

RESTORING YOUR RAILWAY

Barrow Hill Line Reopening – Strategic Outline Business Case



PROJECT DETAILS

Project Name:	Barrow Hill Line
Project Location:	Sheffield to Chesterfield, via Barrow Hill. Linking Sheffield, North East Derbyshire and Chesterfield Local Authority Areas.
Project Sponsor	Lee Rowley MP (North East Derbyshire)
Scheme Promoter	Sheffield City Region Mayoral Combined Authority
Contact Name and Role:	Alex Forrest, Senior Programme Manager (Rail)
Address:	11 Broad Street West, Sheffield, S1 2BQ
Email:	Alex.forrest@sheffieldcityregion.org.uk
Telephone:	07467 115892
Other Delivery Partners and Roles:	Local authorities: Sheffield City Council, Derbyshire County Council, North East Derbyshire District Council, Chesterfield Borough Council. Asset owner: Network Rail.

EXECUTIVE SUMMARY

The Barrow Hill scheme is a deliverable opportunity to level-up 'left-behind' communities currently disconnected from the urban centres of Sheffield and Chesterfield. The minimal requirement for intervention and infrastructure is ideal for the Restoring Your Railways programme as the scheme will squeeze more from an existing rail asset.

The communities benefiting from the scheme experience a number of existing problems which scheme can help to resolve, specifically:

- Limited public transport for communities to access opportunities for work, training and leisure
- Limited employment opportunity locally following decline of mining and heavy industry
- Planned regeneration risks locking in existing car dependency for future generations
- Reducing congestion, particularly in urban centres where air quality is a problem
- Levelling up for some of the UK's most deprived communities

To tackle the problems identified we have looked at a range of options. This business case highlights that to meet our economic, social and environmental objectives, a rail-based solution performs best. The findings in this business case reflect the importance for communities to quickly access the urban centres, which a bus-based solution is not able to provide. The preferred option is confirmed as a heavy rail solution. This initial conclusion will be tested further to determine the final scheme design.

The reopening of all stations included in the business case will provide the most benefit. However, the implementation of the scheme can be phased over time to bring early benefits. The business case sets out an opportunity to phase both the infrastructure and service in a way that accelerates the opening of a new service, while retaining the overall ambition to reconnect the communities across the route. This incremental approach supports the overall deliverability of the project.

The scheme is submitted with the full and comprehensive support of local stakeholders. The support includes all local planning and highway authorities along the route; the sub National Transport Bodies (TfN and Midland Connect); local MP's and councillors, the Staveley Town Deal Board, the existing Train Operating Companies and Network Rail. Furthermore, we have established effective governance for the scheme's development, working with Network Rail and other partners. The established governance will mean the scheme development and implementation will be proactively managed.

In addition to support from stakeholders there is strong strategic alignment for the Barrow Hill scheme. Mayor Dan Jarvis has already published an Integrated Rail Plan for the Sheffield City Region which names the Barrow Hill scheme as a short-term priority. This scheme is one of a number of rail priorities for the region, with the overall aim of the plan to improve rail provision for both local and longer distance journeys.

The Barrow Hill scheme, with the support of Government, is ready to be progressed at pace and can make a significant contribution to levelling up the communities it would serve. The timing of the Restoring Your Railway programme is ideal to meet our local plans and support the wider recovery of the economy.

Contents

EXECUTIVE SUMMARY.....	1
1 STRATEGIC DIMENSION.....	3
1.1 Problem Statement: The Case for Change	3
1.2 Strategic Alignment.....	4
1.3 Strategic Objectives.....	6
1.4 Strategic Option Assessment.....	6
1.5 Strategic benefits.....	8
1.6 Scope	9
1.7 Future Compatibility.....	11
2 ECONOMIC DIMENSION	12
2.1 Costs	12
2.2 Benefits.....	15
2.3 Social and distributional impacts	16
2.4 Disbenefits & Risk to the current network.....	17
2.5 Impacts on competition	17
2.6 Initial Value for Money Statement.....	17
3 FINANCIAL DIMENSION	18
3.1 Funding Models.....	18
3.2 Cashflow and Funding Profile.....	19
3.3 Funding Sources	19
3.4 Impact on other policies or projects	19
3.5 Costing the next phases of work	20
3.6 Funding requested to move to <i>RNEP Develop</i> stage.....	20
4 COMMERCIAL CASE.....	21
4.1 Delivery and Ownership Models	21
4.2 Contractual Relationships	21
5 MANAGEMENT DIMENSION.....	22
5.1 Delivery Strategy	22
5.2 Delivery Plan.....	25
6 List of Appendices	0

1 STRATEGIC DIMENSION

1.1 Problem Statement: The Case for Change

Analysis shows the level of people claiming unemployment-related benefits in South Yorkshire, Chesterfield and North East Derbyshire is now higher than at any time since the mid-1990s – comparable to the aftermath of closures in the mining and steel industries.

The long-term decline of traditional industry and coal mining in Sheffield, Chesterfield and North East Derbyshire, has meant that many communities now have very limited local employment opportunities. Earlier rail line closures in the region, has led to villages in the area being cut off from the rail network and having to rely instead on a limited and slow bus service. As a result, many of these communities are now car dependent, resulting in congestion for residents and significant barriers to accessing employment, education and leisure for people without access to a car.

The headline issues which this business cases focuses on are:

<p>Levelling Up</p> <p>The lack of local opportunities or good access to opportunities in Chesterfield and Sheffield will continue to result in low productivity, unemployment and lower attainment. The corridor has an existing catchment population of approximately 500,000ⁱ within 3km of the proposed new stations.</p>	<p>Planned Regeneration</p> <p>Significant new employment and housing development is already planned along much of the routeⁱⁱ. This includes a large mixed-use development near Staveley, part of the Town Deal, consisting of housing, industrial sites and the HS2 infrastructure maintenance depot. Without a corresponding investment in public transport, reliance on cars will be increased, limiting opportunities for disadvantaged communities.</p>
<p>Reducing Carbon</p> <p>The reliance on car travel is contributing to the rising levels of carbon. Local and regional authorities each have a part to play in achieving net zero. With a high mode split for car-based travel ~80%ⁱⁱⁱ and limited viable alternatives the people living in the communities in this corridor are not able to make more sustainable travel choices. With development planned to come forward across a number of sites this situation will only worsen without action.</p>	<p>Congestion</p> <p>Current public transport journey times into the centre of Sheffield and Chesterfield are comparatively long, limiting opportunities for people in these communities to access productive jobs, education and healthcare^{iv}. These limitations have an impact on bus uptake for longer journeys to the urban centres.</p>
<p>Air Quality</p> <p>Reliance on cars in rural communities contributes to vehicle emissions resulting in poor air quality in urban centres including Chesterfield, Rotherham and Sheffield. Sheffield and Rotherham have introduced a Clean Air Zone, with a charging zone planned for Sheffield City Centre.</p>	<p>Areas of Deprivation</p> <p>Former mining communities near Staveley and Barrow Hill both fall within the top 20% deprived communities within the country and have low car ownership^v, limiting access to opportunities. The areas of Beighton, Darnall and Woodhouse are also deprived communities with low car ownership.</p>

1.2 Strategic Alignment

“We need a clear plan of action, one that draws together planned national, pan-regional projects such as HS2 and NPR and local investment in community rail stations and transport interchanges.”

Mayor Dan Jarvis, SCR Integrated Rail Plan (2019)

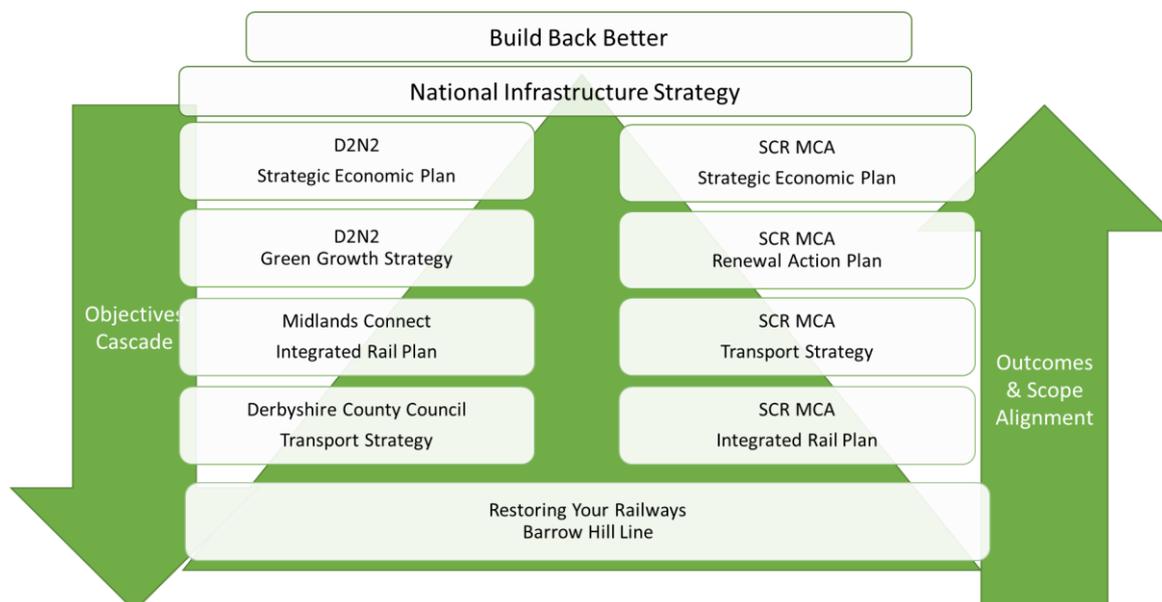
The Sheffield City Region Mayoral Combined Authority (SCRMCA) Renewal Action Plan, developed in close partnership with local authorities, businesses, trade unions, universities and other partners provides a roadmap to recovery for South Yorkshire. With financial backing from Government it will help workers, jobs and businesses recover from the immediate pressure posed by the coronavirus and pave the way for economic renewal.

“We must collectively **work together** across national, regional and local Government to respond to and **Build Back Better** from COVID. This means supporting lives and livelihoods and levelling up. In the process, perhaps we can **make this a transformative moment** not just for one region, but **for the whole country.**”

James Muir, Chair of the SCR Local Enterprise Partnership, said: “Levelling up will only be possible through investment in upskilling our workforce, **building the infrastructure needed to connect people to places and opportunities**, and making money available to local leaders to be spent where it will have the most impact.

“In these challenging times businesses need to **adapt and innovate**, something that is synonymous with South Yorkshire, but Government must match our ambitions to **unlock the potential** we have in our region.”

Equally, in Derbyshire, the D2N2 Green Growth Strategy sets out an ambitious drive for improvement through Low Carbon Growth, Productivity and Connectivity and Inclusion. The legacy of the industrial revolution has served the area well, but the challenge of climate change means we must now realign our social, environmental and economic goals for a Green Industrial Revolution.



The SCR MCA’s Strategic Economic Plan and Transport Strategy has highlighted the need to transform connectivity across all modes to ensure economic opportunities are realised and employment is made more accessible^{vi}. TfN’s Strategic Transport Plan and Long-Term Rail Strategy

highlight the importance of a joined-up network, where nationally significant schemes, such as HS2 and NPR are connected to regional schemes to spread the benefits and access to opportunities.

Devolution has helped us to focus our transport vision around accommodating a projected increase of 500,000 trips on our transport system by 2026,^{vii} thus underlining the need to invest in connectivity improvements to drive economic growth. Our Integrated Rail Plan (IRP) sets out our ambitions for enhancements to the railway network^{viii} and the scheme objectives are supported by Local Plans across the affected planning authorities.

Network Rail's Continuous Modular Strategic Planning (CMSP) report for the Sheffield area highlights that accommodating growth will prove challenging from a capacity and connectivity perspective unless infrastructure interventions are considered^{ix}, such as the introduction of a new station at Sheffield Victoria to ease congestion at Sheffield Midland.

The D2N2 Local Enterprise Partnership has within its Local Industrial Strategy identified as key challenges poor regional rail connectivity, 28% higher than average emissions per capita and the majority of its local authority areas being classed as social mobility coldspots. Connectivity-driven growth forms one of the guiding principles of the strategy which states that "Transformed road and rail connections, both within and across our region's borders, is essential in unlocking the full potential of our communities – both socially and economically".

Staveley is one of 100 towns chosen as eligible for the government's Towns Deal fund and local partners are putting together a Town Deal that will bring sustainable economic growth to the area. Connectivity to economic opportunities is a core theme of the Deal process with many Staveley communities currently unable to access the benefits of investment across the wider city region. In addition considerable work is being undertaken to improve access to the area through the development of the Chesterfield Staveley Regeneration Route road which will create a new 5.7km single carriageway connecting the A619 north of Chesterfield town centre to the A6192 and A619 at Staveley

Midlands Connect has demonstrated the benefits of providing local connectivity in order to maximise the benefits that can flow from future investment in HS2, NPR and the Midlands Rail Hub. Its strategy highlights the untapped economic potential within the region that can be released through improvements to transport connectivity.

The line is connected to an existing and expanding cluster of rail related facilities at Barrow Hill. The historic roundhouse (the last surviving working roundhouse in the country) has been restored and as well as providing a high quality visitor and learning experience, the site includes commercial rail businesses including maintenance and research. A new £16m innovation and training centre is due to be built at Barrow Hill, backed by Spanish rail manufacturer Talgo as part of its 'All Britain' investment strategy, bringing further jobs and training opportunities to the area.

Derbyshire County Council considers investment in new rail infrastructure as essential to its "Good Growth" strategy, developing a more sustainable and resilient economy across the County and specifically in the identified growth zone in the north around Chesterfield and Staveley. Significant work is already underway around Chesterfield station as part of the economic regeneration of the area including new housing at the Waterside site. Chesterfield Borough Council has already been awarded £6m from the local growth fund to buy strategic sites around the station as part of its masterplan for the area to develop new offices and homes as well as creating new road infrastructure to improve access to the site. Beyond Chesterfield several of the potential stations on the Barrow Hill line are located in areas of limited public transport accessibility so the investment would support the County Councils 'Good Growth' ambitions by providing a genuine alternative to the car accessibility.

1.3 Strategic Objectives

The strategic objectives which frame the **SCR Strategic Economic Plan**, to have an economy which is **Stronger, Greener and Fairer**, is a shared ambition of all Partners. Based on the transport issues identified and the strategic ambitions of the partners, scheme objectives have been agreed as below.

Strategic objective	Scheme Objective	Metric
Stronger	Improve connectivity for communities for employment, education, healthcare and leisure opportunities	Travel time from communities to key employment, education, healthcare and leisure destinations
	Support planned regeneration.	Quantum of development within 1km of the scheme which would benefit – link to scheme
Greener	Have a positive contribution to Net Zero Carbon	Carbon intensity (CO ₂ /trip) attributed to existing and new trips
	Have a positive contribution to improve Air Quality	Levels of NO _x attributed to existing and new trips
Fairer	Level Up access to opportunities for communities	Number of people in deprived communities (IMD definition) served
	Level Up access to opportunities for people without access to a car	Number of people without access to a car (IMD definition) served

1.4 Strategic Option Assessment

The following long-list options were identified by stakeholders and have been evaluated against Multi-Assessment Criteria based on the Strategic Objectives for the scheme. Full details of the options identified and evaluated can be found in Appendix A.

Strategic Objective	Do minimum	Road capacity enhancements	Full reopening	Partial reopening	Reduced reopening	Tram-train	Enhanced scheduled bus	Demand Responsive Transport
Improve connectivity								
Support development								
Net Zero Carbon								
Improve Air Quality								
Access to opportunities								
Opportunities for people without access to a car								
Progress option to short list	✓	✗	✓	✓	✓	✓	✗	✗

Figure 1 Long list options

Options were assessed qualitatively and quantitatively using the following system:

Strong positive Alignment	Slight positive alignment	Neutral Alignment	Slight adverse alignment	Strong adverse alignment

The short-list of options was further assessed for Deliverability and Affordability, as follows:

	Do minimum	Full reopening	Partial reopening	Reduced reopening	Tram-train
Strategic Objective					
Improve connectivity					
Support development					
Net Zero Carbon					
Improve Air Quality					
Access to opportunities					
Opportunities for people without access to a car					
Deliverability					
Makes use of existing assets.					
Can be accommodated with the existing freight and passenger operations					
Overall affordability					
Has potential to attract local contributions					
Scheme rank	N/A	1	2	3	4
Progress to OBC	✓	✓	✓	✓	✓

Figure 2 Shortlist options

The Full Reopening provides the maximum benefits, with a corresponding reduction in cost and benefits for the Partial and Reduced Reopening options. The Tram-Train option performs well in relation to the Strategic Objectives but attracts higher costs for implementation as it would require electrification and low-level platforms.

Heavy Rail options could be introduced initially as diesel services for speed of deliverability but then converted to hydrogen on successful completion of the Teesside Hydrogen Train trial, or to Electric Multiple Unit (EMU) following the electrification of the Midland Mainline and diversionary route, paving the way for a Zero Carbon Public Transport option, in line with the 2040 target.

1.5 Strategic benefits

The communities which benefit from the scheme encompass multiple local authorities; Chesterfield Borough Council, NE Derbyshire District Council, Bolsover District Council, Sheffield City Council and Rotherham Borough Council.

Improvement to public transport connectivity for these areas would significantly boost the local economy, unlocking the jobs, training and infrastructure needed to deliver prosperity for people and businesses across the region, spanning the East Midlands and the North, as well as delivering significant environmental benefits. It would also improve access to leisure opportunities in the countryside, such as the Trans Pennine Trail and Chesterfield Canal, for people living in the Sheffield and Chesterfield urban areas., as well as tourist attractions such as Barrow Hill Roundhouse.

<p>Levelling Up</p> <p>With training and employment opportunities in Sheffield and Chesterfield, approximately 500,000 people in the communities could significantly benefit from improvements to public transport to access skills, training and employment opportunities vital to supporting the levelling up of former coal mining communities. New highly-skilled, well paid Train Driver and Train Crew jobs located in the Sheffield City Region.</p>	<p>Commercial and Housing Development</p> <p>The scheme supports wider developments that are taking place around the Staveley Corridor such as the Chesterfield Staveley Regeneration Route and wider redevelopment proposals put forward for Staveley's Towns Fund. Bringing forward investment in public transport along this corridor will directly and indirectly support significant housing and commercial development, including housing and industrial sites near Staveley and the HS2 infrastructure maintenance depot.</p>
<p>Reducing Carbon</p> <p>The Barrow Hill scheme will enable a Net Carbon Zero public transport choice for local residents and, in conjunction with reduced journey times, would make this a preferable option for people travelling into Sheffield City Centre or Chesterfield Town Centre.</p>	<p>Congestion</p> <p>Improved public transport journey times into the centre of Sheffield and Chesterfield will improve opportunities for people in these communities to access productive jobs, education and healthcare and reduce reliance on cars.</p>
<p>Air Quality</p> <p>Reducing car reliance will have widespread benefits for congestion and travel times on key commuter routes, as well as contributing towards addressing the emission targets within Sheffield and Rotherham's recently declared Clean Air Zone (CAZ)^x.</p>	<p>Connecting Areas of Deprivation</p> <p>The potential for inclusive growth is highlighted through the numbers of deprived communities who could benefit from improved public transport in this area. The potential to include enabling infrastructure for digital connectivity would further enhance connectivity for these communities.</p>

DfT Priority Outcomes for Rail

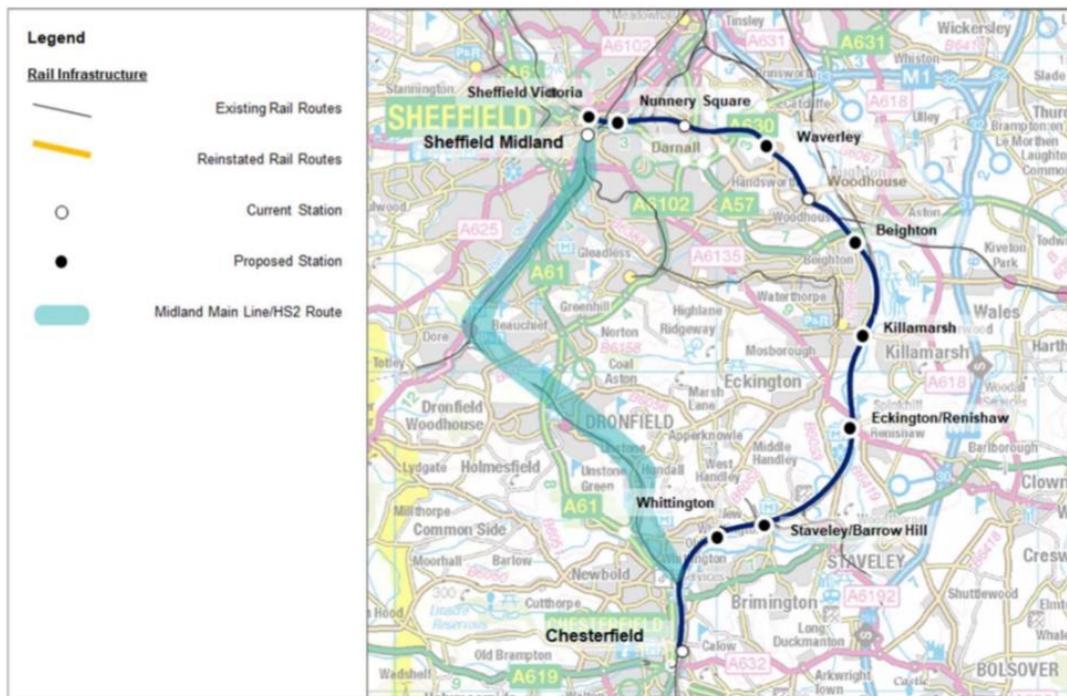
In addition to the above, the scheme has been assessed against the DfT objectives set out in the Rail Network Enhancements Pipeline. This shows a strong alignment between the pipeline and the Barrow Hill Scheme.

<p>Keeping people and goods moving smoothly and safely</p> <p>Enhancing the long-term operability, performance and commercial robustness of rail services in South Yorkshire and North East Derbyshire</p>	<p>Delivering the benefits from committed programmes and projects already underway</p> <p>Improve attractiveness of local investment in housing and enterprise through improved connectivity to education and employment</p> <p>Boost regional HS2 growth strategies and drive the benefits identified by local partners through better local connectivity</p> <p>Potential to extend services further south to Derby and Midlands Rail Hub</p>
<p>Offering more: new and better journeys and opportunities for the future</p> <p>New Train Driver and Train Crew jobs, based in Sheffield City Region</p> <p>Facilitate creation of a Rail Innovation Corridor, linking centres of skills and employment at Chesterfield, Barrow Hill, Advanced Manufacturing Innovation District and Sheffield</p>	<p>Changing the way the rail sector works for the better</p> <p>Transfer innovative best practice from other Third Party schemes such as the Northumberland Line and West Midlands Combined Authority to deliver more for less and faster</p> <p>Develop a local Construction Working Group with rail construction companies based in South Yorkshire and North East Derbyshire to identify innovative ways to deliver projects better, faster and cheaper</p>

1.6 Scope

Interventions

Building new stations on the existing Barrow Hill Line would enable the introduction of two trains per hour, local (stopping) passenger services with minimal infrastructure interventions. The line is existing double-track and signalled for passenger diversionary services, although it is principally used as a freight line. Introduction of these new local services would link existing communities, where public transport is limited, to employment and training hubs in Sheffield and Chesterfield and would also support strategic housing allocations at Waverley in Rotherham, the strategic sites in Chesterfield along the Staveley growth corridor and a number of potential future allocations within the Sheffield Local Plan.



Services would run between Sheffield Midland or Sheffield Victoria, via the existing Nunnery Square junction, along the existing Sheffield-Worksop-Lincoln line as far as Beighton before transferring to the Barrow Hill line as far as Tupton Junction where they would join the Midland Mainline for a short stretch into Chesterfield. An option to extend one train per hour to Derby is also being considered. Infrastructure Interventions are detailed in Appendix B, with a range of capital cost options in Appendix F.

ON NETWORK	STATIONS <ul style="list-style-type: none"> - Platform(s): [2x100m, 3x100m @ Nunnery, 1x100m @ Victoria, 1x240m or 1 x 100m @ Chesterfield] - Footbridge plus ramps/lifts - Waiting Shelter - Lighting - Customer Information - Ticket Purchasing - Help Points 	RAILWAY SYSTEM <ul style="list-style-type: none"> - Through Alignment Design (TAD) tamp @ platforms - Cable Route protection &/or replacement in vicinity of new platforms - Signal & equipment moves for Chesterfield Platform 4 - New signal for Platform 4 Northbound moves
OFF NETWORK	CAR PARKS <ul style="list-style-type: none"> - Pick & Drop plus Blue Badge at City stations - 100 spaces @ community station - 500 space @ Park & Ride - Highway connection 	Not Applicable

Restoring this route could ease congestion at Sheffield Midland Station by providing an alternative route into Sheffield through Sheffield Victoria, with an interchange facility at Nunnery Square enabling passengers to easily transfer onto the Supertram network for onward journeys into the City Centre. Existing services into Sheffield Midland, such as the Worksop/Lincoln services, could also be diverted to Victoria, either as timetabled moves or to enable recovery from perturbed working. This could facilitate provision of the new Leeds Fast service, which is a committed obligation by Northern, and support the provision of future services such as HS2 and Northern Powerhouse Rail. Further analysis is required to understand the opportunities and threats this would create for the travelling public to ensure the scheme provided the best overall outcome.

Station Locations

Most of the former stations remain within Network Rail ownership, meaning that new, modern facilities could be considered at these locations with minor enhancements to the surrounding environment to enable access and mitigate constraints. There remain options which need further investigation to determine the final station location, for example where the old site is not located directly adjacent to a community it would serve (e.g. Eckington/Renishaw). The proposed station locations will be resolved at the next stage of the development. This would include further analysis for any constraints which have already been identified^{xi}

Stations as digital and community hubs

There is potential for a number of the station sites to fulfil a wider role for the communities in which they are based. As the business case develops there will be an opportunity to examine the potential to deliver a number of services to the communities which align with wider investment plans. For example, in the Staveley Town Deal there is the commitment to invest in digital connectivity. By aligning the investment from the Town Deal with this Barrow Hill scheme the communities could benefit from both digital and physical connectivity improvements. These opportunities would be considered alongside the assessment of station locations to establish the potential costs and benefits.

Delivery

As the scheme matures through the business case process there is an opportunity to explore the phasing options to deliver wider benefits and improve connectivity for more communities. The following summarises the potential phases and options for the preferred scheme which would be considered during the next stage of development. These phases are incremental and not dependencies for the Barrow Hill Line scheme to be progressed.

Phase 1 (Construction): Restoration of train stations on Barrow Hill Line at Whittington, Barrow Hill and Staveley, Eckington and Renishaw, Killamarsh and Beighton; New interchange station at Nunnery Square and restoration of Sheffield Victoria station, alongside any complementary parking, cycle hub, integrated transport facilities and digital connectivity at each site.

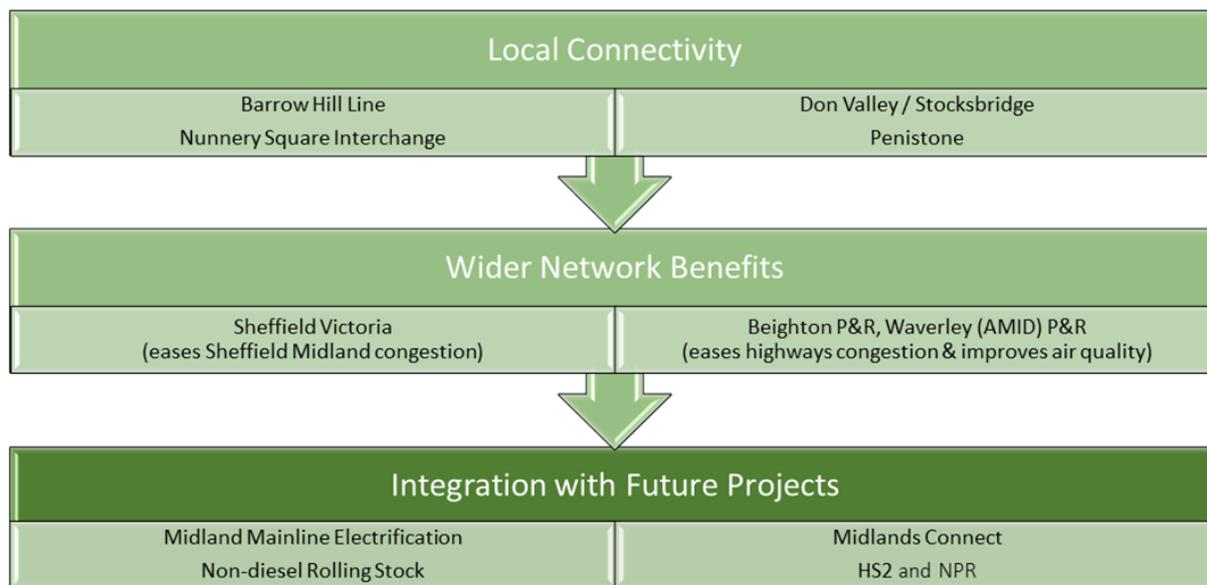
Phase 2 (Passenger Services): Introduction of new passenger services of 2 trains per hour (Appendices C, D & E for timetable assessments), delivering local connectivity improvements between Chesterfield and Sheffield Midland and Sheffield Victoria, providing an opportunity to ease congestion at Sheffield Midland. The interchange at Nunnery Square would enable interchange with the Sheffield Supertram network to widen accessibility to the Sheffield City Centre.

Phase 3 (Future Connectivity): Onward connections on a number of the local rail lines, including the Don Valley line, and Lincoln line. This both restores connections to other communities and also provide an opportunity to reduce the pressure on Sheffield Midland Station. There are further

opportunities to connect services into the East Midlands, for example Derby, which could provide passenger and operational benefits.

1.7 Future Compatibility

The reopening of the Barrow Hill Line offers a wider strategic opportunity and is part of a longer-term Integrated Rail Plan^{xiii} to transform local rail connectivity. The scheme presented in this business case is stand-alone but can also be the catalyst for a phased programme of improvements.



Recognition is also given to the progression of other proposals for the area, some of which require careful consideration to ensure integration and compatibility, and in particular to avoid abortive costs imparted by one project onto another. The following projects have been identified, along with key points of integration considerations required.

Interfacing Project	Key Considerations
Predecessors to Barrow Hill Line	
Re-control to York ROC (March 2021)	Access to Signalling Data & Specialist Resource. Ideally secure commitment from same specialist delivery team to do works at ROC.
Staveley Town Deal	The investment in digital connectivity in the community could be further supported in the design of stations, widening the benefits and providing enabling infrastructure
Successors to Barrow Hill Line	
Don Valley / Stocksbridge	Requires Sheffield Victoria to enable services
Waverley Station	Potential to align the business cases, procurement and construction to create efficiencies. Would be determined as business cases develop.
Extension to Penistone/ Huddersfield	Requires Don Valley / Stocksbridge. Desired frequency of service may drive consideration of signalling & control system and associated track requirements (passing loops &/or double track)
Extension to Derby	Extend local services further south to Derby
Midland Main Line Electrification (MMLE)	Ensure that any new infrastructure complies with electrification clearances (e.g. stations & footbridges). Consider station bonding for easy conversion to 25kV (compliance with PAN 102)
Future Rolling Stock: Non-Diesel by 2040	Ensure availability of options through careful design choices. Compatibility with electrification would enable use of Electric Multiple Unit (EMU) or Tram-Train, which is dual electrified for 750V DC or 25kV systems. Also potential use of Hydrogen trains following a successful trial in Teeside by Northern.
HS2	Pathing required on Midland Main Line, so timetable assessments need to consider alleviating congestion into Sheffield Midland (e.g. provision of Victoria)

2 ECONOMIC DIMENSION

2.1 Costs

Capital Costs

The capital costs of the rail scheme have been estimated based on identified infrastructure interventions derived from an engineering desktop review, underpinned by local knowledge and information from interfacing projects. To further validate the robustness of estimating, a series of similar projects have been used to provide comparative benchmarking for the high-level cost estimate.

Since the line is already operating for freight and a passenger diversionary service, the principal costs for the scheme will be the provision of new stations and the associated car parking and connections to the highways network. Where Park & Ride facilities are proposed, it is likely that some land-take will be required to facilitate this element of the project.

Only the preferred option of Full Reopening has been costed at this time, with options of Partial and Reduced Opening having proportional cost reductions, which can be developed further as the scheme progresses. The Tram-Train option has not been costed at this time as it is anticipated to have a significant and disproportionate implementation cost due to the electrification requirement and the inability to utilise the standard platforms at existing stations. This can be revisited at the next stage of scheme development as there will be a balance between capital and operating costs for the tram-train option.

A potential range of costs for the preferred option have been considered. This range reflects that as the scheme is designed in more detail, there are likely to be opportunities to reduce the cost of the scheme. See Appendix F for details of the infrastructure assumptions for each cost category.

The base cost of the scheme is estimated at between £33.5m and £45.8m. A prudent risk and land allowance has been added to the base cost to provide a **potential capital cost range estimated at between £93.5m and £113.8m.** Based on feedback from Network Rail, there are opportunities to refine both the base estimate and risk allowance at the next stage.

Cost category	Outline description	Base estimate	Capital cost inc risk and land allowance
High	Full scope, with capacity resilience at Chesterfield, Nunnery and Victoria	£45.8m	£113.8m
Medium	Chesterfield reduced to 100m, Nunnery 1 x 100m platform with footbridge, lift and station building, Victoria 2 x 100m platform with footbridge, lifts and station building.	£43.2m	£109.5m
Low	As medium, plus all buildings removed and Victoria reduced back to the basic 1 x 100m platform	£33.5m	£93.5m

A common approach was taken to apply preliminaries at 30% and overhead and profit at 12% to the direct costs for each of the nine scope packages. The contractor uplifts applied are commensurate with the rail sector. Following this, incremental design, project management and specific rail industry cost uplifts were applied in line with recent project benchmarks. Finally, a provisional land acquisition

cost of 5.5% (based upon a recent rail line reopening project) and risk contingency of 60% (typical for concept stage) were applied to achieve the Anticipated Final Cost.

Operating Costs

Operating Expenditure (OpEx) has been estimated to be c. £4.1m per annum based on a service of 2 trains per hour, with costs independently reviewed by Northern.

	Rate per vehicle (£)	Vehicles	Cost pa (£)
Train Leasing	96,000	6	576,000
	Rate per Vehicle Mile (£)	Vehicle Miles	Cost pa (£)
Train Operations			
Fuel	0.46	775,388	356,678
Train maintenance	0.95	775,388	736,619
Variable Track Access (VTAC)	0.11	775,388	85,293
Traincrew	Employment Cost (£)	Headcount	Cost pa (£)
Drivers	84,000	13.5	1,134,000
Guards	49,000	13.5	661,500
Stations	Rate (£)	Number	Costs pa (£)
Station operation and maintenance (intermediate stations)	80,000	6	480,000
Contribution to Sheffield and Chesterfield			100,000
TOTAL COSTS PER ANNUM			4,130,090

These costs have been based on a Class 170 unit as these costs were readily available. However, Northern have advised that the initial service would more likely be a Class 15x with a future aspiration of either an EMU following electrification of the Midland Mainline or a Hydrogen unit following a successful trial at Teesside. It is therefore likely that some further savings on these costs can be identified during the OBC.

Full details are provided in Appendix G.

Operating Revenues

It is proposed that passenger demand modelling will be undertaken during Step 1 of the next Develop stage to allow the production of a comprehensive economic appraisal and cost benefit analysis. At this SOBC stage new to rail passenger demand has been estimated at high level by a station comparator approach using existing station annual usage data that is publicly available from the Office of Rail and Road.

Existing stations were selected as comparators by considering the nature and role the new station will provide for passengers to access to the rail network (i.e. park and ride facility, trip originator linked to local residential growth, destination station linked to employment hub). For existing stations, assumptions were made to consider the potential incremental uplift in existing passenger demand derived from the project. The below table shows the list of comparator stations used to develop an indicative estimate for total new to rail passenger demand, and operational revenue.

Barrow Hill Line Station	Selected comparator/ or existing station	2018-19 ORR data (single trips)	Review assumption	New to Rail Base Demand p.a.	Average Fare Yield (single trip)	Estimated Project Revenue p.a.
Chesterfield Station	Chesterfield Station	1,944,524	incremental uplift of 10% of existing	194,452	£ 3.58	£696,140
Whittington Station	Dore & Totley	198,948	direct comparison	198,948	£ 3.58	£712,234
Barrow Hill Station	Mansfield Woodhouse	189,524	direct comparison	189,524	£ 3.58	£678,496
Renishaw Station	Thurnscoe	63,316	direct comparison	63,316	£ 3.58	£226,671
Killamarsh Station	Thurnscoe	63,316	direct comparison	63,316	£ 3.58	£226,671
Beighton Station	Sutton Parkway	197,540	direct comparison	197,540	£ 3.58	£707,193
Woodhouse	Woodhouse	33,396	incremental uplift - double existing	33,396	£ 3.58	£119,558
Darnall	Darnall	13,024	incremental uplift - double existing	13,024	£ 3.58	£46,626
Nunnery Square Station	Deansgate	456,140	assume 25% of comparator	114,035	£ 3.58	£408,245
Sheffield Midland	Sheffield Midland	9,907,724	incremental uplift of 2% of existing	198,154	£ 3.58	£709,393
Sheffield Victoria	Dore & Totley	198,948	direct comparison	198,948	£ 3.58	£712,234
		13,266,400		1,464,654	Total	£5,243,461

The 'Review assumption' column in the table provides commentary regarding how the ORR comparator usage data was applied or tailored for each Barrow Hill Line stations. An average fare yield of £3.58 per single trip was applied to the estimated station demand to generate a value for new to rail revenue for the project. The £3.58 benchmark was supplied by Northern and is based on actual average fare yields (pre-COVID-19) across their operations. Based on this high-level approach, new to rail project revenues are estimated to generate a total of c. £5.2m per annum.

Furthermore, a range of sensitivities were applied to the base case assumptions by adjusting demand +/- 10% which created a range of revenues with a lower bound of £4.7m and upper bound of £5.8m per annum. The results of the sensitivity review are shown in the table below.

Barrow Hill Line Station	Selected comparator/ or existing station	New to Rail Base Demand p.a.	Average Fare Yield (single trip)	Estimated Project Revenue p.a.	Revenue Sensitivities	
					Base Demand +10%	Base Demand -10%
Chesterfield Station	Chesterfield Station	194,452	£ 3.58	£696,140	£765,754	£626,526
Whittington Station	Dore & Totley	198,948	£ 3.58	£712,234	£783,457	£641,010
Barrow Hill Station	Mansfield Woodhouse	189,524	£ 3.58	£678,496	£746,346	£610,646
Renishaw Station	Thurnscoe	63,316	£ 3.58	£226,671	£249,338	£204,004
Killamarsh Station	Thurnscoe	63,316	£ 3.58	£226,671	£249,338	£204,004
Beighton Station	Sutton Parkway	197,540	£ 3.58	£707,193	£777,913	£636,474
Woodhouse	Woodhouse	33,396	£ 3.58	£119,558	£131,513	£107,602
Darnall	Darnall	13,024	£ 3.58	£46,626	£51,289	£41,963
Nunnery Square Station	Deansgate	114,035	£ 3.58	£408,245	£449,070	£367,421
Sheffield Midland	Sheffield Midland	198,154	£ 3.58	£709,393	£780,332	£638,454
Sheffield Victoria	Dore & Totley	198,948	£ 3.58	£712,234	£783,457	£641,010
		1,464,654	Total	£5,243,461	£5,767,807	£4,719,115

2.2 Benefits

Consistent with DfT guidance for this SOBC submission, estimates have yet to be made for the economic benefits of the scheme. Instead, this section identifies the factors which are expected to deliver the majority of the economic benefits. The next phase of work for the scheme would be to expand on each of these factors to establish the monetised benefit.

Journey Time Improvement

The potential for providing an alternative to car travel is a key area of benefit. A heavy rail solution has a significant advantage over the bus as it is able to penetrate the centres of Sheffield and Chesterfield without being impacted the highway traffic and associated congestion, particularly in accessing Sheffield City Centre. Figure 3 show a comparison of the in-vehicle journey times for bus, car and heavy between Barrow Hill and Sheffield.

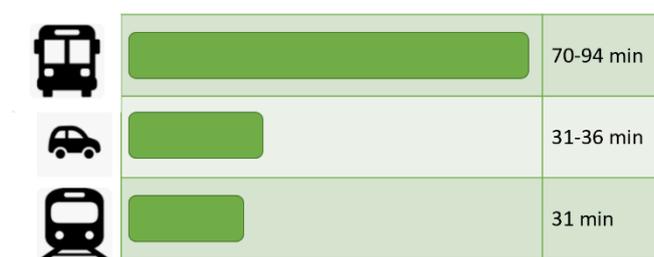


Figure 3 Comparison of journey times

Congestion & Air Quality Improvement

The scheme would provide the option to adopt greener choices for travel, reducing reliance on cars and so reducing road congestion. The provision of Park & Ride facilities, including those identified at Beighton would capture journeys from the M1 and divert them onto public transport, so reducing traffic and congestion into the centres of Sheffield and Chesterfield. A combination of mode shift and providing an attractive option for new trip will provide a positive contribution to improving Air Quality.

Connectivity: Access to Education & Employment

Catchment areas around the new stations, along with good access for pedestrians and cyclists, provide accessible and inclusive access to better education and employment for those without access to personal transport, contributing to economic growth. The scheme will provide access to a number of opportunities for education, linking Chesterfield College, Sheffield Hallam University, University of Sheffield and University Technical College.

New and better Jobs

The scheme will support the realisation of the Staveley Town Deal, support employment growth in Chesterfield and Sheffield and communities along the line including the Advanced Manufacturing Park at Waverley and improve the quality of jobs accessible by public transport for people without access to a car.

The direct outcome of the scheme, based on a half-hourly service, would be to create 16 new jobs for Train Drivers and Train Crew. This estimate is based on a similar scheme in the North-East of England.

Land Values & Housing

Restoration of the Barrow Hill Line would provide the opportunity to support significant development and regeneration within a 1km radius of the proposed station locations. The high level assessment undertaken has identified land which could potentially deliver circa 5,000 new homes alongside significant commercial and employment uses which would either be directly or indirectly supported by the restoration of passenger services running on the Barrow Hill line.

2.3 Social and distributional impacts

A Distributional Impact Screening should be undertaken at the next stage of development for the Barrow Hill scheme. An initial assessment has been presented in the table which follows to provide an initial assessment of where the screening is expected to identify further analysis to be undertaken.

ENVIRONMENTAL & SOCIAL IMPACT		
Aspect	7-Point Scale	Rationale
1. Noise	-1	Some intensification of rail use will increase noise for people and businesses adjacent to the line. This is both incremental and there are very few sensitive locations. Further work is needed to confirm
2. Local Air Quality	+1	The promotion of public transport is intended to result on a net reduction of car trips, particularly for people travelling to the centres of Chesterfield and Sheffield.
3. Greenhouse Gases	+1	The promotion of public transport is intended to result on a net reduction of car trips, particularly for people travelling to the centres of Chesterfield and Sheffield.
4. Landscape	+2	The reinstatement of the stations will have a local benefit to the surrounding landscape and townscape.
5. Townscape	+2	The reinstatement of the stations will have a local benefit to the surrounding landscape and townscape.
6. Heritage of historic resources	+2	The reinstatement of the stations will bring back into use historic resources
7. Biodiversity	0	No impact identified.
8. Water environment	0	No impact identified.
DISTRIBUTIONAL IMPACT APPRAISAL		
Summarise the expected impact of your scheme on relevant groups:		
Item	Impact	Relevant Groups
1. User Benefits	+2	Areas of deprivation are identified along the route.
2. Noise	-1	Areas of deprivation are identified along the route. The impact on sensitive locations and young and old people would need to be established.
3. Local Air Quality	+1	Areas of deprivation are identified along the route. The impact on sensitive locations particularly considering young and old people would need to be established.
4. Accidents	0	The scheme objectives are not intended to impact on accidents
5. Security	+1	Station design impact is expected to be positive for vulnerable groups and should be considered at the next stage.
6. Severance	0	The scheme objectives are not intended to impact on severance
7. Accessibility	+1	Accessibility for vulnerable groups should be considered at the next stage.
8. Personal Affordability	+1	Areas of deprivation are identified along the route.

2.4 Disbenefits & Risk to the current network

Network Rail has supported this SOBC by undertaking capacity analysis along the route and at the key stations at Sheffield Midland and Chesterfield. The Network Rail report identifies the key considerations which will need to be examined further in the Develop stage. The following highlights the executive summary, with the full report provided in Appendix D:

- *It is only possible to have one of the two services terminate at Sheffield Midland. This is due to there only being one consistent gap across Nunnery Main Line Junction each hour for a service departing Sheffield Midland.*
- *It is possible to have two services between Sheffield and Chesterfield with one service terminating at the current Sheffield Midland station and the other service terminating at a rebuilt Sheffield Victoria with a single platform built on a loop off the Stocksbridge Line.*
- *It is possible to have two services between Sheffield and Chesterfield via Barrow Hill with both services terminating at Sheffield Victoria. This would require Sheffield Victoria to be built with two platforms with a turnback siding to the West of the station which can be accessed from both platforms. This scenario would require the Stocksbridge Line between Woodburn Junction and the rebuilt Sheffield Victoria to be upgraded from single track to double track railway.*
- *Freight services along Tapton Junction to Masborough Junction have had to be adjusted in all 3 scenarios to avoid having freight services passing through Chesterfield Platform 3 when the platform is being used by the new passenger services.*

2.5 Impacts on competition

The local transport services for rail and bus are expected to serve largely separate markets. Rail journeys will tend to be longer than bus trips, with journey by rail focused on accessing the urban centres. The existing bus services would continue to call at more frequent stops and have significantly higher travel times to these destinations and be better suited to shorter journeys. The main area of competition is between public transport and cars. Furthermore, a more integrated public transport service, linking communities to the key rail nodes and wider travel opportunities is expected to off-set any localised impact on bus patronage.

2.6 Initial Value for Money Statement

It is not possible to calculate a preliminary BCR at this SOBC stage due to a number of benefits not yet being quantified financially. However, it is anticipated that the scheme will yield a BCR that is Medium Value for Money, or better. The high-level comparator exercise indicated total passenger new to rail revenues for the project of between £4.7m and £5.8m per annum, which at the lower bound would indicate a commercially positive position when compared to an estimated operational cost of c. £4.1m per annum (c. £600k headroom). The following opportunities have been identified to improve the BCR and will be further investigated at OBC:

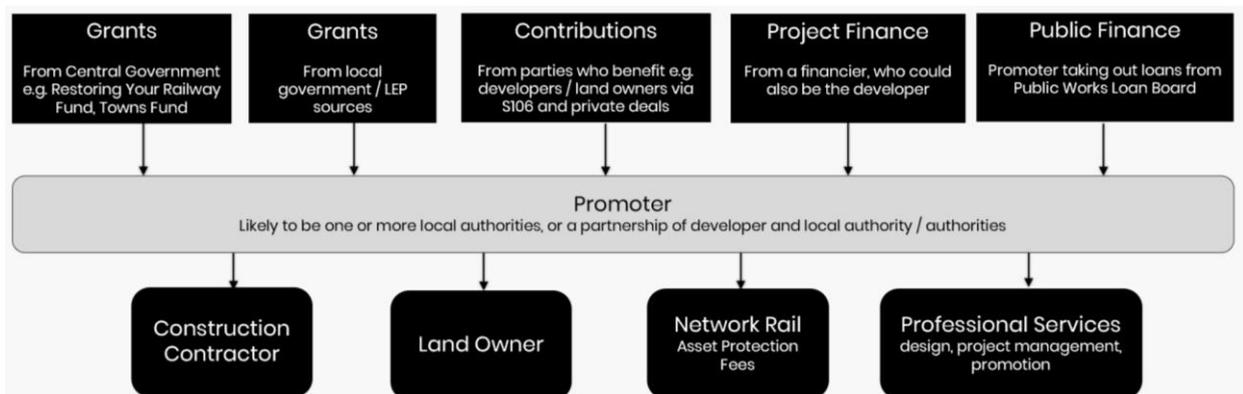
Increase in Benefits	Reduction in Costs
Reduced congestion at Midland station by diverting additional services (e.g. Worksop & Lincoln) to Sheffield Victoria	Chesterfield Platform 4 (240m reduced to 100m) or may not be required.
Alignment with the Waverley SOBC is likely to increase the overall demand for the Barrow Hill service. This is not a dependency but will add value.	On Network / Off Network approach to workscope (e.g. car parks do not need to be built to Network Rail standards and safety management)
Wider use of the station facilities to promote greater use of the service. E.g. linking to the role-out of digital connectivity in Staveley	Nunnery and Victoria scope reductions

3 FINANCIAL DIMENSION

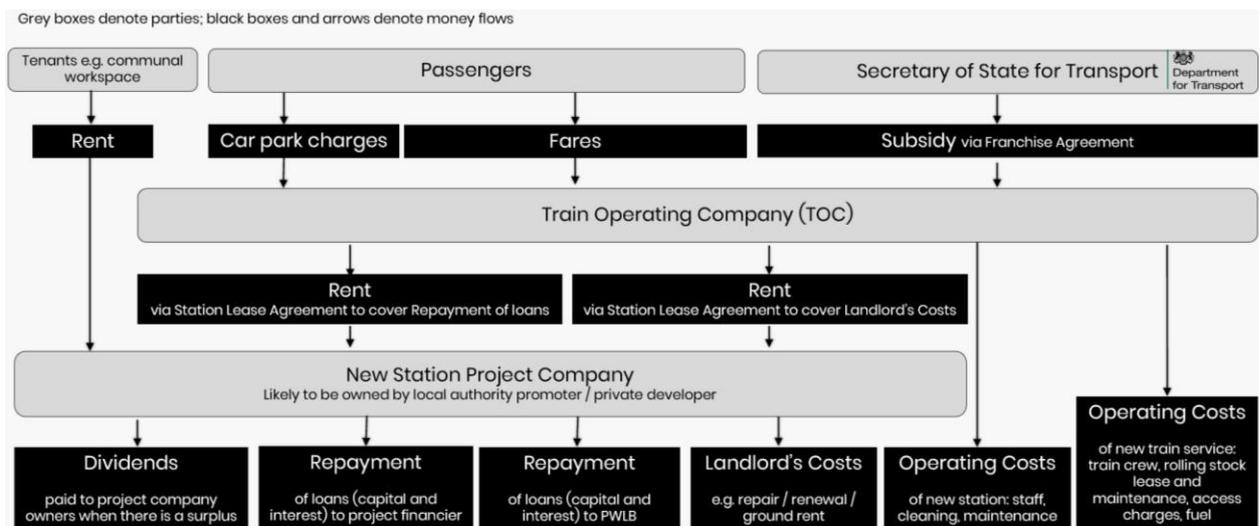
3.1 Funding Models

New station promoters can raise funding and finance from a number of sources, each of which has advantages and disadvantages. It should be noted that details may vary from station to station along the line and will be further developed during the Develop phase. [Note: arrows denote money flows]

Construction Phase



Operational Phase



Further details of Funding and Financing Models can be found in Appendix H.

3.2 Cashflow and Funding Profile

The cashflow profile has been estimated from the indicative project development programme and scheme cost estimates. The table below provides a forecast of the anticipated expenditure required to develop the scheme through each of the DfT Rail Network Enhancements Pipeline (RNEP) stages.

As described in the economic case, the capital cost of the project currently includes a significant allowance for risk and land (65.5%). Table 1 presents the high cost scenario. This would be updated as the base cost is refined, and risks are reduced.

Table 1 Proposed spend profile

RNEP Stage	2020/21	2021/22	2022/23	2023/24	2024 to 2026	Total by Stage	% of Total
Develop	200	2,800				3,000	2.6%
Design		200	3,800	1,400		5,500	4.8%
Deliver & Deploy				6,200	99,115	105,315	92.6%
Total by Year	200	3,000	3,800	7,600	99,115	113,815	£000's

3.3 Funding Sources

The following Funding Sources have been identified to potentially contribute to the cost of the scheme. The extent and confirmation of contribution would be identified at the Develop stage and use the Restoring Your Railways Funding to lever in contributions from a range of contributors.

- SCRMCA / LEP
- D2N2 LEP
- Midlands Connect
- Transport for the North
- Staveley Towns Deal
- Developer Contributions (e.g. S106 / CIL)
- Local Authorities

The Barrow Hill Scheme has already secured support from the Staveley Towns Deal Board for funding the Barrow Hill/Staveley station for up to a £1m contribution. This funding is subject to Government support for the Town Deal. The early commitment to Towns Deal funding starts to demonstrate the potential to gain further local and private sector contributions as the scheme develops.

3.4 Impact on other policies or projects

In section 2.7 of the Strategic Dimension this SOBC sets out the Future Compatibility with a number of external projects and programmes which interface with the Barrow Hill Scheme. The work undertaken, supported by engagement with key stakeholders, has identified the following impacts on other policies or programmes:

- SCRMCA are pursuing a Restoring Your Railway (RYR) scheme to re-open the Don Valley line between Sheffield Victoria and Stocksbridge. The Barrow Hill scheme is independent of this and would not introduce additional cost to the project but would complement it if Victoria Station was re-opened.
- SCRMCA are pursuing the opening of a new station at Waverley and this has been shortlisted in the second round of RYR. The Barrow Hill scheme would not introduce additional cost to either project and the benefit for each would be complementary.
- HS2 Ltd are planning to locate an infrastructure maintenance depot at Staveley. HS2 Ltd have confirmed that the proposed scheme does not compromise their requirements to use the line during construction.

3.5 Costing the next phases of work

It is proposed to undertake the Develop stage in two steps. The first step will address some key risks that have been identified to enable the BCR to be maximised. This includes evaluating the acceptability and impact of mitigations proposed to address Network Capacity constraints at Sheffield Midland and Chesterfield, agreeing Requirements (such as the required length of a potential Chesterfield Platform 4) and establishing land acquisition requirements and external funding contributions to minimise the cost to the taxpayer.

Following this **Step 1: Refine**, the project will progress into **Step 2: Develop** in line with RNEP, at the discretion of the Project Board.

Table 2 Develop stage costing

Item	Activity	Organisation	Cost £	Target Dates (Start/Finish)
Step 1: Refine				
1.	Key Risk Management/Mitigation Activities	SCRMCA	c. 200k	March-April 2021
2.	Network Capacity Modelling inc. Sheffield Midland	Network Rail		
3.	Refine Requirements (inc. future integration & interfacing projects)	SCRMCA		
4.	Confirm Constraints	SCRMCA		
5.	Demand Forecasting & Modelling	SCRMCA		
6.	Finalise Station Locations	SCRMCA		
7.	Establish Land Ownership / Acquisition	SCRMCA		
8.	Land Value Capture Assessment	SCRMCA		
9.	Confirm External Funding	SCRMCA		
10.	Passenger demand modelling to verify BCR, Affordability & Deliverability	SCRMCA		
Step 2: Develop				
11.	Basic Asset Protection Agreement (BAPA)	Network Rail	c. 2.8m	May - December 2021
12.	Surveys	SCRMCA		
13.	Undertake soil sampling & contamination testing	SCRMCA		
14.	Secure Specialist Signalling Resource	SCRMCA		
15.	Design Development & Option Selection	SCRMCA		
16.	Assurance: CSM/RiR (System Definition, System Safety Plan and Project Authorisation Strategy)	SCRMCA		
17.	Train Service Concept Agreement	SCRMCA		
18.	Operational Cost & Economic Benefits Review	SCRMCA		
19.	Land Acquisition and Consents Strategy	SCRMCA		
20.	Develop Outline Business Case	SCRMCA		

3.6 Funding requested to move to *RNEP Develop* stage

The RNEP Develop stage has been divided into two steps and is estimated to cost c. £3m in total based upon benchmarks for new railway enhancement projects.

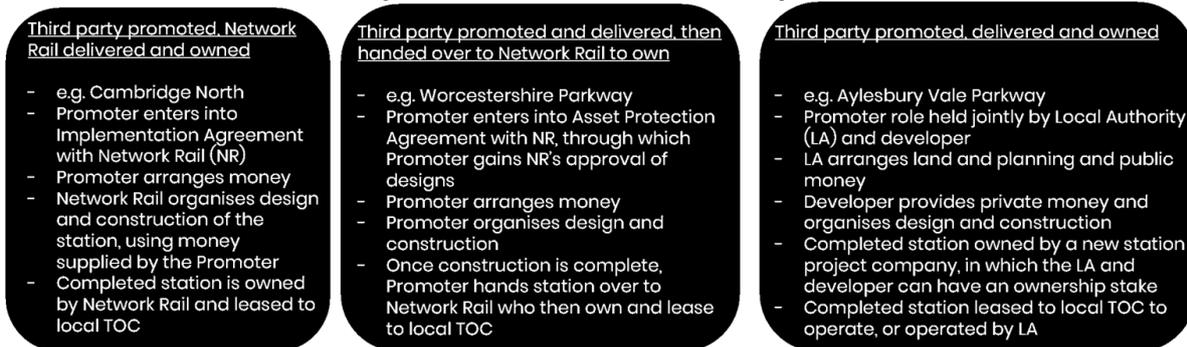
SCRMCA and partners are prepared to mobilise and undertake Step 1 activities from early 2021, which would require funding from the DfT, alongside a local contribution. SCRMCA and the project partners would also seek to reach agreement with DfT on the longer-term resourcing of the scheme design and development.

4 COMMERCIAL CASE

4.1 Delivery and Ownership Models

Different options exist for funding, financing and ownership of the new stations, each of which brings varying advantages and disadvantages for the Local Authority Promotor in terms of level of control, risk and potential future revenue. Further work will be undertaken during the Develop phase to determine the optimum model to deliver maximum benefits from the scheme.

Three Delivery and Ownership Models



- Each model involves the Promoter having a different level of control and carrying different types and levels of risk, and opportunity
- Each model to be assessed for fit to Barrow Hill Line circumstances, looking at: risk appetite of Promoter(s), sources and availability of capital, cost, value for money, programme, character of finished product, and ability to further develop the station in future
- This thinking will input into the Commercial Case and Management Case chapters

2

Further details on the Delivery and Ownership Model options are included in Appendix H.

4.2 Contractual Relationships

Project Delivery



The Project Team will be progressively developed during the Develop, Design and Delivery phases, as required to support the project. SCRMCAs will be the accountable body for contractual agreements for the Develop stage and this will be reviewed at the end of this stage to prepare for the Design Stage. It is anticipated that Network Rail will be engaged formally to undertake an Asset Protection (ASPRO) role and that the specialist Signalling resource currently engaged to undertake re-control to York ROC in March 2021 will be engaged to undertake the additional alterations required to support the Barrow Hill project.

Operational Delivery

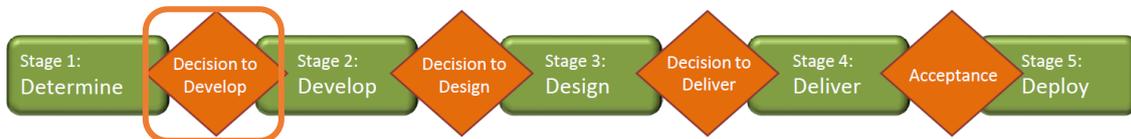


The organisation for the Operational Delivery phase is dependent on the choice of operating model selected (see Section 5.1 above) and will be confirmed following agreement of the preferred model.

5 MANAGEMENT DIMENSION

5.1 Delivery Strategy

Governance



The project could be delivered under the Rail Network Enhancement Pipeline (RNEP) framework and is **currently seeking a Decision to Develop**. SCRMCAs will remain the accountable body for the Develop Stage, working closely with the Sponsoring MP, DfT and Network Rail. At the Develop stage the exiting project structure will be further enhanced with a formalised project board. The current arrangements for the SOBC are summarised the in Figure 4Figure 3, identifying the key political leaders, Senior Responsible Officer and Project team. The evolution of the governance is indicated in Figure 5Figure 4.

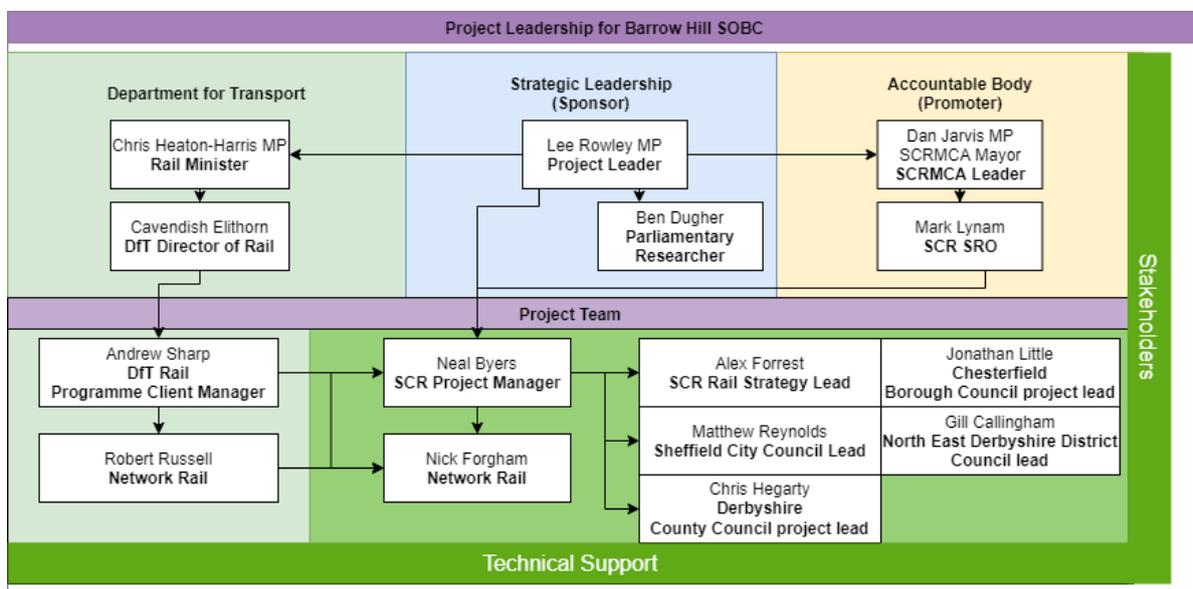


Figure 4 SOBC Project governance

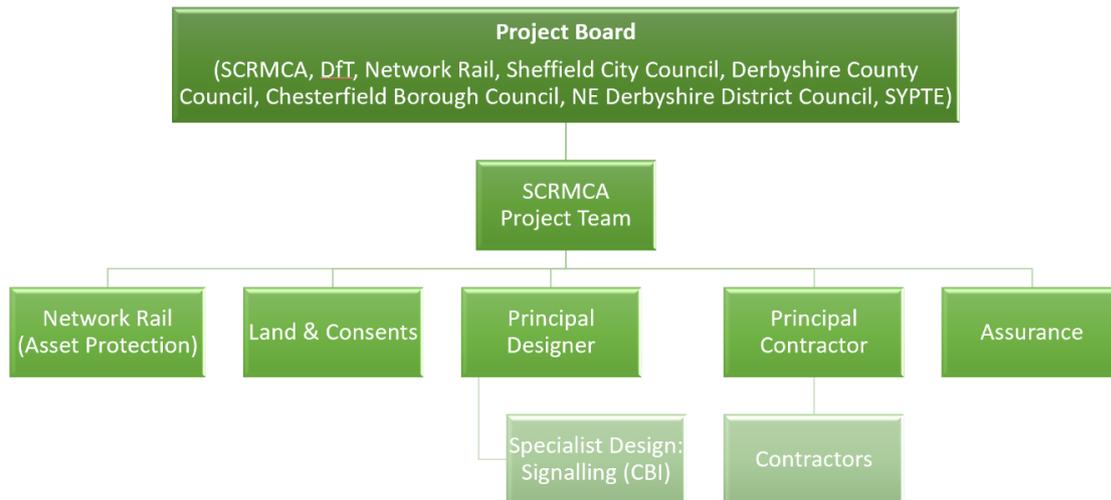


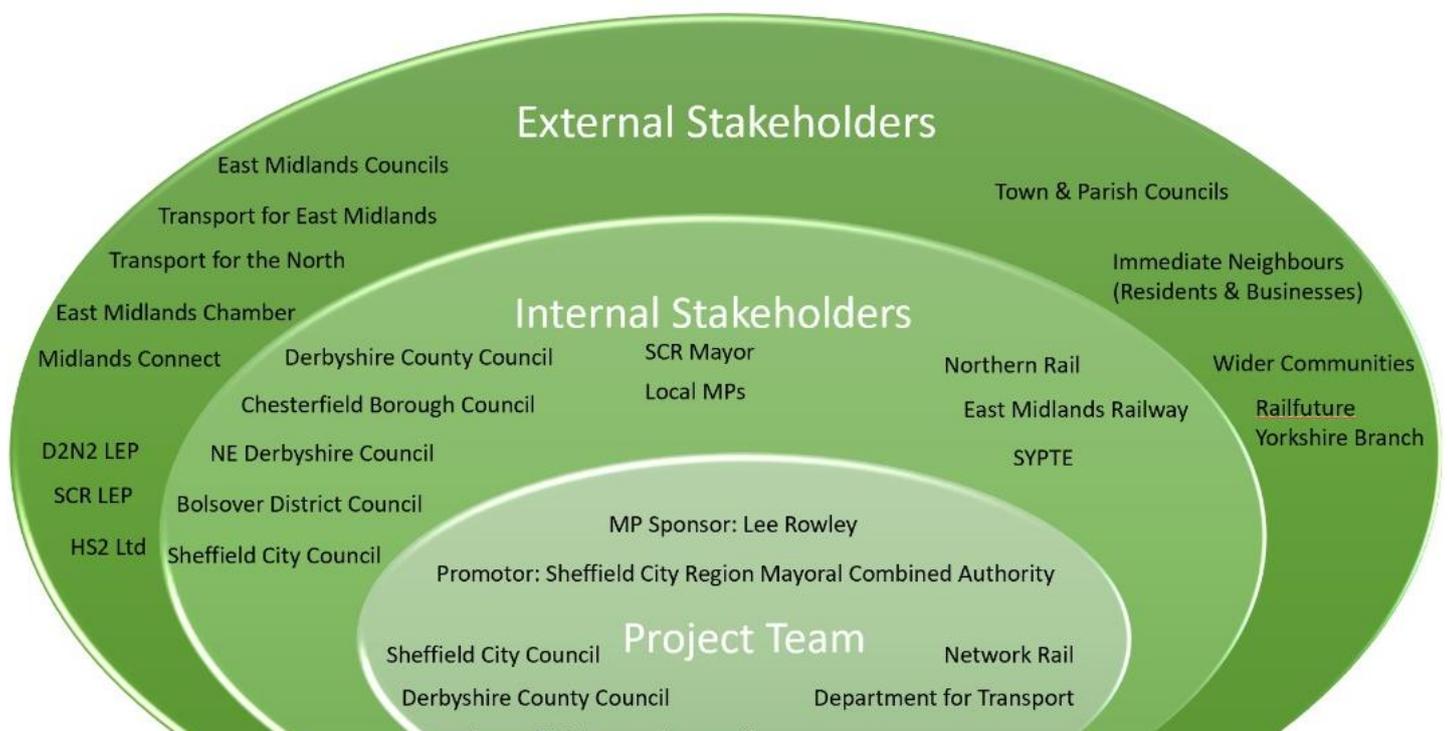
Figure 5 OBC Project Governance

Stakeholders

The Stakeholder Plan (Appendix J) sets out the internal and external stakeholders to the project. The scheme has received significant support from stakeholders, which demonstrates that the scheme is likely to be successful and that progress could be accelerated as early engagement has removed some potential showstoppers from key stakeholders. Stakeholder support has been gained from all key stakeholders including:

- Local Communities (via Zoom engagement sessions)
- Local Authorities
- SCR Mayoral Combined Authority
- Network Rail
- TOC's: Northern Rail and East Midlands Railway
- HS2 Ltd.
- Sub National Transport Bodies (TfN & Midlands Connect)

Letters of support are included in Appendix K. The project team will continue to proactively engage the stakeholders as the project develops.



Management of Risk

The project team has maintained a risk register throughout the development of the SOBC with input from a number of stakeholders. The project team have run two risk workshops to develop the SOBC. Initially at the scoping stage of the project in August 2020, then subsequently prior to submission of the SOBC in November 2020. In addition, regular engagement and reporting with DfT and Network Rail has identified a number of further risks. Finally, for this SOBC stage, the relevant Train Operating Companies have been engaged, with the risks highlighted through these meetings captured in the risk register.

The highest risks from the risk register are shown in Table 3. These represent the risks with the highest scores post mitigation and remain actively managed. The full risk register is presented in Appendix L and provides further detail on the impacts, mitigations and owners of all of the risks.

Table 3 Summary of key risks

Risk Description	Initial Risk			Residual Risk		
	Likelihood [1-5]	Impact [1-5]	Risk score	Likelihood [1-5]	Impact [1-5]	Risk score
FUNDING: Capital Cost of scheme not funded	4	5	20	3	5	15
CAPACITY: Sheffield Midland Station	4	4	16	4	3	12
BENEFITS: COVID-19 impacts prolonged	5	3	15	3	4	12
FUNDING: Operating cost requires subsidy, but not funded by DfT.	3	5	15	3	4	12
FUNDING: Stations/stops removed from the route	3	5	15	3	4	12
RESOURCES: Required land is not available or suitable	3	5	15	3	4	12

The Risk Register will remain a live document to track, manage and resolve risks through the life of the project. Through the SOBC stage the most significant risks for this stage have been identified and mitigated. There is a total of 36 risks recorded on the register, with the corresponding owners and mitigation. To date, 6 of these have been closed out in preparing the SOBC, leaving 30 active risks.

5.2 Delivery Plan

Management Approach

To maximise the value of the scheme, the project will adopt a Requirements Management approach to the development and delivery of the project. This will ensure that all scope is fully aligned to the objectives of the scheme and with wider strategic goals for local authorities and government.



This approach, adopted on a similar project in the North-East, has led to tangible savings and prevention of scope-creep of the order of tens of millions.

Additional innovations in delivery, such as Overlapping Assurance, may also be transferred across as both projects have several parties in common, including Network Rail, Northern and some team members. This could lead to significant savings both in time and cost being identified during the Develop phase.



Innovation in Delivery

Improvements to the quality or efficiency of delivery and timescales for delivery may be achieved by adopting a different approach to the procurement of the design and build supply chain. For example, by developing a collaborative Working Group consisting of Principal Contractors and Supply Chain based in the local area, it may be possible to leverage additional benefits from the scheme by boosting the economic returns, local employment, apprenticeships and skills that the scheme can deliver locally.

Roles & Responsibilities

SCRMCA will adopt the role of Promoter and also of Client under the CDM Regulations 2015. SCRMCA will be responsible for appointing a Principal Designer for the pre-construction phase and a Principal Contractor as the scheme enters the construction phase.

SCRMCA will appoint Network Rail to undertake an Asset Protection role.

Further details of Roles & Responsibilities will be documented during the Develop phase.

Programme



The Outline Programme is included in Appendix M. The programme is aligned to the RNEP process and identified the following key target dates:

- | | | |
|------------------------------------------|-----------|---------------------------------------|
| • Decision to Design | Q4 | 2021/22 |
| • Decision to Deliver | Q3 | 2023/24 |
| • Construction commences | Q1 | 2024/25 |
| • First reopened station complete | Q3 | 2024/25 (Q1 with efficiencies) |
| • First service operational | Q1 | 2025/26 |

6 List of Appendices

Appendix	Title
A	Options Assessment Report
B	Infrastructure Intervention Diagrams
C	Initial Timetable Assessment
D	Network Rail Capacity Modelling
E	Service Options Summary
F	Capital Cost Estimate
G	Operational Cost Estimate
H	Funding & Financing Models
I	Funding Sources
J	Restoring Your Railway – Barrow Hill SOBC Stakeholder Plan
K	Letters of Support
L	Risk Register
M	Outline Programme

References

ⁱ Census (2011) – Analysis by Mott MacDonald 2020

ⁱⁱ LCR (2020) Barrow Hill Land review

ⁱⁱⁱ 2011 Census – Method of travel to work

^{iv} TRACC - Analysis by Mott MacDonald 2020

^v MHCLG- Analysis by Mott MacDonald 2020

^{vi} Sheffield City Region (2016) “Integrated Infrastructure Plan”

^{vii} Sheffield City Region (2018) “The Mayor’s Vision for Transport: A Transport System Connecting People to Places”

^{viii} Sheffield City Region (2019) “Integrated Rail Plan” https://sheffieldcityregion.org.uk/wp-content/uploads/2019/07/SCR_Integrated_Rail_Plan.pdf

^{ix} Network Rail (2019) “Continuous Modular Strategic Planning: Sheffield Area Strategic Question

^x <https://www.sheffield.gov.uk/home/pollution-nuisance/clean-air-zone>

^{xi} LCR (2020) Barrow Hill Land review

^{xii} Sheffield City Region (2019) “Integrated Rail Plan” https://sheffieldcityregion.org.uk/wp-content/uploads/2019/07/SCR_Integrated_Rail_Plan.pdf
