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P R A – Operations Planning Ltd

Clitheroe to Hellifield Strategic Outline Business Case

On behalf of **Ribble Valley Borough Council**



Ribble Valley
Borough Council

www.ribblevalley.gov.uk

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Executive Summary

This Strategic Outline Business Case (SOBC) sets out the strategic rationale for improving transport connectivity between North Yorkshire and Lancashire, through consideration of improved connections between the Craven District Council (CDC) area in North Yorkshire and Ribble Valley Borough Council (RVBC) area in Lancashire. The business case explores the strategic case for transport improvements and through a multi-modal option generation and appraisal process, ultimately recommends a rail-based solution.

The SOBC has been funded through the Government's *Restoring Your Railway Ideas Fund* as well as part funded by a grant from the Community Rail Development Fund awarded to Community Rail Lancashire by the Community Rail Network and the Department for Transport (DfT). The *Restoring Your Railway Fund* is a £500million fund administered by the DfT to support the restoration of rail passenger services and re-opening of stations. The fund is split three ways to offer support to projects at different phases of proposal development. The *Ideas Fund* provides support to reinstate local services, such as those being considered here.

The SOBC has been informed by analysis of a range of transport and socio-economic data as well as a wide-ranging stakeholder and public engagement exercise which has enabled existing connectivity issues to be better understood and views on potential options to be taken into consideration.

Improved public transport connectivity between the two areas has the potential to address existing **transport problems** relating to: a lack of sustainable travel mode choice; public transport travel options which are uncompetitive with the private car; and the high cost of travel by public transport - all resulting in high reliance on the private car for travel between Lancashire and North Yorkshire.

In turn, **improved public transport connectivity has the potential** to increase access to employment and education opportunities (particularly for those without access to a car or who would prefer not to use a car), improve labour market efficiency, increase tourist numbers and associated local employment opportunities, and importantly, support the in-migration and retention of young people in these rural areas, ultimately supporting the long-term sustainability of these communities. As well as aligning with local and regional policy, improved connections have the potential to generate material improvement for smaller rural communities, underpinning the UK Government's '**levelling up**' agenda.

Given the existing transport problems, in order to steer the development of potential transport options and aid in their appraisal, five **project objectives** were developed:

- For journeys between and passing through Craven district and the Ribble Valley:
 - Reduce public transport journey times
 - Reduce the cost of travel by public transport
 - Increase modal choice for those without access to a car, or those who prefer not to drive
 - Minimise interchange between services
- Widen access to the Yorkshire Dales and the Ribble Valley area for those without access to a car or for those who would prefer not to drive

A range of **multi-modal options** were developed, through consideration of stakeholder and public feedback and ideas, to improve public transport connectivity covering bus, tram-train and rail modes. New connections by rail are considered the most advantageous as they generally perform well against the study objectives and can be seen to provide greater benefit when compared to the bus options (shorter journey times and reduce interchange requirements).

Several main rail-based options, and various sub-option permutations of these, were taken forward. These options were developed to consider the potential service **origin** (Manchester or Preston); **destination** (Hellifield, or extended beyond, either into the Dales (e.g., Settle, Ribbleshead, Garsdale) on the Settle-Carlisle Line, or to Skipton); and **service frequency**. The origin, destination and frequency sub-option permutations were informed by the outcomes from the stakeholder and public engagement exercise.

The **capital, operational and opportunity cost** of each rail option was considered alongside the anticipated transport outcomes and societal impacts of each option at the origin-destination pair level. All of the options deliver benefits and require limited or no capital expenditure with low-risk operating costs.

Patronage estimates for the options show potential for up to approximately 80,000 additional annual passengers, if a service was to operate from Manchester Victoria and extend beyond Hellifield on the Settle-Carlisle Line.

Revenue and benefit-to-cost ratio estimates for the options show, based on the high-level assumptions made here, that the operating costs are in excess of the revenue with annual revenue estimated at just under half of the annual operating costs (with an annual subsidy of around £1million required). This is not dissimilar to other rural rail services where the key benefits derived relate to a range of economic and social impacts not modelled or monetised as part of this assessment. More detailed modelling at Outline Business Case stage will help better define the revenue and benefits. Discussions with Transport for the North regarding their Northern Rail Modelling System (NORMS) has made it clear that using the NORMS model for the next, more detailed stage of work would be appropriate, as it provides better choice modelling for new connectivity and / or large changes in journey time such as those which would be experienced here.

It is clear that a passenger service between Clitheroe and Hellifield (as an extension of existing Manchester Victoria to Clitheroe services) could be **reinstated in the short-term with little or no need for additional infrastructure and could potentially be delivered as part of the May 2023 timetable change**. In the short-term, such an option is likely to be a service operating from Manchester Victoria and extending beyond Hellifield on the Settle-Carlisle Line, given the comparatively minor technical requirements and outlay required to facilitate this.

Five rail options considered as part of this business case are recommended for further detailed exploration at Outline Business Case stage. These options are:

- **Option 1a:** Extend all current Clitheroe terminating services to Hellifield
- **Option 1b:** Extend alternative current Clitheroe terminating services – all stations to Garsdale
- **Option 2a:** Two trains per hour to Clitheroe. One train every two hours extends to Garsdale
- **Option 2b:** Two trains per hour to Clitheroe. One train every two hours extends to Ribbleshead
- **Option 2c:** Two trains per hour to Clitheroe. One train per hour extends to Settle Junction

In addition, opportunities with respect to an expansion of the DalesRail service (passenger rail services currently operated for tourism in the summer months between Blackpool North and Carlisle along the Ribble Valley and Settle-Carlisle railway lines). Such an expansion may include increasing DalesRail services to include Saturdays, Bank Holidays and selected Friday train services, potentially for a longer season, and operating through to Carlisle. Such expansions are recommended to be taken forward and further explored at Outline Business Case stage or as part of an independent project to supplement the emerging conclusions of this business case.

This SOBC will be submitted to the DfT *Restoring Your Railway Ideas Fund* for consideration. If successful, the business case will then progress to the more detailed Outline Business Case stage which would involve planning the proposals in greater detail, including a more detailed examination of their value for money, exploring the affordability and funding requirements and development of a preferred option delivery strategy.

Overview and Background

Overview

In March 2020, Ribble Valley Borough Council (RVBC) was successful in obtaining funding from the Government's *Restoring Your Railway Ideas Fund* to explore the potential restoration of services between Clitheroe – Hellifield and points beyond. Subsequently, the Council commissioned Stantec, (supported by Allan Rail Solutions Ltd and PRA Operations Planning Ltd) to prepare a Strategic Outline Business Case (SOBC) to determine *the feasibility and benefits of reinstating a regular passenger rail service along the Ribble Valley Line between Blackburn/Clitheroe and Hellifield*. The project has been part funded by a grant from the Community Rail Development Fund awarded to Community Rail Lancashire by the Community Rail Network and DfT. In addition to RVBC, the wider Client Group comprised representatives from Lancashire County Council, North Yorkshire County Council, the Department for Transport, Network Rail, Northern Trains and Community Rail Lancashire.

The 'business case' is a management tool and is developed over time as a living document as proposals develop, often in three distinct stages, with more detail being provided at each stage. At the SOBC stage (the scoping stage), the purpose is to confirm the strategic context of the proposals, make a robust case for change, and to provide stakeholders with an early indication of the proposed way forward (but not yet the preferred option).

This SOBC examines the costs and benefits of a range of service permutations which could make use of the existing line between Clitheroe and Hellifield. However, a SOBC has to consider all potential solutions to existing transport problems, and thus a fuller range of public transport options have been appraised.

A capacity analysis study, *Restoring Your Railway Project – Clitheroe, Capacity Analysis, System Operator, Network Rail, January 2021*, was undertaken by Network Rail to assess the impact of potential service permutations on capacity and what, if any, infrastructure upgrades may be required at Hellifield, or further north on the Settle-Carlisle line, for terminating services. The conclusions from this capacity analysis study were made available during the development of the SOBC and have been discussed with Network Rail as the SOBC has progressed.

Background

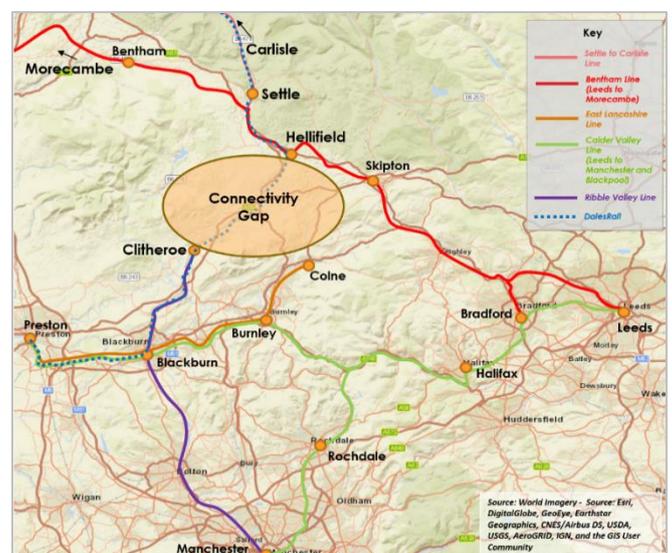
Clitheroe railway station is sited on the Ribble Valley line – it is currently the northern terminus for passenger services from Manchester Victoria. There is now generally an hourly service from Clitheroe to Rochdale via Blackburn and Manchester Victoria, with additional services during weekday peak hours.

North of Clitheroe, the Ribble Valley line continues towards Hellifield in North Yorkshire. However, other than DalesRail¹ summer Sunday services (operated by Northern Trains Ltd and supported by Community Rail Lancashire), no regular passenger services operate between Clitheroe and Hellifield. Terminating trains from Manchester run empty to Horrocksford Junction (to the north of Clitheroe station) and use the crossover there to reverse and change lines prior to returning to Clitheroe and back to Manchester Victoria then Rochdale.

Hellifield station is sited on the Bentham (Leeds – Morecambe) line and is served by Leeds - Lancaster / Morecambe and Leeds - Carlisle (via Settle) trains.

While DalesRail¹ services connect Clitheroe to Hellifield, these services only operated on 17 Sundays in 2019 (no services in 2020 due to the COVID-19 pandemic) and do not provide any regular connectivity for day-to-day activities. There is therefore a 'connectivity gap' in service provision linking the Ribble Valley Line with the Bentham line, as shown in the figure opposite.

Understanding the transport and associated socio-economic impacts that may arise by closing this connectivity gap is the key focus of this SOBC.

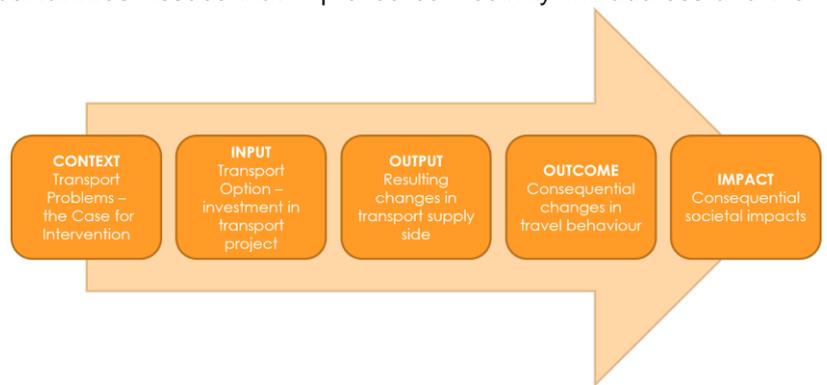


¹ DalesRail services are passenger rail services operated for tourism in the summer months between Blackpool and Carlisle along the Ribble Valley and Settle to Carlisle railway lines.

SOBC Logic Chain

To provide clarity to the SOBC, a five-stage logic-chain from initial transport problems and opportunities to eventual societal impacts has been established as shown below. The main components of the logic chain are:

- **Context – the Transport Problems and Opportunities:** Issues that improved connectivity will address and the rationale for proceeding with intervention - i.e., what are the transport problems and opportunities and what is the case for intervention?
- **Input:** The transport investment and processes required to deliver the intervention
- **Outputs:** The direct transport deliverable(s) from the investment – e.g., *additional connections / new public transport service and improved connectivity*
- **Outcomes:** Changes in travel behaviour which result from the supply-side improvements, e.g., more journeys by rail (new trips plus mode-switching).
- **Impacts:** Societal changes which occur as a result of the changes in travel behaviour and connectivity stemming from the intervention, e.g., improved labour market efficiency, reduced forced car ownership etc.



The Strategic Case

Methodology

Key to defining a strong rationale for intervention is ensuring a sufficiently robust underlying evidence base. Understanding who would benefit, and how, from closing the ‘connectivity gap’ between Clitheroe and Hellifield is key. This has been undertaken through a stakeholder and public engagement programme, supported by five key analysis tasks:

- Review of existing studies
- High level policy review
- Transport baselining
- Rail analysis (the role of the line and existing and future capacity)
- Socio-economic baselining

As well as helping to identify the transport problems in the area, these tasks have helped define and evidence the consequential socio-economic impacts.

The data and policy analysis and review have been brought together with the findings of the engagement exercise (discussed below) to identify both the key transport problems and the opportunities that closing the connectivity gap would address. These are discussed in the ‘Transport Problems’ section below alongside the underpinning evidence for each.

Stakeholder Engagement

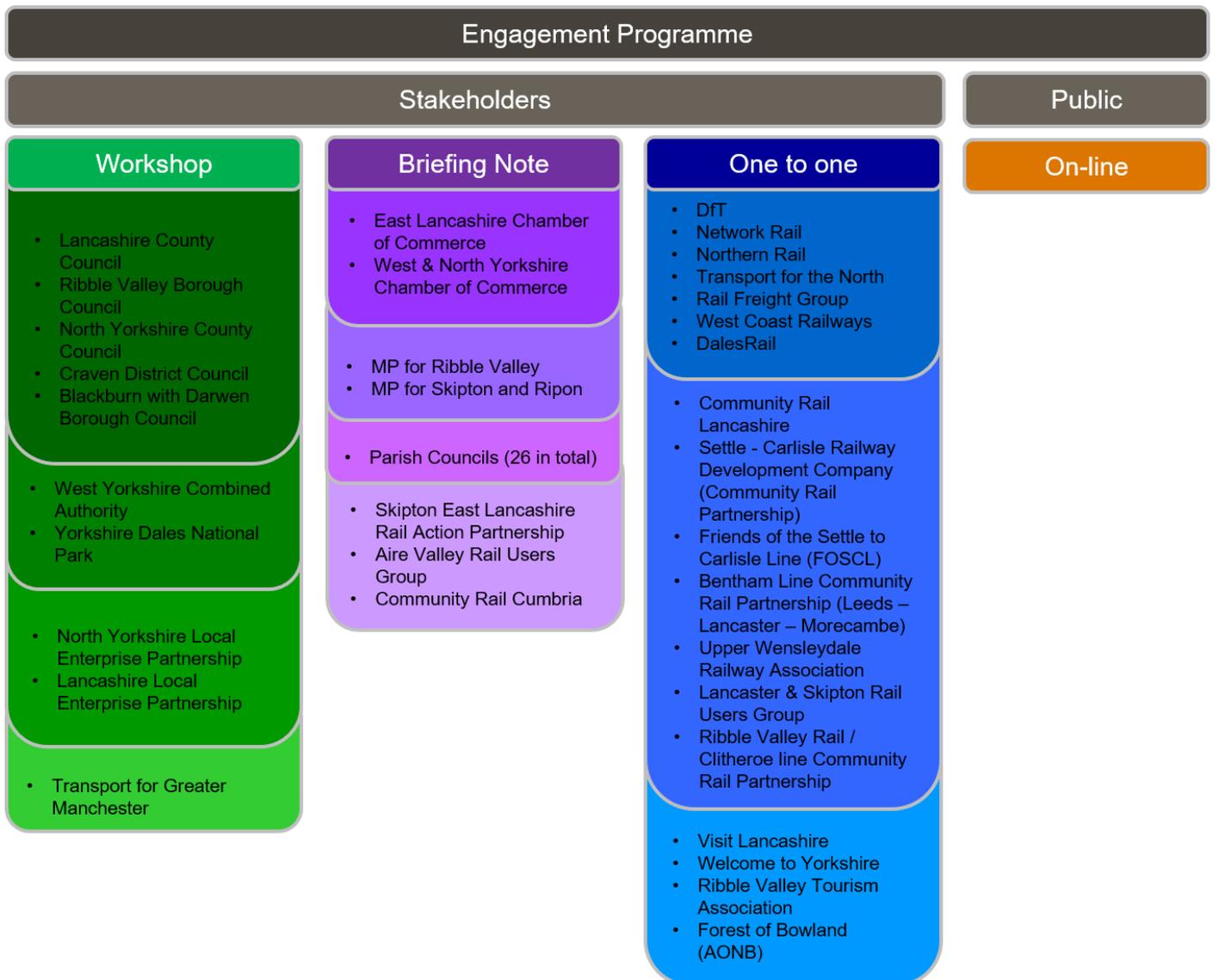
Stakeholder engagement has involved a workshop with public sector stakeholders, one-to-one phone calls and written communication with key stakeholders, correspondence with Parish Councils and a public engagement exercise. Key stakeholders included Lancashire County Council, RVBC, North Yorkshire County Council, CDC, and Blackburn with Darwen Borough Council, as well as the West Yorkshire Combined Authority and Yorkshire Dales National Park planning authorities. The Lancashire and North Yorkshire Local Enterprise Partnerships, as well as the region’s Chamber of Commerce were also identified as key stakeholders. Furthermore, tourist bodies including Visit Lancashire, Welcome to Yorkshire, the Ribble Valley Tourism Association, and the Forest of Bowland Area of Outstanding Natural Beauty (AONB) Management team were also consulted.

From the rail perspective, the operator Northern, Transport for the North and the Rail Freight Group were consulted, as were a range of Community Rail Partnerships and associations with an interest in this area. In addition, ongoing dialogue with Network Rail, Northern and the DfT was undertaken throughout the development of the SOBC.

The public engagement exercise ran for three weeks from 17th February to 10th March 2021, during which time an online portal provided background on the study with embedded survey questions. This offered members of the public a chance to provide input to support the identification of transport problems caused by the connectivity gap, and thoughts on potential solutions. Over 650 responses to the survey were received.

The diagram below shows the engagement programme undertaken.

There was overwhelming support for the project across the range of stakeholders and the public for improved connectivity, with many individuals and organisations stating the benefits of connecting the areas by rail.



While this report presents a summary of the findings of the work and outlines the rationale for intervention, accompanying technical reports have been prepared to provide additional detail if required. For the Strategic Case these include:

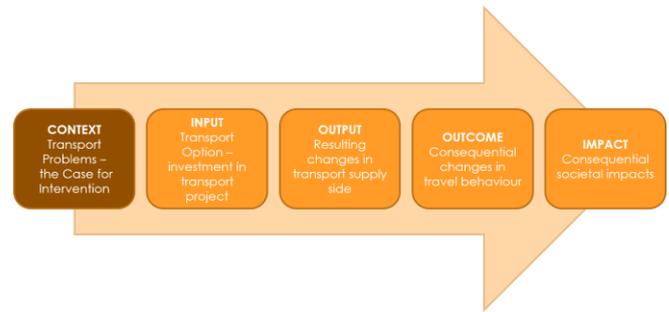
- A Transport and Socio-Economic Baseline Technical Note (*Clitheroe to Hellifield Strategic Outline Business Case – Transport and Socio-Economic Baseline Report, Stantec, March 2021*)
- A report summarising the key themes arising from the stakeholder and public engagement exercise (*Clitheroe to Hellifield Strategic Outline Business Case – Key Stakeholder and Public Engagement Themes, Stantec, March 2021*).

These reports should be consulted for more detailed background and information.

CONTEXT

Transport Problems

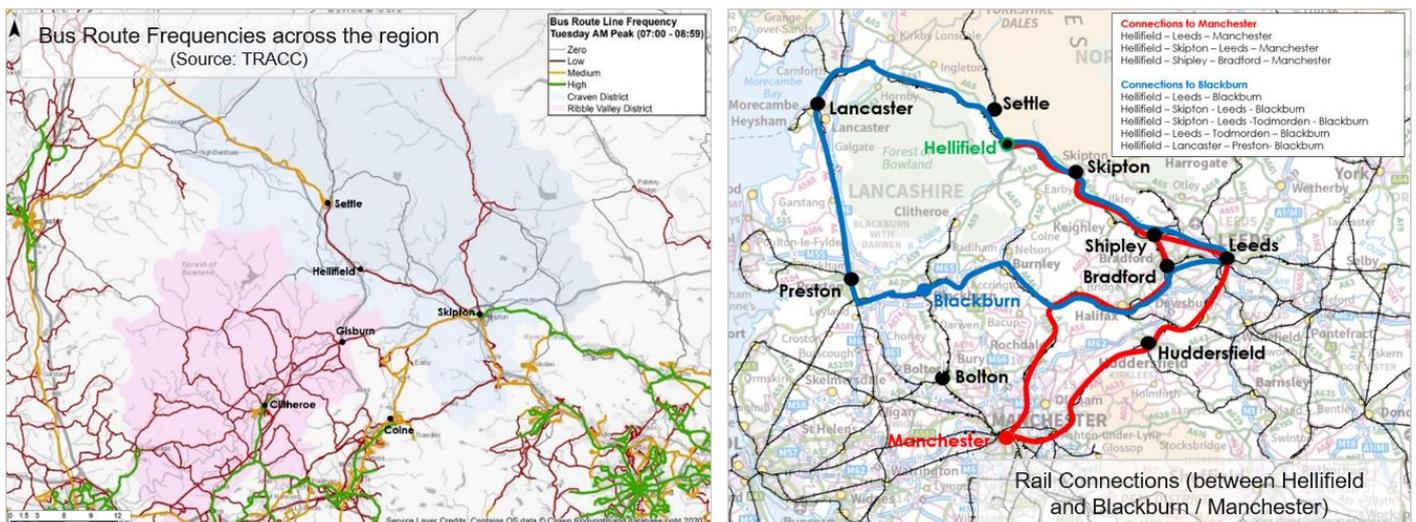
Four key transport problems have been identified and are discussed in turn below. These transport problems have been identified through the engagement programme and the collation and analysis of appropriate data to provide the evidence to underpin and validate each problem.



Limited direct public transport connections linking Lancashire and North Yorkshire

There are few existing direct public transport connections linking Lancashire and North Yorkshire, as highlighted in the figures below, which show bus service frequencies across the area during a weekday morning period (left figure) and the existing rail connections linking Hellfield and Manchester / Blackburn (right figure).

It is clear from the figure showing the bus connections that there are no existing bus services providing connectivity between Lancashire and North Yorkshire. While Clitheroe is well connected to the south, and there is some level of (limited) connectivity north to Gisburn and west into the Forest of Bowland, no services route north on the A682 to Hellfield.



There is an hourly bus service (Service 280) linking Preston with Clitheroe and on to Skipton (via Gisburn and Earby) and also services linking Hellfield with Skipton, operating on the A65. The service 280 is timed to serve education journeys from Ribble Valley to Skipton, including serving Craven College during term time. It should however be noted that the service has been threatened with withdrawal several times in the recent past.

While journeys by bus are possible between the CDC and RVBC areas, a number of interchanges are required, and travel times are significant given the distance (discussed further below).

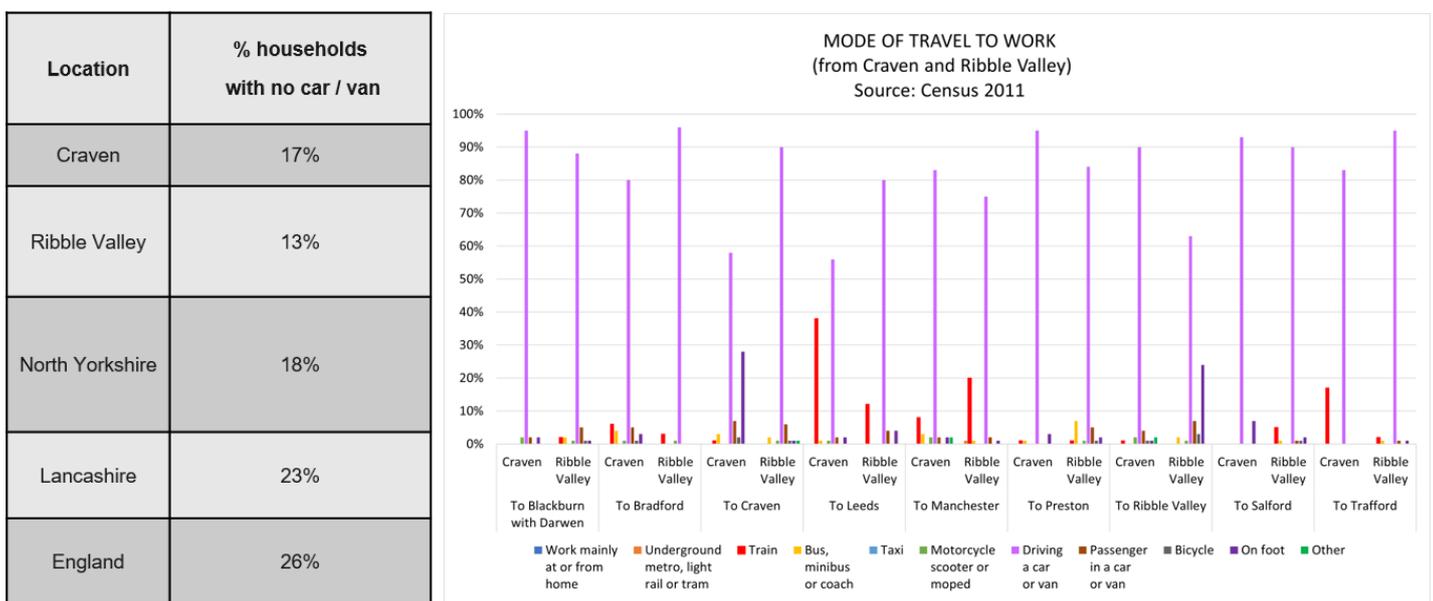
As Hellfield is located on the Leeds to Lancaster and Carlisle lines, it is possible to travel by rail between the CDC area and the Ribble Valley (and further south) - however, this would involve up to three interchanges, is indirect and takes a disproportionate amount of time compared to the 'crow fly' distance. To illustrate this, the potential routings required to travel between Hellfield and Blackburn / Manchester are also shown in the figure above, on the right-hand map. It is worth noting that rail services requiring interchange at Bradford involve a walk across town between stations.

With limited bus connections linking the adjacent RVBC and CDC areas, and with the indirect rail routing required, there are no practicable and effective public transport connections between the two areas. This places a heavy reliance on the private car (discussed below), reduces access to education and jobs between the two areas and constrains the (sustainable) tourism market for both the Ribble Valley area and the Dales (discussed in more detail further on in this report).

High reliance on the private car for journeys between Lancashire and North Yorkshire and further afield

Reflecting both the rural nature of the region and the limited public transport availability, (as presented in the table below, which shows the percentage of households without a car or van) car ownership levels are high in both the CDC area and the RVBC area. Car ownership is also higher in these areas compared to the Lancashire and North Yorkshire County Council areas and England as a whole.

This reliance on the private car is reflected in travel-to-work data for the areas as shown in the figure below, which highlights the location of work and method of travel-to-work for those living in the RVBC and CDC areas. The data clearly confirms the car as the dominant mode of travel-to-work and also shows the high use of rail by those in the CDC area commuting into Leeds (nearly 40%) and similarly the high number of rail commuters from the RVBC area into Manchester (approximately 20%), reflecting the direct rail links connecting these areas. It is noted that approximately 90% of those residing in the RVBC area and working in the CDC area, and also those residing in the CDC area and working in the RVBC area travel by car.



It is also worth noting that (as discussed at the Transport for the North (TfN) Board and communicated to the Secretary of State in January 2021²), the scope to extend and improve road-based infrastructure east - west is limited. Recent TfN studies on the major roads network, M6-A1(M), concluded that there are major environmental issues which would make the extension of the M65 to link with the A56 / A59 difficult.

Public transport journey times between the Lancashire and North Yorkshire which are not competitive with the private car

Given the indirect public transport connections between much of the RVBC area and the CDC area, car³ and rail journey times between Hellifield and locations to the south have been analysed and is shown in the table below (bus has not been included given the limited service provision previously outlined). The travel time to Leeds is included as a comparator given the existing direct rail connection between Hellifield and Leeds.

Road Vs Rail - AM Travel Times (in hh:mm)				
From	To	Existing		
		Car	Rail	Rail travel time compared to Car
Hellifield	Manchester	01:05	02:30	+01:25
	Leeds	01:03	01:03	00:00
	Preston	00:48	01:21	+00:33
	Blackburn	00:38	02:00	+01:22
	Bolton	01:01	01:41	+00:40

² https://transportforthenorth.com/wp-content/uploads/SoS-TPT_M6-A1-Stat.-Advice_19.01.21_v2.pdf

³ Car journey times are derived from Network Analyst software with the average journey time taken calculated as the average time of starting a trip at 07:00 and at 08:00

The comparison clearly shows that journey times by public transport are not at all competitive when compared to the car. This impacts on the attractiveness of public transport and restricts the use of public transport by those without access to a car, or those who would prefer not to travel by car.

High cost of public transport between Lancashire and North Yorkshire

Reflecting the indirect routing for rail travel between the CDC area and the RVBC area / Manchester area, rail fares are far higher than the fare would be were there a direct connection. To highlight this, the current fares (using peak return ticket prices for illustrative purposes) from Hellifield to a range of destinations were compared with that for Clitheroe. The analysis is shown in the table opposite and clearly highlights the high fare for trips from Hellifield given the routing and interchanges required.

It is therefore clear that the use of rail to travel between Hellifield and the main conurbations in the RVBC area and the wider Lancashire and Greater Manchester area is potentially cost prohibitive.

Rail Fares (Hellifield vs Clitheroe) – Existing Fares (peak-returns)			
From / To	Current Fare		
	Hellifield	Clitheroe	Difference from Clitheroe Fare
Manchester	£36.30	£14.90	£21.40
Blackburn	£33.50	£5.20	£28.30
Preston	£33.50	£8.80	£24.70
Bolton	£38.70	£11.50	£27.20
Clitheroe	£34.00	-	-

Consequential Societal Impacts

The transport problems identified give rise to consequential societal impacts which are discussed below. It is useful to consider this against the overarching socio-economic context of the study area.

Socio-Economic Context

The CDC and RVBC areas are among the more rural districts in England, with a population density of 44 and 104 people per km² respectively compared to the England average of 245 people per km². The population of both areas has been growing over the last five years. When compared to the English average and typical of rural areas, the CDC area and the RVBC area have a slightly lower working age population, **a lower proportion of residents in the 20-29 and 30-44 age brackets**, and a higher proportion of residents in the older age categories (45-64 and 65 and above). The lower proportion of residents aged 20-44 may in part be down to the limited connectivity of the areas.

The RVBC area has a low benefits claimant rate and low unemployment compared to the Lancashire and England-wide averages. The CDC area, in contrast, has a lower proportion of residents who are economically active and a lower employment rate when compared to both North Yorkshire and England as a whole. In the CDC area, a higher proportion of those in employment are self-employed (18%) compared to North Yorkshire (13%), Lancashire (11%), RVBC (10%) and England as a whole (11%). This in part will reflect the economic structure of the area, with fewer opportunities to commute to jobs in larger cities and a high volume of tourists coming to the area supporting small / independent businesses.

There has been large growth in the manufacturing, quarrying / mining, and construction sectors in the Ribble Valley since 2015, with local businesses citing **difficulties in accessing a sufficiently skilled labour market**. Ensuring labour market efficiency by connecting the right people with the right jobs in the area is important to support the local economy and ensure retention of businesses and jobs in the area.

There has been a higher rate of growth in house building (2015/16 – 2020/21), specifically in the RVBC area, when compared to England as a whole (98% increase in the number of new dwellings compared to a 35% England wide figure) placing further pressure on the need for improved connections, and **potentially encouraging car use** if these connections are not provided.

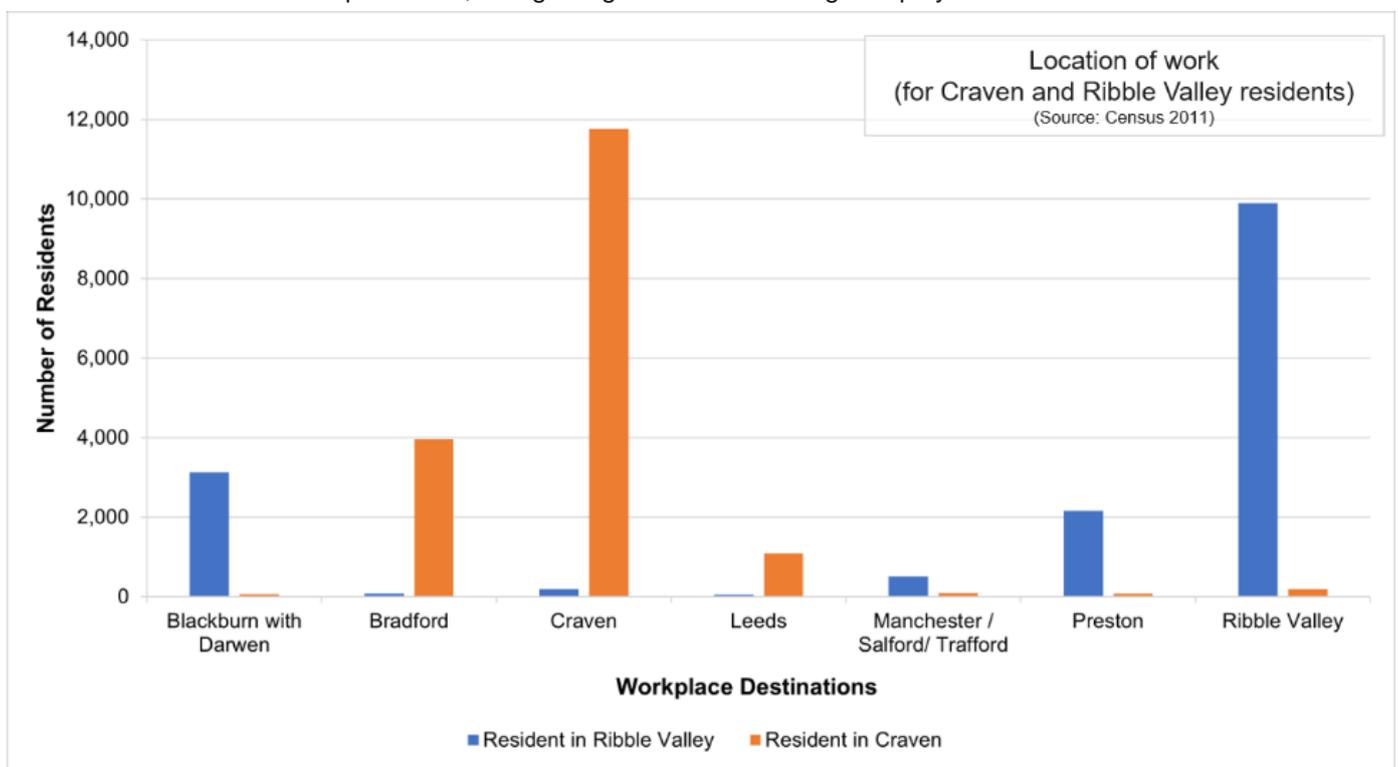
While there are no areas within the RVBC and CDC areas in the 10% most deprived areas (as defined by the English Indices of Multiple Deprivation), it is worth noting that given the rural nature of both areas, they are likely to suffer from **rural deprivation** in terms of access to services, the affordability of travel and home ownership costs (with second home ownership pushing up house prices). In terms of access to services, consideration of the *Barriers to Housing and*

Services sub-domain index with the Indices of Multiple Deprivation, highlights several areas within both the RVBC and CDC areas ranked in the most deprived 10% of all English areas.

Key Impacts of Current Connectivity

Employment and Education

The lack of direct public transport connectivity, long journey times and comparatively high public transport fares is likely to be **constraining employment opportunities** for the CDC area residents and **constraining labour market efficiencies** for businesses in e.g., RVBC area, Manchester, Blackburn, Bolton, Preston etc. The impact will be greater on those without access to a car. To highlight this issue, analysis of where those residing in the RVBC and CDC areas work is presented in the graph below. It clearly shows the low number of people commuting between the CDC and RVBC areas, Blackburn, and the Manchester / Trafford / Salford conurbation, potentially reflecting the lack of public transport connections to the employment opportunities in these areas. For comparison, those commuting to work in Leeds and Bradford are also presented, recognising that these are large employment centres.



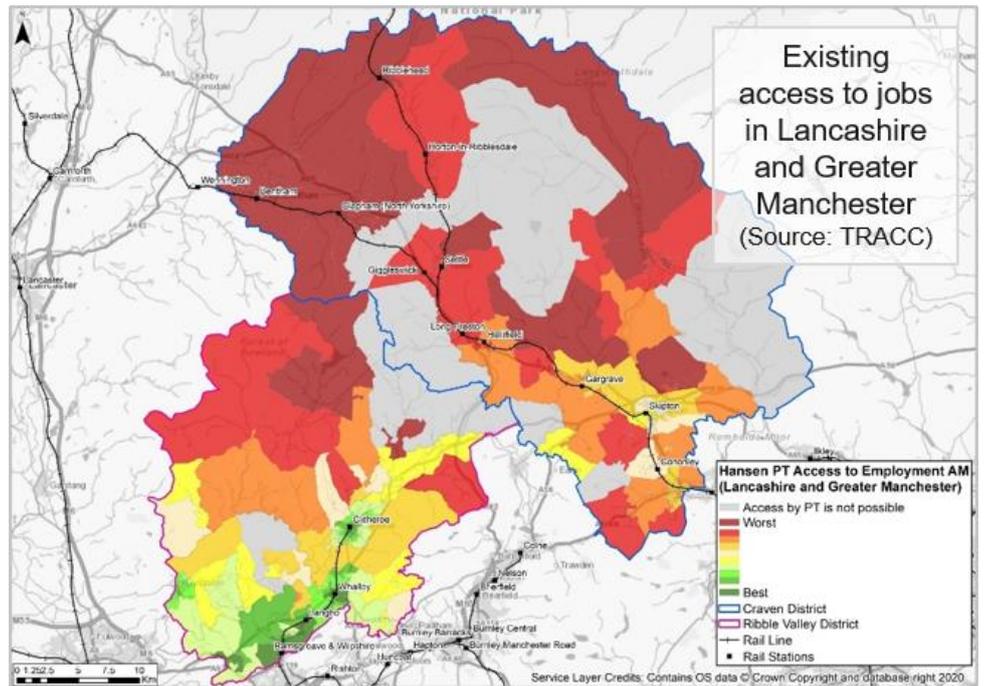
Furthermore, 'Hansen'⁴ connectivity analysis, undertaken to map the relative connectivity by public transport from the RVBC area and the CDC area to jobs in the Greater Manchester and wider Lancashire areas (see the figure below) has identified those areas which would benefit from closing the public transport connectivity gap between Clitheroe and Hellifield. It is clear that those living in the CDC area have much poorer access to jobs in the Lancashire and Greater Manchester area (more shades of red), than those living in the Ribble Valley (more shades of green).

Given the rural nature of the RVBC and CDC areas, the limited public transport connections may also be resulting in **'forced car ownership'** (implying a disproportionate impact on household disposable income) and may also be forcing those with a car, but who would prefer not to use or own a car, to make **less sustainable travel choices**.

The COVID-19 pandemic has resulted in millions of people moving their working life from the office to their home. This has resulted in wide-ranging short-term societal and economic repercussions with the potential for significant structural changes in the way people work and travel. Increased home working is also encouraging some people to reassess their

⁴ Hansen Indicators provide a measure of accessibility from an origin to a destination, weighted by a chosen 'criterion', with high scores indicating good accessibility and low scores suggesting there is poor accessibility according to the 'criterion'. For this assessment, the 'criterion' used is job at in each destination datazone to provide an indicator considering accessibility to employment.

lifestyle priorities and where they live. Home working creates a need and desire for larger properties, with additional rooms to allow for a separate ‘office’ and a likely reduced need in the future to commute on a daily basis. These two key factors have driven up interest in both larger properties and rural properties further from employment centres. In the medium to longer term, there is likely to be more infrequent commuting where people only commute one or two days a week but commute further when they do so. With limited public transport connections north of Clitheroe, these **longer commutes may be undertaken by car**. Enabling sustainable infrequent commuting may help **support in-migration** into the study area, particularly of younger people and families, which then helps maintain the **longer-term viability and sustainability of rural communities**, supporting rural school rolls for example.



In addition, as noted by both stakeholders and the public, the lack of connections, particularly between the RVBC area and Skipton is impacting on the ability of young people (less likely to be able to drive and / or afford a car) to access a wider range of tertiary education opportunities. It was noted by stakeholders that this places a financial burden on families and is likely to be a driver of outmigration of young people from the area. Tertiary education which is difficult to access can also be a cause of lower educational attainment. However, as noted above, at present public transport access between the RVBC area and Skipton is possible by direct bus, with a travel time of around 55 minutes from Clitheroe, and the current service is timed to serve education journeys, including serving Craven College during term time.

Tourism

The Yorkshire Dales National Park lies to the north and east of the A65, with the villages of Hellifield, Long Preston and Settle located at its south-western edge. The Settle-Carlisle Line runs through the National Park between Settle and Appleby. To the south, the Ribble Valley district encompasses a range of picturesque villages as well as the Forest of Bowland Area of Outstanding National Beauty (AONB), which lies to the north of Clitheroe. Both regions benefit from a strong tourist appeal, attract many visitors and are a key component of both regions’ economies.

The RVBC area has an affluent tourism product concentrated around landscape and food & drink tourism. Clitheroe as a destination itself has become more significant in recent years with a new tourism offering which has broadened the appeal of the area to the younger, more cosmopolitan generation. The RVBC area also has a niche in the wedding market, with 15 wedding venues of a significant size catering for 2,000-3,000 weddings annually. Much of the hotel and self-catering sector is built around the wedding business, which in turn has prompted a great deal of repeat visitation. The core visitor market is largely drawn from Lancashire and the north-west more generally, although stakeholder discussions highlighted that there has been strong growth in short stay tourism amongst retirees from other nearby areas such as Cheshire.

The STEAM⁵ economic impact tourism model shows that 4.4 million tourist visits were made to the **Ribble Valley**⁶ in 2018, equivalent to 6% of the Lancashire total and an 8% increase on 2017 levels. Overall, these visitor trips are estimated to have generated over £260million within the local economy and supported around 3,500 full time equivalent jobs. The visitor market is therefore highly important to the Ribble Valley and wider Lancashire economy.

⁵ Scarborough Tourism Economic Activity Model

⁶ Ribble Valley Tourism Board

In 2019, the **Yorkshire Dales National Park** received 4.7 million visitors, made up of over 4.2 million day trippers and 0.7 million overnight visitors. Between them, day and staying visitors combined to produce 6.5 million visitor days⁷. These visitors brought in £374 million to the region's economy and provided employment for around 4,400 full time equivalent (FTE) posts. Between 2018 and 2019, there was an increase of 4.7% in tourist days, 4% in tourist numbers, and 6.1% in tourism revenue. Furthermore, there were **14.2 million visitor days to the wider area** of the National Park, such as to the towns along the Park's boundary. Both DalesRail services and the Settle-Carlisle Line itself form part of the tourism product. The need **to support and sustainably grow the tourism industry** of the area through improved connections has been a recurring theme which has emerged through both public and stakeholder engagement.

The lack of public transport reduces connectivity and thus movement between the two areas, leading to high car use by tourists and visitors accessing the regions. A Yorkshire Dales National Park survey undertaken in 2017 of more than 600 visitors found that **87% of the survey respondents had travelled to the area by car**. A further survey in 2019⁸ found that **84% of visitors chose to travel by car**. The reliance on the car impacts on local communities, with car parking spaces filling quickly, followed by roadside parking, sometimes inconsiderately and illegally, which has safety implications. As was seen in the previous figure showing the existing bus services operating in the region, there are limited bus services connecting the areas and rail access is only possible on the Bentham Line from Leeds and Skipton (and on the Settle-Carlisle Line from Carlisle in the north).

Visitors from Greater Manchester are unable to easily access the area north of Clitheroe using public transport – they would have to take the infrequent bus to Skipton and change again. This effectively precludes public transport-based day trips from Greater Manchester to the Dales. It also **reduces the ability of those living north of the 'connectivity gap' to sustainably access leisure, cultural and other tourist activities** both in Ribble Valley (with an excellent food and real ale offer and festivals such as the Clitheroe Beer Festival and Clitheroe Food Festival) and the larger conurbations of Blackburn, Bolton and Manchester. Supporting such community opportunities is reflected in the *East Lancashire Community Rail Partnership and Clitheroe Line Community Rail Partnership Joint Action Plan (2020)*.

Manchester Airport is the primary international gateway in the north of the UK and the ability to offer direct access into the Dales region from Manchester is seen as important in attracting visitors, supporting the local economy, and promoting 'green' tourism. While international visitors make up around 1% of tourists to Lancashire⁹, America and India are a growing cohort visiting Manchester due to the International Airport. This is considered an untapped tourist market, and one which would benefit from the connections a train could provide into the Yorkshire Dales.

There are a range of further tourism opportunities which a new rail service could provide the catalyst for. These include 'linear' tourism activities (alighting at a station and walking or cycling to the next) and supporting electric bike initiatives to open up longer rides to a larger number of visitors. The rail line provides linkage to some of the UK's major walking routes, such as the Ribble Way and Pennine Way, accessible directly from Settle and Horton-in-Ribblesdale stations. These opportunities are perhaps more present than ever before given the growth in walking and cycling due to the COVID-19 pandemic.

It is important to recognise that DalesRail services offer a unique service on the rail network for tourism on summer Sundays, between Blackpool North and Carlisle along the Ribble Valley and Settle-Carlisle Lines. DalesRail provides more than the rail trip and includes guided walks and coach links to extend rail journeys to places the train service cannot reach. There is potential to expand the current offering to boost sustainable access to the Dales. This is discussed further in the Option Development section of this report.

While improved connectivity to the tourist offerings in both the RVBC and CDC areas can support growth in the sustainable tourism industry, it is important to note the role that tourism plays in helping sustain small rural communities. The tourist economy supports a range of direct and indirect employment such as hotel staff, café workers etc. through to plumbers, electricians etc. supporting the industry. These local employment opportunities play a key role in enabling residents to work locally, supporting **population retention**, and maintaining the **long-term sustainability of these rural communities**.

Development

As noted in the introductory section, there has been a high rate of growth in house building in the RVBC area in recent years (98% between 2015/16 and 2019/20). The similar figure for the CDC area is 32%, marginally lower than the England-wide average. The RVBC *Strategic Housing Land Availability Schedule* sets out a series of sites to be considered for future development, noting the capacity for around 2,500 across the area, with the bulk of the planned

⁷ Yorkshire Dales National Park STEAM report 2019 - Global Tourism Solutions

⁸ Yorkshire Dales National Park Three Peaks Survey

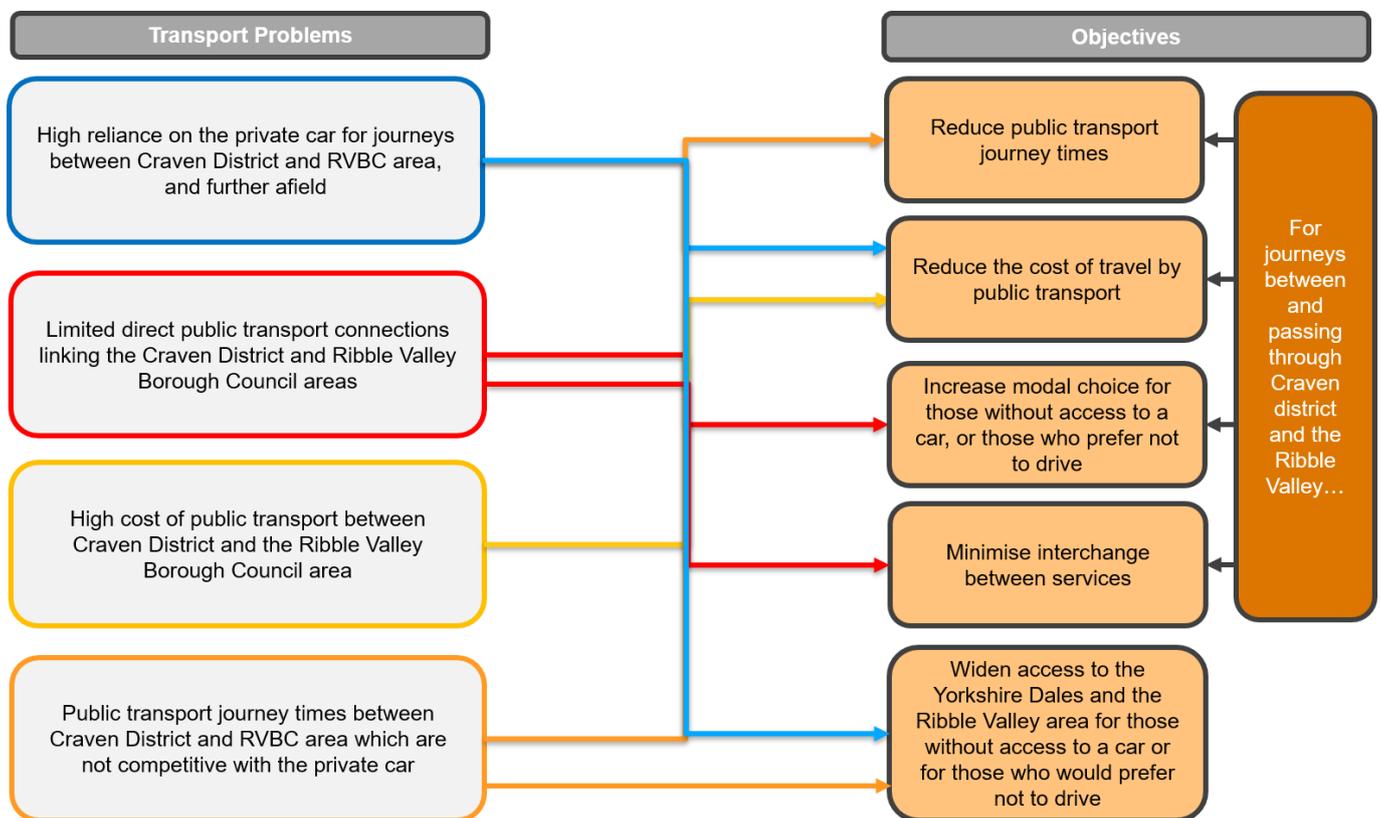
⁹ Visit Lancashire

development lying close to the Ribble Valley railway line with a number of committed housing sites in Billington, Langho and Clitheroe. In the CDC area, the *Strategic Housing and Employment Land Availability Assessment (SHELAA)* allocates four tourist sites in Hellifield, seven housing sites in Settle, eight housing sites in High Bentham and 13 housing sites and three employment sites in Skipton.

Planning policy documents for both the Lancashire and North Yorkshire County Council areas highlight the need to integrate housing development with sustainable transport options. While new connectivity would provide improved sustainable travel options for existing communities close to the railway line, it may also provide the catalyst for new development. This may **allow for a more balanced spatial spread of development** across the region and, in more rural areas, further support in-migration to communities to maintain their longer-term viability, supporting the aspirations of the CDC to spread growth beyond Skipton.

Study Objectives

The setting of **transport objectives** for the SOBC is key to clearly expressing the **transport outcomes** sought and describing how resolution of the transport problems will result in **consequential societal impacts**. Guided by the transport problems and opportunities noted above, five objectives have been defined. These objectives are shown in the figure below where the linkages clearly identify the transport problems they seek to alleviate.



Operational Considerations

There are a number of key operational considerations which the development of options must take cognisance of, and which have been considered during the option generation and development process. These include:

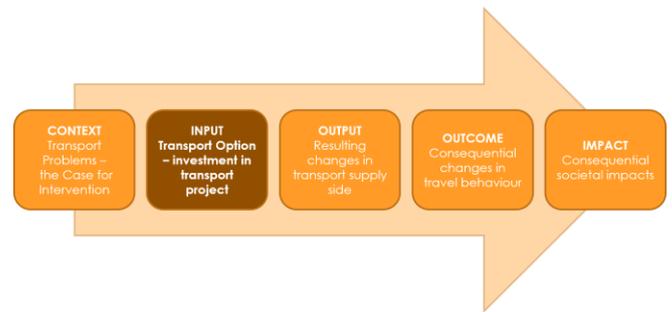
- **Terminating a train at Hellifield:** At present, it is not possible to turn a train (terminate and restart a train) at Hellifield for operational reasons, without infrastructure enhancements.
- **Train frequency between Clitheroe and Hellifield:** The operation of a two trains per hour service from Clitheroe to Hellifield would require an additional two train units and crews in addition to the extension from Blackburn to Clitheroe, making a total of three additional train units compared with the current service. This frequency of service would also result in two train units being at Hellifield at the same time for some parts of each hour, which would potentially result in a loss of capacity on the Bentham and Settle-Carlisle Lines. For these reasons, options considering a two trains per hour service to Hellifield are not considered.
- **Parking at Hellifield Station:** There are very limited parking and waiting facilities at the station, with station parking spilling out onto residential streets. If a service from Manchester Victoria / Preston was to terminate at Hellifield, this could create 'railheading'¹⁰ at the station, with additional pressure for parking as people drive in from a wide 'upstream' catchment. This would need to be considered as part of the infrastructure requirement at the Outline Business Case Stage.
- **Pathing for rail freight and charter services:** Freight trains use both the Ribble Valley Line and Settle-Carlisle Line, and there is some interaction between the two lines with freight operating through the Ribble Valley to Hellifield and on towards Carlisle. The rail freight industry is concerned about the addition of extra passenger trains on the Ribble Valley and Settle-Carlisle lines potentially restricting freight operations. There are several quarries in the region and from environmental and road maintenance and safety perspectives, it is important to move as much stone out of the Yorkshire Dales National Park by rail as possible. This is reflected in the Yorkshire Dales National Park Management Plan (2019 – 2024)¹¹ which notes an objective '*...to reduce road haulage limits from quarries by 50% compared to 2011*'. Passing loops on the Settle-Carlisle Line and points south would need to be kept available for freight trains. This is considered in greater detail in Clitheroe to Hellifield Strategic Outline Business Case - Option Development and Rail Planning Technical Note (Stantec and Allan Rail Solutions, March 2021). In addition, West Coast Railways operate regular steam charters on the Settle-Carlisle line and these need to be protected in any future timetable.
- **Growth in rail freight:** There has been growing use of the Settle-Carlisle line in recent years for freight haulage (including trains continuing down from the Aire Valley) with a number of 'south facing' quarries. There is an ongoing need to ensure sufficient freight paths on the line, future proofing against increased freight traffic.
- **Diversionsary Routeing:** There are also a small number of through freight trains, which use the Ribble Valley and Settle-Carlisle Lines to avoid the West Coast Main Line (WCML), where the frequent and fast passenger services impede the progress of slow heavy freight trains limited to 60mph, and vice versa. It is also noted that the Ribble Valley Line may be required as a freight diversion for the WCML post HS2. Caution is needed to ensure that any future passenger services do not unduly diminish the line's role as a diversionsary route.
- **Future aspirations for the Settle-Carlisle Line:** Increased services on the Settle-Carlisle Line may impact on the future aspirations for services including a potential Leeds to Glasgow Central service.
- **Rolling stock suitability:** The rolling stock used for the urban section of the route south of Blackburn may be less suitable for tourist and leisure travel. The Class 150 units which currently operate on the Clitheroe branch are designed for high passenger volumes and quick boarding and alighting, with two sets of double doors on each side of each carriage. However, such stock is less suitable for longer distance, rural and predominately leisure travel with less spacious seating and poor seat/window alignment. There is however a potential opportunity for the purchase of more appropriate stock as some of the existing rolling stock operating on the line is likely to be 'life expired' over the next few years.
- **Platform / train length:** The current maximum train length Northern operate between Blackburn and Clitheroe is 3x23m (usually 156/158+153 units). Platform extensions at Ramsgreave & Wilpshire will allow a 4x23m (156+156) train to operate with the rear set closed out between Ramsgreave & Wilpshire and Clitheroe. If any rail options imply a 4x23m train to operate, operational consideration would be required as to whether the full 4-cars would be required to be open for passenger use north of Clitheroe.

¹⁰ 'Railheading' refers to the practice of travelling further than necessary to reach a rail service, typically by car.

¹¹ <https://www.yorkshiredales.org.uk/wp-content/uploads/sites/13/2019/05/NPMP-2019-24.pdf>

INPUTS

The potential range of options (the ‘inputs’) are considered in this section. Given the focus of the study on the potential for rail connections, this is explored first, with other modes considered thereafter.



Rail Options

In terms of rail option generation, there are four key characteristics which have been considered to define the range of potential options:

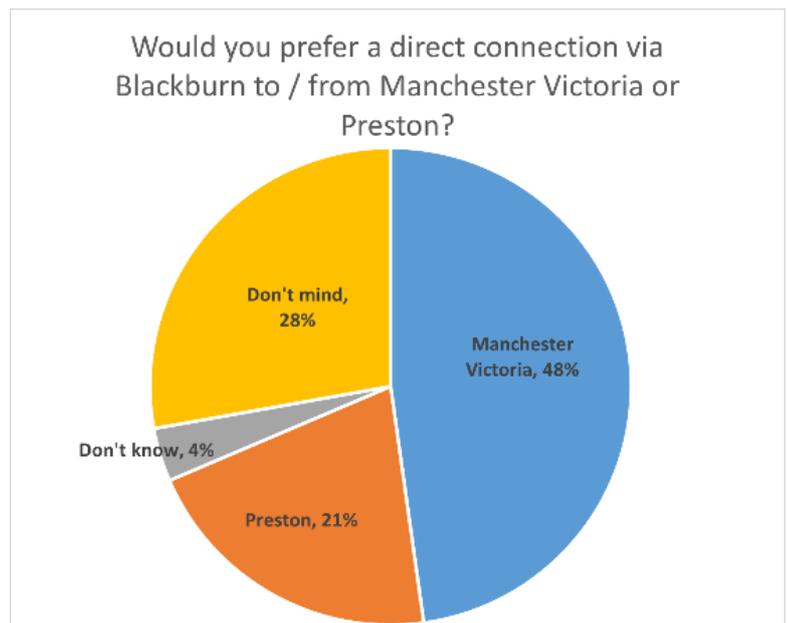
- Where a new rail service would originate
- Where a new rail service would terminate
- The frequency of any new rail service
- Whether the connection could be provided by another mode

Where would the rail service originate?

In terms of the potential origins for a rail service linking Clitheroe and Hellifield, Manchester Victoria and Preston are the key service origins that have been considered.

Manchester Victoria to Clitheroe (terminating) services already exist, but a service to Preston would be a new service.

The findings of the stakeholder and public engagement have been instrumental in establishing the preference for connections. The responses from the public engagement exercise, presented in the figure opposite, show the preference for a connection to Manchester Victoria over Preston. It is worth noting though that a fifth of respondents stated a preference for Preston, and the importance of ensuring effective public transport connections between the CDC area, the RVBC area and Preston is recognised. It is also noted however that Blackburn has frequent (half hourly) connections to Preston and offers good passenger interchange facilities i.e., a heated waiting room.



It should also be recognised that around 85% of the respondents to the public survey reside within the RVBC, CDC, Skipton and Settle areas and the survey does not therefore represent the views of tourists to the region.

Where would the rail service terminate?

In terms of the potential destinations for a service linking Clitheroe and Hellifield, the three key options that have been considered are:

- **To terminate at Hellifield:** This could be done using existing services by either extending some or all of the Rochdale to Clitheroe services on to Hellifield, or extending the current Blackburn terminating service to Clitheroe and Hellifield. The latter option is a long-term aspiration of Transport for the North and would double the frequency on the Clitheroe branch, offering a half hourly service to Manchester Victoria. As noted above, enhancements to infrastructure at Hellifield are required to terminate a passenger train at the station.

Analysis of the options for terminating at Hellifield has indicated that there is ‘surplus’ time at Hellifield. An hourly extension beyond Hellifield is not possible due to the impact on the capacity of the Settle-Carlisle line. A two-hourly

service to Hellifield would though provide considerable ‘spare’ time to extend the service beyond Hellifield as discussed below.

- **To terminate at a station on the Settle-Carlisle Line** (at locations where there is sufficient infrastructure to turn a train). The following locations have been identified:
 - **Settle Junction:** It is possible to terminate, hold, and restart an empty passenger train at Settle Junction by using the Down¹² Carnforth line. However, this blocks the route for other trains and can only happen in the opposite hours to the passage of the Leeds - Lancaster/Morecambe trains.
 - **Ribblehead / Blea Moor:** Terminating and restarting passenger trains is possible and it happens every night. Trains terminate at Ribblehead, run across Ribblehead Viaduct into Blea Moor Up¹³ goods loop and restart from there. If this was required during the day, the long occupation of the Up Goods Loop may have a detrimental impact on freight operations from the quarry sidings at Ribblehead and Arcow and a potential new quarry connection at Horton-in-Ribblesdale.
 - **Garsdale:** Terminating and restarting trains at Garsdale is possible. The only significant issue is the constraint on freight run-round moves at Blea Moor whilst a train is running from Garsdale to Blea Moor. However, there are potential signalling solutions to this issue.
- **To terminate at Skipton:** It is generally possible to terminate trains from Hellifield at Skipton, particularly an hourly Hellifield service with short turnarounds. This would give sufficient time windows for the train to arrive and depart without occupying platforms for excessive periods. A two-hourly service frequency could be considerably more restrictive on the Skipton station workings, with extended dwell times. Although the track is there to permit it, the operation of passenger trains in either direction between Clitheroe and Skipton is not possible with the current signalling at Hellifield. Further signalling and facing point enhancements would be required to enable this to happen.

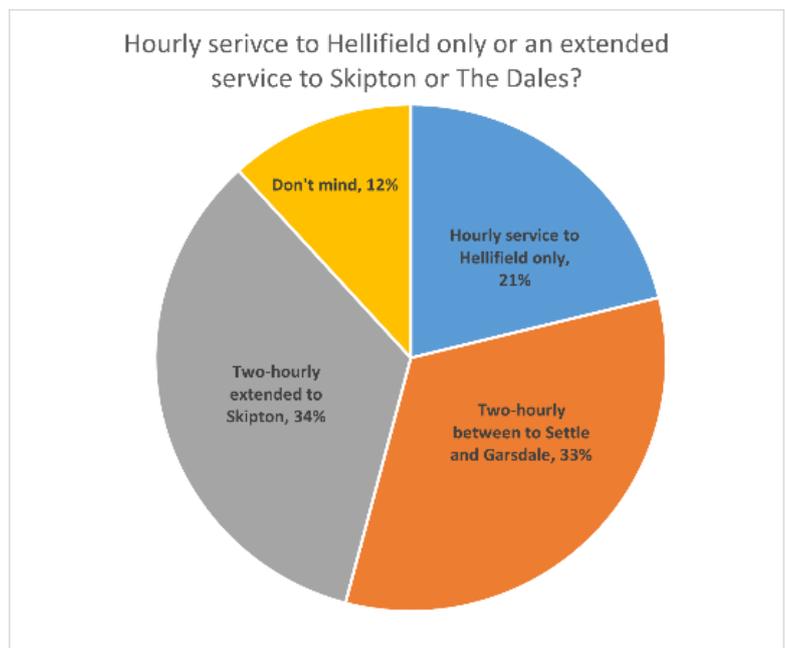
It is clear from discussions with the tourism bodies that extending services northwards on the Settle-Carlisle line creates important tourism opportunities, as noted earlier in this report.

The findings of the stakeholder and public engagement have again provided insight into preferences for connections beyond Hellifield. Respondents to the public survey were asked to choose between greater rail service frequency between Hellifield to Clitheroe and southwards (i.e., terminating services at Hellifield), or a less frequent service connecting Hellifield and Clitheroe but extending onwards either to Skipton or to Settle / Garsdale. The preference was for an onward connection over greater frequency at Hellifield, as presented in the figure opposite. However, in terms of the onward connection, the preference was split evenly between heading north on the Settle-Carlisle Line or heading east to Skipton.

What is the frequency of the service?

Each of the origin-destination pairs for a new service gives rise to different service frequencies that could be achieved at Clitheroe, Hellifield, and other stations, dependent on the service destination, the train pathing requirements and turnaround allowance for a robust timetable. This has been considered in detail in the associated *Clitheroe to Hellifield Strategic Outline Business Case - Option Development and Rail Planning Technical Note (Stantec and Allan Rail Solutions, March 2021)*.

The frequency possibilities are set out in the Options Table later in this section.



¹² The 'Down' line is generally the line travelling away from London

¹³ The 'Up' line is generally always the line towards London (or the major terminus point)

Other Modes

As noted in the introductory text, while the development of the SOBC has been funded through the *Restoring Your Railways Ideas Fund*, it is expected that other options including other public transport modes be considered. Such options are:

- **TramTrain:** Whilst it would be physically possible to operate a TramTrain on heavy rail infrastructure, there are no obvious benefits from doing so here. No option considering this mode was therefore developed.
- **Rail-Bus:** A dedicated bus linking the Settle-Carlisle Line with the Ribble Valley Line (i.e., linking Hellifield with Clitheroe station) could be coordinated with rail departures and arrivals. However, such a service would not reduce interchange requirements and is likely to require considerable subsidy to operate. Such services can also have a ‘temporary’ feel to them and are unlikely to facilitate ongoing confidence and provide a catalyst for the opportunities noted.
- **‘Flecsi’ style bus offering:** Fflecsi is a concept being developed by Transport for Wales, where the bus service has a fixed start and end point but which can vary its route dependent on demand from an app based booking system. The adoption of such an approach here could offer a part timetabled / part flexible bus service linking to Clitheroe station (from Hellifield / wider rural area), improving connectivity to onward rail-based travel.

OUTPUTS

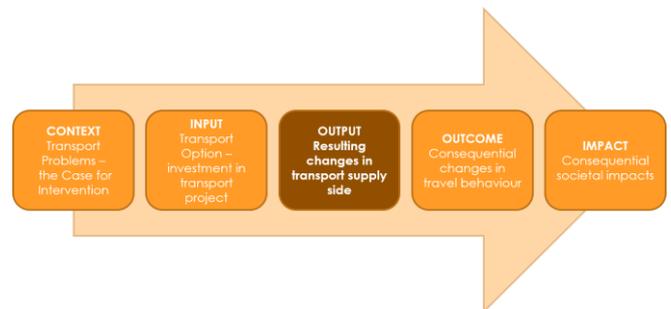
Final Options for Consideration

The full list of all options for consideration is shown in the table below. The table also presents an assessment of each option against the SOBC objectives as previously outlined. This has been undertaken to understand, at a high level, each option’s ability to deliver benefits within the context of these objectives.

The options listed in the table below assume a “standard hour”

i.e., a typical service pattern across the day. In line with rail industry practise, this would apply through the bulk of the day, Mondays to Saturdays, with some service variation at the start and end of the day. It is proposed that Sunday services would use a similar “standard hour” but possibly starting later in the day and taking cognisance of the DalesRail services. The detail would be informed as the project progresses to Outline Business Case Stage.

Greater detail surrounding the development of each of these options is provided in *Clitheroe to Hellifield Strategic Outline Business Case - Option Development and Rail Planning Technical Note (Stantec and Allan Rail Solutions, March 2021)*. This Technical Note includes timetables with the options developed to understand the ‘proof of concept’ of each option¹⁴.



¹⁴ The COVID-19 pandemic has resulted in substantially reduced railway timetables due to the significant fall in patronage. When viewing this report, it should be noted that the December 2019 timetable has been used as a base, as this was the last timetable to be produced and implemented before the pandemic struck.

Final Option List and Assessment Against the Study Objectives								
Option		Description		For journeys between and passing through Craven district and Ribble Valley...				Widen access to Yorkshire Dales and Ribble Valley
				Reduce public transport journey times	Reduce public transport costs	Increase modal choice	Minimise interchange requirements	
1	Maintains 1tph Clitheroe - Rochdale	1a	Extend all current Clitheroe terminating services to Hellifield	✓	✓	✓	✗	✗
		1b	Extend alternative current Clitheroe terminating services – all stations to Garsdale	✓✓	✓✓	✓✓	✓✓	✓✓✓
		1c	Extend alternative current Clitheroe terminating services – all stations to Skipton	✓✓	✓✓	✓✓	✓	✗
2	2tph Clitheroe to Rochdale / Manchester Victoria	2a	One train every two hours extends to Garsdale	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓
		2b	One train every two hours extends to Ribblehead (this is extension of existing Blackburn so can't get to Garsdale)	✓	✓	✓	✓✓	✓✓
		2c	One train per hour extends to Settle Jn	✓	✓	✓	✓	✓
		2d	One train per hour extends to Skipton	✓✓	✓✓	✓✓	✓	✗
		2e	One train every two hours extends to Skipton	✓	✓	✓	✓	✗
3	Maintains 1tph Clitheroe - Manc Vic and additional 1tph to Preston	3a	One Preston train every two hours extends to Garsdale (new connection)	✓	✓	✓	✓✓	✓✓
		3b	One Preston train every two hours extends to Skipton (new connection)	✓	✓	✓	✓	✗
4	1tph Clitheroe / extend to Carlisle	4a	One Clitheroe train every two hours extends to Carlisle	✓✓	✓✓	✓✓	✓✓	✓✓
		4b	One Clitheroe train every four hours extends to Carlisle	✓	✓	✓	✓✓	✓
5	New stations	5a	New station at Gisburn	✓	✓	✓	✓✓	✗
		5b	New station at Chatburn	✓	✓	✓	✓✓	✗
		5c	New station at Newsholme	✓	✓	✓	✓✓	✗
		5d	New station at Barrow	✗	✗	✗	✓	✗
		5e	New station at Billington	✗	✗	✗	✓	✗
6	Bespoke DalesRail	6	Bespoke journey each day / selection of days as per DalesRail to allow people to experience the 'journeys'	✓✓	-	✓✓	✓✓	✓✓✓

Final Option List and Assessment Against the Study Objectives								
Option			Description	For journeys between and passing through Craven district and Ribble Valley...				Widen access to Yorkshire Dales and Ribble Valley
				Reduce public transport journey times	Reduce public transport costs	Increase modal choice	Minimise interchange requirements	
7	Hellifield – Clitheroe ‘railbus’	7	Dedicated bus linking between S&C and Ribble Valley rail lines (coordinated with rail departures / arrivals)	✓	✓	✓	-	✓
8	‘fficesi’ style bus	8	Part timetabled / part flexible bus service linking to Clitheroe station (from Hellifield / wider rural area)	✓	✓	-	-	-

It is clear from this assessment that the rail options generally perform well against the study objectives and can be seen to provide greater benefit when compared to the two bus options.

The assessment shows that of the bus options, Option 7 meets four of the five objectives but not as strongly as the rail options, and Option 8 only meets two of the five objectives set.

The potential cost of operating a ‘railbus’ (as per Option 7) was estimated at between £240,000 - £360,000 per annum depending on service frequency. It is highly unlikely such a service could be commercially maintained and would therefore require local authority cross boundary subsidy to operate. A similar service has been introduced in the past (operating between Hellifield and Clitheroe) but the requirement to ‘double’ interchange and the difficulties in operating a service with a non-standard timetable (to meet rail departure / arrival times on both the Ribble Valley and Leeds to Lancaster/ Morecambe and Carlisle lines) meant the service was not well used. The operator subsequently pulled out.

Hellifield to Clitheroe by car takes around 23 minutes. The journey by rail has been estimated at 22 minutes. Given the interchange requirement and the alignment and geometry of the A682 (particularly between Gisburn and Hellifield - meaning the route is slow to navigate, particularly for larger vehicles), public transport journey times by bus between Hellifield and Clitheroe are likely to be substantially longer than by car. It can therefore be surmised that the bus journey time would be significantly longer than that by rail and would not achieve the same ‘car competitive’ journey time as a through rail link. Given this, and the likely subsidy requirement, no further analysis was carried out for the two bus options given their inability to provide the level of connectivity and benefit when compared against the various proposed rail options.

The options relating to new stations (Options 5a, 5b, 5c, 5d, and 5e) do not ‘close the connectivity gap’. New stations at Barrow and Billington are south of Clitheroe and while the benefits of these new stations to the local communities are recognised (in terms of increased sustainable access to employment, education, and other services), they are considered out of scope for this study. New stations at Gisburn, Newsholme and Chatburn are all located between Clitheroe and Hellifield and could form part of the investment opportunity for reinstating passenger services, but in themselves do not help provide a new connection. The opportunities for these new stations should be viewed as a longer-term investment opportunity but only after regular passenger rail services on the line are reinstated.

In terms of Option 6 (Bespoke DalesRail), this has been considered separately to the other ‘regular’ passenger service options. This is discussed later in this report, with an additional and more in-depth technical paper discussing the possibilities available, *Clitheroe-Hellifield Strategic Outline Business Case, DalesRail, (Stantec and AllanRail, March 2021)*.

Policy Fit

A high-level review of the relevant local, regional, and national policies has been undertaken to determine the overall fit of the options within the policy context.

At the **national level**, the UK government is committed to ‘levelling up’ across the whole of the United Kingdom. Part of the levelling up agenda relates to improving local transport links and investing in infrastructure that improves everyday life across the UK. This project supports that agenda by improving the connectivity of a rural area into a large metropolitan area. Relatively small-scale projects, such as this one, with comparatively low costs have the potential to generate material improvement for smaller rural communities, which are often overlooked because of the impact of larger scale projects for big cities. Importantly, in February 2021, the UK Chancellor prioritised climate change as a central part of all economic and financial decision making. This project, seeking to ensure increased sustainable movement of people, clearly aligns with that agenda.

At the **regional and local level**:

- The **Lancashire Local Transport Plan** states several transport goals including ‘*to improve accessibility, availability and affordability of transport*’ and ‘*to reduce the carbon impact on Lancashire’s transport requirements*’. In addition, the seven transport priorities include: ‘*improving access into areas of economic growth and regeneration*’, ‘*providing safe, reliable, convenient and affordable transport alternatives to the car*’ and ‘*providing better access to education and employment*’.
- Lancashire County Council’s **East Lancashire Highways and Transport Masterplan** recognises the need for sustainable travel to become the choice, wherever possible, even in rural areas, and that visitors find the area attractive and easy to travel around without a car.
- **Ribble Valley Borough Council’s Housing and Economic Needs Assessment (2019)** notes that the rail line between Clitheroe and Hellifield is not used to its full capacity and could quickly and easily be utilised to restore lost rail connections to communities in Lancashire and Yorkshire, noting that a direct link between Lancashire and Yorkshire would generate significant tourism opportunities.
- **The Ribble Valley Core Strategy (2014) and Housing and Economic Development - Development Plan Document (2019)** seeks to promote sustainable development by encouraging opportunities to reduce the use of the car, supporting the use of public transport for commuting and securing sustainable tourism development particularly where it serves to protect areas such as the AONB. Specific policy provision is included to support the development of sustainable travel improvements including protecting sites for future rail stations on the Clitheroe to Hellifield line.
- The **York and North Yorkshire Strategic Economic Plan** states the need to enable growth through the use of sustainable transport modes.
- The **North Yorkshire County Council Local Transport Plan (2016 – 2045)** states strategic transport priorities which include ‘*improving east-west connectivity*’ and ‘*improving access to the rail network*’.
- The **Craven District Council Local Plan (2019)** tourism policy states that tourism will grow in a sustainable way and supports the development of rail services to/from the area with the plan noting the need to maximise opportunities to travel by non-car modes.
- **Transport for the North’s (TfN) Long Term Rail Strategy** identifies that services for rural areas do not always meet local needs. The need to extend the service frequency improvements of the Rochdale/Manchester Victoria to Blackburn service through to Clitheroe is recognised.
- The project supports the **four pillars of community rail**:
 - providing a voice for the community – through engagement with a range of relevant community rail partnerships to understand their aspirations and the fit with this study
 - promoting sustainable, healthy and accessible travel
 - bringing communities together
 - supporting diversity, inclusion plus social and economic development.
- Finally, the **Yorkshire Dales National Park Authority’s ‘Special Qualities, Special Experiences’** document notes that the rail line through the area has the potential to bring hundreds of thousands of visitors a year to the National Park and has a clear role in ‘greener’ and ‘active’ travel.

In terms of project implementation, as discussed later in this report, passenger services between Clitheroe and Hellifield could be reinstated in the short-term with little need for additional infrastructure and could potentially be delivered as part of the May 2023 timetable change. This speed of potential implementation would enable benefits to be realised quickly and should be considered an asset.

The Economic Case

Introduction

The Economic Case assesses the remaining options ‘value for money’ in terms of economic, social and environmental benefits and costs.

Option Costs

Each of the options has been considered in terms of the additional train units required, as well as *essential* infrastructure and *desirable* (but not essential) infrastructure. Desirable infrastructure is noted as it has the added ability to improve reliability and maintain capacity for freight and charter operators. Greater detail on the derivation of this cost information is provided in the *Clitheroe to Hellifield Strategic Outline Business Case - Option Development and Rail Planning Technical Note (Stantec and Allan Rail Solutions, March 2021)*.

The operating costs are composed of broadly three components: rolling stock leasing, rolling stock mileage driven running costs and train crew costs. Commercial confidentiality presents a challenge to finding and reporting these costs. Consequently, in this report the costs are quoted only to single decimal point £millions. Rolling stock leasing costs which include time based heavy maintenance have been secured from various sources and reflect the types of unit available to lease. These costs are routinely quoted to the train operators on a per vehicle per month basis. Mileage based costs include maintenance, fuel and variable track access charges paid to Network Rail. Train crew costs are taken from a unit rate with the number of staff required being a multiple of the number of extra diagrammed units in service, then grossed up to provide the additional staff for 6-day operation and to cover for holidays, sickness etc.

These costs would be refined at Outline Business Case and should be viewed as indicative at this stage, in line with the requirements of an SOBC. Capital costs have the appropriate level of optimism bias applied (66%) as per WebTAG guidance.

Option Costs - Infrastructure and Operational (with optimism bias applied at 66% to capital infrastructure costs)							
Option	Description	Resource / Operational Requirements		Essential Infrastructure requirements		Additional Desirable Infrastructure	
		Additional Units Required	Costs per annum	Infrastructure	Cost	Infrastructure	Cost
1a	Extend all current Clitheroe terminating services to Hellifield	1 x 3 car 150	£1.5m	Intermediate Block signals Horrocksford Jn – Hellifield	£3.3m	Hellifield turnback signals (two different options, which could be combined)	£0.8m - £3.3m
1b	Extend alternate current Clitheroe terminating services – all stations to Garsdale	1 x 3 car 150	£1.7m	Nil	Nil	Intermediate Block signals Horrocksford Jn – Hellifield	£3.3m
						Hellifield turnback signals	£0.8m
						Blea Moor acceptance solution (only one intermediate block required)	£1.7m

Option Costs - Infrastructure and Operational (with optimism bias applied at 66% to capital infrastructure costs)							
Option	Description	Resource / Operational Requirements		Essential Infrastructure requirements		Additional Desirable Infrastructure	
		Additional Units Required	Costs per annum	Infrastructure	Cost	Infrastructure	Cost
1c	Extend alternate current Clitheroe terminating services – all stations to Skipton	1x 3 car 150	£1.4m	Hellifield reversing capability	£5.0m	Intermediate Block signals Horrocksford Jn – Hellifield	£3.3m
				Possible Skipton reversing capability	£16.6m- £24.9m ***	Intermediate Block signals Hellifield - Gargrave	£3.3m
2	Two trains per hour to Clitheroe	1 x 3 car 150	£1.4m	Nil	Nil	Nil	Nil
2a	Two trains per hour to Clitheroe. One train every two hours to Garsdale	1 x 3 car 150	£1.7m**	Nil	Nil	Intermediate Block signals Horrocksford Jn – Hellifield	£3.3m
						Hellifield turnback signals	£0.8m
						Blea Moor acceptance solution	£1.7m
2b	Two trains per hour to Clitheroe. One train every two hours to Ribblehead	1 x 3 car 150	£1.5m**	Nil	Nil	Intermediate Block signals Horrocksford Jn – Hellifield	£3.3m
						Hellifield turnback signals	£0.8m
2c	Two trains per hour to Clitheroe. One train per hour to Settle Jn	1 x 3 car 150	£1.7m**	Intermediate Block signals Horrocksford Jn – Hellifield	£3.3m	Hellifield turnback signals (two different options, which could also be combined)	£0.8m - £3.3m
2d	Two trains per hour to Clitheroe. One train per hour to Skipton	1 x 3 car 150	£1.9m**	Intermediate Block signals Horrocksford Jn – Hellifield	£3.3m	Intermediate Block signals Hellifield – Gargrave	£3.3m
				Hellifield reversing capability	£5.0m		
				Possible Skipton reversing capability	£16.6m- £24.9m ***		
2e	Two trains per hour to Clitheroe. One	1 x 3 car 150	£1.4m**	Hellifield reversing capability	£5.0m	Intermediate Block signals Horrocksford Jn – Hellifield	£3.3m

Option Costs - Infrastructure and Operational (with optimism bias applied at 66% to capital infrastructure costs)							
Option	Description	Resource / Operational Requirements		Essential Infrastructure requirements		Additional Desirable Infrastructure	
		Additional Units Required	Costs per annum	Infrastructure	Cost	Infrastructure	Cost
	train every two hours to Skipton			Possible Skipton reversing capability	£16.6m-£24.9m***	Hellifield turnback signals	£0.8m
3	One Preston* to Clitheroe service every hour	3 x 2 car 156	£3.2m	Nil	Nil	Nil	Nil
3a	One Preston* train every two hours to Garsdale	1 x 4 x 2 car 156	£1.4m	Nil	Nil*	Intermediate Block signals Horrocksford Jn – Hellifield	£3.3m
						Hellifield turnback signals (two different options, which could also be combined)	£0.8m - £3.3m
3b	One Preston* train every two hours extends to Skipton	1 x 4 x 2 car 156	£1.2m	Hellifield reversing capability	£5.0m	Intermediate Block signals Horrocksford Jn – Hellifield	£3.3m
				Possible Skipton reversing capability	£16.6m-£24.9m***	Intermediate Block signals Hellifield – Gargrave	£3.3m
4a	One Clitheroe train every two hours extends to Carlisle	4 x 3 car 150	£5.4m	Nil	Nil	Nil	Nil
4b	One Clitheroe train every four hours extends to Carlisle	1 x 3 car 150	£1.7m	Nil	Nil	Nil	Nil
6	DalesRail (Fri, Sat, Sun Only)	2 x 2 car 156	£0.8m	Nil	Nil	Nil	Nil

*Network Rail analysis suggests that providing access into Preston is challenging at present and may drive significant costs. No costs relating to the potential requirements at Preston are included in this analysis.

**Operational Requirements does not include any allowance for additional operating costs between Blackburn and Clitheroe.

***The cost estimate for the Skipton reversing capability is based on the cost as stated in the Skipton to Colne Line Reopening Pre-GRIP Study, December 2018, Network Rail. The required works are difficult to cost at this stage without more detailed work to define the requirements. If this option is to be progressed, the more detailed work required to inform the subsequent Outline Business Case would then enable the associated infrastructure cost to be more appropriately estimated for this element.

Option Opportunity Costs

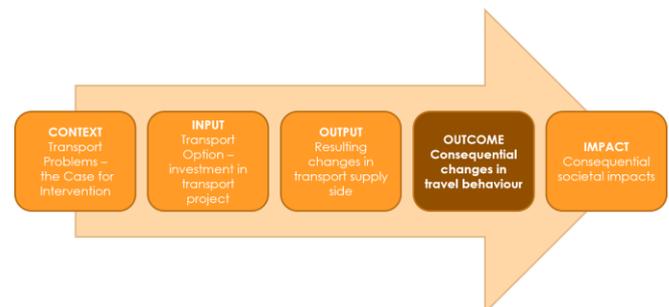
Two key opportunity costs have been identified and considered within this assessment:

- The reduction in available capacity** – specifically relevant to those options extending onto the Settle-Carlisle Line, with the further north the extension, the greater the potential impact. While freight services have not been assessed in detail, there are noted risks of adverse interaction which feed through to possible infrastructure interventions. This is consistent with the ‘proof of concept’ approach in this SOBC but will require further analysis at Outline Business Case stage. More detail on this is available in *Clitheroe to Hellifield Strategic Outline Business Case - Option Development and Rail Planning Technical Note (Stantec and Allan Rail Solutions, March 2021)*. There may also be an impact on any future Leeds to Glasgow Central services.
- Impact on the Skipton to Colne Business Case** – currently work is being undertaken to bring forward proposals for the approval of initial ‘Develop’ stage work (within the DfT’s *Rail Network Enhancements Pipeline*) on the reinstatement of Skipton to Colne rail services. This is relevant to those options extending to Skipton. While the Skipton-Colne link does not provide a direct link for trips between Ribbles Valley and Skipton, there would inevitably be some passenger abstraction from a Manchester / Blackburn – Clitheroe – Hellifield – Skipton service to the Skipton-Colne link and vice-versa. This could diminish the business case for both schemes.

OUTCOMES

Option Benefits and Disbenefits

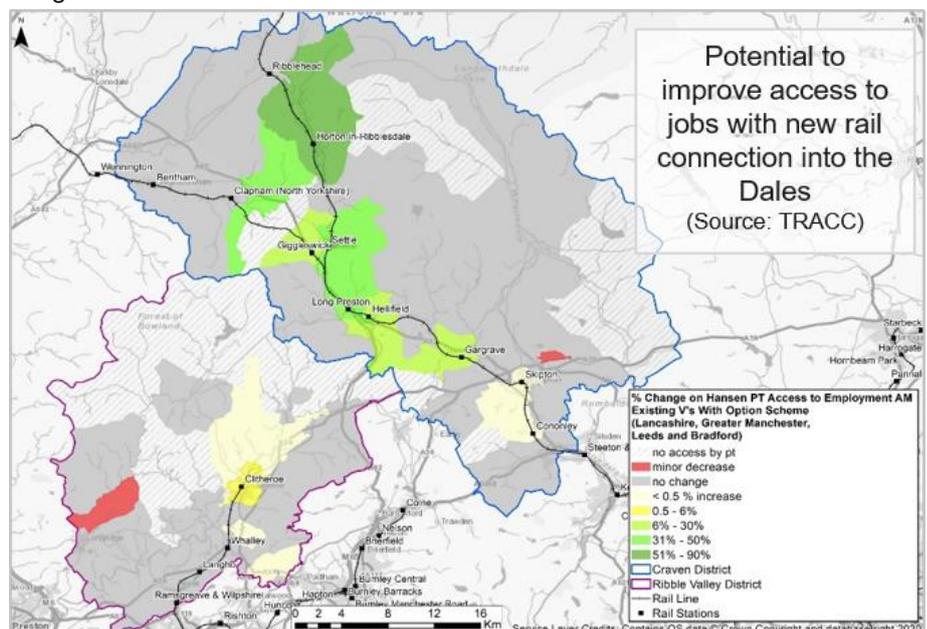
The potential transport outcomes that would be derived through reinstating the range of passenger service options is considered below.



Increased public transport connectivity

As an indication of the potential to improve public transport **connectivity to employment** by a new rail connection linking Clitheroe and Hellifield, analysis has been undertaken to compare existing access to jobs with access if a new rail service were to operate. The analysis has been undertaken assuming a new service between Manchester Victoria, Clitheroe, Hellifield and further north on the Settle-Carlisle Line. The change in connectivity across the region is presented in the figure to the right and clearly shows the large improvement for those residing in the CDC area and further north that could be achieved.

As an indication of the potential to improve public transport **connectivity to education**, specifically between the RVBC area and Skipton, a comparison of the existing travel time and the estimated travel time with a direct rail connection has been considered. As noted above, at present public transport access between the RVBC area and Skipton is possible by direct bus, with a travel time of around 55 minutes from Clitheroe. Skipton could be accessed in just over 40 minutes if a direct rail connection was provided. While there would be a reduction in public transport journey time, the introduction of a rail connection is likely to abstract passengers from the existing bus service and could undermine the bus service which may then be reduced or, in the worst-case scenario, be removed entirely. The overall impact on access to education may be at best neutral, and perhaps negative, and would potentially impact most greatly on those living in the rural areas currently served by the existing bus service but not located within catchment of a railway station.



Higher mode share for public transport

The availability of increased modal choice for travel is likely to increase the mode share of public transport, with those living within catchment of a railway station being able to benefit from any new service. It is worth noting that rail demand has steadily increased at both Clitheroe and Hellifield stations over the last decade, with Office for Road and Rail data showing that between 2004/5 and 2019/20, demand at Clitheroe station increased by over 50%, and demand at Hellifield station increased by over 90%. Additional connectivity has the potential to capitalise further on this growth.

Public transport journey times more competitive with the private car

As noted in the transport problems section, public transport journey times between the CDC area and the RVBC area are not competitive with the private car. To provide an indication of the potential scale of improvement and competitiveness of public transport journey times that could be achieved if a direct rail connection between Hellifield and Clitheroe (and beyond) were introduced, the table below presents and compares the existing and potential future journey times¹⁵ by road and rail from Hellifield. Again, the travel time to Leeds is included as a comparator given the existing direct rail connection between Hellifield and Leeds.

Road Vs Rail - AM Travel Times (in hh:mm)							
From	To	Existing			Estimated Potential Future Journey Time		
		Car	Rail	Rail travel time compared to Car	Car	Rail (with direct link)	Rail travel time compared to Car
Hellifield	Manchester	01:05	02:30	+01:25	01:05	01:40	+00:35
	Leeds	01:03	01:03	00:00	01:03	01:03	00:00
	Preston	00:48	01:21	+00:33	00:48	01:16	+00:28
	Blackburn	00:38	02:00	+01:22	00:38	00:44	+00:06
	Bolton	01:01	01:41	+00:40	01:01	01:13	+00:11

The table shows that a direct rail connection has the potential to save around 50 minutes travel time for a trip to Manchester, over an hour and a quarter in travel time to Blackburn and provide a half hour saving in travel time to Bolton. In addition, the travel time by rail for trips to Blackburn and Bolton becomes competitive with the journey time by car. It is also worth noting that the car travel time is an average and therefore (unlike rail which is not impacted by congestion) there will be instances when the car travel time is in fact longer than the estimated rail travel time.

Reduced Public Transport Fares

To highlight the potential impact on public transport fares if a rail service were established between Clitheroe and Hellifield, future fares were estimated based on a fare per km to each destination as per the existing Clitheroe fares. These future fares are presented alongside the existing fares in the table below. The table highlights the more comparable estimated future fare for trips from Hellifield when compared to Clitheroe were a direct rail connection to be established.

Rail Fares (Hellifield vs Clitheroe) – Existing and Estimated Future Fares (peak-returns)						
From / To	Current Fare			Approximate Future Fare (if direct connection available)		
	Hellifield	Clitheroe	Difference from Clitheroe Fare	Hellifield	Difference from Current Fare	Difference from Clitheroe Fare
Manchester	£36.30	£14.90	£21.40	£21.47	-£14.83	£6.57
Blackburn	£33.50	£5.20	£28.30	£13.35	-£20.15	£8.15
Preston	£33.50	£8.80	£24.70	£16.34	-£17.16	£7.54
Bolton	£38.70	£11.50	£27.20	£15.82	-£22.88	£4.32
Clitheroe	£34.00	-	-	£7.41	-£26.59	-

¹⁵ Estimated rail journey times have been assumed as per the option timetables developed and presented in the *Clitheroe to Hellifield Strategic Outline Business Case - Option Development and Rail Planning Technical Note* (Stantec and Allan Rail Solutions, March 2021). Estimated rail travel times for Manchester Victoria, Blackburn and Bolton assume a direct connection between Hellifield and Manchester Victoria. Estimated rail travel times for Preston assume a direct connection between Hellifield and Preston. Car journey times are derived from Network Analyst software with the average journey time taken calculated as the average time of starting a trip at 07:00 and at 08:00.

Service Frequency Differentials

Any option which creates a large differential in frequency between Clitheroe (e.g., two trains per hour) and stations to the north (e.g., one train every two hours at Hellifield) may inadvertently encourage people from further north to bypass connected stations and drive to Clitheroe to take advantage of the greater frequency. Such an option, with this differential in train frequencies between stations, could inadvertently increase traffic on the rural roads north of Clitheroe. With regards to the options, this is more significant for Options 2c, 2d, 2e, 3a and 3b (where there would be two trains per hour at Clitheroe and only one train every two hours at Hellifield) and Option 4a (where there would be one train per hour at Clitheroe and only one train every two hours at Hellifield). Option 1a is the only option providing a similar frequency at both Clitheroe and Hellifield (one train an hour).

Transport Outcomes Matrix – by Origin-Destination Pair

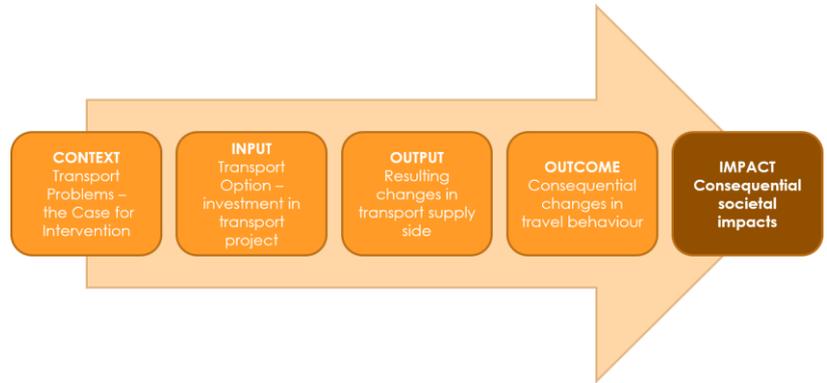
Building on the discussion above, the key transport outcomes for each origin-destination pairing are presented in the option matrix below. The matrix is colour-coded to represent the scale of the transport outcomes, with green indicating a positive outcome, amber indicating a mix of positive and negative outcomes and red representing mostly negative outcomes.

Transport Outcomes Matrix – by Origin-Destination Pair			
To / From	Hellifield	Dales (Settle Junction, Ribbleshead / Blea Moor, Garsdale)	Skipton
Manchester	<ul style="list-style-type: none"> • Direct connection from Hellifield to Blackburn and stations south to Manchester Victoria with substantial improvement in existing travel opportunities – particularly to Blackburn • No competing existing bus connections • Risk of rail heading at Hellifield – known existing parking constraints • Hourly service frequency requires infrastructure (two-hourly does not) 	<ul style="list-style-type: none"> • Direct connection from Dales communities and Hellifield to Blackburn and stations south to Manchester Victoria with substantial improvement in existing travel opportunities – particularly to Blackburn • No competing existing bus connections • Reduced risk of rail heading at Hellifield • Sub-set of options do not require infrastructure 	<ul style="list-style-type: none"> • Requires infrastructure expenditure • Direct connection to Blackburn and Manchester Victoria but marginal improvement on existing travel opportunities • Good existing direct bus connections to Skipton • Potential impact on communities not on rail line if bus services impacted
Preston	<ul style="list-style-type: none"> • Rail station capacity challenges at Preston • Resource intensive • Lower public appetite for Preston as a destination 	<ul style="list-style-type: none"> • Rail station capacity challenges at Preston • Resource intensive 	<ul style="list-style-type: none"> • Good existing direct bus connections • Potential impact on communities not on rail line if bus services impacted • Rail station capacity challenges at Preston • Resource intensive

IMPACTS

Consequential Socio-Economic Impacts

The key economic and societal impacts that may be derived from the transport outcomes are noted in the matrix below, presented by the origin-destination pairings, with the greater the number of ticks, the greater the anticipated potential benefit.



The assessment shows the greater anticipated economic and societal impacts of extending a service beyond Hellifield, and the generally greater benefit across the range of impacts of an extended service into the Dales as opposed to Skipton.

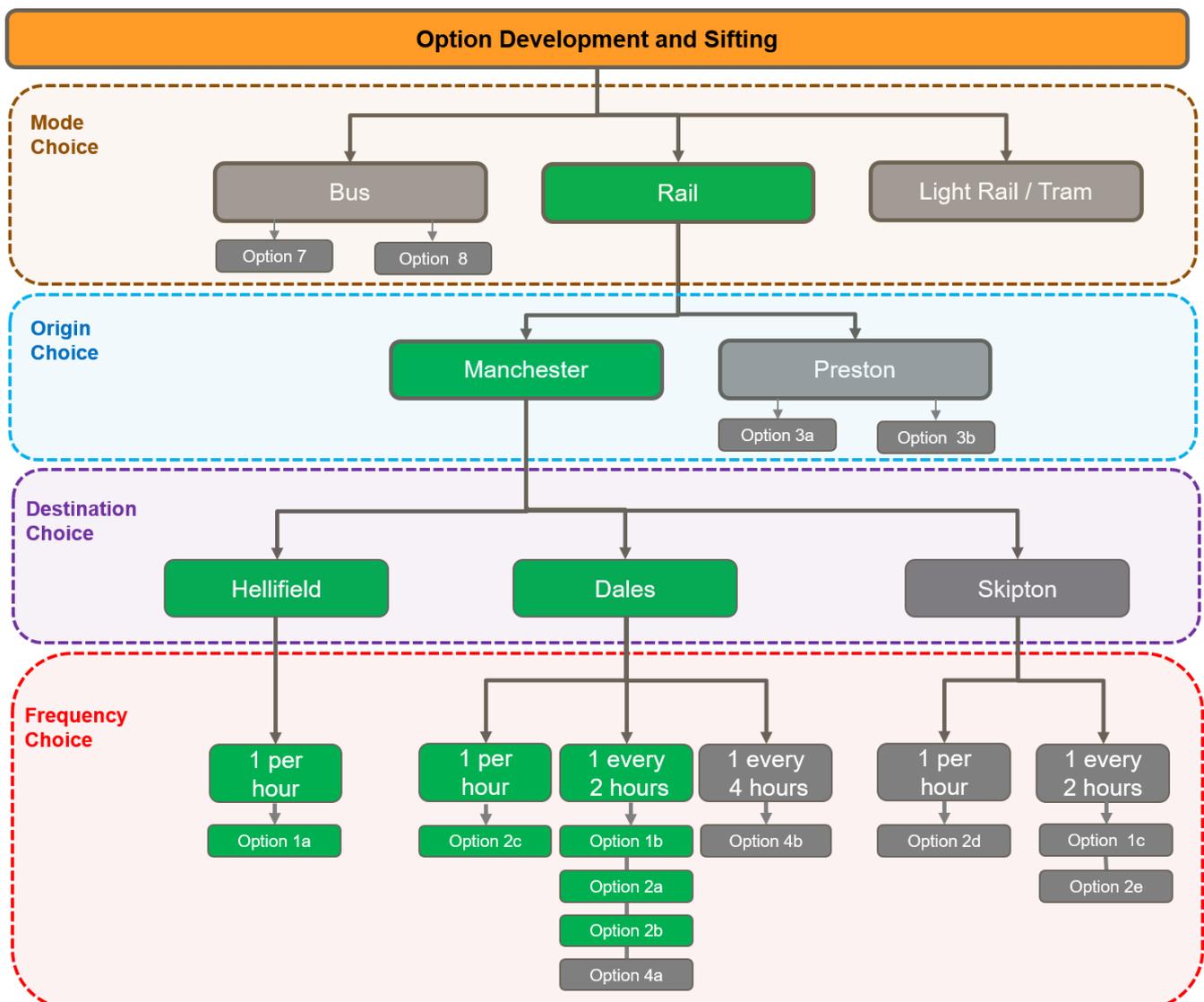
Key Economic and Societal Benefits										
Origin-Destination Pairs	Improved educational attainment	Improved labour market efficiency	Retention of young people in the area	In-migration, particularly among younger demographics	Support flexible working practices	Reduced forced car ownership	Reduce carbon emissions from transport	Increased tourist numbers and associated employment impacts	Encouraging development	Enables balanced spatial spread of development
Manchester - Hellifield	-	-	-	-	✓	✓	✓	✓	✓	✓
Manchester - Dales	✓	✓	✓	✓✓	✓✓	✓	✓✓	✓✓✓	✓✓	✓
Manchester - Skipton	✓	✓✓	✓	✓	✓	✓	✓✓	✓✓	✓✓	✓
Preston - Hellifield	-	-	-	-	✓	✓	✓	✓	✓	✓
Preston - Dales	✓	✓	✓	✓✓	✓	✓	✓✓	✓✓✓	✓✓	✓
Preston - Skipton	✓	✓✓	✓	✓	✓	✓	✓✓	✓✓	✓✓	✓

Option Sifting

At this stage, based on the analysis, a number of options are not recommended for progressing to OBC. These are:

- Options 1c, 2d and 2e (Skipton connections):** All three options consider extensions beyond Hellifield to Skipton. While there is some public support for a link to Skipton, the potential impact on the existing bus service and subsequent negative impact on smaller communities not on the rail line is considered a significant risk. This combined with the greater infrastructure enhancements required to enable such a link, and the greater tourism benefit of a link into the Dales, means these options are not recommended for progression.
- Options 3a and 3b (Preston connections):** It is clear from the work undertaken to inform the option costs that these options are operationally resource intensive and do not significantly improve the service between Clitheroe and Manchester because the connections at Blackburn are poor. Providing access into Preston station is challenging at present and may drive significant costs (to be further informed by Network Rail analysis which is under way because of the arrival of HS2 trains in 10 years' time). In addition, Preston did not come out strongly as a preferred connection during either the stakeholder or public engagement exercises. Similar to that noted for Skipton, there is also the potential to impact on existing bus connections, which also serve other non-rail connected communities.
- Options 4a and 4b:** These two options involve extending services to Carlisle. Option 4a comes with a considerably higher operational cost than the other options, and Option 4b only provides a service once every 4 hours, limiting its ability to provide any significant level of benefit, other than potentially purely leisure travel.

The option development and sifting process is shown in the diagram below, with sifted out options highlighted in grey, and the recommended options for further consideration highlighted in green.



Demand and Revenue Estimates

Employing a proportionate approach to estimating the patronage and associated revenue impacts of the options (in line with the level of detail at SOBC stage), three options were coded¹⁶ into the Rail Delivery Groups MOIRA software. These variants, Options 1a and 1b and an Option 2a/b/c variant were chosen to provide an indication of the likely range of potential revenue impacts across the options, allowing these to be compared to the estimated operating costs as presented in the Option Costs table above.

The three illustrative variants tested were:

- **Option 1a:** Extend *all* current Clitheroe terminating services to Hellifield. This test provides the likely 'lowest' range of benefits the options may provide in terms of the range of stations served but with Hellifield served *hourly*.
- **Option 1b:** Extend *alternate* current Clitheroe terminating services via Hellifield to Garsdale. This option provides an indication of the impact of providing the greatest range in terms of stations served, but with Hellifield and stations beyond having a *one train per 2-hour* frequency.
- **Option 2a/b/c variant:** Extend all current Blackburn terminating services to Clitheroe – this variant provides an understanding of the benefits that would be derived from doubling the service frequency for stations between Blackburn and Clitheroe - enabling these benefits to be combined with those gained by 'closing the gap' where appropriate. This is the case in Options 2a, 2b and 2c which all build off this increased frequency, which is beneficial to the stations between Blackburn and Clitheroe i.e., Whalley, Langho and Ramsgreave & Wilpshire, and Clitheroe itself. Note that this test did not consider extending any services beyond Clitheroe.

MOIRA was used to provide passenger and revenue figures for trips between Appleby and Hellifield and for trips between Clitheroe and Manchester Victoria – i.e., those trips wholly contained to one side of the 'connectivity gap' where the use of MOIRA is appropriate. Note that the Option 2 variant only increases frequency between Blackburn and Clitheroe and passenger demand and revenue outputs were thus derived directly from coding the option into MOIRA.

For trips between Appleby – Hellifield stations and Clitheroe – Manchester Victoria stations (i.e., trips which would cross the 'connectivity gap' in Option 1a and 1b), given the anticipated large change in Generalised Journey Times (GJTs) between the existing situation and a 'with option' situation, it was not appropriate to apply MOIRA. Instead, for Option 1a and 1b, the approach presented in the table below was applied to estimate future passenger demand crossing the connectivity gap. This high-level approach is based on benchmarking travel volumes on the 'new' station pairs with local comparators. Key assumptions within this methodology include:

- Stations between Garsdale and Hellifield will see the same propensity to travel to Clitheroe as travel to Skipton (based on the two settlements being of similar size)
- Stations between Garsdale and Hellifield will see the same propensity to travel south as residents of Clitheroe (per resident)
- Stations between Ramsgreave and Wilpshire and Clitheroe will see the same propensity to travel north as residents of Skipton (per resident)
- Stations between Manchester and Blackburn will see the same propensity to travel north (Hellifield and beyond) as residents of Leeds (per resident) - reflecting a tourist draw to the Dales from a major conurbation

¹⁶ Timetables applied in MOIRA as per those set out in *Clitheroe to Hellifield Strategic Outline Business Case - Option Development and Rail Planning Technical Note (Stantec and Allan Rail Solutions, March 2021)*

Rail Demand Passenger Demand Estimation Approach (Option 1a and 1b)			
From / To	Garsdale to Hellifield	Clitheroe	Whalley – Manchester Vic
Garsdale to Hellifield	Directly from MOIRA	<p><i>Assumed that Garsdale to Hellifield stations will have same propensity to travel to Clitheroe ('source' station) as travel to Skipton (based on the similar size of Skipton).</i></p> <ul style="list-style-type: none"> Patronage from all stations between Garsdale and Hellifield to Skipton obtained from MOIRA Trip rate to Skipton from all stations generated based on the station origin population Trip rate from each station factored down based on the GJT ratio between each station and its 'source' station and with appropriate GJT elasticity applied¹⁷ Passenger demand calculated as the origin settlement population multiplied by the factored down trip rate 	<p><i>Assumed that Garsdale to Hellifield stations will have the same propensity to travel south as residents of Clitheroe ('source' station)</i></p> <ul style="list-style-type: none"> Patronage from Clitheroe to all stations south to Manchester was obtained from MOIRA Trip rate from Clitheroe to all stations south to Manchester generated (based on trips per resident from Clitheroe) and applied to all stations north of the gap to all stations south of the gap (i.e., Whalley to Manchester Victoria) Trip rate from each station factored down based on the GJT ratio between each station and its 'source' station and with appropriate GJT elasticity applied. Passenger demand calculated as the origin settlement population multiplied by the factored down trip rate
Clitheroe to Ramsgreave & Wilpshire	<p><i>Assumed Ramsgreave and Wilpshire – Clitheroe stations will have the same propensity to travel north as residents of Skipton ('source' station)</i></p> <ul style="list-style-type: none"> The patronage from Skipton to all stations between Garsdale and Hellifield obtained from MOIRA Trip rate to all stations between Garsdale and Hellifield from Skipton generated based on station origin population Trip rate applied from all stations (Ramsgreave and Wilpshire – 	No change	No change

¹⁷ The GJT ratio calculation noted for each origin-destination pair, with the GJT elasticity applied was calculated as:

$$GJT_{ratio} = \left(\frac{GJT_{new}}{GJT_{base}} \right)^{GJT_{elasticity}}, \text{ where } GJT_{elasticity} = -0.7 \text{ (taken from the Passenger Demand Forecasting Handbook, PDFH6, May 2018)}$$

Rail Demand Passenger Demand Estimation Approach (Option 1a and 1b)			
From / To	Garsdale to Hellifield	Clitheroe	Whalley – Manchester Vic
	<p>Clitheroe) to all stations Hellifield - Garsdale</p> <ul style="list-style-type: none"> ○ Trip rate from each station factored down based on the GJT ratio between each station and its 'source' station and with appropriate GJT elasticity applied. ○ Passenger demand calculated as the origin settlement population multiplied by the factored down trip rate 		
Blackburn to Manchester Victoria	<p><i>Assumed that Manchester – Blackburn stations will have the same propensity to travel north as residents of Leeds ('source' station).</i></p> <ul style="list-style-type: none"> ○ Patronage from Leeds to stations between Garsdale and Hellifield obtained from MOIRA ○ Trip rate from Leeds to all stations between Garsdale and Hellifield generated based on Leeds population ○ Trip rate applied to all stations (Manchester Victoria to Blackburn) to all stations (Garsdale and Hellifield) ○ Trip rate from each station factored down based on the GJT ratio between each station and its 'source' station and with appropriate GJT elasticity applied. ○ Passenger demand calculated as the origin settlement population multiplied by the factored down trip rate 	No change	No change

The above methodology and assumptions allowed annual passenger demand estimates for new travel 'crossing the connectivity gap' to be derived (post service change ramp-up). An estimate of revenue per passenger for each station to station pair was derived (through interpolation from available station-to-station revenue data extracted from MOIRA) and applied to the demand estimates to provide an annual revenue estimate for all three options tested. The base revenue was then deducted to generate the additional annual net revenue attributable to the option. The following table presents the estimated demand and revenue impacts for each the three options tested.

Passenger Demand and Revenue Impacts				
Variant	Matrix Sectors		Estimated Additional Annual Passenger Demand	Estimated Additional Annual Revenue
	From all station between...	To all stations between...		
Option 1a: Extend all current Clitheroe terminating services to Hellifield (hourly at Hellifield)	Garsdale - Hellifield	Clitheroe - Manchester	45,200	£425,600
	Clitheroe - Manchester	Hellifield - Garsdale	25,500	£264,400
	Hellifield - Garsdale	Hellifield - Garsdale	£0	£0
	Total		70,700	£690,000
Option 1b: Extend alternative current Clitheroe terminating services – all stations to Garsdale	Garsdale - Hellifield	Clitheroe - Manchester	47,700	£448,200
	Clitheroe - Manchester	Hellifield - Garsdale	29,900	£310,300
	Hellifield - Garsdale	Hellifield - Garsdale	5,800	£15,500
	Total		83,400	£774,000
Option 2 a/b/c/ variant: Extend all current Blackburn terminating services to Clitheroe	Clitheroe - Ramsgrave & Wilpshire	Blackburn - Manchester	36,400	£ 107,300
	Blackburn - Manchester	Clitheroe - Ramsgrave & Wilpshire	18,000	£47,000
	Clitheroe - Ramsgrave & Wilpshire	Clitheroe - Ramsgrave & Wilpshire	15,800	£15,100
	Total		70,200	£169,400

The results show:

- Slightly greater revenue for Option 1b than Option 1a, highlighting that extending service into the Dales (with a two-hourly frequency) provides a greater revenue benefit than an hourly frequency at Hellifield
- A minor increase in passenger demand between stations on the Settle-Carlisle Line due to the increased frequency on the line the option provides
- Given the demand and revenue associated with the Option 2 variant, it can be assumed that the annual additional revenue that could be generated ranges from approximately £690,000 (train terminating at Hellifield) to approximately £938,400 (£774,000 plus £169,400)

A comparison has been made between the estimated additional annual revenue and operating costs as presented above for Options 1a and 1b. Note that the costs for Options 2a, 2b and 2c with regards to the additional operating costs between Blackburn and Clitheroe have not been derived at this stage - as this does not close the connectivity gap.

The results show that, similar to other rural schemes, the estimated operating costs are in excess of the annual revenue. This is not dissimilar to other rural rail services where the key benefits derived relate to a range of economic and social benefits not modelled or monetised as part of this assessment.

Option		Estimated Annual Revenue (£'s)	Estimated Annual operating Cost (£'s)	Annual Net Revenue	Annual Revenue as % of Annual Operating Cost
Option 1a	Extend all current Clitheroe terminating services to Hellifield	£690,000	£1,500,000	-£910,000	46%
Option 1b	Extend alternative current Clitheroe terminating services – all stations to Garsdale	£773,800	£1,700,000	-£926,000	46%

In addition, a 'benefit to cost' ratio (BCR) has been derived for Options 1a and 1b. Reflecting guidance from the DfT, this has considered a 60-year benefit stream taking account of capital costs, operational costs and revenue only. For this purpose, it was assumed that:

- Capital costs were profiled with 25% in 2023 and 75% in 2024
- Operational costs increased year on year at 1% above inflation
- Passenger demand 'ramped' up to 70% in Year 1, 85% in Year 2, 95% in Year 3 and 100% in Year 4 – as per the *Passenger Demand Forecasting Handbook 6, May 2018, Table B9.7 'Lags for New stations And Services'*
- Demand (and hence revenue) grows at 3.5% for the first 10 years (based on passenger growth over the last 10 years at Skipton, Gargrave, Hellifield and Long Preston¹⁸), 2% for the next 20 years, and with flat 0% growth thereafter

The BCR was calculated considering the capital cost for just essential infrastructure and with both essential and desirable infrastructure, as noted in the Options Cost Table. The results are presented below.

Option		With Essential Infrastructure			With Essential and Desirable Infrastructure		
		Present Value of Costs (£m)	Present Value of Revenue (£m)	BCR	Present Value of Costs (£m)	Present Value of Revenue (£m)	BCR
Option 1a	Extend all current Clitheroe terminating services to Hellifield	£25.9	£17.4	0.67	£27.9	£17.4	0.62
Option 1b	Extend alternative current Clitheroe terminating services – all stations to Garsdale	£27.0	£19.5	0.72	£30.4	£19.5	0.64

The BCRs, which are less than one, are not dissimilar to other rural rail services where the key benefits derived relate to a range of economic and social factors which are not modelled or monetised as part of this assessment. These benefits would require further analysis at Outline Business Case stage to fully consider the wider benefits of the options beyond purely financial.

More detailed modelling at Outline Business Case stage will help better define the revenue and benefits. Discussions with Transport for the North regarding their Northern Rail Modelling System (NORMS) has made it clear that using the NORMS model for the next, more detailed stage of work would be appropriate, as it provides better choice modelling for new connectivity and / or large changes in journey time such as that here.

¹⁸ <https://www.orr.gov.uk/>

DalesRail (Option 6)

DalesRail offers a well organised and targeted service, which will not be matched by a conventional franchised train service. The provision of direct Manchester Victoria (particularly) or Preston starting services into the Dales will potentially open up new markets for the Dales and the rail service generally. It is considered that the complete replacement of the DalesRail services by extensions of Manchester Victoria – Blackburn/Clitheroe services would result in the loss of a long-standing operation tailored to the market it serves. The extended Manchester Victoria – Blackburn/Clitheroe services would not offer the same add-ons as DalesRail currently offers, but it will bring new users and visitors to the Dales, from a wider range of origins, for more days in the week and in new market segments. There is scope for an expanded DalesRail service alongside any provision of new regular services and these could be introduced incrementally.

It is therefore recommended that a complimentary solution is devised which preserves the benefits of DalesRail but capitalises on the new access, both the reach of any new train services and the all-week and all-year coverage of regular services. It is suggested that this is achieved by retaining and increasing DalesRail services to include Saturdays, Bank Holidays, and selected Friday train services, for a potentially longer season, and these services operate through to Carlisle. These services would retain an appropriate range of add-on activities (guided walks, connecting coach tours). This range of add-ons should also be made available to link with any new regular Clitheroe – Hellifield services and the existing Leeds based services. Further detail on the development of this option is provided in *Clitheroe to Hellifield Strategic Outline Business Case – DalesRail, (Stantec and Allan Rail Solutions, March 2021)*.

The Financial Case

Option Budget Profile

It is envisaged that, for all remaining options (Option 1a, 1b, 2a, 2b and 2c), the capital budget would be profiled over two years with 25% in Year 1 and 75% in Year 2, with Year 1 likely to be 2023.

Any of the options to be implemented would operate over existing railway so the capital costs are relatively modest, ranging from zero to a few million pounds depending on the option chosen. Of the options not sifted out, Option 1b and 2a require zero essential capital infrastructure, with Option 2c requiring the greatest capital investment, estimated at a cost of £3.3m.

Over the longer-term, all options considered should be seen as revenue cost projects.

Cost Risk and Uncertainties

The early involvement of Northern Trains as the business case progresses and use of the DfT Franchise Model to quantify and cost potential changes should result in relatively low risk operating costs.

Options that offer hourly services to Hellifield (Options 1a and 2c) require signalling works. Whilst there is a *Signal Box Life Extension Programme* under way for Hellifield, Settle Junction and Blea Moor signal boxes, it is too far advanced to be able to minimise the cost of the relatively low-cost enhancements required or desired, by incorporating them into the work. However, moving straight on from the life extension works to any enhancements will be able to make use of the condition reports and as-built drawings that result from the life extension works. This should minimise the time and cost to delivery.

There should not be any significant cost risk uncertainties in respect of land requirements, complex works or third-party agreements – with the possible exception of an adequate car park at Hellifield station. This is already a pressing issue, but where the land controlled is not sufficient to provide an adequate car park.

Option Funding

There is considered to be limited scope for any funding outwith the standard franchise support for Northern Trains and grant support for any Network Rail works, although there may be a requirement for ‘multi-party’ third party funding.

The capital funding required is considered to be small in the scale of Network Rail’s overall programme, so is unlikely to create significant pressure on other project funding and moving straight on from *Signal Box Life Extension Programme* enhancements, making use of the condition reports and as-built drawings should minimise use of scarce technical resources.]

The operational cost increase will feed through to the costs of Northern Trains. In the scale of the total activity and planned ongoing support (Pre-COVID), the net cost is likely to be small, but there is likely to be a funding increase required.

The Commercial Case

Delivery Partners and Contractual Relationships

This project is unusual for an investment appraisal project in that relatively little additional infrastructure is required, and indeed, in some options, no additional infrastructure is specifically required. The whole of the Clitheroe to Hellifield route is already operated to passenger train standards and whilst some options require signalling work, it is relatively minor in scope and work that is performed routinely across the network.

The biggest element of the work is planning, resourcing, and implementing the train service changes, which is again routine activity for train operating companies. In addition, the degree of change required here is considerably smaller than many timetable changes to bring in franchise service enhancements.

Consequently, the implementation of DfT's agreed final proposals should be part of the routine activity between Northern Trains and Network Rail as part of the timetable change. Attempting to provide anything different between these two established operators is unlikely to provide better outcomes and potentially may confuse the issue.

If 'pre-COVID' conditions were assumed, and with an early decision, this could be May 2023 (driven by the lead times for driver recruitment and training) and subject to the standard contractual relationships. However, the impacts of the COVID pandemic on driver training programmes and other uncertainties make this more challenging.

It is recognised that there is a major cost associated with the level of training which would need to take place for both Northern's drivers and conductors. At present, the DalesRail service is covered by a Blackpool based train crew as far as Hellifield (with the service north of Hellifield covered by Skipton based drivers and Carlisle based conductors). All Rochdale-Blackburn/Clitheroe services are covered by Blackburn and Manchester based train crews. None of these currently sign north of Horrocksford Junction. Northern is still affected by the pause to training last year due to the pandemic and the continuing situation with COVID (re-training/training new starters etc.) and this would place an element of risk to the programme of delivery from May 2023.

The changes would need to be agreed by DfT and implemented as part of the standard change mechanism built into the franchise contract. However, this is a stable process, with a high level of price certainty once the changes are agreed and before the project is committed.

The Management Case

Following a discussion with client team it is considered that a more typical Network Rail led scheme in developing the OBC and preferred infrastructure option, with joint client team- DfT, the promoter/ supporter (RVBC and Project Team) and Rail North Partnership as the franchise manager, is the most appropriate way forward in respect of this project. Continued involvement of key stakeholders is considered to be important in delivering this scheme.

Summary and Conclusions

Summary

This SOBC has considered a range of potential options for closing the public transport connectivity gap between Clitheroe and Hellifield. The analysis has highlighted that existing direct public transport connections between the RVBC and CDC areas are lacking and that travel between the two areas is indirect, relatively expensive, and requires interchange with significant travel times that are uncompetitive with the private car.

This lack of public transport connectivity has an impact on the ability of those within the region to access employment and educational opportunities and notably is impacting on the ability of the region to build on a growing tourism industry.

From consideration of the transport problems and the opportunities, five objectives were defined.

The option possibilities were developed through a structured approach considering mode choice, the origin of connections, the destination of connections, and the potential frequency of these connections.

An initial review of the options established rail as the most advantageous mode in delivering benefit against the study objectives. As such, the options relating to other public transport modes were not progressed. The implementation of new stations north of Clitheroe does not close the connectivity gap and cannot happen without the connectivity gap being closed. The opportunities for new stations should be viewed as a longer-term investment opportunity once regular passenger rail services on the line are reinstated.

Consideration of the potential origin choices for services removed Preston as a potential origin choice. This was due to Preston station capacity challenges, the resource intensive nature of providing such a connection and the potential impact on existing bus services. This was also supported through the stakeholder and public engagement exercises which highlighted Manchester as a preferred origin choice for services.

With Manchester Victoria as a preferred starting point for services, the potential range of options for linking Clitheroe with Hellifield was considered. This included considering services terminating at Hellifield, as well as establishing what additional benefit could be derived from extending services beyond Hellifield, either northbound on the Settle-Carlisle Line, or eastwards to Skipton. The frequency of extended services was also explored. Through this analysis, a number of options were sifted out. Services to Skipton are not recommended for further consideration given the potential impact on the existing bus service, the greater infrastructure requirements to enable such a link, and the greater tourism benefit of a link into the Dales.

For the remaining options, based on the high-level assumptions made here, the potential annual revenue generated by a new service could range from approximately £690,000 to £938,400 depending on the frequency of service at Hellifield and the reach of any extended service beyond Hellifield. A comparison against the annual operating costs for the service beyond Clitheroe showed that the additional revenues equate to just under half of the operating costs and benefit cost ratios were less than one. This is not dissimilar to other rural rail services where the key benefits derived relate to a range of economic and social impacts which are not modelled or monetised as part of this assessment. These benefits would require further analysis at Outline Business Case stage to fully consider the wider benefits of the options beyond purely financial.

Conclusions

At the end of the assessment, five options remain and have been shown to provide a range of positive transport outcomes and wider socio-economic impacts. All five options are therefore considered worthy of progression to the next stage of the *Restoring Your Railways Ideas Fund* process and further development at Outline Business Case stage.

The first key point from the remaining options is that the decision to extend the Manchester Victoria to Blackburn trains on to Clitheroe is one that can be made independently of any extension beyond Clitheroe to Hellifield and possibly beyond. Service extensions beyond Clitheroe are not dependent on the operation of an extra Blackburn to Clitheroe service, although it will permit a wider range of timetabling options.

There is a trade-off between hourly and two-hourly operation to Hellifield, with the two-hourly option permitting extending the service to Settle, Ribbleshead and potentially Garsdale. Providing a service as far as Garsdale could be achieved without requiring an additional train unit, so only incurring marginal operational costs. An hourly service restricts the destination to Hellifield (or Settle Junction), or Settle - if the necessary infrastructure was put in place to reverse the train.

It is clear that **a passenger service between Clitheroe and Hellifield could be reinstated in the short-term with little need for additional infrastructure and could potentially be delivered as part of the May 2023 timetable change.** In the short-term, it has been shown that a service linking to Manchester Victoria and extending to Hellifield or beyond on the Settle-Carlisle Line is the most beneficial, given the more minor technical requirements and outlay required to facilitate this, and the benefits that such a link could provide.

Further exploration at Outline Business Case to more accurately establish the benefits and costs of the options would be required to establish the merits of progressing each option beyond that stage.

As a final point, the opportunities presented with respect to an expansion of the DalesRail service, as discussed above, should also be taken forward and further explored at Outline Business Case stage or as part of an independent project to supplement the emerging conclusions of this business case.

Key Advantages and Disadvantages of Recommended Options

For clarity, the advantages and disadvantages for each of the five remaining options are listed in the table below.

Key Advantages and Disadvantages of Recommended Options			
Option	Description	Key Advantages	Key Disadvantages
Option 1a	Extend all current Clitheroe terminating services to Hellifield	<ul style="list-style-type: none"> • Direct connection from Hellifield to Manchester Victoria with substantial improvement in existing travel opportunities • Hourly service from Hellifield • Low cost • No impact on existing bus operations • Does not impact on Settle-Carlisle Line capacity 	<ul style="list-style-type: none"> • Interchange required for onward connectivity north or Hellifield • Risk of 'railheading' at Hellifield – station already has known existing parking constraints • Infrastructure required to enable train to terminate • Unlikely to support the growth in the tourism industry • Public preference was for a service which extended beyond Hellifield
Option 1b	Extend alternative current Clitheroe terminating services – all stations to Garsdale	<ul style="list-style-type: none"> • Performs well against the study objectives • Direct connection from Dales communities and Hellifield to Manchester Victoria with substantial improvement in existing travel opportunities • No competing existing bus connections • Reduced risk of rail heading at Hellifield • Would support growth in the tourism industry • No essential infrastructure required 	<ul style="list-style-type: none"> • Only 2-hourly service from Hellifield
Option 2a	Two trains per hour to Clitheroe. One train every two hours to Garsdale	<ul style="list-style-type: none"> • Performs well against the study objectives • Direct connection from Dales communities and Hellifield to Manchester Victoria with substantial improvement in existing travel opportunities • No competing existing bus connections • Reduced risk of rail heading at Hellifield • Would support growth in the tourism industry • Increased service frequency for stations from Clitheroe to Blackburn • No essential infrastructure required 	<ul style="list-style-type: none"> • Higher operating cost due to required second train unit and associated crew • Potential for continuing 'railheading' at Clitheroe given higher service frequency • Only 2-hourly service from Hellifield
Option 2b	Two trains per hour to Clitheroe. One train every two hours to Ribblehead	<ul style="list-style-type: none"> • Performs well against the study objectives • Direct connection from Dales communities and Hellifield to Manchester Victoria with substantial improvement in existing travel opportunities • No competing existing bus connections • Reduced risk of rail heading at Hellifield • Would support growth in the tourism industry • Increased service frequency for stations from Clitheroe to Blackburn • No essential infrastructure required 	<ul style="list-style-type: none"> • Higher operational cost due to a required second train unit and associated crew • Potential 'railheading' at Clitheroe given higher service frequency • Only 2-hourly service from Hellifield
Option 2c	Two trains per hour to Clitheroe. One train per hour to Settle Jn	<ul style="list-style-type: none"> • Performs well against the study objectives • Increased service frequency for stations from Clitheroe to Blackburn • Hourly service from Hellifield • Less potential for 'railheading' at Clitheroe 	<ul style="list-style-type: none"> • Infrastructure required • Reduced penetration into the Yorkshire Dales