



The case for expanding the rail network

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Campaign for Better Transport thank the RMT for their financial support for this report. RMT supports expansion of the railway and opening of new lines. However, the views expressed in the report are those of the Campaign for Better Transport and the proposals set out in the report do not represent the policy of the RMT and should not be taken as such.



Foreword

Opening a railway can transform an area. It can support the local economy, expand labour markets, create better places to live, reduce carbon emissions and help tackle regional inequalities.

Despite a wide and longstanding consensus on the benefits of expanding the railways, few projects reach construction. Progress is stymied by the complexity of project development and the lack of a strategic approach to considering schemes. Support remains piecemeal with the inherent risk that investment is skewed toward those projects most able to create a return for the private investors rather than projects most beneficial to the economy, communities and connectivity.

This research report aims to bridge the gap in the current approach to reopenings. It seeks a national strategic approach to identifying those lines and stations whose reinstatement could bring the most benefits. This is measured by which schemes will ultimately pay for themselves via the benefits they generate for society.

If rail's potential is to be realised then a new approach is needed. It requires a new methodology to identify and prioritise those projects which bring the biggest benefits to the country. The methodology underpinning this report pulls together social, economic and environmental factors to assess the case for over 224 potential reopening projects (a full list can be found on the Campaign for Better Transport website www.bettertransport.org.uk/re-opening-rail-lines).

A large number of projects have clear benefits and this report argues that initially a national programme of 33 reopening schemes should be prioritised and adopted with others potentially to follow. Geographically balanced with schemes across England, Wales and Scotland, this would be implemented in two phases between 2020 and 2025 and 2025 to 2035. It would have the following facets:

- Add 343 miles to the passenger rail network (166 miles of reopened route and 177 miles of freight-only route upgraded to passenger rail standards)
- Create 72 new stations
- Generate up to 20 million additional passenger journeys
- Bring over 500,000 people within walking distance of a station
- Create up to 6,500 jobs, with 1,650 new railway jobs augmented with between 1,000 and 3,000 jobs in the supply chain and 2,000 in construction and engineering
- Support the objectives of 17 Air Quality Management Areas
- Serve well over 100 wards identified as disadvantaged
- Total cost of the programme would be between £4.76 billion and £6.39 billion (phase one £1.28 billion to £1.81 billion, and phase two £3.48 billion to £4.58 billion)
- It would generate an annual Gross Value Added (GVA) of £155 million and £245 million with numerous indirect benefits.

Bringing such a programme to reality will require a proactive and strategic approach to expanding the rail network including:

- A clear national policy on reopenings setting out the social, economic and environmental benefits of an enlarged rail network
- Charging the National Infrastructure Commission (NIC) with identifying where new and reopened lines would support national objectives across transport, housing, geographic balance, low carbon growth and other relevant objectives
- A national development pool of priority projects with a streamlined implementation process
- A new assessment of value for money taking in both direct and indirect benefits
- A firm commitment to expanding rail including freight capacity on existing and new lines.

1. Introduction and context

Rail travel is more popular than at any point since Victorian times and there is widespread demand to expand the network.

The Beeching report's legacy of disused and abandoned stations means there is no shortage of ideas for reopenings. But despite the surfeit of proposals and soaring ridership over the last 30 years, few new stations and lines have been added to the network.

Reopening railways has the potential to transform communities. For both passengers and freight, rail is a high-quality national transport network that can give people access to a wealth of social and economic opportunities. It can support local economies; expanding labour markets and encouraging new investment and development. It can help tackle regional inequalities, making economically disadvantaged parts of the country more attractive for investment. It can help create better places to live;

relieving road congestion and pollution, and reducing carbon emissions. And the railways can support the national economy; directly creating and maintaining high skill employment.

Given these benefits, it is unsurprising that the clamour for new and reopened rail lines has been widespread and consistent for many years. Local campaigns have been spurred on by high profile successes such as the Borders Railway. The political focus has been on mega projects such as High Speed 2 (HS2) and Crossrail 2, and identifying schemes attractive to private sector investors. While important, this needs to be balanced with enhancements and other projects that maintain the skills base and supply chain in the intervening years. In reality, too little support is currently in place to bring reopening schemes to fruition. The assessment of potential expansion schemes is often narrowly drawn and overly risk averse. Public investment in rail remains focused on maintaining and updating the existing network rather than seeking out the best opportunities to expand.



Other support for reopenings

This research makes the case for establishing a new national programme of reopenings. The relatively conservative research methodology and criteria used has led to just over 30 projects initially being prioritised and being selected to form programme running between 2020 and 2035, with further potential rounds to follow.

The proposed national programme should not, however, become the only way reopening projects can reach construction. Existing approaches where schemes are promoted and developed locally should be retained and bolstered, operating alongside the new national programme.

A number of the 200 schemes not envisaged for the initial priority national programme have merit and may be appropriate for reopening in the short to medium term. Indeed, many respond positively to specific local circumstances. For example, a Penrith to Keswick line reopening (much of the development work for which has been funded by supporters) would offer a non-road transport link to the north Lake District, helping to reduce pressure on roads and parking in a part of the National Park where these are major considerations.

Other projects require more detailed assessment before they could be considered for reopening. Changing patterns of development and travel mean entirely new rail lines should also be considered in areas planning for population, employment and leisure growth.

A national reopenings programme alone cannot respond to all these needs. It is essential that other ways of achieving a reopening be maintained and improved, with additional resources being considered to develop and deliver projects.

A consensus now exists for expanding the country's rail network. The main national political parties, local government, the railway industry, developers and campaigners have all voiced their support for new and reopened lines. Collectively, this has generated hundreds of proposals across the country. These range from major schemes requiring the rebuilding of dozens of miles of track, to more targeted initiatives which seek to reopen mothballed lines or reintroduce passenger services to lines currently solely used by freight services.

If rail's potential is to be realised, then a new approach to reopenings is needed. This should take as its starting point that there is a case for enlarging the rail network. It requires a new methodology to identify and prioritise those projects which bring the biggest benefits to the country. Crucially, it should be able to draw on new investment to deliver an expansion programme.

In addition to the projects which have been identified as priorities in this report, there are many others which have merit. While the methodology used in this research does not favour them as immediate priorities for a national reopenings programme, their benefits could be considerable. For example, the Watford to Croxley Green link would connect London Overground and Underground networks providing a new connection and interchange. The creation of a national reopenings programme does not undermine the strong case which can be made for these schemes and others like them in meeting specific local need, and it should not preclude their further development.

The methodology underpinning this report pulls together social, economic and environment factors to assess the case for 224 potential projects. It offers a headline assessment of which can be practically delivered in terms of engineering and cost, and which are best located to address local and national need. As such, it offers basis for rethinking our approach to network expansion.

2. Why invest in expanding the railways?

Britain's rail network is an essential part of the country's infrastructure. The railways have shown strong growth over the last 20 years and demand to expand and improve access to the network is high. Investing in rail to meet this demand will increase

the network's value and its usefulness economically, socially and environmentally. These benefits are summarised in Table 1, below, which was used in assessing the benefits of potential reopening schemes.

Table 1: Why invest in expanding the railways?

	Social	Economic	Environmental
Support development including new housing	<ul style="list-style-type: none"> • Ensure new development is well connected and accessible to all 	<ul style="list-style-type: none"> • Help meet demand for new development • Increase the value of new development by making it more easily accessible 	<ul style="list-style-type: none"> • Make new development less car dependent • Reduce land take by supporting higher density development
Improve national infrastructure and help tackle regional disparities	<ul style="list-style-type: none"> • Provide new opportunities to access employment, education and social destinations • Improve economic and social cohesion across the country 	<ul style="list-style-type: none"> • Increase overall network capacity, allowing the network to cope better when problems arise, offering diversionary routes and additional freight paths • Provide a faster, more extensive and reliable transport network • Reduce pressure and reliance on London and the South East 	<ul style="list-style-type: none"> • Reduce pressure for unsustainable development and urbanisation in London and the South East
Decrease social exclusion and support disadvantaged communities	<ul style="list-style-type: none"> • Increase mobility through access to a national transport network • Widen access to services (e.g. health and education) • Help tackle isolation and transport poverty 	<ul style="list-style-type: none"> • Increase opportunities for skills and training • Widen labour markets 	<ul style="list-style-type: none"> • Provide affordable alternatives to driving and reduce car reliance

	Social	Economic	Environmental
Contribute directly to the economy by creating high skill employment	<ul style="list-style-type: none"> ● Create new, highly skilled jobs and support local economies 	<ul style="list-style-type: none"> ● Provide direct and indirect employment in a stable and high skill sector 	<ul style="list-style-type: none"> ● Support low carbon employment in the transport sector
Invest in local economies	<ul style="list-style-type: none"> ● Create local jobs in businesses associated with rail 	<ul style="list-style-type: none"> ● Support new employment and local economic stability 	<ul style="list-style-type: none"> ● Reduce the need to travel long distance for basic services
Support the creation of integrated transport networks	<ul style="list-style-type: none"> ● Improve mobility for communities ● Increase the viability of bus networks and other public transport 	<ul style="list-style-type: none"> ● Support more efficient use of transport infrastructure ● Support local economies by increasing footfall 	<ul style="list-style-type: none"> ● Increase the percentage of journeys undertaken by lower carbon modes ● Reduce the pressure for investment in additional road capacity
Help create healthier and more pleasant towns and cities	<ul style="list-style-type: none"> ● Reduce the health impacts associated with exposure to road congestion and pollution 	<ul style="list-style-type: none"> ● Improve the attractiveness of urban centres 	<ul style="list-style-type: none"> ● Reduce air pollution associated with over reliance on conventional car use and road freight
Bolster and grow rail freight	<ul style="list-style-type: none"> ● Reduce the number of HGVs on the road, improving road safety and tackling congestion 	<ul style="list-style-type: none"> ● Increase efficient use of the rail network ● Increase opportunities to move freight by rail ● Protect and increase the number of rail paths and routes available to rail freight ● Increase the number of businesses which can access the network 	<ul style="list-style-type: none"> ● Increase the sustainable movement of freight
Reduce transport's environmental impact	<ul style="list-style-type: none"> ● Improve local environmental standards by reducing exposure to road congestion and pollution 	<ul style="list-style-type: none"> ● Meet necessary environmental improvements through cost-effective investment 	<ul style="list-style-type: none"> ● Meet legal requirements for transport to reduce emissions ● Reduce carbon emissions by shifting journeys from road to rail

3. Why is progress so slow?

There is widespread support for line and station reopenings. But despite long standing political and commercial interest, and public desire, adding new lines and stations to the network is a slow, expensive and laborious process.

The objective of Government policy regarding new rail lines has been twofold. First, schemes must pass a high bar of financial sustainability with predicted revenue from fares underwritten by the scheme sponsor. This reflects the wider Government objective of increasing the proportion of railway costs borne directly by passengers. Second, while identifying the benefits that can come from reopening rail lines, ministers have repeatedly made clear that identifying and promoting reopening projects is a local issue.

When combined with a conservative approach dictated by Network Rail's Governance for Railway Investment Projects (GRIP) process, the result has been that many schemes have struggled to gain the requisite support needed for development. Those projects which do attract local authority financial funding can then spend years and large sums of money in development. Predictably, the outcome is few railway stations and lines being reopened since the Beeching closures concluded in the early 1970s.

To address this, the Government has signalled its commitment to adding stations and lines to the rail network through a Strategic Vision for Rail, published in 2017. Institutional structures, policy reform and funding opportunities have emerged with the stated aim of making rail enhancements easier to deliver:





- The High Level Output Specification (HLOS) for Control Period 6 is based on a limited pipeline approach to rail enhancements
- New national policy initiatives, such as the land value capture methodology from the Ministry of Housing, Communities and Local Government, aim to more accurately capture the benefit of rail investment
- The Rail Network Enhancement Plan (RNEP) which highlights the benefits of adding to the network and aims to simplify the process for doing so.

While these developments can support reopenings, the Government's emerging approach does not provide strategic guidance on the type and location of schemes deemed to be most desirable. Instead, this is left primarily to local authorities and investors to advocate individual schemes, with the Department for Transport (DfT) committed to helping deliver those schemes deemed most beneficial by the private sector. As such, support remains piecemeal with the inherent

risk that investment is skewed toward those projects most able to create a return for the private investors, rather than projects most beneficial to the economy, communities and connectivity.

Furthermore, the extent of any expansion programme and the process by which schemes will be selected remains unclear. As yet, there is no announcement of what if any public funding the DfT will make available for projects over the short or medium term. Without sufficient guidance and strategic thinking there remains a lack of clarity over Government objectives in expanding the railways. This is in marked contrast to the approach Government makes to investment in other national infrastructure. For example, investment priorities for the Strategic Road Network are identified through the Road Investment Strategy (RIS) process.

In summary, more action is needed to identify the most beneficial rail expansion projects and to bring them to fruition.

4. A new approach

This research aims to bridge the gap in the current approach to rail expansion. It seeks a national strategic approach to identifying those lines and stations whose reinstatement could bring the most benefits.

This is measured not by which are of most interest to private investor, but which will ultimately pay for themselves via the benefits they generate for society. It is expected that such an approach can be used to justify capital borrowing required to pay for project development and implementation.

In doing this, the research report identifies:

- The range of economic, social and environmental benefits that can result from investment in an enlarged rail network
- Schemes which should be an early priority for further development and implementation
- High level policy recommendations designed to help facilitate a programme of rail enhancement schemes.

Project methodology and outputs

Campaign for Better Transport has undertaken research making the case for an enlarged rail network with reopened lines and stations. Based on desk research, interviews and case studies, this report employs:

- A new methodology for assessing the value of potential rail reopenings
- Worked examples of where reopened rail infrastructure could help meet local and strategic objectives
- Recommendations for how rail's potential can be supported in national, regional and local decision making.

Through research and a call for members of the public to identify schemes they would like to see come to fruition, some 224 proposals for reopened lines have been identified. These vary enormously in scale, development, support and viability.

The initial part of the project has sought to identify which proposals are likely to be viable and have the best chance of delivering socially, economically and environmentally worthwhile outcomes. This was carried out through desk research drawing on previous studies, transport strategies and the work of local campaigners in highlighting the benefits arising from potential reopenings and the strength of public support for them.

Using the information available, the research measured all 224 projects against a simple methodology to identify which are worthy of serious consideration now; which should be regarded as longer term objectives; and which are unlikely to be viable without a considerable change in circumstances.

First, schemes were considered for their broad viability. This focused on technical issues picked up in previous studies and research, although attention was given at this stage to schemes which while possible, are likely to be very expensive while offering limited likely benefits. Schemes were awarded a 'pass' or 'fail' regarding their current viability, with 'pass' projects being considered in further depth. Any schemes with which there was uncertainty at this stage were awarded 'pass' to enable further examination.

Second, using the same data sources the benefits of 'pass' schemes were considered against the three themes and nine criteria set out in Table 1. Projects were awarded a score of between zero and five in each of three categories depending on the breadth, strength and certainty of the contribution they would be likely to bring. To be considered as part of a national reopening strategy, projects were required to score in all three categories and return a minimum of ten points.

The methodology can be refined and augmented depending on objectives. This research is based on a balanced set of social, economic and environmental measures and draws only on existing data. Depending on policy objectives and resource availability, further criteria can be added and more in depth research undertaken.

The process described above split the original 224 proposals into three groups:

- **Priority 1** – Schemes for which a clear case can be made. Several of these are already in the GRIP system and have received support from campaigners and local government. Further details of these projects is set out in Annex 1
- **Priority 2** – Feasible projects which require further development or changed circumstances (for example, housing development proposals) to assist them in being taken forward
- **Priority 3** – Projects either not considered feasible currently or requiring transformational change in circumstances to make them so.

Implementation and delivery

In recent decades there have been few major projects undertaken to expand the railway network. One consequence of this has been a loss of the skills necessary to undertake such work within the rail industry with experienced rail engineering roles not being replaced.

This situation is now being transformed. Up to 30,000 people are expected to be employed in building HS2, including around 2,000 apprenticeships. Once operational, a further 3,000 people are then expected to be employed in operating and maintaining the new

railway.¹ The proposed Crossrail 2 project is also under development with construction slated to begin in the mid 2020s. If given the go-ahead, Crossrail 2 would be one of the largest civil engineering projects in Europe, creating around 60,000 jobs in engineering and supply chains.² Meanwhile, other committed major projects such as East-West Rail will also require skills and resources.

The major increase in the industry's skills base represents both an opportunity and a pressure for the rest of the rail sector. While progress with HS2 and Crossrail 2 will have a significant impact on the availability of skills elsewhere on the network, a continual flow of projects can add greatly to supply chain efficiency, helping provide the certainty needed to support investment. This needs to go hand in hand with steps to retain and embed skills in the regional economies, providing a broader base of expertise and skilled labour that other projects will be able to take advantage of.

The methodology aims to take account of the industry's changing capacity by staggering the delivery of the expansion programme. The delivery of Priority 1 projects could form two phases:

- **Priority 1 – Phase 1** would focus on projects on the existing network, primarily those involving the conversion of current freight-only lines to allow passenger services to run in addition to freight services. Although detailed planning and investigative work is still required by some of these projects, it is anticipated that Phase 1 could run from 2020-2025.
- **Priority 1 – Phase 2** would be expected to run from 2026-2035 and includes larger and more complex projects such as those requiring the re-laying of track.

5. The national picture

Priority projects

The research has identified 33 Priority 1 schemes across England, Scotland and Wales. The phasing and location of these schemes is set out below.

Table 2: Priority projects

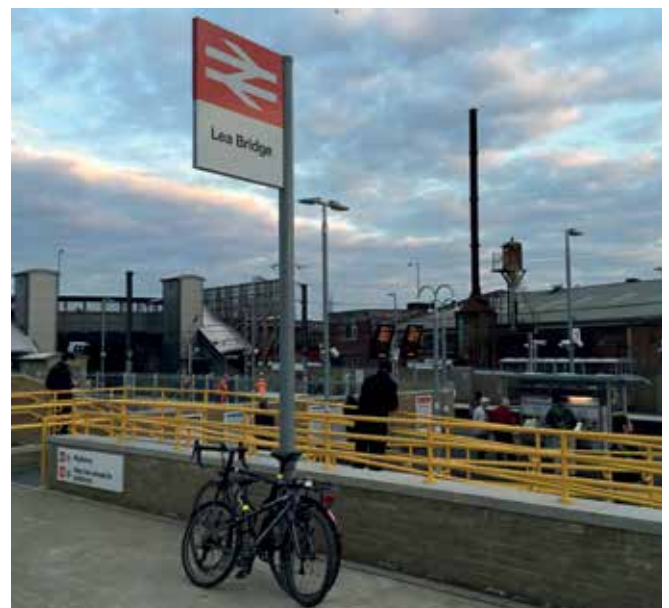
Region	Total schemes	Priority 1 schemes	
		Phase 1	Phase 2
South East and London	33	3	1
South West	37	1	3
East of England	32	1	2
East Midlands	14	2	1
West Midlands	21	3	1
Yorkshire and the Humber	21	0	2
North East	11	1	2
North West	27	0	3
Wales	22	1	3
Scotland	6	1	2
Total	224	13	20

Stations and miles

If all Priority 1 schemes were to reach fruition, it would represent over 340 miles of reinstated passenger service miles and over 70 new stations.

Table 3: Stations and miles

Region	Total schemes	Priority 1 schemes	
		Stations	Miles
South East and London	4	7	22
South West	4	7	47
East of England	3	5	52
East Midlands	3	8	49
West Midlands	4	13	40
Yorkshire and the Humber	2	4	25
North East	3	13	47
North West	3	5	21
Wales	4	5	16
Scotland	3	5	24
Total	33	72	343



Costs and benefits

A programme of rail expansion would represent a major investment in the country's transport infrastructure. The nature of major civil engineering projects means that any estimate comes with a significant margin of variation.

Rail is particularly susceptible to such changes for two main reasons. First, local factors such as the value of land, geographical issues and the condition of existing railway infrastructure make it difficult to provide accurate assessments of proposals without detailed preparatory work. For example, in the construction phase of a new station at Low Moor near Bradford, unmapped mine workings were discovered beneath the planned station building. Second, project scoping can have a major impact on costs. For example, it was reported in 2018 that changes to the scoping for the planned section of the East-West rail line from Bedford to Cambridge had reduced projected costs by up to a third – around £500 million.

Where available and up to date, the cost estimates of local authorities and agencies proposing each scheme have been used. Where this is not available, a benchmark of between £9 million and £16.7 million per mile has been calculated. This benchmark is based on seven varied schemes which have either been implemented or have reached an advanced stage of development in recent years (see Annex 2 for further details). While this approach should only be seen as an early indicative estimate of the potential costs of individual projects, it does offer a useful guide to the likely overall costs of a reopenings programme. Numbers include some large committed projects such as East West Rail.

The rail industry is a major contributor to the country's economy. In 2015, it was estimated that rail's benefit to the UK economy was £10.1 billion of GVA a year. This is made up on £6.3 billion from the rail industry and £3.8 billion from its supply chain.

Table 4: Costs and benefits

Region	Phase 1	Phase 2	Estimated overall cost
South East and London	£331m – £442m	£146m	£447m – £588m
South West	£69m	£460m – £708m	£529m – £777m
East of England	£70m – £111m	£1.47bn – £1.52bn	£1.54bn – £1.63bn
East Midlands	£201m – £226m	£108m – £200m	£309m – £406m
West Midlands	£252m – £468m	£108m – £200m	£360m – £668m
Yorkshire and the Humber	-	£225m – £418m	£225m – £418m
North East	£198m	£279m – £518m	£477m – £716m
North West	-	£458m – £504m	£458m – £504m
Wales	£36m – £67m	£98m – £200m	£144m – £267m
Scotland	£126m – £234m	£125m – £164m	£251m – £398m
Total	£1.28bn – £1.82bn	£3.48bn – £4.58bn	£4.74bn – £6.37bn

Currently, the railways employ some 216,000 people. Of these, 92,000 are employed directly by train and freight companies and Network Rail, while a further 124,000 are employed in the supply chain.³

If all the Priority 1 proposals were to reach fruition it would represent an increase to the network of the following amounts:

- 1.7 per cent increase in overall network track route (adding 166 miles of new route to the existing 9,825 miles)
- Two per cent increase in track at passenger rail standard (upgrading 177 miles in addition to the existing 9,004 miles)
- 2.7 per cent increase in the number of stations on the network (adding 72 stations to the existing 2,566 stations).

Applying the overall GVA average on a pro rata basis, it is assumed that the expansions in direct benefits from delivering all the Priority 1 proposals is likely to be between £155 million and £245 million in GVA each year. This would give the programme a pay back period of between 20 and 40 years.

Added benefits

The GVA figure does not include many of the wider benefits associated with rail development. User benefits; network benefits; locational benefits such as co-location with housing and other development; and environmental benefits including improved air quality and carbon savings add significantly to the overall value of a project.

Employment

It is estimated that the construction and opening of all Priority 1 lines and stations would create over 6,500 jobs:

- **Direct railway employment:** Between 742 and 1,645 new jobs would be created by the new lines. This estimate is based on existing employment patterns across regional rail franchises (more details can be found in Annex 2)
- **Supply chain and associated employment:** Research undertaken in 2015⁴ suggested that 57 per cent of rail sector employment is in supply

Case study

Adding value - Crossrail

Crossrail is a 73 mile rail project tunnelling under London. Work on the £16 billion scheme now known as the Elizabeth Line began in 2009 and is expected to be complete in 2020.

The project's value to the economy is estimated to be £42 billion. This includes the value of associated housing and commercial development, regeneration, reduced congestion, widened labour markets and other benefits. Crossrail estimate 5.3 million square feet of residential, commercial and retail space has been created because of the project, including 57,000 new houses. In addition to the 10,000 people who have worked directly on the project, there are a further 55,000 full time jobs in its supply chain.



chain and other associated employment. Using this ratio, a further 1,000 to 3,000 jobs in the supply chain and associated industry would be supported

- **Construction and engineering:** Calculating construction and engineering employment in building new rail capacity is made problematic by limited data available and the unique nature of each project. However, using the 400 construction jobs created over two years by the 31-mile Borders Railway as a guide,⁵ the 166 miles of new route envisaged by this research would create or support around 2,000 construction and engineering jobs.

Table 5: New passengers and communities

Region	People within 1 km of new station
South East and London	76,000
South West	53,000
East of England	19,500
East Midlands	42,700
West Midlands	152,300
Yorkshire and the Humber	28,300
North East	58,800
North West	28,600
Wales	29,300
Scotland	27,600
Total	516,100

New passengers and communities

New stations bring new communities onto the railway network. If all 72 new stations were added to the railway then more than half a million more people would be within walking distance of the network with many others having improved access.

These numbers have been calculated using a one kilometre radius from an estimated location of a new station. In some areas, demand for rail services is likely to extend significantly beyond this. For example, the reopenings programme would connect towns such as Portishead, Wisbech, Haverhill, Coalville, Ashington, Skelmersdale and St Andrews to the rail network. These are areas which currently lack local stations.

Estimating passenger numbers at new stations carries a high margin of variance. For example, when the Stirling to Alloa line was reopened in 2009, passenger numbers were predicted to be 155,000 per year. In reality, the first year of operation attracted in excess of 400,000 passengers.⁶ Similarly, the reopening of

the Borders Railway in 2015 was originally predicated on annual passenger numbers of 650,000. Actual passenger numbers were 1.3 million in the first year and have continued to rise subsequently, reaching 1.45 million by year three. The further difficulty in predicting passenger numbers is exemplified by the performance of individual stations on the Borders Railway. Some have attracted up to ten times as many passengers as initially predicted while others are used by many fewer than analysis suggested.

Based on the broad population density of their locations, it is estimated that reopening all 72 Priority 1 stations would generate up to 20 million additional passenger journeys a year. This is based on Network Rail's six-category classification system.

Table 6: Passengers at new stations

Description	Number of new stations	Annual journeys per station	Total passenger journeys
Medium staffed	9	250 – 500k	2.25m – 4.5m
Small staffed	32	Under 250k	Up to 8m
Unstaffed*	31	Under 250k	Up to 8m

*This is NR categorisation of stations, rather than proposals for station staffing



Tackling poverty

The link between deprivation and access and affordability of local transport is well established (see for example, transport poverty work by UCL).⁷ The Priority 1 schemes would serve well over 100 communities identified as disadvantaged, helping improve the prospects of areas which often see little investment. Using the Indices of Multiple Deprivation, Table 7 below details the number of wards in the bottom ten and 20 per cent of each county which would be served by new rail infrastructure.

Table 7: Tackling poverty

Region	Wards in 10% most deprived	Wards in 10–20% most deprived
South East and London	10	8
South West	1	2
East of England	2	5
East Midlands	3	8
West Midlands	17	12
Yorkshire and the Humber	4	3
North East	14	11
North West	5	6
Wales	6	5
Scotland	5	4
Total	67	64

Improving air quality

Air pollution is a major problem in the UK, resulting in tens of thousands of premature deaths each year. Between 2017 and 2025, it is estimated that the total cost to the NHS and social care of air pollution will be £5.56 billion.⁸ By far the largest source of air pollution is the transport sector. This is primary road vehicle emissions, although emissions from rail can be an issue, particularly in busy stations where diesel traction predominates.

Addressing air pollution requires both tough legislation and investment. Increasing the quality, affordability and extent of the rail network has an important role to play in reducing the number of vehicles on the road and in cleaning up local air quality.

Clean Air Zones (CAZ) and Air Quality Management Areas (AQMAs) are two of the key initiatives being used to tackle air pollution. AQMAs are areas identified by local authorities as requiring action to improve air quality. AQMAs have been designated since 1997 and range in size from selected streets to entire cities.

CAZ are part of UK Government's Clean Air Strategy and are being implemented in five English cities to tackle illegal levels of nitrogen dioxide (Birmingham, Derby, Leeds, Nottingham and Southampton). CAZ measures can include road charging zones, traffic management and investment in other transport options including rail. In addition, London will implement a Ultra Low Emission Zone from 2019.

Table 8: Improving air quality

Region	Clean Air Zone	Air Quality Management Area
South East and London	Southampton, London	4
South West	Bristol (P)	2
East of England	-	3
East Midlands	Leicester (P)	2
West Midlands	Birmingham	2
Yorkshire and the Humber	Leeds	1
North East	Newcastle (P)	1
North West	Liverpool (P)	1
Wales	Cardiff (P)	1
Scotland	-	-
Total	9	17

(P) denotes provisional

Case study

Wisbech Garden Town

Wisbech in Cambridgeshire is a town of 35,000 people which suffers social and economic deprivation. It lost all three of its railway stations in the 1950s and 1960s.

Reopening the Wisbech to March railway would enhance connectivity, giving Wisbech and the Fenland area direct, good quality, public transport-based access to and from the Cambridge sub-region. This would greatly improve access to employment, education and training, leisure and other services. Existing industry in and around Wisbech could also access rail's high quality national network for freight and passenger services.

The rail link project has been included in the Wisbech Garden Town proposal. This aims to reinstate the railway as part of a plan for 12,000 new houses and commercial development. New and affordable housing, increased school and healthcare provision, improvements to the town centre and better transport are all claimed by the Garden Town vision. In 2017, the Cambridgeshire and Peterborough Combined Authority provided £6.5 million to progress the proposal including £3.2 million to carry out the next stage of the Wisbech Rail study.



Without significant improvement in current air quality, cities including Bristol, Cardiff, Coventry, Hull, Leicester, Liverpool, Manchester, Newcastle, Sheffield and Stoke will need to consider CAZ in the future.

Investing in extending the railways will increase the percentage of journeys undertaken by rail and can improve air quality. More locally, Table 8 shows the locations where Priority 1 schemes can directly support air quality improvement measures, providing alternatives to car and lorry journeys.

Cutting carbon emissions

Increasing the percentage of journeys taken by rail has an important role to play in the UK meeting its international climate change obligations. Transport accounts for more than a quarter of UK carbon emissions. While the UK's overall emissions are falling, carbon from transport continues to rise. Investing to improve the extent and accessibility of the rail network for passengers and freight is therefore a policy imperative and good value for money.

As well as ensuring the reintroduction of passenger services on current freight-only lines is achieved without damaging freight interests, expanding the network should also increase the opportunity to carry goods by rail and its reliability. Locations where this could be achieved include:

- **Okehampton – Tavistock – Bere Alston**
a potential diversionary route for freight
- **Stratford – Long Marston – Honeyborne**
a potential diversionary route for freight
- **March – Wisbech**
A useful route for freight-generating industries in the area
- **Cambridge – Bedford**
Some capacity should be reserved for freight given the strategic positioning of the line
- **Skipton – Colne**
Of potential use to the freight sector.



Housing and other development

Investment in new rail capacity creates the opportunity for high density housing and other development served by sustainable transport.

Planners, architects and politicians increasingly recognise the need for new, more sustainable, patterns of development. Devon County Council's Metro scheme is supporting Exeter's growth with enhanced rail services. Exeter already suffers road congestion at peak times, but with around 25,000

houses and 20,000 jobs predicted in the area over the next ten to 15 years, significant investment in public transport is required. Exeter is well served by rail with eight established stations. The Devon Metro aims to build on this by creating new stations to support housing developments and major employment areas with improved rail services and timetabling to meet demand. New stations have been built at Cranbrook and Newcourt to serve recent major housing development with further stations planned at Marsh Barton and Edginswell.

6. Establishing a national programme of reopenings

To ensure rail's potential is more fully achieved, a new approach to rail network expansion is needed. As part of this, a national programme of reopenings should be adopted by both UK and the devolved administrations. Its formation should create a more proactive and diverse environment to encourage investment in new rail infrastructure, working alongside existing industry and market-led approaches.

The national programme of reopenings should include identification of appropriate schemes, their detailed development and appropriate means of funding delivery including new public sector investment.

Drawing on the methodology and priorities set out in this report, recommendations for how this should be achieved are set out, below.

Identifying priorities

- A clear national policy on rail expansion should be established setting out the social, economic and environmental benefits of an enlarged rail network. Projects reaching a nationally agreed standard based on this policy would then form part of a development pool of projects making up the national programme
- Future National Infrastructure Assessments carried out by the National Infrastructure Commission (NIC) would include identifying where new and reopened lines would support national objectives across transport, housing, geographic balance, low carbon growth and other relevant objectives including supporting more sustainable travel patterns
- Local Authorities and Sub-National Transport Bodies (SNTBs) would have the ability to formally recommend reopening and new rail schemes for adoption as part of a national programme.

Developing schemes

- Nationally, regionally and locally derived schemes meeting agreed standards would be eligible for inclusion in a development pool – a process overseen by the DfT
- The detailed development of priority schemes should be undertaken by working groups involving the DfT, Network Rail and local authorities. Where appropriate, development could be devolved to SNTBs such as Transport for the North to ensure local interests are properly reflected
- Network Rail's GRIP should be reformed to address speed, cost and fragmentation of the current system. A streamlined process for the development of projects should be adopted where nationally significant proposals are being considered.

Funding scheme implementation

- Where new or reopened rail lines are identified as national priorities, their development and implementation should be overseen by the DfT
- Value for money should be judged as an investment in national infrastructure with direct and indirect benefit being used to assess overall value.

Annex 1: Countries and regions

This Annex lists the rail reopening projects identified as Priority 1 using the methodology and scoring set out in 'Why invest in expanding the railways?' and 'A new approach' together with selected details of those schemes. Phase 1 focuses on the existing network, primarily those involving the conversion of current freight-only lines to additionally allow

passenger services and is anticipated to run from 2020-2025. Phase 2 would be expected to run from 2026-2035 and includes larger and more complex projects such as those requiring the relaying of track. Also contained in this Annex are a list of Priority 2 schemes which are feasible projects but which will benefit from further development to assist in them being taken forward.

South East

Name	Phase	Scheme type	Outline	Length
Oxford – Cowley	1	Freight-only conversion / reopening	The section from Oxford to Cowley is intact as a freight-only line. The 2017 Budget gave a small amount of funding to consider reopening. A subsequent 16 miles of line to Thames and Princess Risborough should also be considered.	4 miles (Cowley only) 20 miles (entire route)
Totton – Hythe – Fawley	1	Freight-only conversion	Reintroducing passenger services on a recently retired freight only line.	10 miles
Brentford – Southall Crossrail Link (Brentford Docks Line)	1	Freight-only conversion	Converting an existing 4 mile freight line to passengers services.	4 miles

New stations	Strategic benefits and issues	Scheme support	Cost estimate (2017 number)	People within 1km of a new train station
Science Park Cowley	<p>Improve access to Oxford Science Park and the Cowley area via an existing freight line.</p> <p>Serve 2 wards in lowest 10%, 2 wards in lowest 10-20% by Indices of Multiple Deprivation (IMD).</p>	Proposal is led by Chiltern with support from business community.	£250-£450m – NR 2015 (£263 – £474m)	24,600
Marchwood Hythe Fawley	<p>Would offer services to Southampton, supporting objectives around air quality and relieving pressure on congested roads adjacent to National Park.</p> <p>Concerns over competition with bus and ferry services.</p>	Potential currently being considered by proposed developers of the former Fawley Power Station site.	£27m (Fawley Waterside 2018)	10,100
1 new station	Providing a link to the new Elizabeth Line, supporting major housing and employment growth on the Great West Road site (Sky and GlaxoSmithKline).	Plan is being actively promoted by Hounslow Council.	£41m LB Hounslow 2016 (£42m)	15,800

South West

Name	Phase	Scheme type	Outline	Length
Henbury Loop (north Bristol)	1	Freight-only conversion	Freight-only line running through north Bristol. It is due to be partially reopened as a spur in 2021. The reopened stations would be Henbury, North Filton and Ashley Down (the latter on an existing section of passenger line).	6 miles
Okehampton – Tavistock – Bere Alston	2	Reopening	Long established proposal. A 25 mile reinstatement which would allow a direct route to Plymouth.	25 miles
Portishead – Bristol	2	Reopening / freight only	A 7 mile reopening and freight-only conversion now being taken forward as part of the MetroWest project.	7 miles (4 miles freight-only / 3 reopening)
Stratford – Long Marston – Honeyborne line	2	Freight-only conversion and reopening	Reinstatement of 6 miles between Stratford upon Avon and Long Marston and improvements to the freight-only branch from Long Marston to Honeybourne.	9 miles (3 miles freight-only / 6 miles reopening)

New stations	Strategic benefits and issues	Scheme support	Cost estimate (2017 number)	People within 1km of a new train station
Henbury North Filton Ashley Down	Would offer new passenger rail services in north Bristol. Would also facilitate a Bristol Temple Meads-Avonmouth-Bristol Parkway service and access to the redevelopment of Filton Aerodrome. Reopening may depend upon four-tracking Filton Bank.	Friends of Suburban Bristol Railways (FOSBR) promote the line.	£65m MetroWest 2015 (£69m)	35,100
1 new station	Would create a second route to the south west peninsula and support housing growth at Tavistock.	The reopening has widespread support including from the County Council.	Not calculated (£225-418m)	5,600
Pill Portishead	Would connect the commuter town to Bristol, avoiding the busy M5.	Portishead Railway Group is campaigning on behalf of this line.	£145 -£175m MetroWest 2016 (£150 – £181m)	10,700
1 new station	Would create a strategic through route. Around 15,500 houses are planned for the Stratford upon Avon District between 2016 and 2031 including 6,000 at Long Marston.	Worcestershire CC, Gloucestershire CC and Oxfordshire CC and train operator GWR endorse the Long Marston reinstatement, which has reached GRIP 3. Housing developer CALA has reportedly offered £17m toward the scheme.	£76 – £97m ARUP 2012 (£85 – £109m)	1,600

East of England

Name	Phase	Scheme type	Outline	Length
March – Wisbech	1	Reopening / mothballed	Reinstatement connecting Wisbech to March and onward to Cambridge. There is a longer term proposition for an addition 8 mile route onward to Kings Lynn would create a strategic link to the East Coast Mainline.	8 miles
Bedford – Sandy – Cambridge	2	Reopening	Part of plans for a reopened / partially re-routed Oxford – Cambridge line.	27 miles
Haverhill – Cambridge	2	Reopening	Route improving commuter access to Cambridge. The route follows the former Stour Valley Railway and could be extended a further 9 miles to Sudbury.	17 miles Haverhill – Cambridge

New stations	Strategic benefits and issues	Scheme support	Cost estimate (2017 number)	People within 1km of a new train station
1 new station	<p>Connecting a large relatively deprived town. The line is officially mothballed, but has not been operational for several decades. It has a number of level crossings and line capacity to Cambridge is dependent on improvements at Ely North Junction. The scheme has passed GRIP2 and is being taken forward in concert with plans for new housing and other development at Wisbech.</p> <p>Rail freight potential for local industry.</p> <p>Supports central and outer Wisbech air quality improvement objectives.</p> <p>Serves 2 wards in lowest 10%, 5 wards in lowest 10-20% by IMD.</p>	Wisbech Rail campaign.	£70-111m GRIP 2 (£74 – £117m)	9,000
Cambourne	<p>Bedford – Sandy – Cambridge route is being developed by NR. Parts of the original alignment have been developed.</p> <p>East -West rail route has potential for freight.</p>	Being developed as part of East West Rail and a NIC study.	£1bn EW Rail (2017)	4,100
Granta Park Linton Haverhill	Haverhill (population 30,000) – Cambridge section would address congestion on the parallel roads and support growth.	Haverhill Rail campaign.	£390m Cambridge Combined Authority 2016 (£404m)	6,400

East Midlands

Name	Phase	Scheme type	Outline	Length	New stations
Leicester – Burton-upon-Trent	1	Freight-only conversion	A freight-only line passing through Coalville and Ashby de la Zouche, together with a number of development sites.	31 miles	Swadlincote Ashby Coalville Leicester East
Shirebrook – Ollerton	1	Freight-only conversion	Extension of the Robin Hood line from Warsop to Ollerton. New stations for Warsop, Edwinstowe and Ollerton.	6 miles	Ollerton Edwinstow Warsop
Matlock – Buxton	2	Reopening	A 12 mile stretch with intact track bed.	12 miles	Bakewell

Strategic benefits and issues	Scheme support	Cost estimate (2017 number)	People within 1km of a new train station
<p>Would bring relatively large settlements onto the network and relieve pressure on local roads. Further housing development is planned at locations along the route. Line is affected by subsidence in places and does not offer direct access to Leicester station. Housing development at Coalville could be reliant on rail and will need to be combined with investment in employment and other services.</p> <p>2 wards in lowest 10%, 7 wards in 20 – 10 lowest wards by IMD.</p> <p>Would support air quality objectives at Leicester and Burton.</p> <p>Existing freight traffic would need to be protected.</p>	<p>Supported by Leicester City Council, a proposal is being considered to trial services on the line.</p>	<p>£175m Leicestershire CC 2016 (£181m)</p>	<p>35,100</p>
<p>The line is operational, being used as a test track and for freight.</p>	<p>Supported by Nottinghamshire CC.</p>	<p>£18.9 – £24.5m Notts CC 2016 (£20 – £25m)</p>	<p>5,800</p>
<p>Would link three cities and serve the Buxton quarries. A private reopening is being pursued, but this could be limited to aggregates traffic and not include passenger services. The route is currently a well-used cycle way.</p>	<p>Actively supported locally by Peak Rail and by Railfuture nationally. Reportedly under consideration of private financing for freight.</p>	<p>Not calculated (£108 – £200m)</p>	<p>1,800</p>

West Midlands

Name	Phase	Scheme type	Outline	Length	New stations
Walsall – Water Orton	1	Freight-only conversion	Also known as the Sutton Park Line, a freight-only railway which closed to passenger services in the 1960s.	15 miles	Sutton Park Sutton Coldfield Town Streetly Aldridge
Camp Hill chords	1	Freight-only conversion	A freight line in Birmingham. The Camp Hill line runs between Kings Norton and the Grand Junction, where services ran to Birmingham New Street. Passenger services were withdrawn in the 1940s with the closure of 6 stations. The reopened line is proposed to have 4 stations (Balsall Heath, Moseley, Kings Heath and Hazelwell).	6 miles	Moseley Kings Heath Balsall Heath Hazelwell
Walsall – Wolverhampton	1	Freight-only conversion	Link between two major centres via urban area with weak rail connections.	7 miles	James Bridge Wilenhall
Leek – Stoke	2	Reopening	A mothballed railway line in operation until 1988.	12 miles	Leek Stockton Brook Endon

Strategic benefits and issues	Scheme support	Cost estimate (2017 number)	People within 1km of a new train station
<p>Significantly improved local connections. A heavily used freight route which allows traffic to avoid New Street. Could be combined with Walsall – Lichfield reopening.</p> <p>Would support Black Country Air Quality Management Area (AQMA) objectives.</p>	<p>Reopening considered on several occasions by Centro. Support from Mayor, Andy Street.</p>	<p>Not calculated (£135 – £251m)</p>	<p>35,500</p>
<p>Commuter services through a part of Birmingham which currently has no passenger rail provision. Connecting the line to Moor Street would require a new viaduct south of Bordesley. This would not be needed if capacity for services were available at New Street.</p> <p>Would serve 10 wards in lowest 10%, 2 wards in lowest 10-20% by IMD.</p> <p>Would support Birmingham Clean Air Zone and Black Country AQMA objectives.</p>	<p>West Midlands Combined Authority revived the plans to restore local passenger services in 2016. The project is also supported by West Midlands mayor, Andy Street.</p>	<p>Not calculated (£54 – 100m)</p>	<p>75,000</p>
<p>Link between two major centres via urban area with weak rail connections. Currently a freight-only with occasional diverted West Coast Mainline services. Passenger services were withdrawn in 2008. New stations would be opened at Willenhall and James Bridge.</p> <p>6 wards in the lowest 10%, 6 wards in lowest 10-20% by IMD.</p> <p>Would support Black Country AQMA objectives.</p>	<p>In 2017, the West Midlands Combined Authority announced plans to reintroduce passenger services on the line.</p>	<p>Not calculated (£63 – 117m)</p>	<p>29,000</p>
<p>Would bring Leek (population 21,000) back onto the network and allow rail freight traffic from a nearby quarry and give a existing heritage line a connection to the mainline.</p> <p>Would support Stoke AQMA objectives.</p>	<p>Well supported by local authorities.</p>	<p>Not calculated (£108 – £200m)</p>	<p>12,800</p>

Yorkshire and the Humber

Name	Phase	Scheme type	Outline	Length
Low Moor to Thornhill	2	Reopening	The section to be reopened would run from Low Moor to a junction near Dewsbury on the Huddersfield line between Leeds and Manchester. The Spen Valley line provided a secondary connection between Bradford and Wakefeild via Gomersal, Cleckheaton and Heckmondwike.	7 miles
Harrogate – Ripon – Northallerton	2	Reopening	A closed section of the Leeds – Northallerton railway.	18 miles

New stations	Strategic benefits and issues	Scheme support	Cost estimate (2017 number)	People within 1km of a new train station
Oakenshaw Cleckheaton Heckmondwike	A reopened route would improve local connectivity and improve strategic links between Bradford and Sheffield via Barnsley (30 miles, 1 h 20, no direct link). 7 miles of the route is a green way managed by Sustrans. 4 wards in lowest 10%, 3 wards in 10-20% by IMD.	Regularly named as a potential project as a part of trans-Pennine improvements. Supported by Railfuture and elsewhere (e.g. a Countryside Agency report in 2003).	Not calculated (£63 – 117m)	24,700
Ripon	Strategic connectivity. Would bring Ripon onto the network (population 17,000).	Widely supported, including by Railfuture and North Yorks CC.	Not calculated (£162 – 301m)	3,600

North East

Name	Phase	Scheme type	Outline	Length	New stations
Ashington Blyth and Tyne	1	Freight-only conversion	A freight-only rail line formally serving towns including Blyth, Ashington and Bedlington, giving access to Newcastle, the Tyne and Wear Metro and potentially Edinburgh.	16 miles	Ashington Northumberland Park Seaton Delaval Newsham for Blyth Bebside Bedlington Woodhorn Museum
Stockton – Ferryhill	2	Freight-only conversion	The Stillington Branch – a 13 mile freight only route connecting the Teeside conurbation with the ECML at Ferryhill.	13 miles	Stillington
Pelaw – Ferryhill	2	Mothballed / reopening	The Leamside Branch – connecting the ECML to the Newcastle – Sunderland line at Pelaw. The line is intact.	18 miles	Washington North Washington South Penshaw Fencehouses Durham Belmont

Strategic benefits and issues	Scheme support	Cost estimate (2017 number)	People within 1km of a new train station
<p>Significantly improve connectivity for several large towns largely through use of existing alignments. Development is currently at GRIP2 with GRIP3 underway. Scheme name-checked by Secretary of State in November 2017.</p> <p>9 wards in lowest 10%, 7 wards in 10-20% most deprived by IMD.</p>	<p>The project has been championed by the South East Northumberland Rail User Group. It is supported by county and regional government.</p>	<p>£191m Northumberland CC 2016 (£198m)</p>	<p>33,800</p>
<p>Regional connectivity. In concert with Leamside reopening would allow the proposed Tyne Tees Express service to operate.</p> <p>2 wards in the lowest 10% by IMD.</p>	<p>Railfuture North East.</p>	<p>Not calculated (£117 – 217m)</p>	<p>300</p>
<p>Would be suitable for a variety of service options including a regional service linking the Tees Valley and Tyne and Wear. An additional disused alignment runs from the Metro terminus at South Hylton to join the Leamside south of the River Wear at Penshaw. This would connect Sunderland and Washington along with local rail links between Durham, Sunderland, South Shields and Newcastle. It could also relieve pressure on the ECML and provide an alternative freight corridor.</p> <p>3 wards in lowest 10%, 4 wards in 10-20% most deprived by IMD.</p>	<p>Widespread and long-standing local authority support. Included in the 2016 North East Combined Authority plans for joint Metro / heavy rail proposal.</p>	<p>Not calculated (£162 – 301m)</p>	<p>24,700</p>

North West

Name	Phase	Scheme type	Outline	Length	New stations
Skelmersdale – Liverpool	2	Reopening	A largely intact 3 mile extension of Merseyrail's Ormskirk line.	3 miles	Skelmerdale
Poulton-le-Fylde – Fleetwood	2	Reopening	A 5.5 mile branch line originally running from Preston to Fleetwood, closing south of Poulton in 1970. The line continued as a freight route until 1999. The alignment is intact.	6 miles	Thornton Fleetwood
Skipton – Colne	2	Reopening	A cross-Pennine route allowing new passenger services between Lancashire, Skipton and Leeds. The formation is largely intact.	12 miles	Earby West Craven Parkway

Strategic benefits and issues	Scheme support	Cost estimate (2017 number)	People within 1km of a new train station
<p>Would bring Skelmersdale (population 39,000) onto the network and offer a new station serving the north of Kirkby. This would be the terminus for Merseyrail's Northern Line, with connections to Wigan and Manchester. In 2017, Merseytravel began a study to consider the re-opening. Lancashire CC has identified a preferred site for a new Skelmersdale station.</p> <p>2 wards in lowest 10%, 3 wards in 10 – 20% by IMD.</p>	<p>Supported by Liverpool City Region CA, Merseytravel and Lancashire CC. Also actively promoted by Railfuture.</p>	<p>Circa £300m (2017)</p>	<p>7,400</p>
<p>Local connectivity for passenger services and freight (Fleetwood population 26,000). The connection to the mainline has been severed and electrification of Blackpool – Preston will make replacing the link difficult. Local public transport is well catered for by the tram network.</p> <p>4 wards in lowest 10%, 2 wards in 10-20% (Fleetwood) by IMD.</p>	<p>The Poulton & Wyre Railway Society is campaigning for the line to be re-instated.</p>	<p>Not calculated (£54 – 100m)</p>	<p>19,700</p>
<p>The line passes through a conurbation of 500,000 and has the potential for local, regional and freight services. The reopening would include Earby station and new park and ride station near Barnoldswick. In 2018, the Transport Secretary announced a Rail North / DfT feasible study into reopening the route.</p> <p>Would support air quality objectives at Colne.</p>	<p>A joint Rail North / DfT study is currently underway. NR supports the reopening but has not committed funding to it. The Skipton and East Lancashire Railway Action Partnership is campaigning.</p>	<p>Circa £100m SERLAP 2016 (£104m)</p>	<p>1,500</p>

Wales

Name	Phase	Scheme type	Outline	Length	New stations
Hirwaun – Aberdare	1	Mothballed	A section of the former Neath Valley Railway maintained for coal traffic to the Tower Colliery.	4 miles	Hirwaun
Aberbeeg – Abertillery	2	Reopening	A proposed 2 mile extension of the Ebbw Valley line.	2 miles	1
Caernarfon – Bangor	2	Reopening	Stretch of disused line linking Caernarfon to the network.	7 miles	1
Beddau – Pontyclun	2	Reopening / mothballed	Proposal to reopen the mothballed line from Pontyclun to Talbot Green, Llantrisant and Beddau as part of the South Wales Metro scheme.	3 miles	Talbot Green / Llantrisant Beddau

Strategic benefits and issues	Scheme support	Cost estimate (2017 number)	People within 1km of a new train station
Improved access to central Swansea.	Included in Sewta 2013 report on reopenings in South Wales (Aberdare to Hirwaun BCR 3.2).	Not calculated (£36 – 67m)	5,900
Would bring Abertillery (population 12,000) onto the network. Received further support from Welsh Assembly in 2015. Costs likely to be increased by need for electrification.	Included in Sewta 2013 report on reopenings in South Wales (Aberbeeg to Abertillery BCR 4.5). Public petitions.	Not calculated (£18 – 33m)	3,000
The proposal would complete a 90 mile circular route through Snowdonia. A bridge at Felinheli, an embankment at Caernarfon and a tunnel at Faenol would need repairs. The scheme is being considered primarily for tourism.	The proposal is being developed by the Ffestiniog and Welsh Highland Railway. There is local political support. Arriva Trains Wales proposed restoring the line as part of the successful 2003 franchise bid.	Not calculated (£63 – 117m)	7,300
Improved local connectivity and commuting. Potential question marks about capacity at Cardiff.	Included in Sewta 2013 report on reopenings in South Wales (Pontyclun to Beddau BCR 4.8).	Not calculated (£27 – 50m)	13,100

Scotland

Name	Phase	Scheme type	Outline	Length	New stations
Dunfermline – Alloa	1	Freight-only conversion	A 14 mile freight line formerly serving the now closed Longannet Power Station.	14 miles	Kincardine Valleyfield Cairneyhill
St Andrews – Leuchars	2	Reopening / new alignment	A 5 mile link to connect the town of St Andrews (population 16,000) to rail network.	5 miles	1 new station
Thornton – Leven in Fife	2	Reopening / mothballed	The Levenmouth rail link aims to reopen the route through Leven with Thornton where it would join the Fife Circle Line.	5 miles	1 new station

Strategic benefits and issues	Scheme support	Cost estimate (2017 number)	People within 1km of a new train station
<p>Would offer improved access to Glasgow and Edinburgh, and support tourism in the area. There is also a longer term possibility of a rail link to the Rosyth dock area.</p> <p>4 wards in 10% most deprived, 2 wards in 10-20% most deprived by SIMD.</p>	<p>The SNP has funded a study into re-opening the line. Promoted by the Forth Rail Link Campaign.</p>	<p>Not calculated (£126 – 234m)</p>	<p>3,600</p>
<p>Direct rail access to the regional centre via a newly constructed line.</p>	<p>Active local campaigns including STARLINK.</p>	<p>£71m – 2012 (£80m)</p>	<p>7,300</p>
<p>Local connectivity. Freight facilities could serve the Diageo distillery.</p> <p>2 wards in 10-20% most deprived. Adjacent wards in lowest 10 and 5% most deprived by SIMD.</p>	<p>Promoted by Fife Council and the South East Scotland Transport Partnership.</p>	<p>Not calculated (£45 – 84m)</p>	<p>16,700</p>

Annex 2: Research methodology

Calculating costs

Where available and up to date, the cost estimates of local authorities and agencies proposing each scheme have been used. Where this is not available, a benchmark of £9 million – £16.7 million per mile has been calculated. This benchmark is based on seven varied schemes which have either been implemented

or have reached an advanced stage of development in recent years. While this approach should not be regarded as an accurate measure of the likely costs of individual projects, it does offer a guide as to the likely costs of a reopenings programme overall.

Project name	Project type	Cost estimate type	Length	Original cost estimate	Estimated 2017 cost	Cost per mile
Oxford – Bicester	New and replacement line with double tracking, new signalling, bridges and two new stations. In total, 37 level crossings were removed	Final cost of constructed project (2015)	29 miles	£330m	£348m	£12m
Stirling – Alloa	Reopening existing, mothballed and abandoned railway between Stirling and Longannet Power Station via a new station at Alloa. The project does not refer to the subsequent electrification of the line	Final cost of constructed project (2005)	13 miles	£58m	£117m	£9m
Kettering – Corby line upgrade	Upgrade and redoubling of the line between Kettering and Corby including major bridge replacement	Estimated final cost of constructed project (2016)	7 miles	£110m	£114m	£16.2m
Borders railway	New railway with 137 new and refurbished bridges and 7 new stations	Final cost of constructed project (2015)	31 miles	£350m	£393m	£12.7m
Portishead – Bristol	Mixed 7 mile scheme (4 miles freight conversion / 3 miles reopening) including two new stations	GRIP 3 estimate (2017)	7 miles	£116m	£116m	£16.6m
Ashington, Blyth and Tyne	Freight-only conversion with new signalling, level crossing upgrade 7 new stations	GRIP 2 estimate (2016)	16 miles	£191m	£198m	£12.4m
Wisbech – March	Reopening of mothballed line with a large number of level crossings	GRIP 2 estimate (2015)	7 miles	£111m	£117m	£16.7m

Benchmarked cost per mile £9 – 16.7m

Stations and staff across regional franchises

	Northern	Southeastern	East Anglia	East Midlands	West Midlands
Employees	4,900	4,230	3,008	2,095	2,334
Stations managed	463	180	176	89	145
Staff – stations ratio	10.6	23.5	17.1	23.5	16.1

Estimating passenger numbers

Network Rail station categorisation	Trips per annum	Priority 1 stations
National hub	over 2 million	-
Regional interchange	over 2 million	-
Important feeder	0.5 – 2 million	-
Medium staffed	0.25 – 0.5 million	9
Small staffed	under 0.25 million	31
Small unstaffed	under 0.25 million	32
Total	-	72

Annex 3: Priority 2 schemes

This Annex lists Priority 2 projects identified in the research. These are feasible projects which require further development or changed circumstances (for example, housing development proposals) to assist them in being taken forward.

South East

Brighton Mainline Two
Hall Farm Curve
Polegate - Pevensey (Willingdon Chord)
Polegate to Tunbridge Wells
Oxford - Fairford via Witney
Aylesbury - Rugby
Bourne End - High Wycombe
Windsor Link Railway - Slough to Waterloo via Windsor
Gravesend to Thamesport (Hundred of Hoo Railway)
Banbury - Verney Junction
Brockenhurst - Ringwood
Sturt Road Chord
Alton - Fareham (the Meon Valley Railway)

South West

Cirencester - Kemble
Minehead - Taunton
Exmouth - Budleigh Salterton - Sidmouth
Chard Junction - Chard Town - Taunton
Exeter - Bude
Newton Abbot - Moretonhampstead
Exeter - Newton Abbot (Teign Valley Line)
Frome - Radstock
Barnstaple - Ilfracombe
Swindon - Marlborough
Weymouth Quay tramway
Barnstaple - Braunton
Axminster - Lyme Regis

East of England

Northampton - Bedford
Braintree - Stansted
Norwich - Wymondham - Fakenham - Little Walsingham - Wells
Next The Sea
Kings Lynn - Hunstanton
Sheringham - Holt - Fakenham
Watford - Croxley Green
Newmarket - Ely
Witham - Maldon
Rugby - Peterborough via Market Harborough
King's Lynn - Dereham

East Midlands

Lincoln, Spalding - Boston
Marylebone - Leicester
Ullesthorpe - Rugby

West Midlands

Hampton in Arden - Whitacre Junction
Walsall - Lichfield
Shrewbury - Ironbridge
Kenilworth - Berkswell
Wellington - Stoke-on-Trent via Market Drayton
Stourbridge - Dudley - Walsall
Shrewsbury - Stafford

Yorkshire and the Humber

York - Hull via Beverley
Bradford Crossrail
Malton - Pickering
Hadfield - Penistone - Deepcar
Redmire - Garsdale
Leeds - Otley - Ilkley
Skipton - Grassington
Skipton - Embsay - Bolton Abbey - Addingham - Ilkley
Saltburn - Loftus
Harrogate - Leeds (via Wetherby)
Brancliffe - Kirk Sandall
Oakenshaw South Junction - Goose Hill Junction

North East

Middlesbrough - Guisborough
Consett - Stanley - Beamish - Pelton - Washington
Durham - Bishop Auckland

North West

North Mersey Branch Line
Rawtenstall - Manchester Victoria
Bolton - Bury
New Carnforth chord
Southport and Cheshire Lines Extension Railway
Penrith - Keswick
Carlisle - Galashiels
Partington - Glazebrook
Burscough - Burscough Curves (Preston - Southport line)
Sandbach - Northwich, including a new Middlewich station
Waterloo Tunnel, Waterloo Dock - Edge Hill Junction
Wapping Tunnel, King's Dock - Edge Hill Junction
Canada Dock Branch Line
St Helens Central - St Helens Junction

Wales

Aberystwyth - Carmarthen
Amlwch branch
Blaenau Ffestiniog – Trawsfynydd
Mold - Chester
Tidenham - Hereford (Wye Valley)
Llangollen - Wrexham
Mumbles Tramway (Swansea Bay)
Ystrad Mynach to Bedlinog

Scotland

Dumfries - Castle Douglas – Stranraer / Kirkcudbright
Waverley Line beyond Tweedbank to Hawick

Full list of schemes

A full list of the over 224 schemes assessed as part of this research project can be downloaded from the Campaign for Better Transport website at bettertransport.org.uk/re-opening-rail-lines

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Campaign for Better Transport's vision is a country where communities have affordable transport that improves quality of life and protects the environment. Achieving our vision requires substantial changes to UK transport policy which we aim to achieve by providing well-researched, practical solutions that gain support from both decision-makers and the public.

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January 2019