cl.331 EMU (96m long with 284 seats and 83m^2 of standing space) would require 2x3-car Cl.755 bi-mode units (130m long with 332 seats and only 49m^2 of standing space). Future rolling stock used on the corridor may have alternative internal configurations providing different total capacity levels.

Within this Strategic Advice it is assumed that rolling stock design will evolve so that both battery and diesel bi-mode units will be capable of providing similar seat numbers per unit length to that of a Cl.331 EMU. This assumption needs to be kept in mind when considering train capacities and lengths, especially where shorter platforms are served, such as the bay platforms at Leeds and Selby.

Other Network Rail analysis has shown that the Sheffield<>York train can only be accommodated at Sheffield as a Cl.195 2-car DMU due to constraints with platform capacity. The East of Leeds analysis has carried forward this assumption whilst noting that we have not explicitly modelled this service south of Milford Junction. Capacity analysis has found no reason to preclude the use of longer trains on the section between York and Milford Junction.

Specification of future bi-mode rolling stock must provide sufficient seating capacity and standing space whilst also considering unit lengths.

3.9 Freight

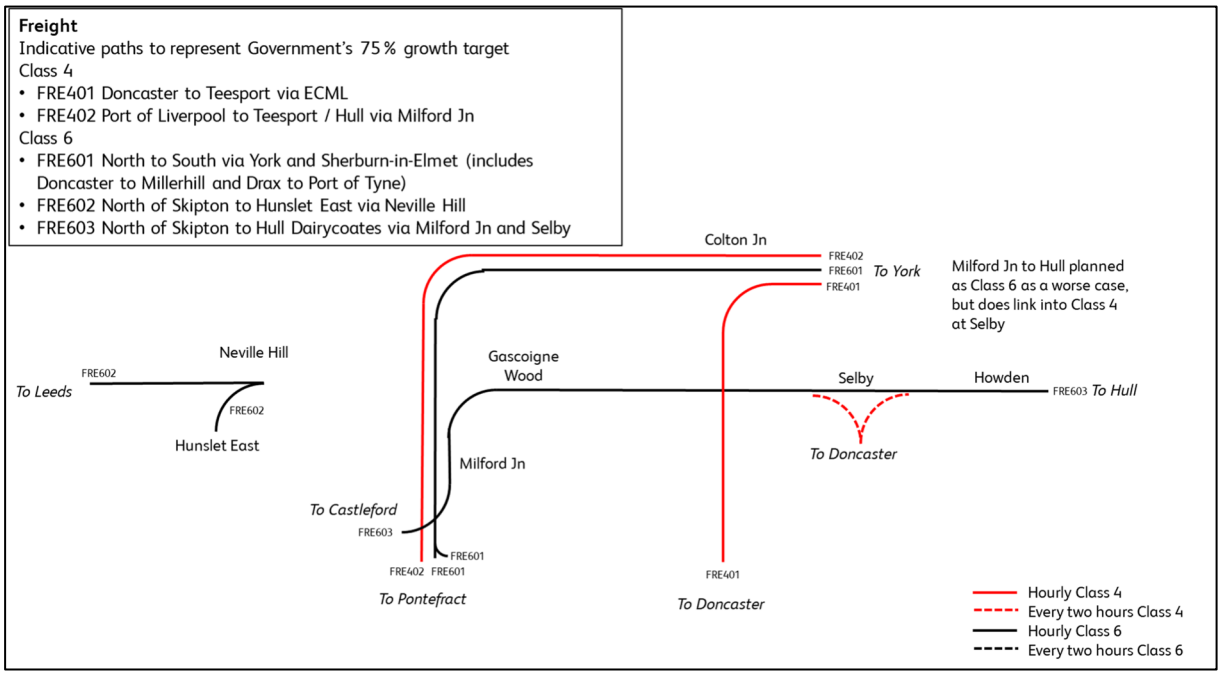
In 2023 the Government set targets to increase rail freight net tonne kilometres; this committed to a 75% increase by 2050 compared to figures from the end of 2024. To understand what this means for the East of Leeds area, reference has been made to forecasts undertaken by MDS Transmodal. These show the number of train paths needed by 2050 on each route section to meet the 75% target.

Future freight paths have been summarised over a typical hour as shown in Figure 16. This has been used as the freight specification in the capacity analysis work, with each specified path running in both directions each hour.

Under this scenario the routes via Milford Junction could see increased usage in future years. TRU will deliver an hourly intermodal path from the Port of Liverpool via Huddersfield towards the East Coast Ports, including Hull and Teesport. Milford Junction offers a direct route from Huddersfield to join routes to Hull and the North East, but final routeing of these paths will be subject to gauge clearance works.

Planning permission was granted in June 2024 for a rail connected industrial and logistics hub on the site of the former Gascoigne Wood Colliery. The number of freight paths specified are consistent with these emerging proposals for increased rail traffic to and from Gascoigne Wood.

Figure 16: Freight paths required to reach Government's 75 % growth target.



The Government is targeting a 75 % increase in rail freight net tonne kilometres, and this will impact on the required freight paths through the study area.

3.10 Industry Finances

Understanding the impact of financial sustainability on the rail industry is important, and includes considerations of the ongoing operating costs, including staffing, rolling stock, and maintenance and renewal of railway infrastructure. As rail reform continues, Great British Railways (GBR) will continue to prioritise value for rail users and taxpayers.

This is of particular importance on the East of Leeds corridor where all services (except for the Beverley/Hull<>London services run by Hull Trains) operate with financial support. The Industry Geographic Financial Model (IGFM) shows the varying levels of subsidy in the area, with the highest levels typically seen on services groups with relatively low frequencies, such as Sheffield<>York via Pontefract.

However, rail generates significant economic value from its subsidy. Northern Trains Limited estimated that their services generate £1.24 of Gross Value Added (GVA), returns £1.84 in welfare benefit and supports £2.50 in economic activity for every £1 invested.[13]

The following sections present a range of scenarios of how future growth could be accommodated on the East of Leeds corridor. The overall impacts in terms of passenger revenue and operating costs will need to be carefully considered to show whether these changes offer value for money as the industry continues to make the case for enhancements.

Future service specifications will need to be subjected to further analysis to assess their Value for Money, including impacts on revenue, costs and operating subsidy.

[13] Northern Trains Limited: Socio-economic Impact Assessment, April 2022

4. Developing Scenarios

4.1 Summary of Market Analysis

The key findings from the market analysis are summarised below.

Figure 17: Implications of market analysis on scenarios.

Findings from market analysis	suggest the following service specifications
Demand data shows a definite service hierarchy	Newcastle<>Liverpool / Birmingham trains should run non-stop between York and Leeds. Trains from Scarborough and Middlesbrough could provide extra local calls if needed, although this impacts journey times.
Market size from Hull compared to Scarborough to west of Leeds	One of the Hull services should provide a fast journey to Manchester. Switching the semi-fast path to the Scarborough train west of Leeds could enable this and would align to existing demand patterns.
Market size from Lancashire, Halifax and Bradford to York	Where possible faster journey times should be provided east of Leeds on the Blackpool<>York train to protect and grow these markets.
Demand analysis at Thorpe Park, ease of rail heading and car park size in comparison to Garforth	Thorpe Park will need faster trains towards York in preference to Hull. Stops in regional services should be switched from Garforth to Thorpe Park, with limited need for two 'regional hub' stations within 2.5km.
Connectivity needs from South Milford will require 2tph to/from Leeds	Calls at South Milford will need to be provided on the most appropriate Manchester<>Hull train.
Future land use developments at Howden suggest a 1tph service should be provided to Leeds throughout the day	Calls at Howden could be provided on the most appropriate Manchester<>Hull train, or by extending stopping trains east of Selby.
Existing demand and future land use development at Ulleskelf	No more than a 1tp2h is warranted at Ulleskelf throughout the day, with services enhanced to 1tph to/from York at peak times, although aspirations exist for more regular links to/from Leeds.
Growth from service uplifts and future land use developments between York and Hull	Service enhancements between York, Selby and Hull should be considered to better compete with road.

These findings have been used to develop four scenarios which are described below and shown diagrammatically in Appendix D.

4.2 Network Constrained Scenarios

The Network Constrained scenarios have built on the post-TRU service pattern and suggested amendments to improve local connectivity by changing calling patterns. The scenario caters for central growth forecasts, accepting levels of standing which fall within the tolerances specified by the PiXC regime. It also offers an appropriate number of freight paths to accommodate the Government's 75% rail freight growth target. Forecast load factors under this scenario are shown in more detail in Appendix E.

The AM peak pattern inbound to Leeds should be mirrored in the PM peak outbound from Leeds to cater for forecast demand, but no demand need for a peak Leeds>York train in the AM peak has been identified. Demand on the Hebden Bridge>York morning peak extra service can be accommodated on alternative services towards York. Therefore, from a demand perspective this train is not required to run east of Leeds reducing frequency but saving a train path and operating cost. However, this service also provides a positioning move to provide rolling stock for a peak extra York>Leeds service, and further analysis is needed to show whether this may need retaining to maintain efficient use of resources.

Demand analysis from WYCAs business case shows that intermediate demand at Thorpe Park is more heavily focussed on York rather than Hull, and subsequently there is an opportunity to better reflect that at Thorpe Park. Demand forecasts show that demand will abstract to Thorpe Park from Garforth, and this together with future land use developments, road access and relative size of car parks provide a justification for reducing calls at Garforth.

Therefore, an alternative way of serving Thorpe Park could be delivered by removing the calls from the Hull services, stopping the Manchester<>Scarborough train at Thorpe Park instead and switching the Blackpool North<>York train to call at Thorpe Park instead of Garforth. Thorpe Park would also retain stopping services from Leeds to both York and Selby. This would provide the new station with a 4tph service in total and fast services towards York; it would also protect regional demand by not splitting the regional calls between Thorpe Park and Garforth and having to stop additional regional services at Garforth.

A consequence of this change is that both Hull trains would not call at Thorpe Park and the Scarborough train and one of the Hull services would switch fast/semi-fast paths west of Leeds. This would also enable at least one of the Hull<>Manchester trains to run as fast as possible west of Leeds to enhance inter-city journey times. It also reflects the relative sizes of the Hull and Scarborough markets west of Leeds. These changes to services at Thorpe Park and west of Leeds help improve local connectivity and reflect local and regional markets identified in our analysis.

Two possible network constrained scenarios have been developed for local services into Leeds. The first assumes the constraint is around provision of new infrastructure and maximises capacity by providing 4-car trains with peak extra services on the Leeds<>York/Selby routes[14]. The second scenario assumes the constraint is around number of train paths and maximises capacity by providing 6-car local trains[15] and removing peak extra services. There are several trade-offs between calling patterns, train length and number of train paths summarised below.

[14] Equivalent capacity to 4-car Cl.195 DMU with 248 seats on Selby services and 4-car Cl.331 EMU with 284 seats on York services.

[15] Equivalent capacity to 2x3-car Cl.195 DMU with 408 seats on Selby services and 2x3-car Cl.331 EMU with 408 seats on York services.

Table 8: Trade-offs in Network Constrained scenarios on services between Leeds and Micklefield.

	No new infrastructure beyond that currently funded: locals as 4-car trains with peak extras	Minimising train paths: locals as 6-car trains
Local peak extra trains	1tph Selby, 1tph York	None
Platforming at Leeds	Uses east-facing bays	Projected west of Leeds
Platforming at Selby	Uses west-facing bay	Projected east of Selby
Calls at Thorpe Park on peak extra services	Peak reduction in frequency at East Garforth and Micklefield	None
Calls in Blackpool North<>York trains to the east of Leeds	3 in peak, 2 in off-peak	5 in peak, 2 in off-peak. Train lengthening to 5-car.
South Milford calls	Local trains - 1tph all day and 1tph peak extra. Extra calls in Manchester<>Hull in off-peak.	Local trains - 1tph all day. Extra calls in Manchester<>Hull all day.
Howden calls towards Leeds	Calls in Manchester<>Hull all day.	Local trains - 1tph all day. Peak time calls in Manchester<>Hull.

In a 4-car scenario calling patterns on the York and Selby peak extra services are changed compared to the post-TRU service patterns. On the York peak extra service, the call at Church Fenton is removed and replaced by a call at Micklefield. This allows the Selby peak extra service to swap a call at Micklefield for a call at Garforth, whilst the York<>Blackpool train makes a peak only call at Cross Gates to better reflect observed demand.

Specifying 6-car trains at 1tph from York and Selby with 408 seats provides sufficient capacity to allow for the removal of peak extra services under central growth forecasts, subject to standing inbound from Thorpe Park and associated changes to stopping patterns on other services. This would mean local services having to continue west of Leeds and east beyond Selby as bay-platforms at these locations are not long enough to hold a 6-car train.

To spread loadings across available capacity in the 6-car scenario, the Blackpool North<>York train would need to make additional peak time calls at Cross Gates, Garforth and Ulleskelf, and this would drive the need to lengthen to 5-car trains[16] with 328 seats. Two of these additional calls and lengthening of this train would not be required if local services are retained as 4-car services with peak extra trains.

Demand between Leeds and Howden is currently served by a small number of direct trains (3 westbound and 4 eastbound); reinstating calls at Howden to enhance this to an hourly service would better cater for the large-scale developments at Howden as well as the wider hinterland. In a 4-car scenario Howden calls would have to be provided all day in one of the Manchester<>Hull services.

In a 6-car scenario, the local trains cannot be accommodated within the bay Platform 3 at Selby, and this presents choices for this service group. It could potentially be terminated in a through platform at Selby, or it could extend further east to either Howden or Hull which would necessitate additional operating cost. Extending services east of Selby could provide Howden with an hourly all-day service, however the journey times would be longer than a Cross-Pennine service and would increase barrier down time at the level crossing at Howden. An alternative way of serving Howden would be to call one of the Hull<>Manchester services all day.

[16] Equivalent capacity to 2-car + 3-car Cl.195 DMU to give 5-car in total with 328 seats.

One of the Manchester<>Hull trains would also provide additional calls at South Milford to provide a 2tph service into Leeds throughout the day, made possible by the removal of the call at Thorpe Park. In the 4-car scenario calls in the Manchester<>Hull train would only be required in off-peak periods, whilst in the 6-car scenario calls would be required all day. However, for consistency it is recommended to call at South Milford all day for the Manchester<>Hull train with the benefit of frequency enhancements at peak times.

To enable an improved journey times this scenario routes the York<>Hull services via the ECML; the peak extra service between Selby and York via Sherburn-in-Elmet is enhanced to hourly to backfill connectivity. Services on the York<>Selby / Hull routes would require a 3-car train with 204 seats[17] to cater for forecast demand.

This service choice south of York is driven by network constraints south of Milford Jn towards Sheffield. If an intervention to address those constraints is realised, then there are choices around whether to enhance the Sheffield or Selby trains to hourly. In such a case the assumptions around service choice would need to be revisited.

Network Constrained scenarios have been developed to improve local connectivity and reduce standing to within the tolerances specified by the PiXC regime.

4.3 Central Growth Scenario

The Central Growth scenario accommodates 43 % growth in passenger demand up to 2050 alongside the Government's aspiration for 75 % growth in rail freight. It represents an alternative way of delivering services post-TRU, and therefore we have not identified a specific horizon year for when these changes would be necessary before 2050. Forecast load factors under this scenario are shown in more detail in Appendix F.

The changes to service patterns to the east of Leeds under this scenario are discussed below. They will need to be subjected to further analysis to assess their impacts on revenue, costs and operating subsidy.

The Thorpe Park / Garforth service patterns developed in the network constrained scenarios are carried through into this scenario. This means that faster trains at Thorpe Park are focussed on Leeds and York which more optimally aligns with demand forecasts. The consequence is that the switching of fast / semi-fast paths west of Leeds as proposed in the network constrained scenarios have been carried through to this scenario. This provides a faster Manchester<>Hull train and a semi-fast Manchester<>Scarborough.

Local services between Leeds, York and Selby have been specified as 4-car trains[18], and this will provide sufficient capacity up to 2050 if peak extra trains are provided from York and Selby to Leeds. The AM peak pattern inbound to Leeds should be mirrored in the PM peak outbound from Leeds to cater for forecast demand and separate out the local and regional markets. No demand need for a peak Leeds>York train in the AM peak has been identified.

Calling patterns have been amended so that local trains call at all stations between Leeds and Micklefield, which provides enhanced connectivity compared to skip-stopping patterns in the peak under the post-TRU and network constrained scenarios. The Blackpool North<>York train provides additional calls at Cross Gates and Garforth in the peak time to provide sufficient capacity, with the Church Fenton call switched to the Leeds<>York local train.

[17] Equivalent capacity to 3-car Cl.195 DMU with 204 seats.
[18] Equivalent capacity to 2x2-car Cl.195 DMU to give 4-car in total on Selby services with 248 seats and 4-car Cl.331 EMU on York services with 284 seats.

Reallocating the Thorpe Park call from both Manchester<>Hull trains allows additional calls to be provided in alternate trains at South Milford and to reinstate calls at Howden without impacting on Leeds to Hull journey times. This would enable a 2tph service from South Milford into Leeds, with the stopping service from Selby<>Leeds, and a 1tph all day frequency from Howden into Leeds to better cater for proposed housing developments.

York<>Hull services have been re-routed via the ECML between Selby and York to provide faster journey times, with around 15 minutes saved on current timings. To preserve connectivity from Selby via Sherburn-in-Elmet the Selby>York peak extra service is enhanced to run hourly throughout the day. Both services would require 204 seats to cater for demand[19].

Trains into York from the south and east provide spare capacity due to the variety of destinations served. This scenario provides a total of 8-cars[20] through Sherburn-in-Elmet towards York, with 3-car trains from each of Selby and Huddersfield, and a 2-car train from Sheffield via Pontefract.

Sensitivity testing has been undertaken to show that the Sheffield<>York train can run in both directions (i.e. be enhanced to hourly) between York and Milford Jn. Enhancing frequency on this service remains dependent on providing sufficient capacity between Sheffield and Milford Jn.

The Central Growth scenario assumes 4-car local trains into Leeds with peak extras. The Blackpool North<>York trains need to make additional local calls, with impacts on journey times. Cross-Pennine services are provided hourly to South Milford and Howden improving connectivity. Selby<>York frequency enhancements provide increased capacity to grow the market.

4.4 High Growth Scenario

The High Growth scenario accommodates the Government's aspiration for 75% growth in rail freight alongside 79% growth in demand up to 2050. To do this several changes to services are proposed compared to the Central Growth scenario described above to better separate out the local and regional markets. These changes represent an alternative way of delivering services post-TRU, and therefore we have not identified a specific horizon year for when they would be necessary before 2050. Forecast load factors under this scenario are shown in more detail in Appendix G.

The changes to service patterns to the east of Leeds under this scenario are discussed below. They will need to be subjected to further analysis to assess their impacts on revenue, costs and operating subsidy.

Local services to the east of Leeds are formed of 6-car trains with 408 seats[21], with peak extra trains to be provided from both Selby and York into Leeds. This means that trains need to extend west of Leeds as 6-car trains cannot be accommodated in the east-facing bay platforms. Similarly at Selby, the west-facing bay platform cannot accommodate a 6-car train. The preferred option is to enable these services to terminate at Selby, although capacity analysis has also looked at tests which project these services to the east, to terminate at either Howden or Hull.

[19] Equivalent capacity to 3-car Cl.195 DMU with 204 seats.
[20] Equivalent capacity to 3-car Cl.185 DMU from Huddersfield with 181 seats, 3-car Cl.195 DMU from Selby with 204 seats and 2-car Cl.195 DMU from Sheffield with 124 seats.
[21] Equivalent capacity to 2x3-car Cl.195 EMU to give 6-cars in total with 408 seats on Selby services and 2x3-car Cl.331 EMU to give 6-cars in total with 408 seats on York services.

Extending the local train east of Selby would impact on services at Howden if a call on the local train was provided. The Howden call in the Manchester<>Hull train could be removed outside of the peak period. This maintains the Leeds<>Howden service as 2tph in the peak and could mean that in off peak periods Hull to Leeds and Manchester journey times could be reduced.

Peak extra calls in the Blackpool North<>York train at Cross Gates and Garforth have been removed in this scenario. This protects the journey times on the regional flows from York towards Bradford, Halifax and East Lancashire and targets these higher revenue flows at the expense of lower revenue local traffic from Cross Gates and Garforth.

This scenario also targets the growing York<>Hull market, enhancing the service to 2tph by extending the York<>Selby via Sherburn-in-Elmet train to Hull. Both services have been specified as 3-car trains[22]. One of these trains would continue to serve the intermediate markets via Sherburn-in-Elmet alongside the Sheffield<>York train. Again, sensitivity testing has been undertaken to show that the Sheffield<>York train can run in both directions between York and Milford Jn, noting this would be dependent on providing sufficient capacity south of Milford Jn towards Sheffield.

Demand forecasts show that both the Sheffield and Hull via Sherburn services would start to experience crowding from the mid-2040s. Lengthening the Sheffield<>York train is not possible without further platform capacity at Sheffield. Should that constraint be removed then the Sheffield train should be lengthened to 3-car with 204 seats[23] to eliminate standing of over 20 minutes duration on that service. Otherwise, the Hull train is likely to need lengthening to a 4-car train with 248 seats[24] by 2050 to cater for forecast demand through Sherburn-in-Elmet.

The High Growth scenario assumes 6-car local trains into Leeds with peak extras. This provides sufficient local capacity to remove extra calls from the Blackpool North<>York trains to protect journey times and more fully separate regional and local markets. The growing Hull<>York market benefits by increasing frequency to 2tph although one of these trains would need to be lengthened to provide 248 seats (4-car unit) by 2050.

[22] Equivalent capacity to 3-car Cl.195 DMU with 204 seats.
[23] Equivalent capacity to 3-car Cl.195 DMU with 204 seats.
[24] Equivalent capacity to 4-car Cl.195 DMU with 248 seats on services via Sherburn-in-Elmet.

4.5 Transformational Scenario

The transformational scenario has been developed in collaboration with Mayoral Combined Authorities. Table 9 below shows the level of service proposed as part of this scenario.

Table 9: Passenger service increments to deliver transformational scenario.

	Existing Services (December 2025)	Post-TRU Services	Transformational Scenario
Leeds<>York fast	4tph	5tph	5tph
Leeds<>York semi-fast	1tph call Garforth and Church Fenton	1tph call Garforth	2tph call Thorpe Park
Leeds<>York stopper	1tph + 1 peak extra	1tph + 1 peak extra	2tph
Leeds<>Hull	1tph call Selby, 1tph stopper from Halifax	2tph call Thorpe Park and Selby	3tph call Selby, 1tph stopper to Hull
Leeds<>Selby stopper	2 peak extras	1tph + peak extra	1tph stopper to Selby
York<>Selby and Hull	1 tph Hull + peak extra Selby	1tph Hull + peak extra Selby	2tph Hull
York<>Five Towns	1tph Huddersfield and 3tpd Sheffield	1tph Huddersfield and 3tpd Sheffield	1tph Huddersfield and 1tph Sheffield
75% Freight Growth		Achieved	Achieved
Trains Leeds<>Micklefield	**8tph + 3 peak extras**	**10tph + 2 peak extras**	**14tph**
Trains Church Fenton<>York	**9tph + 2 peak extras**	**10tph + 2 peak extras**	**13tph (of which 1tph Hull via ECML runs north of Colton only)**

The case for additional local and regional trains over and above those levels identified in the constrained, central and high growth scenarios will need to be made by those Partners proposing the enhancements.

5. Findings and Recommendations

Capacity analysis work has been undertaken to produce a concept train plan for both the central and high growth scenarios. Where possible, services have been paired to run at even intervals. This means that unless explicitly mentioned:

- Cross-Pennine fast services run as close to 15-minute intervals as possible;
- Manchester<>Hull services run as close to 30-minute intervals as possible; and
- Leeds<>Selby / York stoppers run as close to 30 minutes apart as possible on the common section between Leeds and Micklefield. The peak extras are flighted around these to provide local services as close to 15 minutes apart as possible.

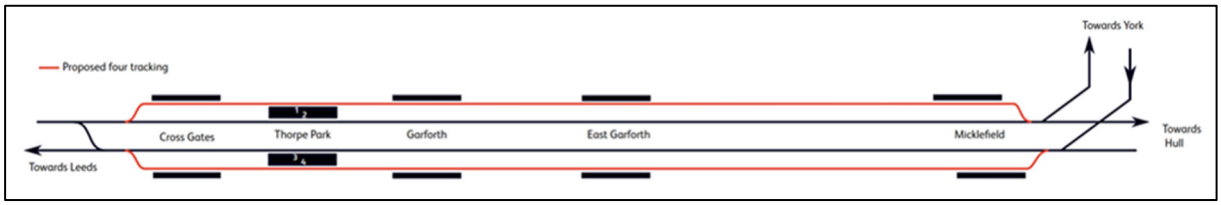
This analysis has shown that to accommodate the various service changes a range of additional infrastructure is required. These interventions are described below. The proposed service changes and infrastructure interventions identified here will need to be further analysed with funders to assess their value for money and affordability.

5.1 Central Growth Scenario

Conflicts between fast and stopping services west of Micklefield mean that four-tracking is required. Lines would be paired by direction[25] to prevent additional conflicts between trains in opposing directions where four tracks merge into the existing two-track formation. The Leeds<>York/Selby and Blackpool North<>York services would be routed on to the slow lines and allow the other services to overtake on the fast lines.

Analysis shows that to accommodate all of the scenarios specified in this Strategic Advice then four-tracking would be required between Cross Gates and Micklefield, as shown in Figure 18. However, this is likely to be challenging due to the urban nature of parts of the route, with housing backing on to the railway alignment through Garforth and Micklefield. All stations between Cross Gates and Micklefield would have platforms on the slow lines, with only Thorpe Park provided with additional platforms on the fast lines (noting that designs for Thorpe Park include passive provision for four tracking).

Figure 18: Longer four-tracking option between Cross Gates and Micklefield.



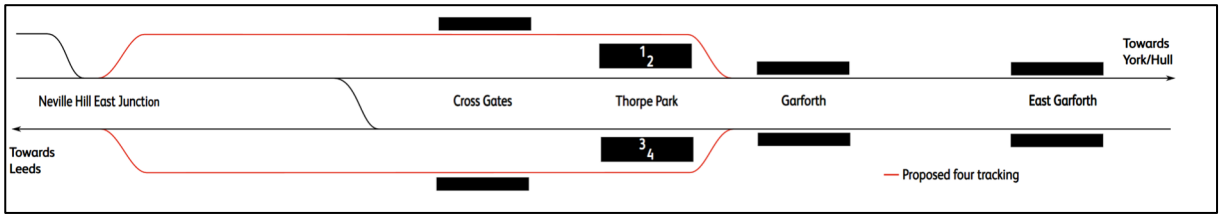
Note: this layout represents one potential option for four-tracking, it does not present an endorsed scheme.

Four-tracking a shorter length of the route could accommodate the central growth specified train service but would potentially need to trade-off performance, journey time and timetabling flexibility against deliverability and cost. Capacity analysis assumed this scheme extended from Neville Hill to Thorpe Park, as shown in Figure 19, and this provided sufficient length to enable a fast service to overtake a train calling at Cross Gates and Thorpe Park. This may be less challenging to deliver, as it removes the more constrained sections through Garforth from scope.

[25] From north to south of the alignment this would give eastbound slow, eastbound fast, westbound fast and westbound slow lines.

However, services diverging to and joining from the slow lines would be at minimum margins, based on existing Timetable Planning Rules (TPRs), and this could represent a performance risk. Pathing time would also need to be added to services, including the Leeds<>York stoppers (1 minute), Manchester Airport<>Saltburn (1 minute) and Manchester Airport<>Newcastle (2 minutes), although there may be potential to optimise dwell times at busier stations to accommodate pathing in the stopping train. Opportunities to optimise the length of the four-tracking to the east and west should be further examined, with due regard given to the impacts on journey times of the services identified above.

Figure 19: Shorter four-tracking option between Neville Hill and Thorpe Park.



Note: this layout represents one potential option for four-tracking, it does not present an endorsed scheme.

The shorter four-tracking extends from Cross Gates to the west, and this is because of the differential speeds of fast and stopping trains on the approach to Cross Gates. Trains calling at Cross Gates can diverge at line speed at Neville Hill with little impact on timings of the following non-stop trains. With this option trains leave Leeds at headway, and providing four-tracking along this section means that by the time a stopping train reaches Thorpe Park a fast train can have overtaken and be east of Garforth.

Limiting the four-tracking section to between Cross Gates and Thorpe Park would not be able to accommodate the future scenarios developed in this Strategic Advice. To enable fast services to overtake on this section, then both the non-stop and stopping trains would need journey time adding. This would then introduce different conflicts at Colton Junction and on the approaches to York station.

An alternative option to deliver an off-line railway between Thorpe Park towards York has been explored. This would provide a new alignment for the two additional fast tracks and has the advantage of being able to be constructed away from the operational railway apart from the tie-ins at either end. Capacity analysis shows that grade separation would be required at the eastern end of the route, and there would be no overtaking opportunities for fast services towards Hull which would limit timetabling flexibility.

The required length of four-tracking is greatly dependent on future scenarios. This Strategic Advice has found that the longer section of four-tracking would accommodate all of the future service scenarios agreed with the wider industry. Further work is required to establish the most cost-effective length of additional tracking on the route to enable high levels of reliability and performance along the corridor. NPR development work will continue to assess the infrastructure requirements to deliver the Government's outputs for that programme.

Previous analysis on this corridor has examined the potential benefit of a South Milford Link between South Milford and Sherburn-in-Elmet. This would re-route the local Leeds<>York trains via the new chord and allow fast services to overtake stopping services between Leeds and York. This analysis has found no need for this infrastructure as conflicts between stopping and fast services are to the west of Micklefield. However, the chord may be required in the future by NPR dependent on the service specifications delivered by that programme.

At Selby there is a need to reduce platform reoccupation times for Platform 3. This could be done by moving the facing crossover from Selby West Junction to immediately west of the station. It is likely that this would replace the existing trailing crossover with a facing crossover at Selby South Junction. This will have benefits for local services terminating in the bay at Selby but will remove the ability to turnback trains from the west in the through platforms during times of disruption. This may then require new stop signs and signalling to allow such moves in the westbound Platform 2. By moving the crossover, speeds through Selby West level crossing on services terminating in bay Platform 3 at Selby will be increased to 30mph. This will contribute to shorter barrier down times and reduced road congestion through Selby.

There are also two smaller scale interventions at York. The first requires new crossovers in the station throat, and this would allow parallel moves into/out of Platforms 6 and 7. The second requires the removal of signalling overlaps at Platforms 1 and 3. These changes provide more timetable flexibility for local services accessing bay platforms. Although some services remain on minimum margins at York there is sufficient time within the schedules to recover services during times of perturbation. There may be merit in pursuing further interventions at York which reduce junction margin values, and this would enhance performance at the station.

At both South Milford and Howden, the 5-car trains specified on the Manchester<>Hull trains are longer than the current platforms. These services are specified to call at the two stations in both the central and high growth scenarios and would drive the need to lengthen platforms to 130m. At South Milford it is recommended that this intervention covers an extension to 150m which would be required under the higher growth scenario to accommodate longer local trains. See Appendix H for further details on recommended platform lengthening.

A pre-feasibility desktop study commissioned by YNYCA has investigated platform extensions at Sherburn-in-Elmet. This has focussed on enabling the Manchester<>York via Castleford trains to call at the station, which is required in the central growth scenario. This work assumes that the Castleford trains are operated by either a 3-car or 6-car Cl.185 train.

This work has identified that platform heights would also need raising to be compliant with standards. This is an issue where either Cl.185 or Cl.195 units call at Sherburn, and therefore both central and high growth scenarios would drive the need to raise platform heights. All options would be sufficient to accommodate the 4-car trains specified in the high growth scenario reported below. Further discussions with operators on their future rolling stock plans for this route are required so that the options can be further refined.

Additional infrastructure is required to accommodate the Central Growth scenario and the interventions will need to be further analysed with funders to assess their value for money and affordability.

5.2 High Growth Scenario

The high growth scenario can be accommodated on the infrastructure specified in the central growth scenario, with some further targeted platform extensions. Extensions to 150m are required at East Garforth, Micklefield, South Milford and Church Fenton.

Although Ulleskelf platforms would also need to be lengthened to 150m to accommodate Leeds<>York services, this is driven by a small number of trains per day – either peak extra calls or early AM / late PM calls. It may therefore be more cost effective to implement Selective Door Operation (SDO) at this location.

Calling Leeds trains at Ulleskelf reduces timetable flexibility. This is because these trains need to use the Normanton lines to call at the station and then cross to/from the Leeds line at Church Fenton. The current low levels of demand between Ulleskelf and Leeds do not justify regular calls in the hourly Leeds<>York stopper, although it is recognised the current service provision is likely to suppress demand between Ulleskelf and Leeds. Trade-offs between Leeds<>York journey times and providing interventions to give the required level of timetable flexibility would be needed to enable a more regular Ulleskelf to Leeds service offer.

There are choices around the local train services between Leeds and Selby. Options are to lengthen the bay Platform 3 at Selby to 150m and terminate there, or else extend services east to either Howden or Hull. Interventions at Selby are required in the central growth scenario and coupled with an extension of the bay Platform 3, this could be utilised over longer-term horizons if services continue to terminate there.

Although capacity analysis has demonstrated that these services can be extended to both Howden and Hull, this comes with greater performance risks and additional operating costs (from both additional rolling stock and staff resourcing). Extending services to Howden would also necessitate Howden platform extensions to 150m, a new crossover and additional signalling.

Leeds to Howden could instead be served with reinstated calls in one of the Manchester<>Hull services. Faster services offer a potentially more attractive service offer for Howden than an all stations stopping service. Providing a direct link towards Manchester could also establish the station as a railhead for a wider catchment area.

Furthermore, extending the Leeds<>Selby stopping train east of Selby would increase the number of train movements across the level crossing at Howden. With a finite number of paths east of Selby, the better use of capacity for local and regional connectivity would be providing the second York<>Hull service. The Howden to Leeds market can then be served by reinstating stops on the existing regional service to and from Manchester.

For these reasons, it is recommended that Leeds<>Selby trains would continue to terminate at Selby, rather than extend eastwards. This drives the need to lengthen bay Platform 3 at Selby to accommodate 150m long trains.

Local services from Leeds are recommended to terminate at Selby, and this means that the High Growth scenario can be accommodated on similar infrastructure to the Central Growth scenario. Platforms at some local stations would need to be lengthened to cater for longer trains.

5.3 Transformational Scenario

A qualitative assessment of the transformational scenario has shown that all 14tph could be accommodated on the East of Leeds corridor if a longer section of four-tracking is provided between Cross Gates and Micklefield. The longer section of four-tracking would support additional services and changes to calling patterns which would enable future changes to connectivity. The shorter section of four-tracking between Neville Hill and Thorpe Park would not allow such changes.

Additional interventions would also be required beyond the High Growth scenario, including:

- Additional Platform 12 at York;
- Increased flexibility in York station throat; and
- Additional platform capacity at Hull.

Interventions at York mean that the additional services can be accommodated there. This includes enhancing the Sheffield<>York via Pontefract train to hourly in both directions. Extending the Sheffield service to the north of York, for example towards Scarborough, would impose further constraints on platforming at York. This is because the different routes north of York drive the use of certain platforms.

The number of services at Hull in this scenario would mean all seven platforms at the station would need to be utilised and would likely require additional capacity. Delivering enhanced frequency on the Sheffield<>York train would remain dependent on providing additional capacity between Milford Jn and Sheffield.

Analysis of this scenario has been limited to the East of Leeds study area and toward Hull. The level of service in this scenario may drive the need for further enhancements outside of this area which have not currently been identified. This includes on the routes to Sheffield via Moorthorpe, Huddersfield via Wakefield Kirkgate and services continuing west of Leeds.

The Transformational Scenario requires additional infrastructure beyond that assumed in the High Growth scenario. It drives the need for additional infrastructure at York and Hull; it will also require infrastructure interventions south of Milford Jn towards Sheffield.

5.4 Findings

Capacity analysis has found that to accommodate both the central and high growth scenarios additional infrastructure would be required. This is summarised in Figure 20 and Table 10 and discussed in more detail below.

The interventions identified provide an alternative way of delivering services post-TRU, and therefore we have not identified a specific horizon year for when these changes would be necessary before 2050.

Order of magnitude cost ranges have been produced for Network Rail for the identified infrastructure enhancements. These should be considered as indicative and subject to change as options are progressed in more detail. The following indicative cost ranges have been used:

- Low Cost – less than £5 million;
- Medium – between £5 million and £49 million;
- High – between £50 million and £250 million; and
- Very High – more than £250 million.

Figure 20: Interventions required to deliver future train service scenarios.

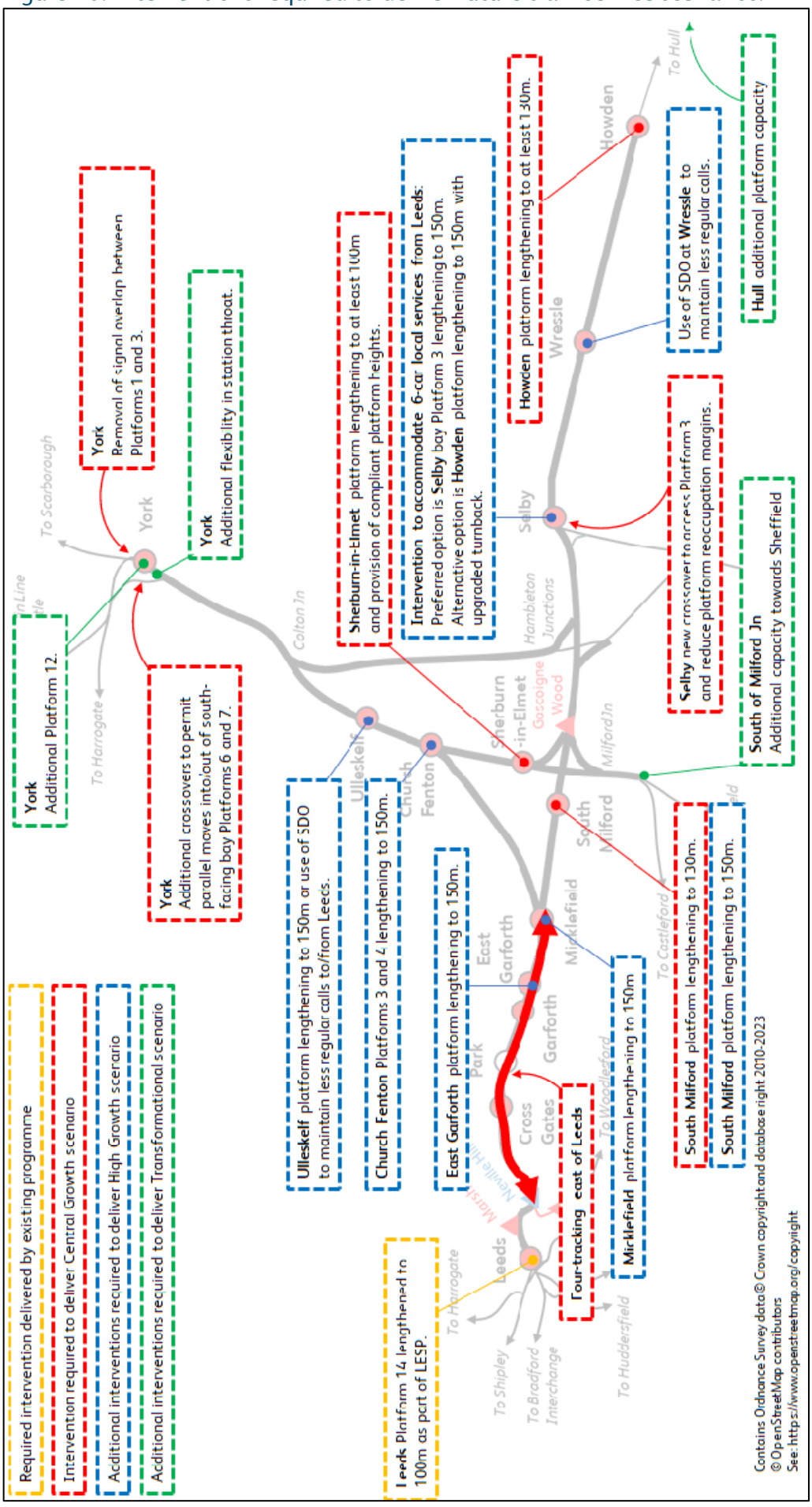


Table 10: Interventions required to deliver future scenarios.

	Indicative Cost	Central Growth Scenario	High Growth Scenario	Transformational Scenario
Four-tracking to the East of Leeds	Very High	✓	✓	✓
Leeds Platform 14 extended to 100m	Delivered by LESP	✓	✓	✓
York: parallel moves to P6 and P7	Medium	✓	✓	✓
York: remove signal overlaps on P1 and P3		✓	✓	✓
Selby: reduce P3 reoccupation margins	Medium	✓	✓	✓
Selby: bay Platform 3 extended to 150m			Preferred	Preferred
East Garforth: platforms extended to 150m*	Low		✓	✓
Micklefield: platforms extended to 150m*	Medium		✓	✓
South Milford: platform extensions	Low	130m required	150m required	✓
Howden: platform extensions	Medium	130m required	130m required Option for 150m	130m required
Howden: enhanced turnback			Option	
Wressle: SDO to allow longer trains to call	Not costed		✓	✓
Sherburn-in-Elmet platforms extended to 100m and compliant platform heights provided.	Medium	✓	✓	✓
Church Fenton: P3 and P4 extended to 150m	Low		✓	✓
Ulleskelf: platforms extended to 150m or use of SDO	Low		✓	✓
Sherburn Curve: signalling and line speed enhancements	Medium	Recommended	Recommended	Recommended
Phase 1 25kV OLE electrification: Micklefield to Selby and Selby to Church Fenton, Hambleton North Curve and Hambleton South Curve electrification in full and removal of Sprinter Differentials	Opportunity to be explored further	Recommended	Recommended	Recommended
Phase 2 25kV OLE electrification: Temple Hirst to Selby, Selby West to Canal Junction, Selby to Hull: electrification in full and removal of Sprinter Differentials	Opportunity to be explored further	Recommended	Recommended	Recommended
Shaftholme Junction to Ferrybridge W12 gauge clearance	Opportunity to be explored further	Recommended	Recommended	Recommended
Additional interventions identified in the transformational scenario	Not costed			✓

***Note:** if the four-tracking scheme is progressed then these costs may be avoided. The costs for the longer section of four-tracking scheme would include reconstruction of East Garforth

and Micklefield stations incorporating 150m long platforms. This analysis has shown that to accommodate the various service changes a range of additional infrastructure is required. The proposed infrastructure interventions identified here will need to be further analysed with funders to assess their value for money and affordability.

5.5 Electrification

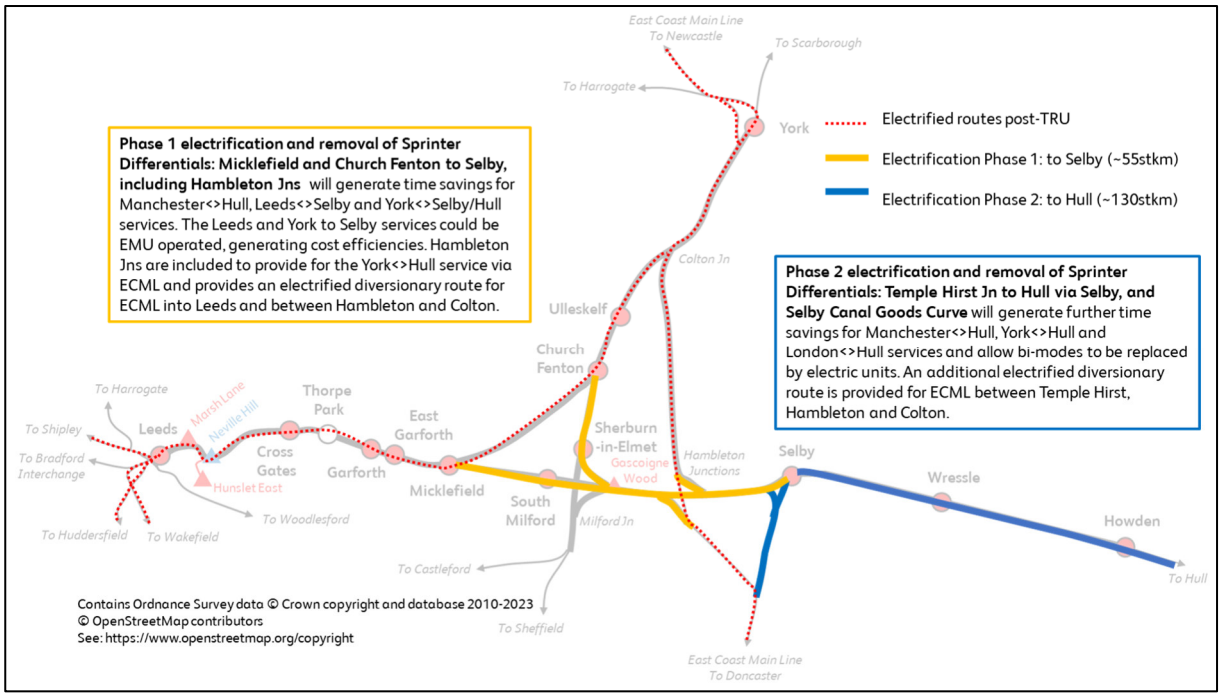
TRU will deliver a fully electrified railway from Manchester to York via Leeds using 25kV Overhead Line Equipment (OLE). The route from Micklefield to Selby and Hull, and the links from Church Fenton via Sherburn-in-Elmet and from the ECML at both Hambleton and Temple Hirst Junctions will remain unelectrified. Further funding is needed to progress a business case for electrification of these sections.

Capacity analysis has looked at the impacts of extending electrification in two phases, which are:

- Phase 1: Micklefield and Church Fenton to Selby, including Hambleton North and Hambleton South Curves, a total of approximately 55 single track kilometres (stkm); and
- Phase 2: Temple Hirst to Hull via Selby, including Selby Canal Goods Curve, a total of approximately 130 stkm.

These are illustrated in Figure 21 below.

Figure 21: Extents of recommended 25kV OLE electrification.



Electrifying east of Micklefield to Hull and between York and Selby, including connections to Temple Hirst, has found the potential for substantial time savings as shown in Table 11 by using lighter and faster EMUs. These are dependent on stopping patterns but do show that there is scope for time savings on the route with electrification. There are likely to be some marginal improvements in journey times to the west of Micklefield; this is due to existing Leeds<>Selby stopping services switching from bi-mode to EMU operation.

Within the electrification sensitives, services have been retimed to maintain paths between Micklefield and Leeds and between Colton Junction and York. This means arriving earlier and departing later at Selby and Hull at the eastern ends of the route. At Selby this would

mean terminating services from Leeds and York operating on minimum margins into and out of bay Platform 3. This would then drive the need to relocate the crossover at Selby to reduce reoccupation margins to be able to realise the journey time savings from electrification.

Electrification from Micklefield to Selby will bring wider synergies and maximise benefits from TRU. This would allow for interworking of stopping services on the East of Leeds corridor, although this needs to be explored further to identify operational efficiencies. There are opportunities around increased efficiencies in terms of capacity utilisation, journey time benefits between Micklefield and Selby, and reduced operating costs.

Electrified rolling stock offers significant performance benefits, and this can be of great benefit on highly utilised routes such as the East of Leeds corridor. Electric trains such as the Class 331 EMU typically have faster acceleration and deceleration compared to diesel units; this reduces journey times and improves punctuality, especially where services make frequent stops. This is critical for the Leeds-Micklefield corridor with its mix of express and stopping services.

Table 11: Indicative journey time savings from electrification to Selby and Hull.

Central Growth Scenario	Westbound	Eastbound
Manchester Piccadilly <> Hull Switching Cl.802 from diesel to electric mode between Micklefield Junction and Hull	2 minutes*	1.5 to 2 minutes*
Leeds <> Selby Switching from Cl.195 DMU to Cl.331 EMU	2.5 minutes	1.5 minutes
York <> Hull via ECML and Selby Switching from Cl.195 DMU to Cl.331 EMU	2.5 minutes	3 minutes
York <> Selby via Sherburn-in-Elmet Switching from Cl.195 DMU to Cl.331 EMU	2 minutes	1 minute
High Growth Scenario	**Westbound**	**Eastbound**
Manchester Piccadilly <> Hull Switching Cl.802 from diesel to electric mode	2 minutes*	1.5 minutes*
Leeds <> Selby Switching from Cl.195 DMU to Cl.331 EMU	2.5 minutes	1.5 minutes
York <> Hull via ECML and Selby Switching from Cl.195 DMU to Cl.331 EMU	2 minutes	2.5 minutes
York <> Hull via Sherburn-in-Elmet and Selby Switching from Cl.195 DMU to Cl.331 EMU	4 minutes	3 minutes

Note: journey time savings include whole route between Leeds, Selby and Hull and between York, Selby and Hull. Differing calling patterns result in changes to saving between scenarios. Cl.195 are high performing DMUs, and therefore these journey time savings do not reflect the full potential of switching from poorer performing Cl.15x DMUs current used on the route. Cl.195 DMU characteristics have been assumed for bi-mode rolling stock operating in diesel mode on Leeds<>Selby stopping services east of Micklefield. There are likely to be some marginal improvements in journey times to the west of Micklefield where bi-modes switch to EMU operation.

*Additional journey time savings could be achieved with removal of Sprinter Differentials between Micklefield and Hull. Performance characteristics of Cl.802 have been assumed as a proxy for any new bi-mode rolling stock operating between Manchester and Hull.

It is also important to consider the current permissible speeds on the route east of Micklefield. If electrification is progressed, then work to bring permissible speeds on the route up to the higher Sprinter Differentials should be progressed in parallel. This would help to deliver further journey time benefits for services which are operated by longer intercity type rolling stock, including from Hull towards London and Manchester.

Extending electrification from Micklefield to Selby should also include short infill schemes, including Church Fenton to Selby, and Hambleton North and South Curves. This would deliver benefits to the York<>Selby local services. Electrifying Hambleton South Curve would provide an electrified diversionary route between Leeds and Doncaster when there is disruption on the West Riding Line via Wakefield Westgate.

Electrification east of Selby towards Hull would offer further opportunities for efficiencies, both in terms of capacity utilisation, journey times and operating costs. The use of lighter EMUs and a standard fleet on the York<>Hull and Leeds<>York / Selby services will reduce ongoing operating costs.

Interworking services on the Leeds / York / Hull triangle should be further explored to assess whether operational efficiencies can be identified. Coupled with the infill scheme between Temple Hirst and Selby, this would allow longer distance trains from London to Hull to switch to electric operation.

If services on the York to Hull corridor are operated by EMUs, then the currently specified York<>Bridlington via Hull service would have to be split into York<>Hull and Hull<>Bridlington services, severing cross-Hull linkages. An alternative would be to extend the Doncaster<>Hull service to Bridlington. This would remove the need to operate York<>Bridlington services with bi-mode units, bi-modes on this service group would negate the benefits of interworking services with EMUs which are cheaper to operate.

In the high growth scenario, there are some differences in time savings on the York<>Hull services. This is due to a change in calling pattern; with the addition of a second train between Hull and York, the slower service via Sherburn-in-Elmet takes the majority of intermediate calls. This then allows the faster service to make fewer calls; as these trains are at line speed for longer, the improved performance of electric offers less of a time saving over diesel traction.

As battery bi-mode technology continues to evolve then some, but not all, of these benefits may also be realised and this should be kept under consideration. This is especially important when considering benefits to Cross-Pennine freight services.

The gap in electrification between Ravensthorpe and Hare Park Jn (outside the study area of this advice) will mean that bi-/tri-mode freight locomotives will not be able to perform in the same way as they would with a continuously electrified route. This has the potential to impact on future timetabling of freight and passenger services on these routes. Further work is required as part of industry workstreams to understand the impact of future freight locomotive capabilities alongside realising the benefits from TRU. The potential to include this infill section alongside electrification from Temple Hirst Jn to Hull (to provide a fully electrified gauge cleared route from Liverpool to Hull via Doncaster and Selby) should be considered further to maximise potential benefits, in particular for freight routeings.

Electrification from Micklefield to Hull offers journey time benefits, operating cost efficiencies and performance benefits. This should be explored further and include the links from York to Selby, Hambleton Curves and from Temple Hirst Junction to Selby to maximise benefits. There are options to deliver this in a phased approach with the first package to Selby from Micklefield and York.

5.6 Transformation of Hull to York Corridor

A key policy-ask for Partners is the realisation of faster and more frequent services between Hull and York. The various scenarios developed as part of this Strategic Advice have sought to reduce journey times to offer a more attractive service compared with road. Modelled journey times are summarised in Table 12 below.

Table 12: Modelled journey times between Hull, Howden, Selby and York with diesel traction.

Existing journey times in AM peak	Hull to York	Howden to York	Selby to York
Existing journey time via road	01:00 – 01:40	00:40 – 01:05	00:30 – 00:55
Existing journey time via rail*	1tph in 01:10	1tph in 00:42	1tph in 00:31 1tph in 00:35
Proposed rail journey times	**Hull to York**	**Howden to York**	**Selby to York**
Central Growth: Hull faster via ECML	1tph in 00:56	1tph in 00:31	1tph in 00:19 1tph in 00:34
High Growth: 2tph to Hull, fewer calls in faster train	1tph in <00:56 1tph in 01:15	1tph in <00:31 1tph in 00:47	1tph in 00:19 1tph in 00:34

Note: *AM peak arrival into York. Throughout the day journey times from Hull to York via Sherburn-in-Elmet vary from 01:08 to 01:17 and via ECML are 01:01 to 01:02.

Journey time savings are achieved through:

- In the Central Growth scenario, re-routeing services to run fast between Selby and York via ECML, to offer journey time savings of around 15 minutes;
- In the High Growth scenario, providing a second train each hour between Hull and York. Intermediate calls are removed to provide a faster service which calls only at Brough, Howden and Selby and which offers a total journey time saving of around 16 minutes compared to today; and
- Investigating the impacts of electrification between Hull and York. This has the potential to offer an additional journey time saving over the high growth scenario.

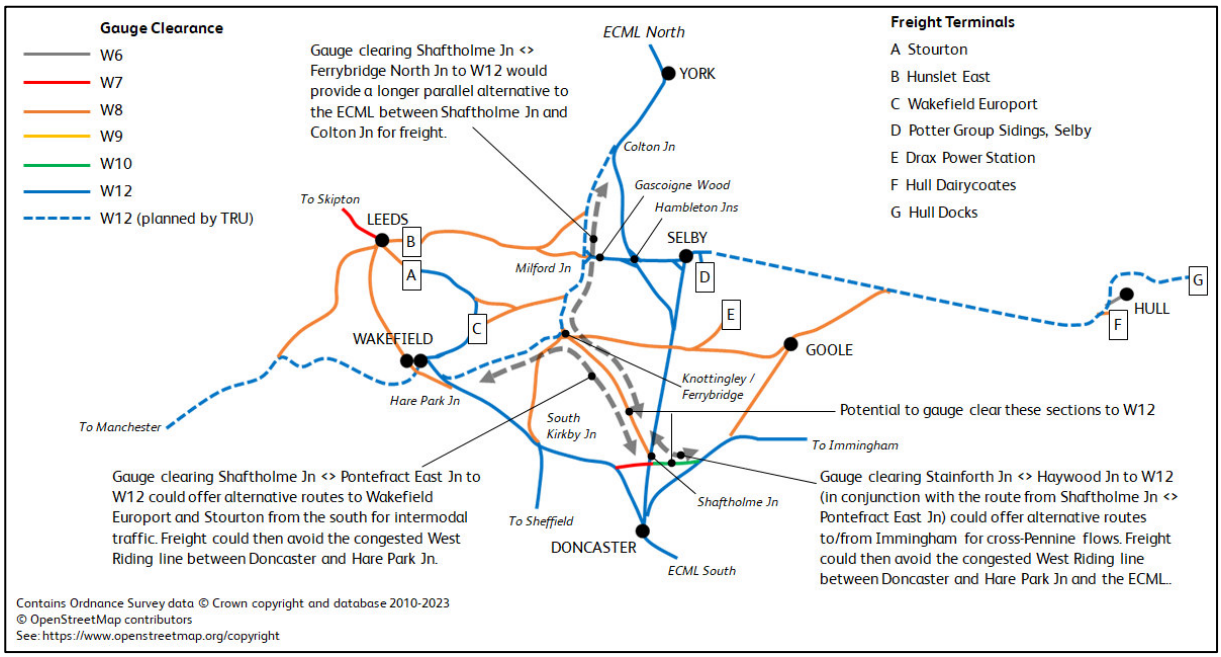
Together these changes with an uplift of service on the York, Selby and Hull corridor will help to transform the offer between Hull and York, targeting a growing market that has been identified as having low rail modal share. These scenarios would deliver Partner aspirations for both increased frequency and rail journey times between the two cities of under an hour, offering competitive journey times with road and helping to alleviate congestion on the A1079 between Hull, Beverley and York.

All scenarios would help to deliver key partner aspirations on the Hull to York corridor.

5.7 Freight

No specific freight-related interventions have been identified within this Strategic Advice. However, there are interventions immediately outside of the study area which could provide capacity benefits and alternative routeings for freight. These are shown in Figure 22 below.

Figure 22: Opportunities offered by gauge clearing between Knottingley and Doncaster to W12.



The TRU programme is funding design works for gauge clearance to W12 from Manchester to York via Huddersfield, Wakefield and Milford Junction as well as Selby to Hull. This will provide a route for intermodal traffic between the Port of Liverpool and the East Coast Ports, including Hull Docks and Teesport. Delivery of gauge clearance works is subject to business case.

The route via Knottingley has the potential to be more intensively used if short gaps of around 17km (10.5 miles) between Knottingley and Doncaster and 7.6km (4.75 miles) between Shaftholme Flyover and Stainforth could also be gauge cleared.

The scheme to gauge clear between Knottingley and Doncaster has been separately identified as part of work looking at congested infrastructure on the West Riding Line between Leeds, Wakefield and Doncaster. It has the potential to provide both an alternative route for freight to the ECML between Shaftholme Junction and Colton Junction, and also an alternative to the congested West Riding Line between Doncaster, Wakefield Europort and Stourton. Gauge clearing the route between Stainforth Junction and Shaftholme will allow traffic to/from Immingham to avoid the West Riding Line.

Further work is required to understand both the journey time impacts on freight flows and the capacity relief that this scheme could offer on adjacent routes, and this will be considered by the ongoing ECML Route Study. Further opportunities to examine electrification with gauge clearance should also be explored.

Gauge clearance to W12 between Knottingley and Doncaster offers opportunities for capacity relief, and these will be explored by the ongoing ECML Route Study.

5.8 Renewals

Renewals on the Sherburn Curve, between Sherburn Junction and Gascoigne Wood Junction, are planned between 2029 and 2034. Both Gascoigne Wood and Sherburn Junctions have approach control from red aspect for diverging routes, such as that between Selby and Sherburn-in-Elmet. Additional capacity could be created by replacing these with Flashing Aspects coupled with a line speed improvement from 30mph to 40mph.

Whilst not explicitly tested as part of the capacity analysis, the benefits of enhancing the signalling in this location would help to offer benefits over a like-for-like renewal, delivering a potential journey time saving and protecting performance.

It is also important that the interventions identified to accommodate the service specification in each scenario take account of planned renewals up to 2050, to identify synergies and benefits from delivering works together. These are identified in Figure 23 and Table 13 below.

Figure 23: Planned renewals on the East of Leeds corridor between 2029 and 2034.

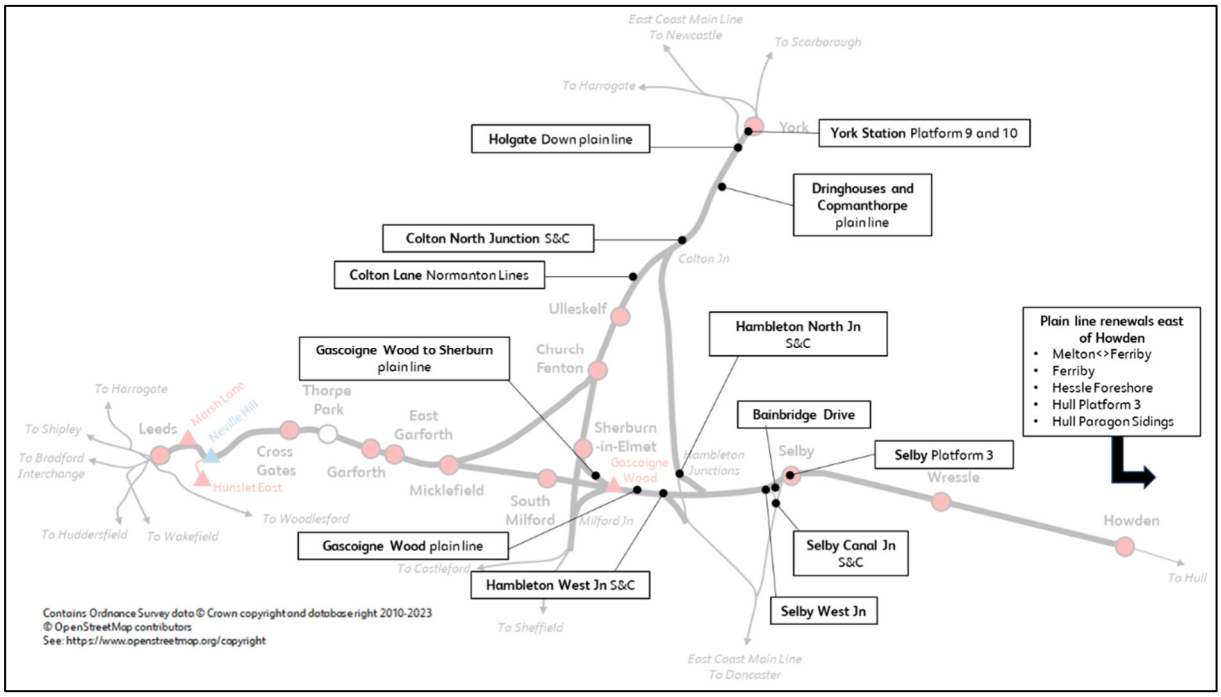


Table 13: Synergies between recommended interventions and renewals.

Recommended Intervention	Identified Renewals between 2029 and 2034
Selby: Platform 3 and approach control	Selby West Junction Selby Platform 3
Sherburn Curve: signalling and line speed enhancements	Gascoigne Wood to Sherburn plain line
Phase 1 Electrification: Micklefield and York to Selby/ Hambleton Junctions	Gascoigne Wood plain line Hambleton North Junction and West Junction S&C Bainbridge Drive
Phase 2 Electrification: Selby to Hull including Temple Hirst to Selby West Junction	Selby Canal Junction S&C Melton to Ferriby plain line Ferriby plain line Hessle Foreshore plain line Hull Platform 3 Hull Paragon sidings

The overlaps between renewal activities and enhancements required for future scenarios provide an opportunity to examine the scope for intelligent renewals on the corridor. This is a process where renewal funding is maximised to deliver an enhancement either through additional third-party funding or by enhancing network capability compared to like-for-like renewals. With increasing powers and funding devolved to Partners, including Mayoral

Combined Authorities, Network Rail should work with funders and third parties to explore these opportunities in further detail.

Pathways for intelligent renewals should be investigated further with funders and third parties to take advantage of the time-bound opportunities.

5.9 Emerging Policies

The Strategic Advice takes account of the policies and plans which were current when the advice was published in March 2026. As these policies and plans mature it is important that any changes are reflected in the conclusions of the Strategic Advice. This includes:

- Emerging housing allocations, especially with changes to NPPF around developments close to railway stations, as part of National Decision Making Policies, and any future changes to Local Plans; and
- Plans for mass transit in West Yorkshire which may impact the East of Leeds corridor as they mature.

Demand for bus, rail, mass transit and park and ride from Cross Gates, Thorpe Park, Temple Green and the East Leeds extension should be considered in the round as part of the updated business case for Thorpe Park. This will help to identify how rail can best contribute to serving total demand in this area.

5.10 Recommendations and Next Steps

This Strategic Advice has identified post-TRU scenarios for the corridor. This has developed future service specifications and identified several interventions to accommodate these. The identified interventions will help inform and influence future choices on the corridor, including for programmes such as TRU and NPR.

There are choices for Government and funders more widely around which post-TRU scenario to endorse by 2050, as this will inform the interventions required on the corridor. This choice, alongside the analysis and findings in this Strategic Advice, need to be considered and reflected in future enhancement programmes such as NPR.

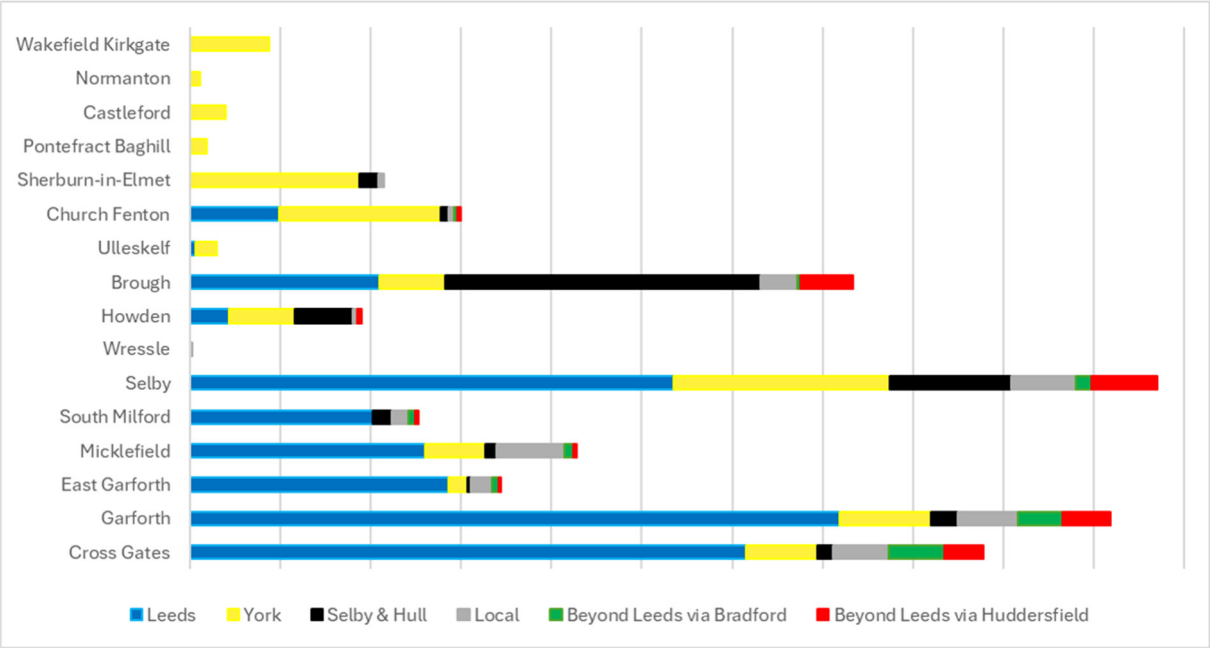
The recommendations of this Strategic Advice are to:
Work with the TRU programme to explore the findings of the market analysis and scenarios.
Decide which of the four future scenarios is most appropriate for 2050 and incorporate those proposed service changes into future planning of the network.
Seek to take forwards the interventions required for that scenario as part of the most appropriate programme.
Explore and further develop the case for phased electrification of the route from Micklefield / Church Fenton <> Selby and Hull, including Hambleton Junctions and Temple Hirst Junction to Selby.
Use the outputs of this advice to inform continued development of the NPR programme. The local service enhancements should be tested alongside any changes to regional services as part of NPR option development.
Further work is required to identify the various trade-offs required on services through Sherburn-in-Elmet to recommend a target end-state.

APPENDICES

Appendix A: Demand from stations east of Leeds

Demand from stations east of Leeds is shown in the diagram below.

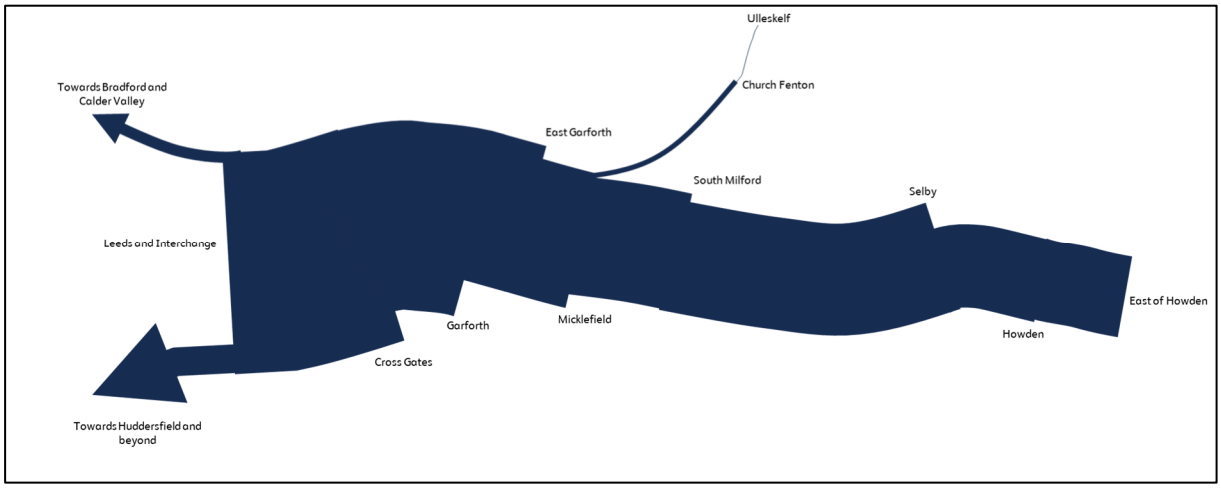
Demand at stations east of Leeds.



Source: MOIRA OR93. Demand is year to September 2024 from each station.

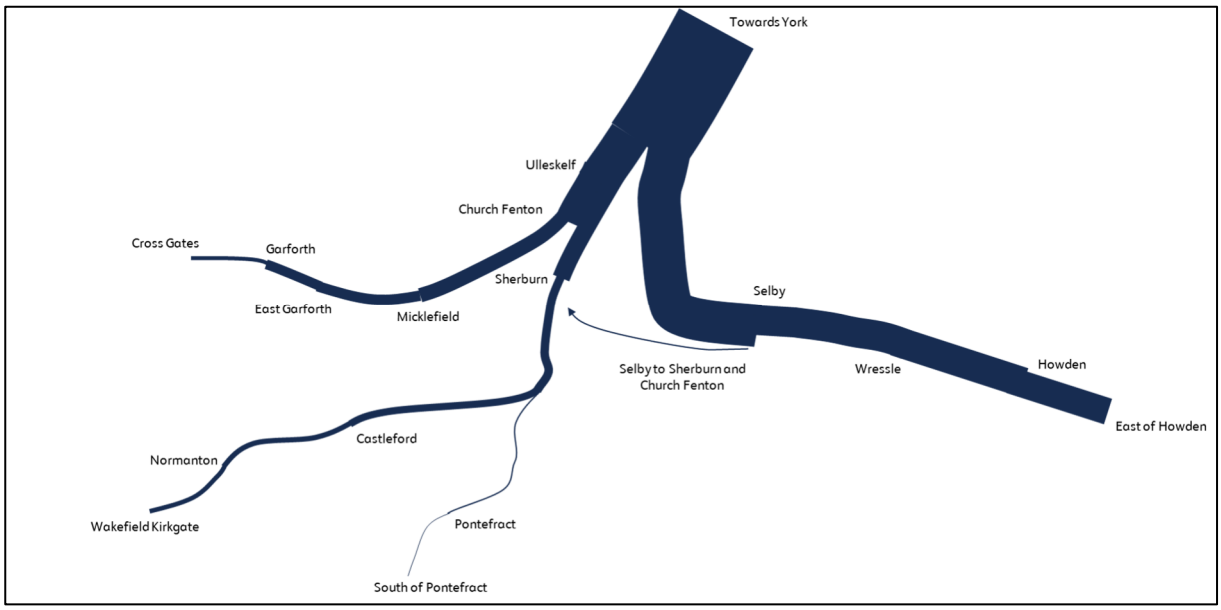
Spider diagrams have been developed to show the relative scale of demand into both Leeds (below) and York (overleaf).

Demand into Leeds from stations East of Leeds and towards Hull



Source: MOIRA OR93. Demand is year to September 2024, excluding through demand on the corridor between Leeds and York.

Demand into York through Church Fenton and Selby



Source: MOIRA OR93. Demand is year to September 2024, excluding through demand from Leeds and beyond.

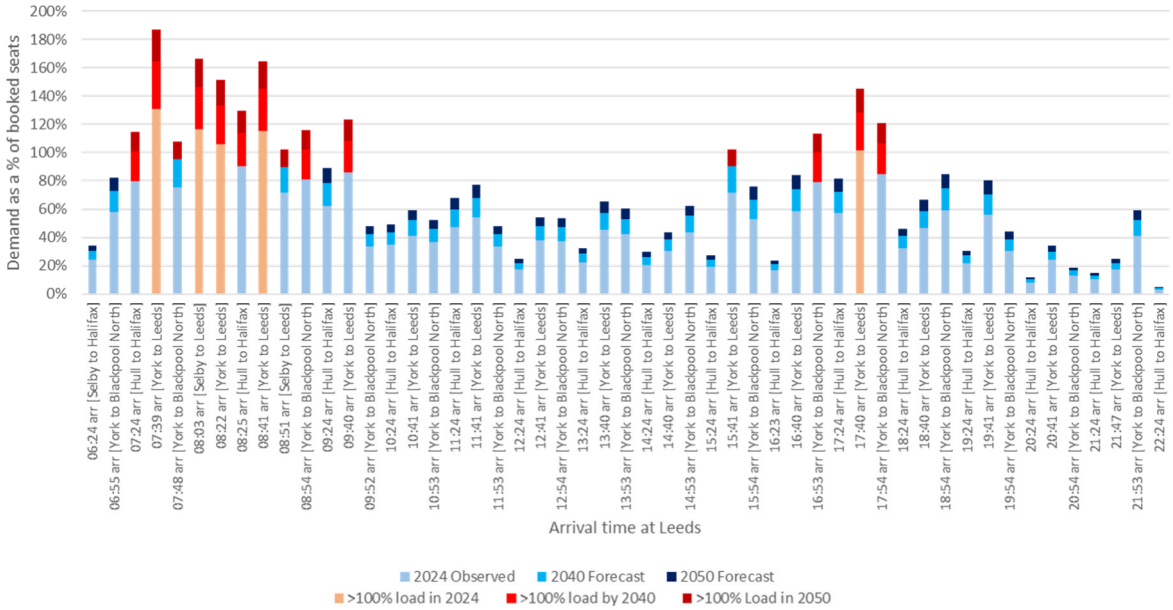
This shows that:

- Leeds is the predominant destination for stations between Leeds and Selby.
- York is the dominant destination from Ulleskelf, Church Fenton and Sherburn-in-Elmet.
- There are much lower levels of demand between the local stations – recorded as 'local' in the graph above.
- Existing service patterns are reflected in cross-Leeds demand towards the Calder Valley and Huddersfield, particularly from Selby, Garforth and Cross Gates.
- Demand from the Five Towns and Wakefield shown in the graph is limited to towards York for completeness.

Appendix B: Forecast Train Loadings on Existing Services

The graphs below show train loadings (demand as a proportion of seated capacity) on existing stopping services arriving and departing at Leeds. To give an estimation of future train loadings, the central growth forecasts have been applied to the DfT train counts at Leeds. No change to booked rolling stock capacities has been assumed.

Observed and forecast loads on local trains at Leeds arriving from the East of Leeds corridor.



Source: DfT autumn 2024 count data with central growth forecasts applied. Note that this excludes demand to/from the proposed station at Thorpe Park.

Trains arriving at Leeds with existing and forecast passenger loads >100 %

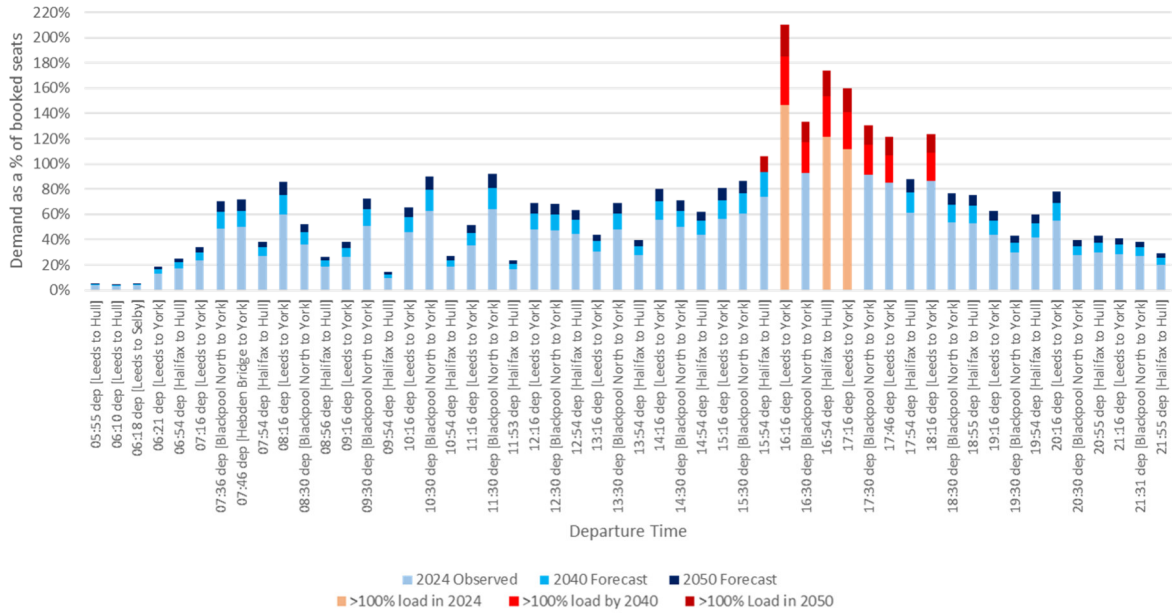
Service	Arrival at Leeds	Booked Rolling Stock	Seating Capacity	Forecast Load >100 %		
				2024	2040	2050
York to Leeds	07:39	Cl.195 2-car	124	✓	✓	✓
York to Blackpool North	07:48	Cl.195 3-car	204			✓
Selby to Leeds	08:03	Cl.158 2-car	143	✓	✓	✓
York to Leeds	08:22	Cl.155 2-car	152	✓	✓	✓
Hull to Halifax	08:25	Cl.158 4-car	286		✓	✓
York to Leeds	08:41	Cl.195 3-car	204	✓	✓	✓
Selby to Leeds	08:51	Cl.158 2-car	143			✓
York to Blackpool North	08:54	Cl.195 3-car	204		✓	✓
York to Leeds	09:40	Cl.195 2-car	124		✓	✓
York to Leeds	15:41	Cl.195 2-car	124			✓
York to Blackpool North	16:53	Cl.195 3-car	204		✓	✓
York to Leeds	17:40	Cl.195 2-car	124	✓	✓	✓
York to Blackpool North	17:54	Cl.195 3-car	204		✓	✓

This shows that for arrivals:

- In 2024 five services into Leeds recorded load factors over 100 %. Four of those trains are in the AM peak, which means there is one train in the PM peak arriving at Leeds full and standing; and

- Applying central growth forecasts shows that without any capacity enhancements there will be 11 services with loads above 100 % by 2040, and 14 services by 2050.

Observed and forecast loads on local trains at Leeds departing towards the East of Leeds corridor.



Source: DfT autumn 2024 count data with central growth forecasts applied. Note that this excludes demand to/from the proposed station at Thorpe Park.

Trains departing Leeds with existing and forecast passenger loads >100 %

Service	Depart Leeds	Booked Rolling Stock	Seating Capacity	Forecast Load >100 %		
				2024	2040	2050
Halifax to Hull	15:54	Cl.158 3-car	221			✓
Leeds to York	16:16	Cl.195 2-car	124	✓	✓	✓
Blackpool North to York	16:30	Cl.195 3-car	204		✓	✓
Halifax to Hull	16:54	Cl.158 3-car	221	✓	✓	✓
Leeds to York	17:16	Cl.195 3-car	204	✓	✓	✓
Blackpool North to York	17:30	Cl.195 3-car	204		✓	✓
Leeds to York	17:46	Cl.158 2-car	143		✓	✓
Leeds to York	18:16	Cl.195 2-car	124		✓	✓

For departures this shows:

- In 2024 three services leaving Leeds in the PM peak had observed loads above 100 %; and
- Applying central growth forecasts without any capacity enhancements shows that seven trains by 2040 and eight trains by 2050 will depart with loads of greater than 100 %, with all of these being in the PM peak.

Central growth forecasts show that trains adjacent to the traditional AM and PM peak periods will become increasingly busy. There is likely to be 'peak spreading' as demand spills over from the busiest hours into adjacent time periods.

Services which see loads of >100 % are a mix of 2-, 3- and 4-car trains.

Appendix C: Post-TRU Forecast Train Loadings

Passengers in Excess of Capacity (PiXC) is defined by the DfT[26] as "*the number of standard class passengers on a service that are in excess of the standard class capacity, and which may include a standing allowance*". The standing allowance is defined as "*an allowance for standing passengers when the time between the station and the critical load point is 20 minutes or less*".

The critical load points are where the highest level of demand is recorded on the service. Leeds and York are taken to be the critical load points for local services on the corridor. This means that an allowance for standing has been applied through the study area from:

- Micklefield inbound to Leeds;
- Garforth inbound to York from the west; and
- Church Fenton inbound to York from the south.

These are the last inbound stations with journey times of less than 20 minutes into Leeds and York.

Furthermore, standing space varies by type of rolling stock. Acceptable standing densities for suburban rolling stock are shown below.

	Maximum Acceptable Standing Density (passengers per m^2)	
	Rolling Stock Design Standard	Acceptable Passenger Experience
Suburban Stock	2.2	1.5

Within this analysis the standing density of 1.5 has been applied, and this represents a maximum acceptable standing density as experienced by passengers. This recognises that applying the rolling stock design standard assumes that passengers would need to be distributed uniformly across every carriage of the train, and that such an assumption will likely understate any shortfall in capacity.

Together this means that in our analysis trains are deemed to be carrying Passengers in Excess of Capacity when:

- Load factors of 100% or more are recorded into Leeds from stations east of Micklefield – e.g. from Church Fenton and South Milford;
- Load factors of 100% or more are recorded into York from stations west of Garforth – e.g. from Thorpe Park;
- Load factors of 100% or more are recorded into York from stations south of Church Fenton – e.g. from Sherburn-in-Elmet, Castleford, Pontefract Baghill or Selby; or
- Standing reaches a density of 1.5 passengers per m^2 at any location on the route.

To aid interpretation all load factor diagrams in this and the subsequent appendices which describe train loadings use the following key:

[26] Rail passenger numbers and crowding statistics: notes and definitions - GOV.UK accessed 27/02/2026

GREY	No direct service to Leeds or York during the high peak hour, or out of scope
LIGHT GREEN	Up to 70 % of seats occupied.
GREEN	Between 70 % and 85 % of seats occupied.
DARK GREEN	Between 85 % and 100 % of seats occupied.
AMBER	Standing: Up to 1 passenger standing per square metre.
RED	Standing: 1 to 1.5 passengers standing per square metre.
PURPLE	Standing: 1.5 to 2.2 passengers standing per square metre.
NAVY BLUE	Standing: Over 2.2 passengers standing per square metre.

This clearly allows identification of where:

- Forecast demand falls within the seating capacity of the train, where no standing is predicted (various shades of green in the table above);
- Forecast demand exceeds seating capacity of the train. Standing is predicted and is within the total capacity of the train (amber and red in the table above);
- Forecast demand exceeds total capacity of the train when applying standing densities derived from passenger experience, breaching total capacities defined by PiXC (purple or navy blue in the table above); and
- Forecast demand exceeds total capacity of the train when applying standing densities derived from rolling stock design standards, breaching total capacities defined by PiXC (navy blue in the table above).

The following tables summarise the forecast load factors (passengers as a proportion of seating capacity) on local trains into both Leeds and York arriving between 08:00 and 08:59 with the post-TRU service patterns proposed by CCT3.

Post-TRU service pattern – forecast load factors into Leeds in 2034.

Load Factor by 2034	CENTRAL GROWTH				
Service	**YRK-LDS**	**YRK-LDS (Peak)**	**YRK-BPN**	**SBY-LDS**	**SBY-LDS (Peak)**
Rolling Stock	331 EMU 3-car	331 EMU 3-car	195 DMU 4-car	195 DMU 4-car	195 DMU 4-car
Seated Capacity	204	204	248	248	248
York	32%	32%	36%		
Ulleskelf		37%			
Church Fenton		47%	44%		
East of Howden					
Howden					
Selby				19%	19%
South Milford				38%	38%
Micklefield	55%			57%	57%
East Garforth	75%			73%	73%
Garforth	93%	65%	59%	89%	
Thorpe Park	112%	84%		104%	89%
Cross Gates	138%	111%		126%	111%

Post-TRU service pattern – forecast load factors into Leeds in 2039.

Load Factor by 2039	CENTRAL GROWTH				
Service	**YRK-LDS**	**YRK-LDS (Peak)**	**YRK-BPN**	**SBY-LDS**	**SBY-LDS (Peak)**
Rolling Stock	331 EMU 3-car	331 EMU 3-car	195 DMU 4-car	195 DMU 4-car	195 DMU 4-car
Seated Capacity	204	204	248	248	248
York	34%	34%	38%		
Ulleskelf		39%			
Church Fenton		50%	47%		
East of Howden					
Howden					
Selby				20%	20%
South Milford				41%	41%
Micklefield	59%			61%	61%
East Garforth	80%			79%	79%
Garforth	99%	70%	63%	95%	
Thorpe Park	120%	90%		112%	95%
Cross Gates	148%	118%		135%	119%

Forecasting shows that with 3-car trains with 204 seats (equivalent to a 3-car Cl.195 / Cl.331) on local services into Leeds from York, there will be standing inbound from Thorpe Park from 2034. By 2039 the York to Leeds service will breach the standing allowance with demand exceeding total capacity resulting in Passengers in Excess of Capacity at Cross Gates. This means that York<>Leeds trains will need lengthening to 4-car trains with 248 seats.

Post-TRU service pattern – forecast load factors into Leeds in 2040 and 2050.

Load Factor by 2040	CENTRAL GROWTH				
Service	**YRK-LDS**	**YRK-LDS (Peak)**	**YRK-BPN**	**SBY-LDS**	**SBY-LDS (Peak)**
Rolling Stock	331 EMU 3-car	331 EMU 3-car	195 DMU 4-car	195 DMU 4-car	195 DMU 4-car
Seated Capacity	204	204	248	248	248
York	35%	35%	39%		
Ulleskelf		40%			
Church Fenton		51%	48%		
East of Howden					
Howden					
Selby				21%	21%
South Milford				42%	42%
Micklefield	60%			62%	62%
East Garforth	81%			80%	80%
Garforth	101%	71%	64%	96%	
Thorpe Park	122%	91%		113%	97%
Cross Gates	150%	120%		136%	120%

Load Factor by 2050	CENTRAL GROWTH				
Service	**YRK-LDS**	**YRK-LDS (Peak)**	**YRK-BPN**	**SBY-LDS**	**SBY-LDS (Peak)**
Rolling Stock	331 EMU 3-car	331 EMU 3-car	195 DMU 4-car	195 DMU 4-car	195 DMU 4-car
Seated Capacity	204	204	248	248	248
York	39%	39%	44%		
Ulleskelf		45%			
Church Fenton		58%	54%		
East of Howden					
Howden					
Selby				24%	24%
South Milford				47%	47%
Micklefield	68%			70%	70%
East Garforth	92%	82%		91%	91%
Garforth	115%	81%	73%	110%	
Thorpe Park	131%	97%		123%	104%
Cross Gates	164%	129%		149%	130%

Forecasting shows that through the 2040s the York<>Leeds train breaches the standing allowance with demand exceeding total capacity resulting in Passenger in Excess of Capacity at Cross Gates. The loads on the Selby<>Leeds train are also approaching total capacity at Cross Gates by 2050. Without lengthening the York<>Leeds trains to 4-car with 248 seats, services will become increasingly crowded through the 2040s and will risk crowding off and constraining the market, especially at Cross Gates.

Post-TRU service pattern – forecast load factors into York in 2040 and 2050.

Load factor by 2040	CENTRAL GROWTH						
Service	**LDS-YRK**	**LDS-YRK (Peak)**	**BPN-YRK**	**HUD-YRK**	**SHF-YRK**	**HUL-YRK**	**SBY-YRK (Peak)**
Rolling Stock	331 EMU 3-car	331 EMU 3-car	195 DMU 4-car	185 DMU 3-car	195 DMU 2-car	170 DMU 3-car	170 DMU 3-car
Seated Capacity	204	204	248	181	124	189	189
Leeds	20%	20%	44%				
Thorpe Park	35%						
Castleford							
Pontefract					50%		
East of Selby						49%	
Selby						76%	27%
Sherburn-in-Elmet				11%	66%	86%	37%
Church Fenton			50%	18%	77%	93%	45%
Ulleskelf					84%		50%

Load by 2050	CENTRAL GROWTH						
Service	**LDS-YRK**	**LDS-YRK (Peak)**	**BPN-YRK**	**HUD-YRK**	**SHF-YRK**	**HUL-YRK**	**SBY-YRK (Peak)**
Rolling Stock	331 EMU 3-car	331 EMU 3-car	195 DMU 4-car	185 DMU 3-car	195 DMU 2-car	170 DMU 3-car	170 DMU 3-car
Seated Capacity	204	204	248	181	124	189	189
Leeds	23%	23%	50%				
Thorpe Park	40%						
Castleford							
Pontefract					57%		
East of Selby						55%	
Selby						86%	31%
Sherburn-in-Elmet				12%	74%	98%	42%
Church Fenton			57%	21%	87%	106%	51%
Ulleskelf					96%		56%

Note that loads on the Huddersfield<>York train are underestimated due to the lack of count data from stations south/west of Sherburn-in-Elmet.

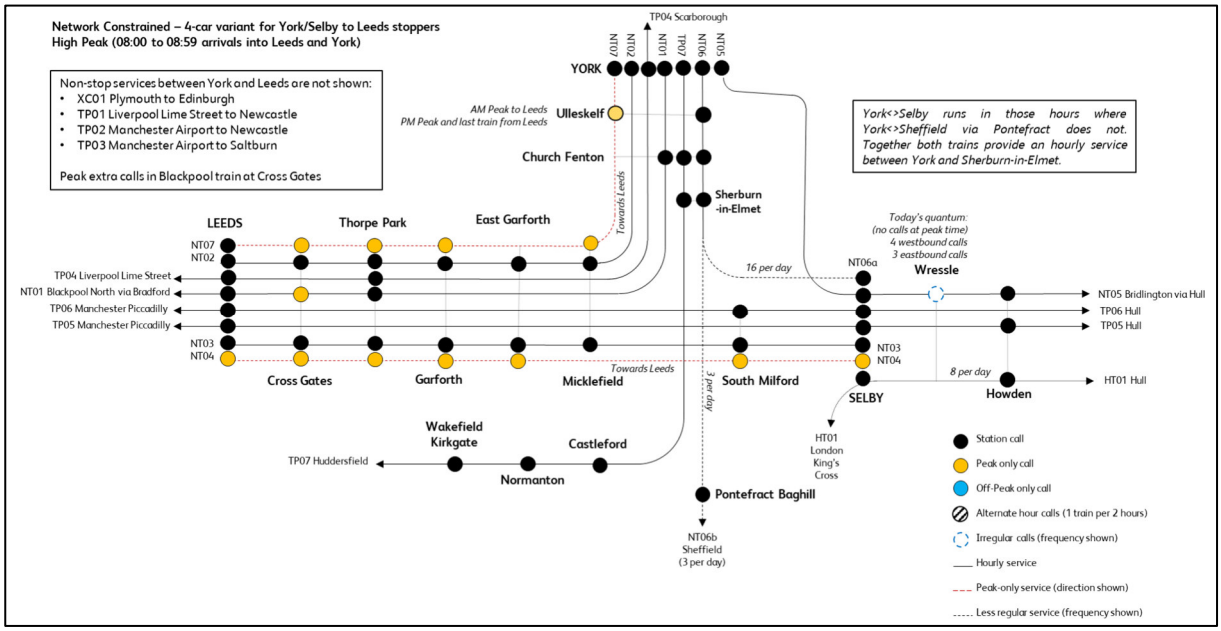
Forecasting shows that the need for the Leeds>York peak extra service in the AM peak is not demand driven, and the forecast loads could feasibly be accommodated on a single train.

3-car trains with 189 seats (equivalent to a 3-car Cl.170) on the York<>Hull train will see standing inbound from Church Fenton by 2050. However, Church Fenton to York falls within the 20-minute standing allowance specified by the PiXC regime.

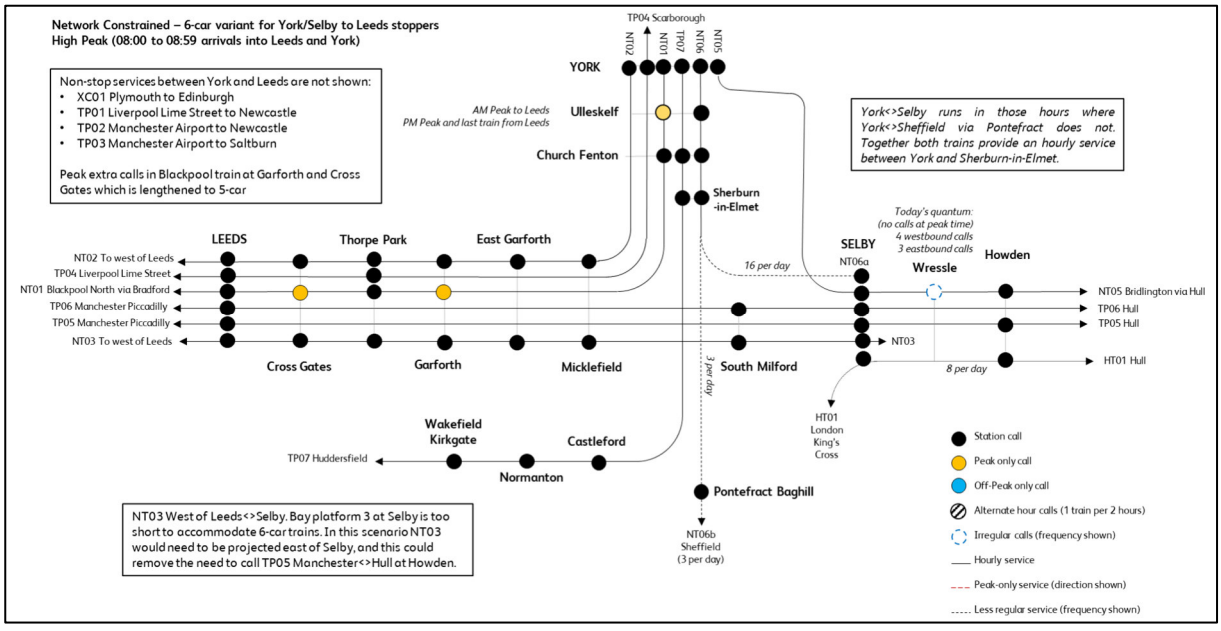
Appendix D: Train Service Specifications

The figures below show the train service specifications which have been tested for each scenario.

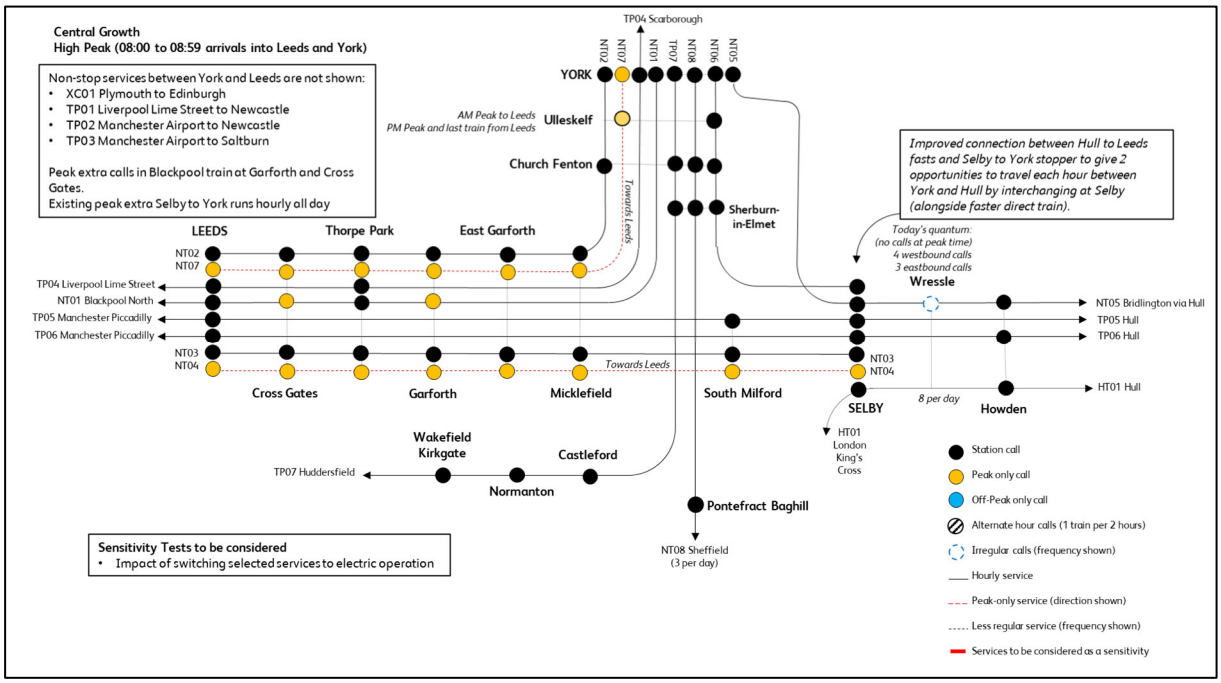
Network Constrained 4-car variant: passenger train service specification.



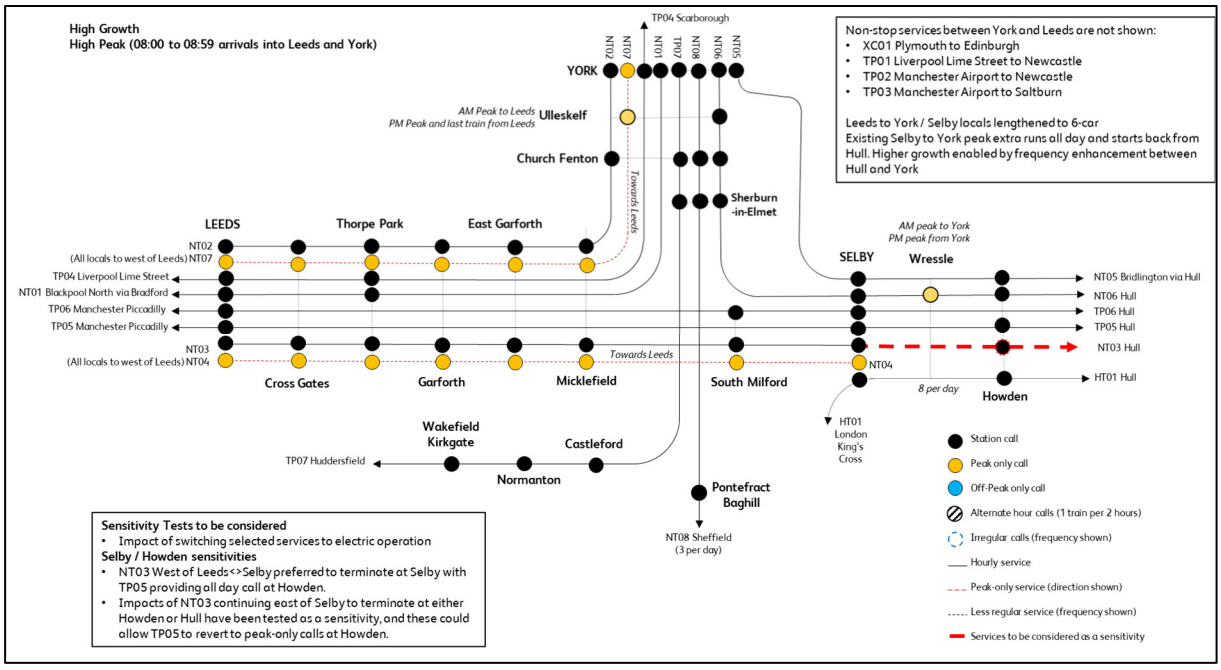
Network Constrained 6-car variant: passenger train service specification.



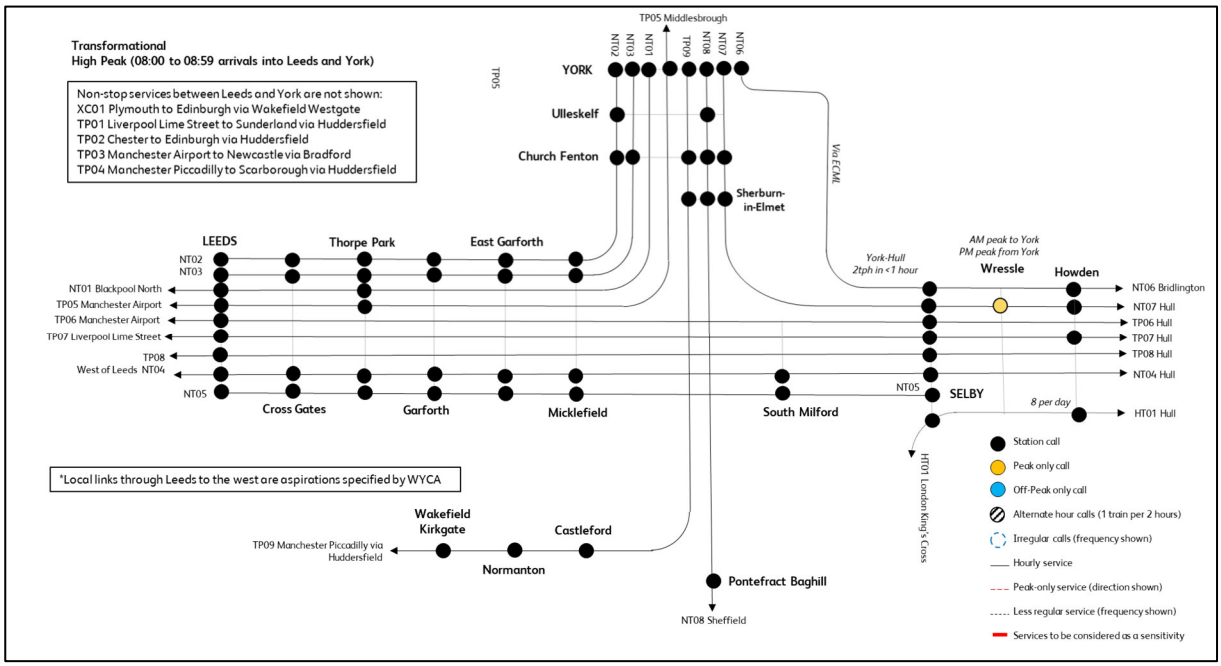
Central Growth scenario: passenger train service specification.



High Growth scenario: passenger train service specification.



Transformational Scenario: passenger train service specification.



Appendix E: Network Constrained Forecast Train Loadings

The following tables summarise forecast load factors on local trains into both Leeds and York arriving between 08:00 and 08:59 under the Network Constrained scenarios. These scenarios have sought to accommodate central growth forecasts on a constrained network.

Network Constrained: no new infrastructure 4-car variant – forecast load factors into Leeds in 2040 and 2050.

Load Factor by 2040	**CENTRAL GROWTH**				
Service	**YRK-LDS**	**YRK-LDS (Peak)**	**YRK-BPN**	**SBY-LDS**	**SBY-LDS (Peak)**
Rolling Stock	331 EMU 4-car	331 EMU 4-car	195 DMU 4-car	195 DMU 4-car	195 DMU 4-car
Seated Capacity	284	284	248	248	248
York	25%	25%	39%		
Ulleskelf		28%			
Church Fenton			57%		
East of Howden					
Howden					
Selby				21%	21%
South Milford				35%	35%
Micklefield	43%	46%		55%	
East Garforth	58%			73%	52%
Garforth	72%	61%		89%	68%
Thorpe Park	87%	76%	74%	106%	86%
Cross Gates	104%	92%	93%	125%	104%

Load Factor by 2050	**CENTRAL GROWTH**				
Service	**YRK-LDS**	**YRK-LDS (Peak)**	**YRK-BPN**	**SBY-LDS**	**SBY-LDS (Peak)**
Rolling Stock	331 EMU 4-car	331 EMU 4-car	195 DMU 4-car	195 DMU 4-car	195 DMU 4-car
Seated Capacity	284	284	248	248	248
York	28%	28%	44%		
Ulleskelf		32%			
Church Fenton			65%		
East of Howden					
Howden					
Selby				24%	24%
South Milford				39%	39%
Micklefield	49%	53%		63%	
East Garforth	66%			83%	60%
Garforth	83%	69%		102%	79%
Thorpe Park	94%	81%	78%	115%	92%
Cross Gates	113%	99%	99%	136%	113%

Network Constrained: no new infrastructure 4-car variant – forecast load factors into York in 2040 and 2050.

Load factor by 2040	CENTRAL GROWTH					
Service	**LDS-YRK**	**BPN-YRK**	**HUD-YRK**	**SHF-YRK**	**HUL-YRK**	**SBY-YRK (Peak)**
Rolling Stock	331 EMU 4-car	195 DMU 4-car	185 DMU 3-car	195 DMU 2-car	195 DMU 3-car	195 DMU 3-car
Seated Capacity	284	248	181	124	204	204
Leeds	29%	44%				
Thorpe Park	33%	48%				
Castleford						
Pontefract				50%		
East of Selby					45%	
Selby					70%	25%
Sherburn-in-Elmet			14%	71%		38%
Church Fenton		55%	24%	85%		46%
Ulleskelf				92%		51%

Load by 2050	CENTRAL GROWTH					
Service	**LDS-YRK**	**BPN-YRK**	**HUD-YRK**	**SHF-YRK**	**HUL-YRK**	**SBY-YRK (Peak)**
Rolling Stock	331 EMU 4-car	195 DMU 4-car	185 DMU 3-car	195 DMU 2-car	195 DMU 3-car	195 DMU 3-car
Seated Capacity	284	248	181	124	204	204
Leeds	33%	50%				
Thorpe Park	37%	55%				
Castleford						
Pontefract				57%		
East of Selby					51%	
Selby					80%	28%
Sherburn-in-Elmet			16%	80%		43%
Church Fenton		63%	27%	96%		52%
Ulleskelf				105%		58%

Note that loads on the Huddersfield<>York train are underestimated due to the lack of count data from stations south/west of Sherburn-in-Elmet.

Forecasting shows that in a 4-car network constrained scenario:

- 4-car trains on local services into Leeds from York and Selby will see standing from 2040, although this remains within the PiXC tolerances up to 2050.
- Use of 4-car trains on York / Selby to Leeds services means that peak extra services are still required to cater for demand.
- Demand on the Selby<>Leeds train approaches total capacity specified by the PiXC regime's standing allowance by 2050 at Cross Gates. This means that the network constrained scenario is unlikely to offer a longer-term solution without further changes to train services.
- 4-car trains on the Blackpool North<>York trains are driven by capacity needs on the East of Leeds corridor, where demand is within seating capacity inbound from Cross

Gates in 2050. Further forecasting work will be required to prove whether this would provide sufficient capacity west of Leeds.

- Services between York, Selby and Hull will require a 3-car train. A like-for-like replacement of 3-car Cl.195 DMU replacing a 3-car Cl.170 DMU would increase the seating metric to 204 and provide sufficient seating capacity.
- A 3-car Selby>York peak extra train with 204 seats will provide sufficient capacity via Sherburn-in-Elmet, as long as the Huddersfield<>York train calls additionally at Sherburn-in-Elmet and Church Fenton. This will result in some standing by 2050 on the Sheffield<>York train inbound from Ulleskelf to York, which is limited to a 2-car Cl.195 DMU due to constraints with platform capacity at Sheffield.

Network Constrained: minimising train paths 6-car variant – forecast load factors into Leeds in 2040 and 2050.

Load Factor by 2040	**CENTRAL GROWTH**		
Service	**YRK-LDS**	**YRK-BPN**	**SBY-LDS**
Rolling Stock	331 EMU 6-car	195 DMU 5-car	195 DMU 6-car
Seated Capacity	408	328	408
York	35%	29%	
Ulleskelf		32%	
Church Fenton		46%	
East of Howden			
Howden			
Selby			17%
South Milford			29%
Micklefield	53%		48%
East Garforth	69%		64%
Garforth	83%	63%	77%
Thorpe Park	98%	82%	93%
Cross Gates	117%	106%	112%

Load Factor by 2050	**CENTRAL GROWTH**		
Service	**YRK-LDS**	**YRK-BPN**	**SBY-LDS**
Rolling Stock	331 EMU 6-car	195 DMU 5-car	195 DMU 6-car
Seated Capacity	408	328	408
York	39%	33%	
Ulleskelf		37%	
Church Fenton		52%	
East of Howden			
Howden			
Selby			19%
South Milford			33%
Micklefield	60%		55%
East Garforth	79%		73%
Garforth	94%	72%	89%
Thorpe Park	106%	86%	101%
Cross Gates	128%	113%	122%

Network Constrained: minimising train paths 6-car variant – forecast load factors into York in 2040 and 2050.

Load factor by 2040	CENTRAL GROWTH					
Service	**LDS-YRK**	**BPN-YRK**	**HUD-YRK**	**SHF-YRK**	**HUL-YRK**	**SBY-YRK (Peak)**
Rolling Stock	331 EMU 6-car	195 DMU 5-car	185 DMU 3-car	195 DMU 2-car	195 DMU 3-car	195 DMU 3-car
Seated Capacity	408	328	181	124	204	204
Leeds	20%	34%				
Thorpe Park	23%	37%				
Castleford						
Pontefract				50%		
East of Selby					45%	
Selby					70%	25%
Sherburn-in-Elmet			14%	71%		38%
Church Fenton		42%	24%	85%		46%
Ulleskelf				92%		51%

Load by 2050	CENTRAL GROWTH					
Service	**LDS-YRK**	**BPN-YRK**	**HUD-YRK**	**SHF-YRK**	**HUL-YRK**	**SBY-YRK (Peak)**
Rolling Stock	331 EMU 6-car	195 DMU 5-car	185 DMU 3-car	195 DMU 2-car	195 DMU 3-car	195 DMU 3-car
Seated Capacity	408	328	181	124	204	204
Leeds	23%	38%				
Thorpe Park	26%	42%				
Castleford						
Pontefract				57%		
East of Selby					51%	
Selby					80%	28%
Sherburn-in-Elmet			16%	80%		43%
Church Fenton		47%	27%	96%		52%
Ulleskelf				105%		58%

Note that load factors on Huddersfield>Castleford>York train are underestimated due to the lack of counts south of Sherburn-in-Elmet.

Forecasting shows that in a 6-car network constrained scenario:

- 6-car trains on local services into Leeds from York and Selby could operate without peak extra services. This would provide 408 seats per train from both York and Selby (equivalent to a 6-car Cl.195 / Cl.331). There will be some standing from Cross Gates into Leeds by 2040 and inbound from Thorpe Park by 2050, but this will fall within the standing allowance specified by the PiXC regime.
- To achieve this, additional peak time calls are required on the Blackpool North<>York service at Garforth and Cross Gates. This service has been modelled as a 5-car Cl.195 to provide 328 seats to accommodate demand from the additional peak extra calls. By 2050 4-car trains on this service are at the very limit of the standing allowance

(in terms of total capacity), and if higher rates of growth were realised this may drive the need to lengthen this service at an earlier date.

- Further analysis is needed to show whether 5-car trains on the Blackpool North<>York trains would adequately cater for demand west of Leeds.
- Lengthening Leeds<>Selby trains to 6-car mean that they cannot terminate in the bay Platform 3 at Selby. Options to extend these services to the east could include calling them at Howden, which may increase load factors on the local services. If this were to happen the Manchester<>Hull service would no longer need to call at Howden, reducing load factors on that service.
- Services between York, Selby and Hull will require a 3-car train. A like-for-like replacement of 3-car Cl.195 DMU replacing a 3-car Cl.170 DMU would increase the seating metric to 204 and provide sufficient seating capacity.
- The Sheffield<>York train is limited to 2-car length due to capacity constraints at Sheffield. This service is likely to see standing inbound from Ulleskelf by 2050, but this falls within the 20 minute standing allowance of the PiXC regime.

Appendix F: Central Growth Forecast Train Loadings

The following tables summarise the forecast load factors on local trains into both Leeds and York arriving between 08:00 and 08:59 under the Central Growth scenario.

Central Growth Scenario – forecast load factors into Leeds in 2040 and 2050.

Load Factor by 2040	CENTRAL GROWTH				
Service	**YRK-LDS**	**YRK-LDS (Peak)**	**YRK-BPN**	**SBY-LDS**	**SBY-LDS (Peak)**
Rolling Stock	331 EMU 4-car	331 EMU 4-car	195 DMU 4-car	Bi-Mode 4-car	Bi-Mode 4-car
Seated Capacity	284	284	248	284	284
York	25%	25%	39%		
Ulleskelf		27%			
Church Fenton	43%				
East of Howden					
Howden					
Selby				18%	18%
South Milford				30%	30%
Micklefield	56%	40%		44%	44%
East Garforth	68%	52%		55%	55%
Garforth	79%	63%	52%	67%	67%
Thorpe Park	94%	78%	69%	81%	81%
Cross Gates	110%	94%	88%	98%	98%

Load Factor by 2050	CENTRAL GROWTH				
Service	**YRK-LDS**	**YRK-LDS (Peak)**	**YRK-BPN**	**SBY-LDS**	**SBY-LDS (Peak)**
Rolling Stock	331 EMU 4-car	331 EMU 4-car	195 DMU 4-car	Bi-Mode 4-car	Bi-Mode 4-car
Seated Capacity	284	284	248	284	284
York	28%	28%	44%		
Ulleskelf		30%			
Church Fenton	48%				
East of Howden					
Howden					
Selby				21%	21%
South Milford				34%	34%
Micklefield	64%	45%		50%	50%
East Garforth	77%	59%		63%	63%
Garforth	90%	72%	59%	76%	76%
Thorpe Park	102%	84%	72%	88%	88%
Cross Gates	120%	102%	93%	106%	106%

Central Growth Scenario – forecast load factors into York in 2040 and 2050.

Load factor by 2040	CENTRAL GROWTH					
Service	**LDS-YRK**	**BPN-YRK**	**HUD-YRK**	**SHF-YRK**	**HUL-YRK**	**SBY-YRK**
Rolling Stock	331 EMU 4-car	195 DMU 4-car	185 DMU 3-car	195 DMU 2-car	195 DMU 3-car	195 DMU 3-car
Seated Capacity	284	248	181	124	204	204
Leeds	29%	44%				
Thorpe Park	33%	48%				
Castleford						
Pontefract				50%		
East of Selby					45%	
Selby					70%	25%
Sherburn-in-Elmet			14%	71%		38%
Church Fenton	39%		24%	85%		46%
Ulleskelf						55%

Load by 2050	CENTRAL GROWTH					
Service	**LDS-YRK**	**BPN-YRK**	**HUD-YRK**	**SHF-YRK**	**HUL-YRK**	**SBY-YRK**
Rolling Stock	331 EMU 4-car	195 DMU 4-car	185 DMU 3-car	195 DMU 2-car	195 DMU 3-car	195 DMU 3-car
Seated Capacity	284	248	181	124	204	204
Leeds	33%	50%				
Thorpe Park	37%	55%				
Castleford						
Pontefract				57%		
East of Selby					51%	
Selby					80%	28%
Sherburn-in-Elmet			16%	80%		43%
Church Fenton	44%		27%	96%		52%
Ulleskelf						63%

Note that load factors on Huddersfield>Castleford>York train are underestimated due to the lack of counts south of Sherburn-in-Elmet.

Forecasting shows that:

- 4-car trains on local services into Leeds from York and Selby will provide adequate capacity. There will be some standing from Cross Gates into Leeds by 2040 and from Thorpe Park by 2050, but this falls within the 20 minute standing allowance. Bi-mode trains between Selby and Leeds will need to provide a seating capacity similar to that of a 4-car Cl.331 EMU.
- 4-car trains on the Blackpool North<>York train will eliminate standing on this service on the East of Leeds corridor, even with peak extra calls included at Garforth and Cross Gates. Further analysis is needed to show whether this would adequately cater for demand west of Leeds.
- Services between York, Selby and Hull will require a seating metric of 204, which is equivalent to a 3-car Cl.195. A 3-car Selby>York peak extra train will provide sufficient capacity via Sherburn-in-Elmet alongside a 2-car Sheffield>York train, as long as the Huddersfield<>York train calls at Sherburn-in-Elmet and Church Fenton.

Appendix G: High Growth Forecast Train Loadings

The following tables summarise the forecast load factors on local trains into both Leeds and York arriving between 08:00 and 08:59 under the High Growth scenario.

High Growth Scenario – forecast load factors into Leeds in 2040 and 2050.

Load by 2040	**HIGH GROWTH**				
Service	**YRK-LDS**	**YRK-LDS (Peak)**	**YRK-BPN**	**SBY-LDS**	**SBY-LDS (Peak)**
Rolling Stock	331 EMU 6-car	331 EMU 6-car	195 DMU 4-car	Bi-Mode 6-car	Bi-Mode 6-car
Seated Capacity	408	408	248	408	408
York	20%	20%	44%		
Ulleskelf		21%			
Church Fenton	34%				
East of Howden					
Howden					
Selby				14%	14%
South Milford				24%	24%
Micklefield	45%	32%		35%	35%
East Garforth	54%	41%		44%	44%
Garforth	66%	53%		56%	56%
Thorpe Park	74%	61%	57%	64%	64%
Cross Gates	90%	77%		80%	80%

Load by 2050	**HIGH GROWTH**				
Service	**YRK-LDS**	**YRK-LDS (Peak)**	**YRK-BPN**	**SBY-LDS**	**SBY-LDS (Peak)**
Rolling Stock	331 EMU 6-car	331 EMU 6-car	195 DMU 4-car	Bi-Mode 6-car	Bi-Mode 6-car
Seated Capacity	408	408	248	408	408
York	25%	25%	55%		
Ulleskelf		26%			
Church Fenton	42%				
East of Howden					
Howden					
Selby				18%	18%
South Milford				30%	30%
Micklefield	55%	40%		43%	43%
East Garforth	67%	52%		55%	55%
Garforth	83%	67%		70%	70%
Thorpe Park	92%	77%	71%	80%	80%
Cross Gates	113%	97%		100%	100%

High Growth Scenario - forecast load factors into York in 2040 and 2050.

Load by 2040	HIGH GROWTH					
Service	**LDS-YRK**	**BPN-YRK**	**HUD-YRK**	**SHF-YRK**	**HUL-YRK**	**HUL-YRK**
Rolling Stock	331 EMU 6-car	195 DMU 4-car	185 DMU 3-car	195 DMU 2-car	195 DMU 3-car	195 DMU 3-car
Seated Capacity	408	248	181	124	204	204
Leeds	23%	51%				
Thorpe Park	26%	55%				
Castleford						
Pontefract				57%		
East of Selby					26%	26%
Selby					55%	55%
Sherburn-in-Elmet			16%	81%		69%
Church Fenton	31%		27%	97%		79%
Ulleskelf						89%

Load by 2050	HIGH GROWTH					
Service	**LDS-YRK**	**BPN-YRK**	**HUD-YRK**	**SHF-YRK**	**HUL-YRK**	**HUL-YRK**
Rolling Stock	331 EMU 6-car	195 DMU 4-car	185 DMU 3-car	195 DMU 2-car	195 DMU 3-car	195 DMU 4-car
Seated Capacity	408	248	181	124	204	248
Leeds	29%	63%				
Thorpe Park	32%	69%				
Castleford						
Pontefract				71%		
East of Selby					32%	26%
Selby					68%	56%
Sherburn-in-Elmet			20%	101%		71%
Church Fenton	38%		34%	120%		80%
Ulleskelf						91%

Note that load factors on Huddersfield>Castleford>York train are underestimated due to the lack of counts south of Sherburn-in-Elmet.

Forecasting shows that to accommodate high growth:

- 6-car trains on local services into Leeds from York and Selby will provide adequate capacity. Bi-mode trains between Selby and Leeds will need to provide 408 seats, which is equivalent to that of a 6-car Cl.331 EMU. There will still be some standing inbound from Cross Gates to Leeds by 2050 but this falls within the 20 minute standing allowance specified by the PiXC regime.
- If York<>Hull trains are re-routed to run fast from York to Selby via the ECML then these need to provide 204 seats, which is the equivalent of a 3-car Cl.195. This provides sufficient seating capacity to grow the market.
- The south of York services will require 9-carriages per hour to cater for demand into York from 2044 to minimise standing across the corridor, but there may still be standing on individual trains.
- The Sheffield train is forecast to see standing inbound from Sherburn-in-Elmet which will breach the 20 minute standing allowance. This Sheffield service cannot be

extended due to platform capacity constraints at the southern end of the route. If this constraint is removed then this train should be lengthened to a 3-car train with 204 seats, and this would eliminate standing on this train.

- Without removing the capacity constraints at Sheffield, it would be more appropriate to lengthen the Hull via Sherburn service to a 4-car train with 248 seats to remove forecast standing on that service; this would encourage passengers from Sherburn-in-Elmet and Church Fenton to actively choose the more lightly loaded of the trains. It may also require the Church Fenton call on the Sheffield service to be removed to further limit loadings at peak times, as long as the Huddersfield<>York train calls additionally at Sherburn-in-Elmet and Church Fenton.
- 4-car trains on the Blackpool North<>York train will provide sufficient seats to eliminate standing on this service on the East of Leeds corridor. Again, further analysis is needed to show whether this would adequately cater for demand west of Leeds.
- The option to extend Selby to Leeds services to Howden would increase load factors of local services into Leeds. Removing the Howden call on the Manchester<>Hull service would reduce load factors on regional services from Hull.

Appendix H: Platform Lengths

The following table summarises existing platform lengths and how this compares to future needs in the developed scenarios.

Platform lengths and requirements in future scenarios.

Station	Platform	Existing Length (m)	24m-car equiv.	Central Growth Fits?	High Growth Fits?
Leeds	P7 (east bay)	105	4	✓	×
	P14 (east bay)	80*	3	✓	×
Cross Gates	East	151	6	✓	✓
	West	148	6	✓	✓
Garforth	East	151	6	✓	✓
	West	149	6	✓	✓
East Garforth	East	102	4	✓	×
	West	102	4	✓	×
Micklefield	East	101	4	✓	×
	West	90	4	✓	×
Church Fenton	P1 (to Normanton)	101	4	✓	✓
	P2 (from Normanton)	132	6	✓	✓
	P3 (south loop)	121	5	✓	×
	P3 (north loop)	132	6	✓	✓
	P4 (south)	119	5	✓	×
Ulleskelf	North	106	4	✓	×
	South	106	4	✓	×
York	P1 (east bay)	184	8	✓	✓
	P6 (west bay)	264	11	✓	✓
	P7 (west bay)	249	10	✓	✓
Sherburn-in-Elmet	North	77	3	×	×
	South	83	3	×	×
South Milford	East	97	4	×	×
	West	94	4	×	×
Selby	P1 (east through)	200	8	✓	✓
	P2 (west through)	257	11	✓	✓
	P3 (west bay)	120	5	✓	×
Wressle	East	97	4	✓	✓
	West	79	3	✓	×
Howden	East	123	5	×	×
	West	120	5	×	×

At **Leeds**, bay Platform 14 is to be lengthened to 100m by LESP which accommodates the central growth scenario. In a high growth scenario local services would need to continue west of Leeds, both east-facing bays would not be used.

Work has investigated platform extensions at **Sherburn-in-Elmet**. This has focussed on enabling the Manchester<>York via Castleford trains to call at the station, which is required in the central growth scenario. This work has identified that platform heights would also need raising to be compliant with standards. This is an issue where either Cl.185 or Cl.195 units call at Sherburn, and therefore both central and high growth scenarios would drive the need to raise platform heights.

At **South Milford** the platforms are not long enough to accommodate a 5-car train (130m), and these are the specified rolling stock for the Manchester<>Hull trains which call in both the central and high growth scenarios. To accommodate the high growth scenario both platforms would need lengthening to 150m.

At **Howden** there are similar issues with 5-car trains, and the platforms would need to be lengthened to a minimum of 130m in both the central and high growth scenarios. If local services extend to Howden in the high growth scenario, then both platforms at Howden would need to be lengthened to 150m.

The following platforms would need lengthening in a high growth scenario:

- East Garforth: both platforms to be lengthened to 150m;
- Micklefield: both platforms to be lengthened to 150m;
- Church Fenton: Platform 3 (from York) and Platform 4 to be lengthened to 150m;
- Ulleskelf: both platforms to be lengthened to 150m, but the small number of longer trains calling to/from Leeds may make use of SDO more cost effective;
- Sherburn-in-Elmet: both platforms to be lengthened to at least 100m; and
- Wressle: use of SDO to enable 4-car trains to continue to call at the station.

Development work at this stage has only examined platform lengthening to accommodate longer trains. If development work is taken forward for future stages, then all options to consider ways of enabling longer trains to call at stations should be examined as part of the value for money process.

In the high growth scenario, there are options to terminate local trains from Leeds at Selby or extend them east to Howden. The preferred option is to terminate at Selby, and this would mean bay Platform 3 at **Selby** would need lengthening to 150m.

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