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OUTLINE BUSINESS CASE

Elland Station & Access Package

21st March 2019

Applicant Details

Name of scheme:	Elland Station & Access Package
Scheme PMO Reference Code:	WYTF-PA4-042a
Business Case Stage	Outline Business Case (Activity 3)
Location of scheme (including postcode):	Lowfields Way, Elland (see map in Section 1.1)
Lead Organisation:	Calderdale Metropolitan Borough Council
Type of organisation:	Local Authority

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Is any information in this form is considered exempt from release under Section 41 of the Freedom of Information Act 2000	**Yes**	
	No	**X**

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Certificate of Approvals

To be completed by Combined Authority staff:

This business case has been appraised in accordance with the Leeds City Region Assurance Framework and approved by the following:

Note - the required approvals will depend on the agreed approval pathway set out and agreed for the scheme during Stage 1: Pipeline Eligibility, if it does not require a certain approval then mark as N/A

	Approved (Y/N, n/a)	Signed	Date
Combined Authority Case Officer:			
Appraisal Team/Peer Review Team			
Programme Appraisal Team:			
Combined Authority Managing Director:			
Investment Committee:			
Combined Authority:			
Other (Please State):			

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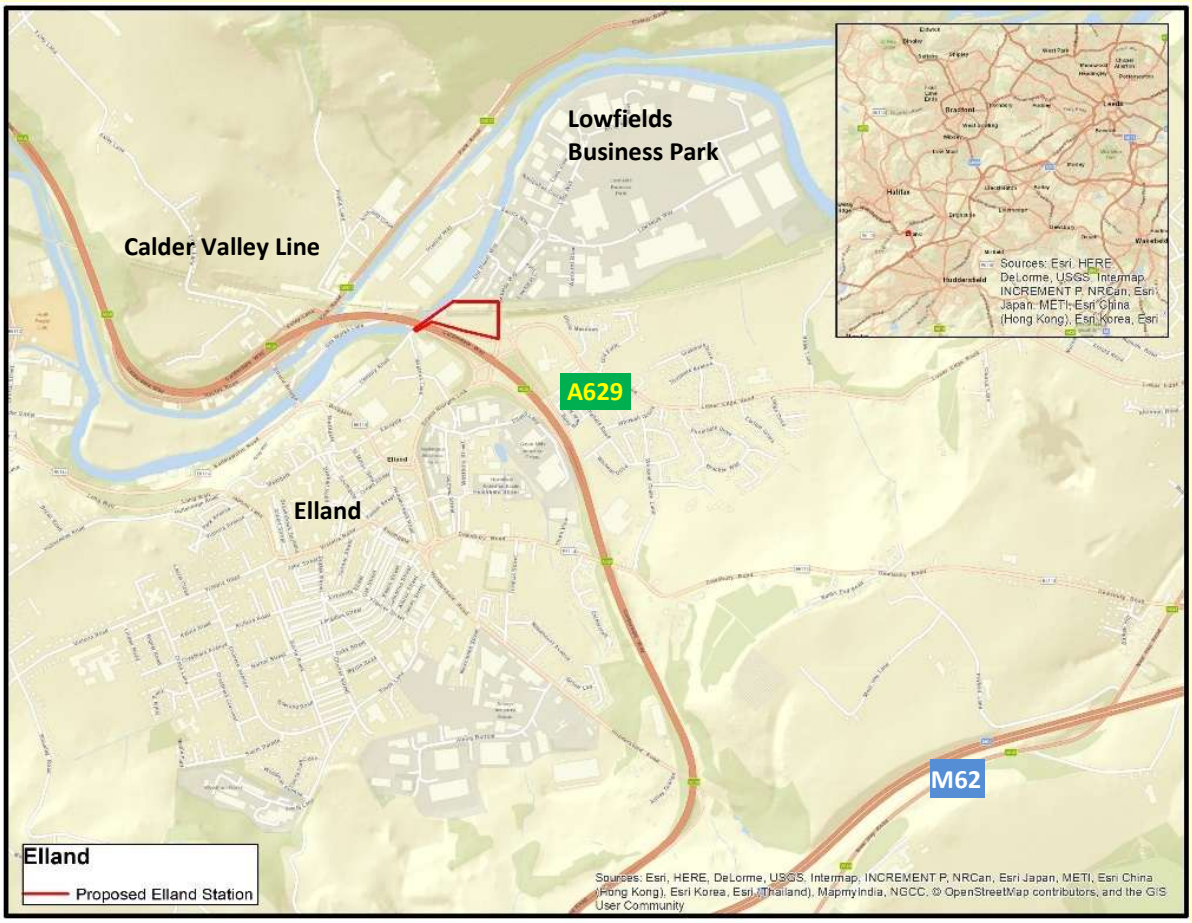
Acronym	Full Title

1. Scheme Summary

1.1 Scheme Description:

The scheme involves provision of a new railway station and park and ride car park on the Calder Valley Line for the town of Elland and surrounding area on a site adjacent to the A629 and close to Lowfields Business Park (See Figure 1-1), including complementary walking, cycling and public realm enhancements to connect the station to the existing land uses.

Figure 1-1 Proposed Elland Station Location



The proposal for the station is for a two-platformed, unstaffed railway station. The station platforms would be positioned on the existing embankment at an elevated level. Lift and stepped access will be provided from car park level on both sides to ensure accessibility. No footbridge will be provided as part of the scheme, with cross platform access being provided by the existing highway underpass on Lowfields Way. Public realm improvements are proposed for the underpass. Each platform will contain a sheltered area.

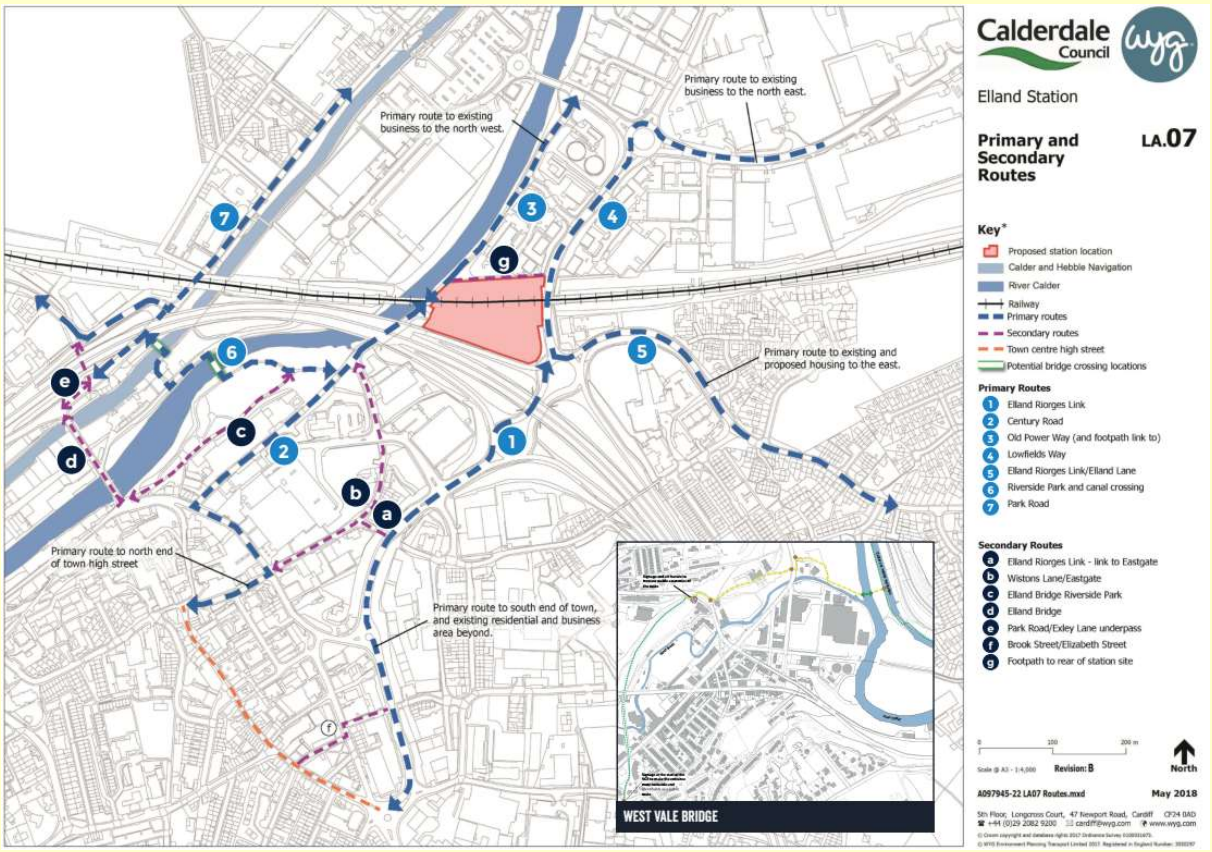
Access Package

To complement the new rail station and integrate it into the existing land uses and growth areas in Elland, Calderdale Council has developed a package of improvements to improve walking and cycling access to the proposed station location. These proposed measures (the 'Access Package') include consideration of three new pedestrian and cycle bridges crossing

the River Calder and Calder Hebble Navigation, improvements to existing pedestrian and cycle routes and public realm enhancements across the project area.

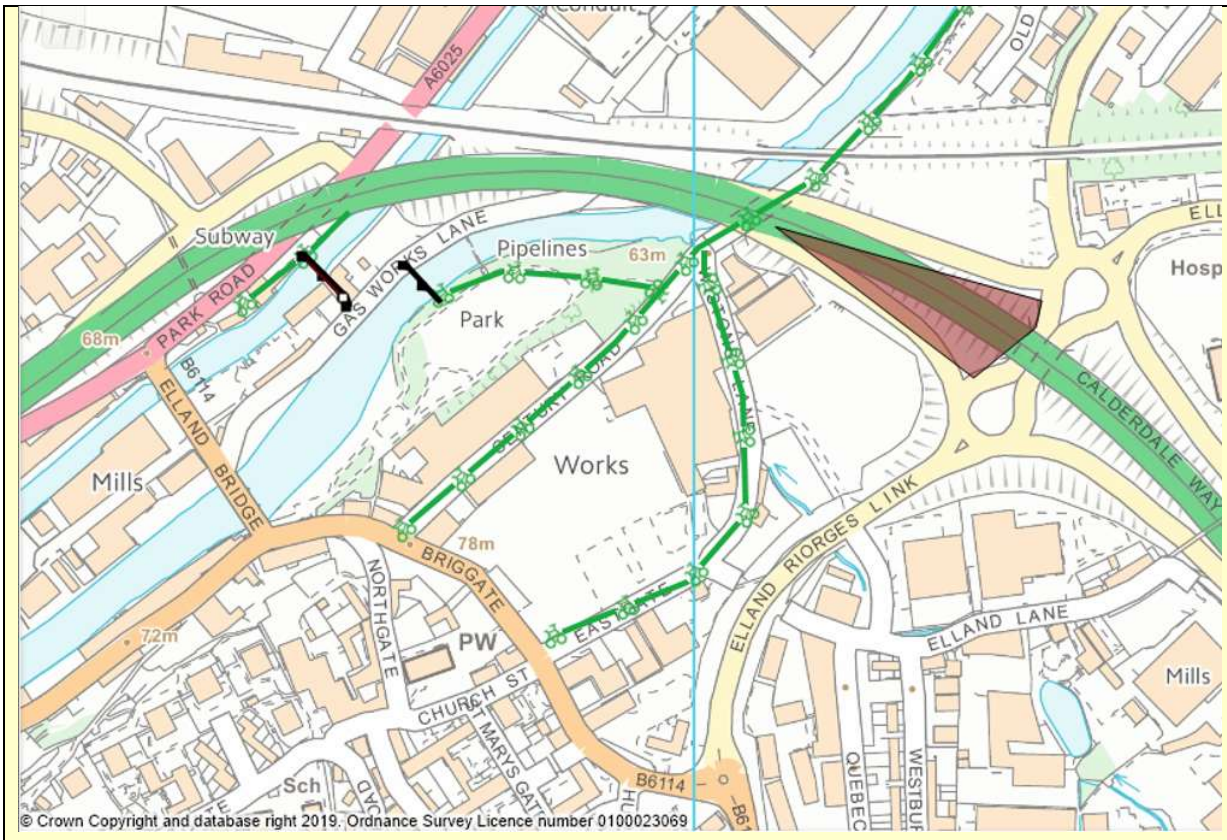
These on-street public realm and active mode enhancements have been categorised into Primary and Secondary routes. Primary routes provide more direct / attractive links between Elland station and strategic points in the town. Secondary routes help to connect the primary routes and provide less direct links to the proposed Elland Station. These routes are shown below in Figure 1-2.

Figure 1-2 Map of proposed access improvements to Elland Station



The Access Package has been designed flexibly and prioritised according to how each route contributes to attainment of objectives and level of complexity / cost for delivery. This approach has allowed the final specification of the Access Package to be value engineered to fit within the affordability envelope for the overall station scheme.

The priority package for the Access Package is to deliver two bridges: the river Calder bridge and the Navigation bridge; and link roads to give immediate access to the bridges and new rail station as illustrated in Figure 1-3 below.



The improvements are described below:

- Two ped/cycle bridges providing traffic free access to the station from the Calderdale Greenway (Route 66) from the western side of Elland and West Vale/Greetland
- Widening the towpath alongside Park Road to give seamless access from the Calderdale Greenway over the Navigation Bridge onto Gas Works Lane then over the River Bridge into Riverside Park.
- Upgrading and adopting Century Road for direct, traffic free access to and from the Town Centre /station and connecting to Low Fields Industrial park. This links directly to Riverside Park.
- Upgrading Old Power Way to provide direct, traffic free access from the Brighouse direction and Low Fields.
- Improving walking and cycling route to and from the Town Centre/station via Eastgate serving the wider housing and employment catchment on the south-eastern part of the town and creating a new off-road route through Morrisons land along desire lines.

Car Park

The car park will be situated in the triangular parcel of land immediately south of the proposed station, adjacent to the A629 eastbound offslip. It is designed to have a capacity for 166 spaces; including 12 disabled bays, 8 electric charging spaces and 1 space designated for maintenance vehicles only. In addition to the vehicle parking spaces, 2 areas will be provided for motorcycle parking and 40 spaces for cycle storage. Car parking at the station is assumed to be free of charge.

Proposed Rail Services

The station is anticipated to be served by the two hourly local stopping services operated by Northern Rail. Atkins' timetabling study considered the May 18 Northern and TPE timetables, which are the best current representation of the future timetable on the route, given the as yet unconfirmed impact of the Transpennine Route Upgrade project.

The study reviewed each train path in the core timetable in turn and looked at the feasibility of stopping the service. The option taken forward for detailed timetable assessment was agreed at a stakeholder meeting held on 19th October 2017, with the following services stopping hourly to provide a 2 trains per hour (tph) service:

- 1tph Southport – Leeds

- 1tph Leeds – Huddersfield

Grand Central services (4 trains per day) could also call at Elland and the operator will review their position at a later stage in the project.

1.2 Scheme Objectives:

The overarching aim of the new station and associated access and public realm improvements is to serve as a catalyst to the transformational regeneration of Elland. The scheme will do so by delivering on the following objectives (see Table 1-1):

Table 1-1 Scheme Objectives

Objective No.	Scheme Objective
1	Improve journey time reliability for strategic journeys to/from Elland.
2	Strategic park and ride, seeking to capture shorter distance, typically commuter and leisure trips to relieve congestion on A629.
3	Increase rail mode share for journeys to/from Elland in order to achieve sustainable growth.
4	Increase the labour market catchment of Elland in order to attract new investment and retain existing employers.
5	Increase accessibility of Elland from within and beyond the City Region in order to increase competitiveness and improve productivity.
6	Facilitate future housing growth in Elland and western parts of Brighouse by reducing transport constraints to development.

1.3 Key activities to be funded:

The Combined Authority funding will be used to pay for all project development and construction costs. Land for the car park is supplied by Calderdale MBC.

The estimated funding requirement for the next phase (Activity 4: Full Business Case) is £1.300m, which includes for Combined Authority project team costs, surveys, technical design, legal support for franchise and planning arrangements and Network Rail Development Services Agreement fees.

Scheme Programme:	**Scheme Start Date**	**Scheme End Date**
	Forecasted Full Approval Date: February 2021	Forecasted Completion Date: September 2022
Total Scheme Cost (£m):	£20.341m	
Combined Authority funding (£m):	£19.991m	
Combined Authority funds as % of total scheme investment:	98.3%	
Total other public sector investment (£m)	£0.350m (CMBC funding of £50k, plus £300k land value)	
Total other private sector investment (£m):	N/a	
Applicable Funding Stream:	West Yorkshire Plus Transport Fund (WY+TF).	
Strategic Economic Plan Priority Area:	The scheme will contribute to delivery of all four LCR Strategic Economic Plan (2016) Priority Areas (listed below). Section 2.1.2 describes how. • Priority Area 1 – Growing Businesses • Priority Area 2 – Skilled People, Better Jobs • Priority Area 3 – Clean Energy & Environmental Resilience • Priority Area 4 – Infrastructure for Growth	

2. Strategic Case

The purpose of the Strategic Case is to set out the strategic drivers for this investment and the associated strategies, programmes and plans both locally and nationally. This should be based upon a robust evidence base which demonstrates a case for change.

Note – All sections should be reviewed and updated if this is the Full Business Case. A summary of any key changes and their implications on the business case should be included.

2.1 The Strategic Context

2.1.1 What are the strategic drivers for this investment?

LOCAL CONTEXT

The proposed Elland station lies within the Elland ward (population 12,200) of Calderdale and would also directly serve the adjacent Greetland and Stainland ward (population 11,400) and the rest of south and central Calderdale as a park and ride facility. Elland is largely urbanised in the vicinity of the proposed station, with a mix of residential, retail and industrial land uses.

Lowfields Business Park, immediately north of the planned station, acts as a focus of economic activity in the town, yet this success fails to translate across the rest of the town due to its perceived remoteness from the town centre. Whilst further growth of Lowfields is proposed under the Local Plan, retention of current employers is becoming an issue as a result of unreliable transport links with areas from where it draws its workforce. The competitive advantage of many entrepreneurial companies based there is also being eroded, placing their survival at risk to rivals benefitting from better connected locations.

Beyond Lowfields, a substantial proportion of Elland's existing employment sites fail to provide the density of higher value jobs that may otherwise be expected in locations that benefit from better strategic connections. This underperformance is found to contribute to a wider malaise in economic output evident across the town, with resulting negative consequences to place making and quality of life ambitions.

The remainder of this section explores the economic, social and transport conditions in Elland, highlighting where a new rail station may contribute towards resolving the underlying causes.

Economy

Data about the economy is generally reported at a Local Authority level rather than by ward and hence this section describes the economic conditions in Calderdale as a proxy to those in Elland. It should be noted therefore that available data would suggest that Elland residents have similar though generally poorer prospects than the average Calderdale resident, as the following illustrates:

- According to the Index of Multiple Deprivation 2015, 22.1% of children aged 0 - 15 in Elland live in families that are "Income deprived" and 16.4% of people aged 60 or over are "Income deprived". This compares with 21.4% and 16.4% respectively for Calderdale as a whole.
- At the national Census in 2011, 5.37% of residents aged 16 - 74 in Elland Ward were unemployed compared with 5.00% for Calderdale
- 20.91% of residents in Elland Ward have achieved level 4 qualifications and above compared to 25.00% in Calderdale as a whole. 25.19% of residents have no qualifications compared to 23.80% in Calderdale.

Calderdale as a whole makes a significant contribution of over £4 billion to the Leeds City Region economy, accommodating 100,000 jobs and generating strong employment growth. However, there is a significant shortfall in productivity per worker evident in Calderdale. Table

2-1 provides a comparison of some of the key economic metrics for Calderdale, Leeds, Leeds City Region and England.

Table 2-1 Calderdale demographic and employment data

	Calderdale	Leeds	Leeds City Region	England
Total population, 2015	208,000	774,000	3,026,700	54,786,300
Total working age population, 2015	133,000	509,000	1,919,400	34,669,600
% change in work population 2000-2015	8.6%	10.7%	9.9%	10.2%
GVA, 2014	£4,215m	£20,188m	£62,451m	£1,377,851m
Productivity (output per hour worked), 2014	£20.1	£28.2	£27.2	£31.5
Total employment, 2015 (BRES)	97,000	432,000	1,349,000	21,900,000
% change in employment 2000-2015	19.8%	11.3%	11.1%	14.4%

Source: WYCA, BRES and the ONS

Calderdale's output per hour worked is 26% lower than the Leeds City Region and 35% lower than for England. Bridging this gap will rely both on attracting more businesses to Calderdale and also on improving transport links to help residents access jobs markets in other economic centres.

Gross Value Added (GVA) is a measure of the total value of goods and services produced in an economy. Table 2-2 below presents growth of GVA over the period 1998 to 2016 for Calderdale (and Kirklees), Leeds, West Yorkshire and the UK; the geographies presented are not at a local authority level because the data is disaggregated at a NUTS3 level.

Table 2-2 Comparison of GVA Growth in Calderdale and West Yorkshire, 1998-2016 (£m)

	1998	2008	2016	Annual Growth '98-'08	Annual Growth '08-'16
United Kingdom	891,162	1,422,307	1,747,647	4.8%	2.6%
West Yorkshire	27,643	43,021	51,620	4.5%	2.3%
Leeds	11,389	18,956	22,355	5.2%	2.1%
Calderdale and Kirklees	6,832	10,023	12,129	3.9%	2.4%

Source: Office of National Statistics

Table 2-2 highlights that prior to 2008 GVA growth in Calderdale (3.9% p.a.) was lagging significantly behind other parts of West Yorkshire (4.5% p.a) and the UK average (4.8% p.a). Since the 2008 financial crash however, Calderdale's GVA growth, though slower than pre-2008 (as is the case for all of the UK), is now comparable to the UK average and in fact outperforms Leeds and the West Yorkshire average. With reference to Table 2-1, which reports a 19.8% increase in the level of employment in Calderdale, this growth would seem to be driven more by reduced levels of unemployment rather than by productivity gains.

Industrial Sectors

NOMIS publishes the findings of the Business Register Employment Survey (BRES) each year which estimates the number of workers employed in each sector for varying geographies – in

this case local authorities. The proportion of employment of each local authority in each 2-digit industrial code is shown below.

Table 2-3 Principal Industrial Sectors in Calderdale by % of jobs (2016)

Industrial Sector	Calderdale	Bradford	Kirklees	Leeds	West Yorkshire
78 : Employment activities	14.6	3.1	1.3	4.4	4.7
64 : Financial service activities, except insurance and pension funding	5.2	3.1	0.6	2.8	2.4
28 : Manufacture of machinery and equipment n.e.c.	2.1	1.3	1.9	0.6	1.0
65 : Insurance, reinsurance and pension funding, except compulsory social security	1.0	0.1	0.0	0.3	0.2
25 : Manufacture of fabricated metal products, except machinery and equipment	1.8	1.2	1.6	0.8	1.1

Source: Business Register of Employment Survey (BRES) Open Access

A significant share of Calderdale's employment, and a much higher proportion than elsewhere in West Yorkshire, is within Employment Activities. The BRES data also demonstrates the significance of the financial services sector, with Financial Services Activities and Insurance, Reinsurance and Pension sectors accounting for a total of 6.2% of the total jobs in Calderdale. Also prominent is manufacturing, contributing a total of 3.9% of jobs, again much higher than the West Yorkshire average.

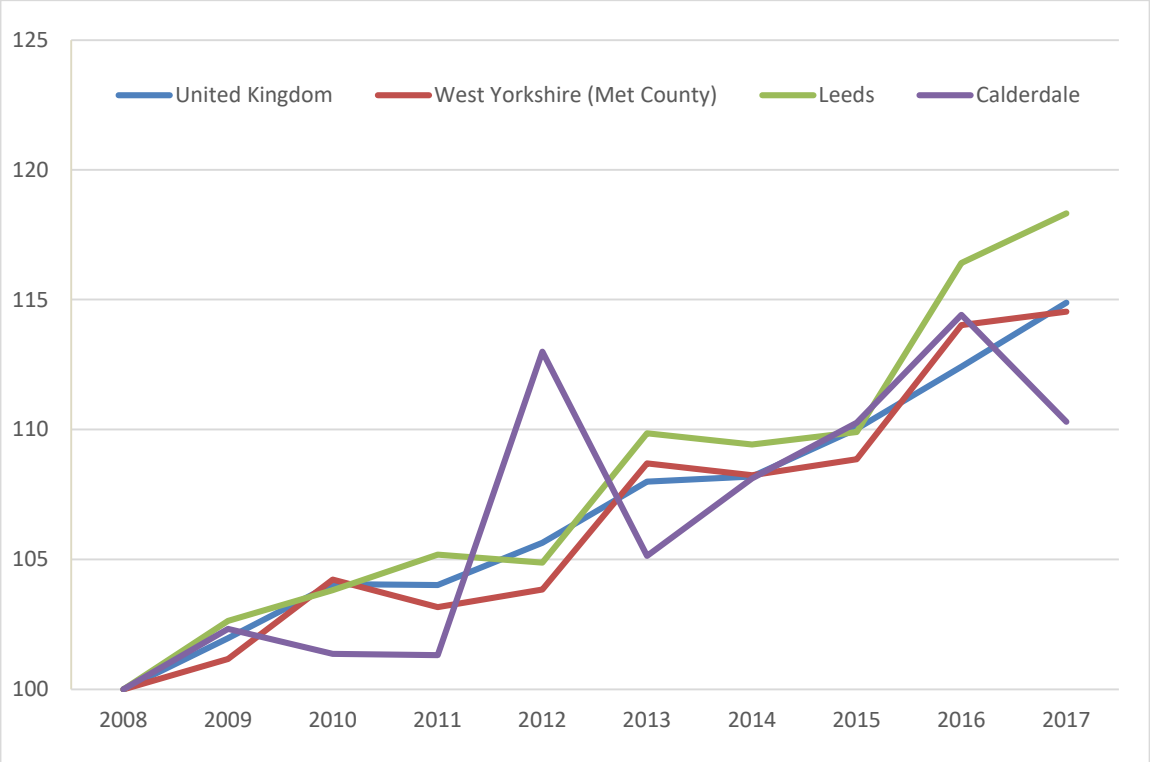
"Calderdale is a centre for financial services and the location of the Lloyds Banking Group Headquarters. It has a higher than UK average of employment in advanced engineering and manufacturing (AEM), specialising in complex components. The concentration of AEM means there is a well-developed supply chain and dense logistics sector dependent on the strategic and key road networks" – *WYCA Transport Strategy 2040*

Sustaining and growing these higher value industrial sectors in Calderdale is a key focus for local and regional policymakers. These industries rely on good connectivity to other businesses and to deep and diverse labour markets beyond the district boundary.

Earnings

Calderdale has seen strong growth in earnings in recent years, with resident wage growth generally keeping pace with the national average, though failing to keep pace with the level of growth observed for Leeds' residents.

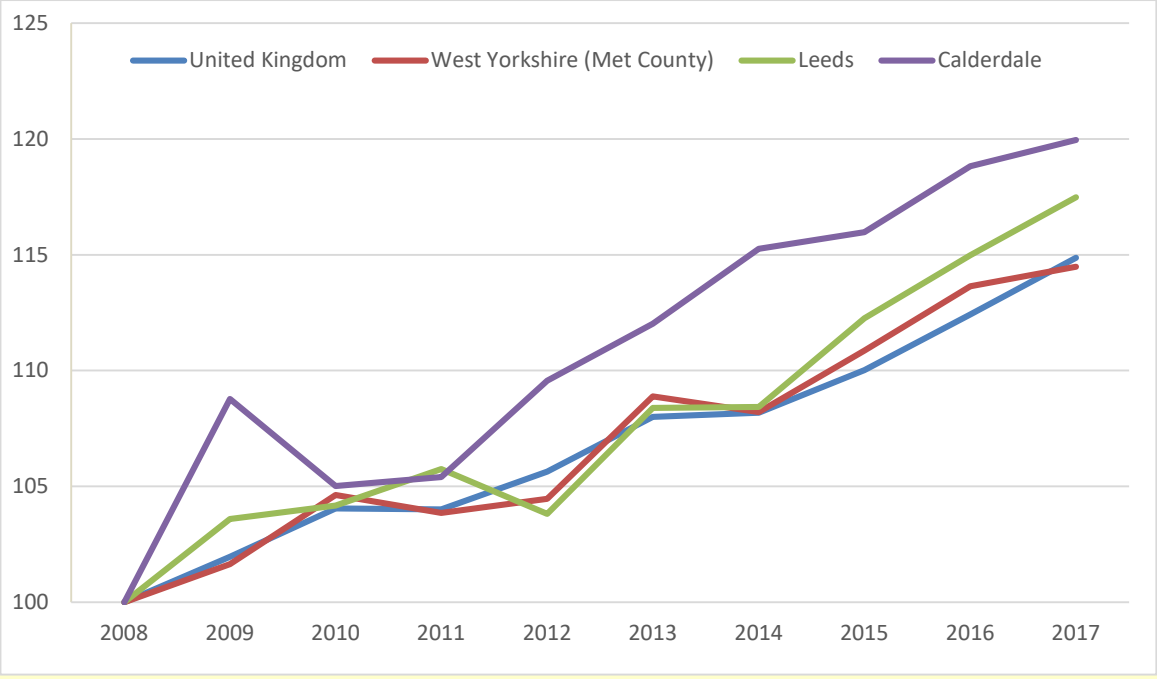
Figure 2-1 Resident wage growth in Calderdale



Source: Annual Survey Hours and Earnings

More significantly, workplace growth has been higher since 2008 than the national average and also Leeds and the rest of West Yorkshire, a good indication of the strength of the growing economy in Calderdale.

Figure 2-2 Workplace wage growth



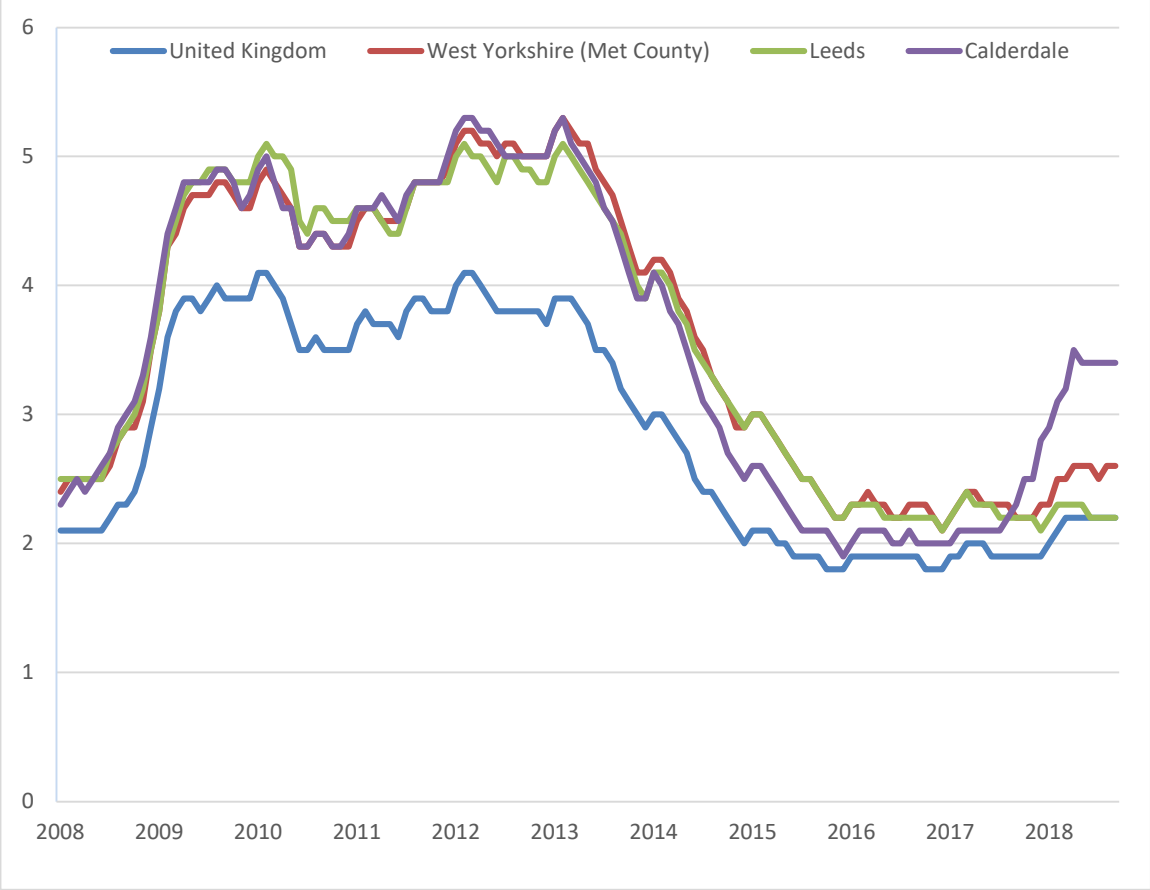
Source: Annual Survey Hours and Earnings (ASHE)

Figures 2-1 and 2-2 show how resident wage growth has lagged behind that of workplace wage growth in Calderdale. In 2017 resident wage growth had grown by just 10% since 2008 compared to workplace wage growth of 20%, twice the rate over the same period. This suggests that the residents of Calderdale are not sharing in the prosperity being produced within its boundaries. Despite this, trends apparent in resident wage growth and levels of unemployment do indicate that residents of Calderdale have been able to enter the labour market when unemployed.

Unemployment

Calderdale has a relatively low unemployment rate which has in recent years tracked closely to the national average and below that of the West Yorkshire average. However, data from this year indicates a pronounced upturn in claimant numbers, indicative of an economy that while buoyant may be less resilient than some of the more diverse economies such as Leeds.

Figure 2-3 Claimant Count % by year – Calderdale and comparator areas (2008-2018)



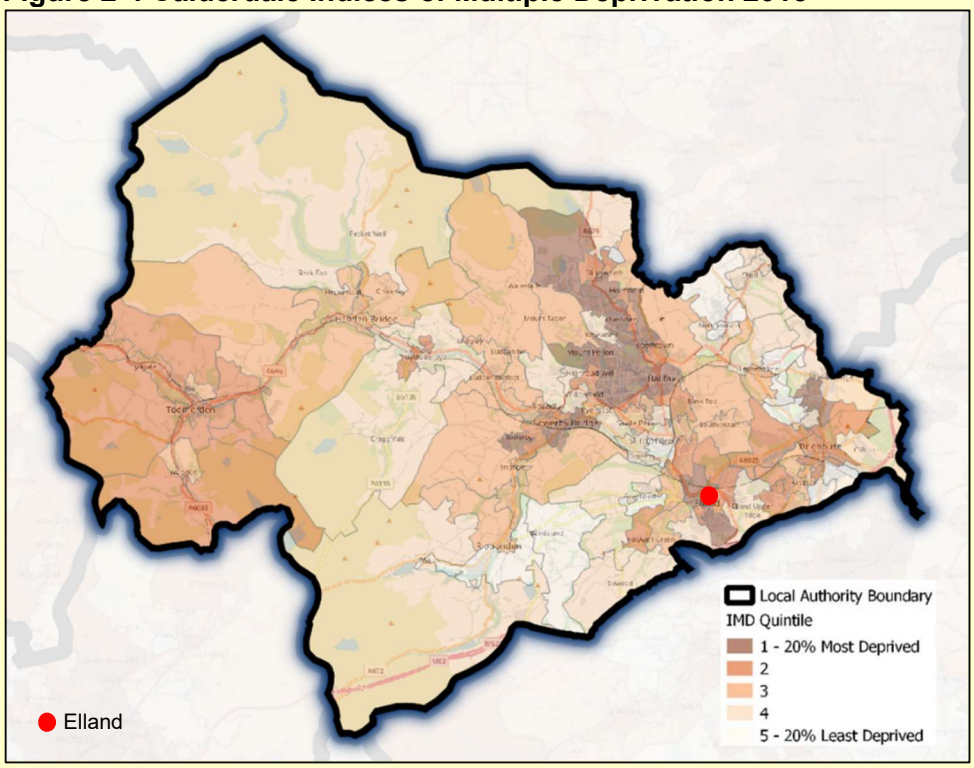
Source: ONS, 2016

Deprivation

Despite these significant improvements to the labour market and employment situation in Calderdale the borough is still the 96th most deprived (out of 326) with 15% of its LSOAs being part of the 10th most deprived decile nationally.

Figure 2-4 shows the location of the most deprived areas in Calderdale; predominantly located in central Halifax and the north west of the centre, but also in Elland.

Figure 2-4 Calderdale Indices of Multiple Deprivation 2015



Source: ONS, 2015

Figure 2-5 shows that the most deprived areas of Elland are situated in close proximity to the proposed station, meaning that should high quality walking and cycling accessibility be achieved for the station, lack of access to a car would not be a barrier to accessing the rail network at Elland and the greater employment opportunities that presents.

Figure 2-5 Elland Income Deprivation 2015

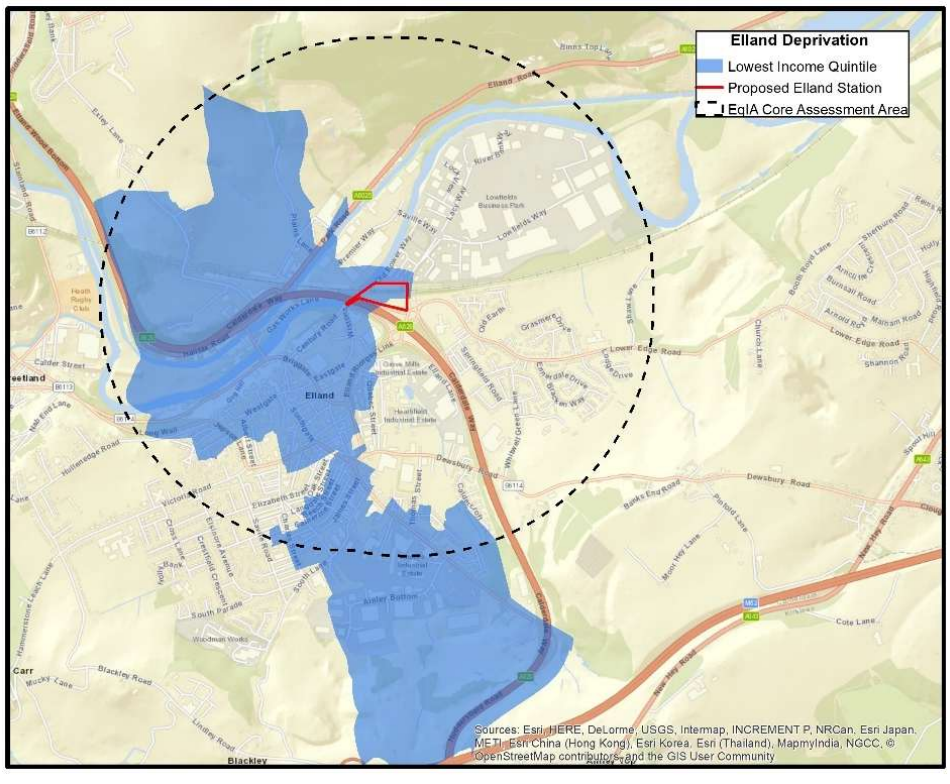
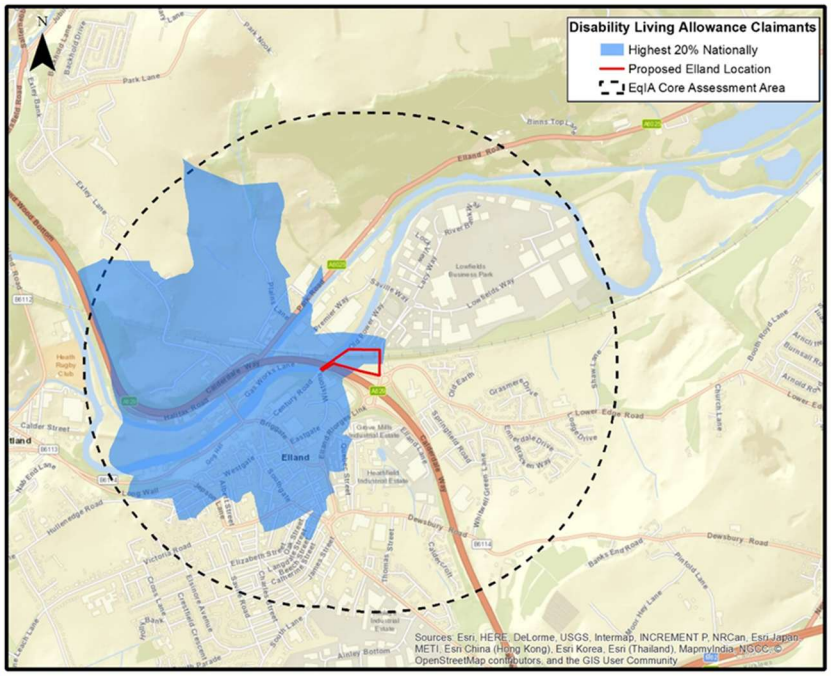


Figure 2-6 shows the areas in the vicinity of Elland which exhibit the highest proportion Disability Living Allowance claimants nationally. Once again the importance of high quality pedestrian facilities is paramount to ensure the new station is accessible for all and serves to help disabled residents of Elland to be economically and socially active. Indeed, a lot of comments were made during the public engagement exercise about the NHS Mobility Clinic in Lowfields Business Park and how the station has potential to improve connectivity to the clinic for wheelchair users travelling to Elland from the wider area. Also, it was noted that Elland station has the potential to act as a hub between the Calderdale and Kirklees hospital, improving connectivity between the two.

Figure 2-6 Concentrations of DLA Claimants in Elland



TRANSPORT CONDITIONS & TRAVEL PATTERNS

Elland is situated on the A629, providing a dual carriageway link to the M62 and hence access to Leeds (19 miles) and Manchester (28 miles). The A629 also forms the primary route for local bus services between Huddersfield and Halifax with six services per hour operating from Elland to Huddersfield and Halifax.

However, these facilities do not necessarily serve to provide good quality strategic connectivity to and from Elland, as reported by Calderdale Council's Elland Transport Needs Assessment:

- Significant levels of congestion are apparent on the strategic road network that connects Elland to the regional economic centres of Leeds and Manchester.
- The local road network in Elland, at some key junctions, will start to act as a constraint to growth and development, with current levels of congestion expected to grow.
- Bus is a more practical option for local journeys, particularly those to Huddersfield and Halifax, rather than for longer journeys to Leeds, Bradford or Manchester.
- Rail mode share in Elland is very low, just 0.4% for inbound commuters and 1.6% for outbound commuters.
- Walking is the dominant mode for trips within Elland.
- Elland exhibits a high level of households without access to a car (28%), evident in the high levels of walking locally and also the relatively low volume of outward commuting.

Low car ownership, poor strategic highway connectivity and local congestion at peak hours and declining bus services restricted to local destinations, combined with poor access to the rail

network, limits the commuting opportunities for local residents and employees to a relatively restricted geography which largely excludes the key economic centres of Bradford, Leeds and Manchester.

Though considerable investment is being made by the WY+TF in Calderdale on the A629 corridor to alleviate some of these conditions, highway will remain unable to provide compelling and reliable journey times to the key economic centres of West Yorkshire and Greater Manchester compared to rail.

Many of these connectivity constraints are shared by other communities along the Calder Valley Line, but those with direct access to the rail network benefit from dramatically better strategic connectivity, which is evident in the outcomes for those communities and the levels of rail passenger growth evident. The lack of viable alternatives to rail is evidenced by the levels of passenger growth at stations on the Calder Valley Line between 2008/09 to 2012/13. Total passenger growth for that period was just over 31%, with Mirfield displaying 51% growth, Brighouse 137% and Sowerby Bridge 36%.

What is also clear from the public engagement conducted as part of the station development programme is that Elland residents already rely on rail for longer distance, strategic trips.

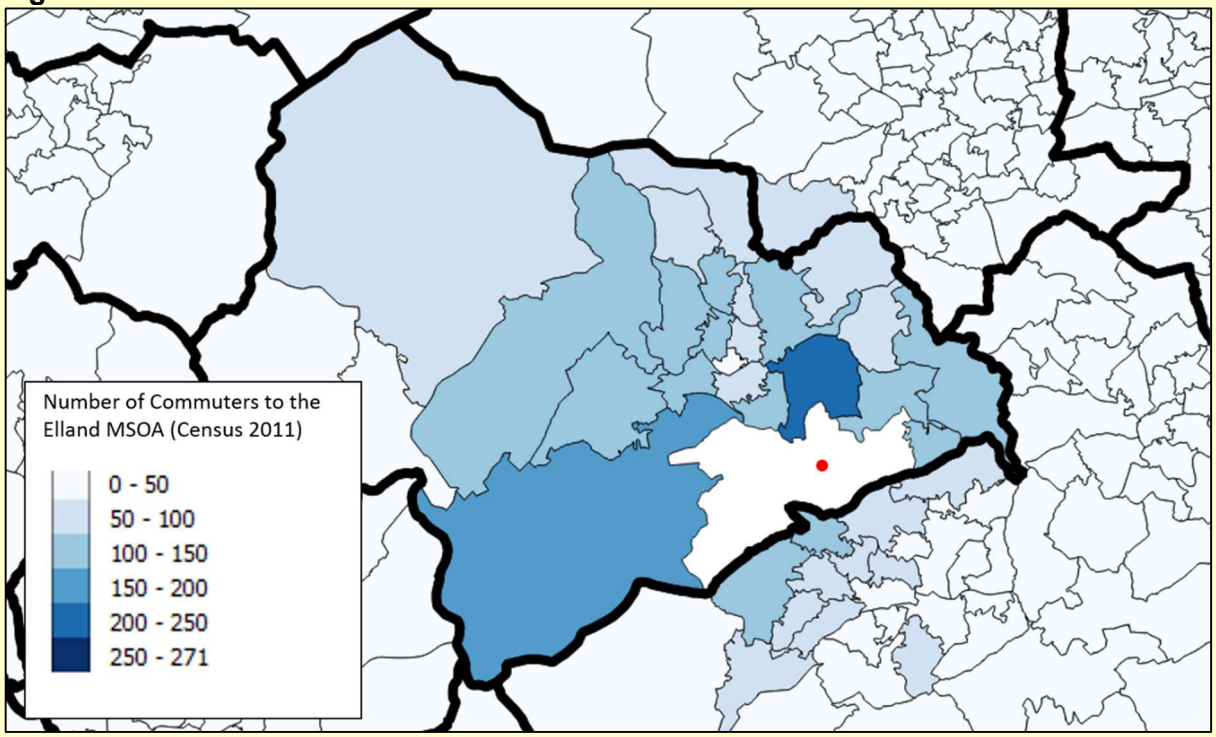
- 25%, 39% and 24% of trips from Elland to Bradford, Leeds and Manchester respectively are made by rail.
- The most common rail journeys reported were as follows:
    - Halifax - Leeds (22%), implying Elland residents are travelling into Halifax to catch trains to Leeds.
    - Huddersfield – Leeds (20%), utilising the faster and more regular services from Huddersfield.
    - Brighouse – Leeds (8%), utilising the closest station to Elland.

Though the level of rail usage from Elland is quite low, the above implies that the new station at Elland might abstract demand from Halifax, Huddersfield and Brighouse, reducing the volume and distance of the local car trips that currently form the first leg of these rail journeys.

Commuting

Elland draws upon a localised workforce principally from within Calderdale as shown in the figure below. Few workers commute from Bradford and Leeds, though a number do cross the M62 from Kirklees. The disparity between workplace and resident wage growth in Calderdale described earlier in this section would suggest that the better paid jobs being created in Calderdale are perhaps being taken up by people who commute in from outside the district.

Figure 2-7 Elland Travel to Work Area



Source: NOMIS, Census 2011

What is also apparent from Method of Travel to Work data is that the levels of outbound trips (3994 trips) are significantly lower than the levels of inbound trips (7298 trips), meaning that the business in Elland are importing labour and skills from other areas to meet their skills requirements. That there remain areas of Elland with high levels of unemployment and deprivation suggests that its economy fails to generate opportunities for people with lower skills levels, who also tend to have low access to cars and hence may stand to benefit substantially from a new rail connection to other economic areas.

Data captured during the public engagement for Elland station further evidences these patterns. Respondents that reported more regular and frequent travel to key employment destinations (suggestive of commuting for work or education purposes) tend to make more localised journeys within Calderdale and into Kirklees, with relatively few heading to Bradford, Leeds or Manchester.

Table 2-4 Number of Respondents making regular trips from Elland

Journey	No. Respondents
Elland to Brighouse, Halifax, or Kirklees	223
Elland to Leeds	38
Elland to Bradford	32
Elland to Manchester	16

Source: Elland Public Engagement Results, WYCA 2018

THE CASE FOR CHANGE

The evidence presented above paints a picture of Calderdale as having a strong economy founded on advanced manufacturing and financial services, but which relies on the increasingly

congested highway network to import skills from other areas. Equally, it is clear that poor strategic transport connectivity has prevented Elland's resident population from capitalising on the town's position in proximity to both the Leeds and Manchester City Regions, with some persistent deprivation, reliance on social housing and low car ownership in evidence.

Accordingly, future housing, employment and productivity growth will rely on greatly improved strategic connectivity, giving local businesses access to a much deeper pool of labour, local residents access to a wider range of employment opportunities and attracting new investment, businesses, skills and residents to the town.

Highway access is not going to provide a longer term sustainable solution because of the limited capacity available on strategic routes, the levels of traffic growth forecast and the environmental consequences of increased road traffic. Furthermore, the bus network in and around Elland can only support more localised trips between Halifax and Huddersfield.

The Calder Valley Line presents a major opportunity for Elland. It is recognised as an important driver of growth for Calderdale and Elland is the largest settlement on the line without direct access. A new station at Elland would help to anchor existing employers at Lowfields Business Park and increase the commercial viability of development in the town, bringing new investment and generating more opportunities for local residents and the wider city region. Furthermore, promoting public transport use also increases physical activity, health and wellbeing, and it is increasingly being recognised that investment which improves quality of life through improvements to the physical environment stimulates local economies.

To ensure the success of the station and the delivery of these positive economic outcomes, it is essential that that access to the station from adjacent residential and employment areas (Lowfields in particular) is maximised. This will not only minimise reliance on car locally and encourage more walking and cycling but also improve social inclusion for those more deprived communities in the vicinity of Elland town centre.

The public realm improvements that the Access Package delivers also serve to invite and encourage walking and cycling in this traffic free environment and to shrink the perceived distance between the town centre, the industrial park and the station. Moreover, the Access Package will help to generate a sense of Place, supporting economic resilience in the area and weaving this important new piece of civic infrastructure into the fabric of the town, ensuring instinctive wayfinding and a safe and secure environment for pedestrians and cyclists.

This, combined with the new station, facilitates intensification of employment uses on currently underutilised sites accessible from the station, resulting in a 14% net uplift in jobs accommodated on such sites and increasing net GVA of Elland over the Local Plan period;

2.1.2 How will the scheme contribute to the achievement of the Leeds City Region's Strategic Economic Plan (2016)? (please refer to the plan here)

The Leeds City Region Strategic Economic Plan (SEP), 2016-2036, is the ambitious, long-term strategy to fulfil the critical Leeds City Region's exceptional economic potential, and cement its place as a growth engine for the north and the nation.

Refreshed in 2016, the vision is "to be a globally recognised economy where good growth delivers high levels of prosperity, jobs and quality of life for everyone". In achieving this, the City Region will:

- Deliver upwards of 35,000 additional jobs and £3.7 billion of annual economic output by 2036;
- Become a positive, above average contributor to the UK economy;
- Seek to exceed the national average on high level skills and to become a 'NEET free' City Region; and
- Make good progress on headline indicators of growth and productivity, employment, earnings, skills and environmental sustainability.

To meet this ambition, a key priority of the SEP is to accelerate job creation, deliver new homes and secure more private sector investment in key strategic locations. This will be achieved by providing commercial and residential sites that have the best possible digital and energy connections, sustainable transport access, and are resilient against disruption and damage.

The SEP identifies 10 large scale 'game changing' initiatives that will achieve real progress towards delivering the City Region's vision. These include:

- Boost business growth, productivity, exports and investment by linking businesses to support and funding, including through the LEP growth service, skills service and trade and investment programme;
- Deliver 30+ West Yorkshire Plus Transport Fund schemes and make progress towards a single 'metro style' public transport network, connected to major national/northern schemes such as HS2 and Northern Powerhouse Rail; and
- Develop and regenerate integrated spatial priority areas, supporting employment, quality environments and the building of 10,000-13,000 new homes per year.

Table 2-5 sets out Elland station's expected contribution towards SEP priorities:

Table 2-5 Elland Station Contribution to SEP Priorities

Priority 1 – Growing Business
Increasing the population catchment of the West Yorkshire rail network will give businesses access to a deeper pool of labour and a wider range of skills.
Connecting businesses in Elland to peers throughout the Leeds City Region, facilitating business trips and helping to attract new investment in the area.
The new rail station will ensure access to employment and training is not inhibited by poor transport options.
Priority 2 – Skills, People and Better jobs
By providing better access to jobs and training opportunities for all groups of people through improved access to rail and a new park and ride.
Priority 3 – Clean energy and Environmental Resilience
Improved access to the rail network will encourage more people to travel by public transport which in turn will improve air quality and reduce carbon emissions.
Priority 4 – Infrastructure for Growth
Continued development of the West Yorkshire rail network, making progress towards 'a single metro style public transport network', improving the area's readiness for future opportunities such as HS2.
Providing new transport capacity to support residential development in Calderdale.

2.1.3 Does the scheme link to other activity being delivered either within the City Region or nationally?

There are no schemes upon which Elland station is critically dependent, though there will potentially be some programming and timetabling interfaces with the Transpennine Route Upgrade (TRU) scheme. It is understood that the Calder Valley Line will be relied on to provide resilience and continuity of service between Manchester and Leeds during the upgrade works and has therefore already been subject to some route hardening works. Should Elland station be delivered before TRU it could potentially accommodate demand during disruptive possession on the Leeds –Huddersfield route.

2.1.4 How does the scheme meet other national, sub-regional and local strategies and policies?

The Northern Powerhouse
The Northern Powerhouse Strategy (2016) sets out the Government's vision for 'joining up the North's great towns, cities and counties, pooling their strengths, and tackling major barriers to productivity to unleash the full economic potential of the North'. It is to be delivered by:

- Improving connectivity both within and between towns, counties and city regions;
- Addressing the disparity in skills between the North and some other parts of the UK;
- Ensuring the North is an excellent place to start and grow a business; and
- Promoting trade and investment across the North.

The Northern Powerhouse Independent Economic Review (2016) forecasts a 15% increase in productivity, creating the potential for an additional 850,000 new jobs in the North of England by 2050, adding £97 billion to the economy. The review highlights digital technologies, health innovation, energy and advanced manufacturing as the North's prime capabilities, and financial and professional services, education and logistics as support capabilities for creating new jobs.

A new station at Elland will significantly improve connectivity for the town with the cities of Manchester and Leeds via the Calder Valley Line, allowing Elland to prosper in the Northern Powerhouse economy. Furthermore, it will serve to anchor and grow Elland and Calderdale's successful advanced manufacturing and financial services sectors, each recognised as important enablers for the North's growth.

Transport for the North's Draft Strategic Transport Plan
TfN's Strategic Transport Plan sets out the case for transformational transport infrastructure investment through to 2050. It emphasises the role that improved connectivity will play in rebalancing the UK economy and the realisation of a 'thriving North of England where modern transport connections drive economic growth and support an excellent quality of life.'

The Strategic Transport Plan identifies the following objectives:

- Increase efficiency, reliability and resilience in the transport system
- Transforming economic performance
- Improve access to opportunities across the North
- Promote and support the built and natural environment

Access to the North's city regions from Elland currently relies primarily on highways, presenting poor journey times subject to considerable variability and unreliability. The introduction of direct rail services from a new station at Elland to Manchester, Manchester International Airport, Blackburn, Huddersfield, Halifax, Bradford, Leeds, Mirfield and Dewsbury presents excellent locational benefits for businesses and commuters. This represents a transformational change in the quality of access to key business and employment destinations and the opportunities that brings for business, employment, educational and cultural activities.

West Yorkshire Transport Strategy 2040
The West Yorkshire Transport Strategy sets out a 20-year vision for travel in West Yorkshire, to make it easier and more reliable, "using a high class, modern, well connected transport network, that enhances business success and peoples' lives". The Transport Strategy supports the growth aspirations of the Leeds City Region Strategic Economic Plan (SEP) by aiming to achieve a radical uplift in business success and in connecting growth and wealth, to ensure that people, communities and the environment benefit from sustained, positive outcomes. There are three overarching objectives:

- Economy: Create a more reliable, less congested, better connected transport network.

- Environment: Have a positive impact on our built and natural environment.
- People and place: Put people first to create a strong sense of place

The Transport Strategy aims to put in place the right transport conditions, building on the region's strengths and tackling underlying weaknesses, to grow the economy in an inclusive way, and to meet the demand for travel in a sustainable way. It provides the transport policies and strategies to help deliver the SEP.

The West Yorkshire Transport Strategy identifies a target for 75% more trips to be made by rail by 2027, to be achieved through working with operators, enhanced station provision and station accessibility and new stations within West Yorkshire. Elland station directly addresses some of the challenges the Transport Strategy identifies, seeking to improve access to the rail network for the residents of Elland and to reduce congestion on key highway links by facilitating mode shift from private car. It also responds to the Transport Strategy's 'People and Place' objective, delivering an important public asset and ensuring it is integrated with the existing and proposed land uses in the town by high quality walking and cycling infrastructure.

Calderdale Transport Strategy

The Vision for Calderdale's Transport Strategy states that "by the end of the Local Plan period in 2031, Calderdale's transport system underpins economic prosperity, high rates of productivity, a dynamic labour market, social cohesion and a healthy environment."

In order to achieve this Vision, the Strategy must fulfil ten objectives across three strategic drivers:

Growth

- Enable new jobs to be created at employment sites, particularly in Halifax, Brighouse, and the M62 Enterprise Zone;
- Provide residents with access to education opportunities and employers with access to skilled workers;
- Help to deliver new homes in accessible locations identified by the Local Plan.

Connectivity

- Improve links between places in Calderdale by addressing gaps and weaknesses in current networks;
- Capitalise upon planned national and regional transport investment, including Leeds City Region Metro, the Northern Hub, Northern Powerhouse Rail and HS2;
- Broaden the range, quality and integration of public transport options available to reduce dependency on the car;
- Cater for movements into and out of Calderdale from neighbouring areas by all forms of transport.

People and Environment

- Increase physical activity and improve air quality to support public health and environmental goals;
- Ensure that transport provision evolves to meet the changing needs of residents, including children and young people, senior citizens and disabled people; and
- Enhance the urban and rural environment to improve quality to life for residents and make Calderdale an even more desirable place to live, work and visit.

For the Strategy to succeed, more people will need to change the mode of transport they use to get to work and the use of sustainable modes must increase. The challenging Transport Strategy targets set out below will allow Calderdale to measure progress in the first ten years of the Strategy to 2026:

- 25% more trips by bus
- 50% more trips by rail

- 50% more walking trips
- 100% more cycling trips

Providing a new rail station at Elland, with high quality walking and cycling links to adjacent land uses, would deliver against many of the strategic drivers set out in the Transport Strategy and contribute materially to the targets for increased rail, walking and cycling trips.

2.1.5 Why is Combined Authority funding (Grant or Loan) required in order to carry out this scheme?

While land owners and potential developers might benefit from land value uplifts and increased demand for their properties should the station be realised, it is considered unlikely that these financial gains would in isolation be sufficient to cover the significant costs of developing a new station. Moreover, there is no indication that any planned developments within Elland would be dependent (in planning terms) on the delivery of the rail station,

There is therefore a strong case for public sector intervention to ensure that travel demand from these new developments is accommodated by more sustainable modes and to secure the significant wider social and economic benefits associated with a new station and park and ride facility at this location.

2.1.6 What engagement/consultation has taken place with the main stakeholders and beneficiaries affected by the scheme?

Stakeholders

West Yorkshire Combined Authority coordinates a programme of regular stakeholder meetings with the following stakeholders, each of whom was also involved in option sifting and requirements confirmation processes, and hence has played an active role in the development and optimisation of the scheme thus far.

Table 2-6 Key Stakeholders

Stakeholder	Interest	Influence	Management approach
WYCA	Combined Authority leading the scheme for the new rail station	High	Keep informed, consult on options and design and delivery
Network Rail	Asset owner and responsible for developing the TRU programme on behalf of the DfT	High	Keep informed, consult on options and design and alignment with TRU and HS2
Transport for the North	Represents the regional and local economic, transport and strategic objectives for the rail industry	High	Keep informed, consult on service options, franchise impacts and alignment with TRU and HS2
Rail North Partnership	Commercial and contract management of the Northern Franchise	High	Keep informed, consult on business case, service options, franchise impacts and alignment with TRU and HS2.
Calderdale Council	Local authority within which the new station will be located	High	Keep informed, consult on options and design and delivery
Department for Transport	Government department	High	Keep informed and consult on business case

	responsible for transport policy		
Northern Rail	Primary train operator of services across Northern England	Medium-High	Keep informed, and address any concerns
Transpennine Express	Train operator of the Transpennine Route, whose services would use Calder Valley as a diversionary route during TRU construction.	Medium	Keep informed, and address any concerns

Public Engagement

Four public drop-in engagement events were held in addition to the online 'Your Voice' engagement portal:

Table 2-7 Public Engagement Events

Engagement Venue	Date
Elland Southgate Methodist Church	28 June 2018
Brighouse Civic Centre	04 July 2018
Elland Southgate Methodist Church	07 July 2018
Halifax Town Hall	16 July 2018

There were a total of 1,400 individual visits to the Your Voice site (with a maximum daily total of 118) and 209 survey responses. Below are some of the key findings:

- 97% of respondents said they were either Very Happy (75%), Happy (19%) or Neutral (3%) about the proposals for the rail station.
- 88% of respondents said they were either Very Likely (66%) or Likely (22%) to use a rail station at Elland.
- 65% of respondents would use the station for work purposes and 16% for education, suggesting regular trip making with important economic purposes.
- 59%, 20% and 40% of respondents said they would use the station for leisure, nightlife and shopping purposes respectively, indicating that demand would not be limited to just peak commuter times.
- 85% and 67% said they were happy with the proposed improvements to walking and cycling facilities respectively, and 46% said they would be likely to walk to the proposed Elland station.
- 25% of respondents said they would be most likely to access station by car.

In summary, the public engagement demonstrated strong support the new the new station and the Access Package and confirmed the view that while there is strong demand for park and ride at the station, there is a great opportunity to maximise the benefits of the station through improved walking and cycling access.

3. Commercial Case

The purpose of the Commercial Case is to demonstrate the demand for the project and that there is a sound procurement strategy for the project that will ensure that the Scheme Objectives are realised over the life span of the project.

Note – All sections should be reviewed and updated if this is the Full Business Case. A summary of any key changes and their implications on the business case should be included.

3.1 The Case for Change

3.1.1 What evidence is there to support the market demand justification for this project?

Demand forecasts (further details of which are provided in Section 4.3.11) predict that there would initially be 427,000 trips made through the new station per year. Of this, 259,000 (61%) are users that are new to rail, the remainder (40%) being abstracted from existing stations. Furthermore, rail market growth forecasts predict increases in passenger demand of between 30% and 50% by 2043, indicating this strong base demand can be expected to grow significantly over time.

3.1.2 What evidence is available to support the projected take-up by the market?

The 427,000 rail users forecast for the station generate total fares revenues of **£REDACTEDk** per annum. Some of this revenue (**£REDACTEDk**) is abstracted from nearby stations and a further deduction (**£REDACTEDk**) is made to account for lost through-passenger revenue (forecast as a result of slower journey times). The resulting net fares revenue is **£REDACTEDk** per annum, suggestive of a healthy revenue surplus when station operating costs are netted off (see section 3.2.2), demonstrating that there is sufficient demand to ensure that the scheme is financially sustainable beyond the completion of scheme and the Combined Authority's investment

3.2 Procurement Strategy

3.2.1 What is the procurement strategy/approach?

The procurement strategy for Elland station is still to be determined, with options available being assessed by officers before making a recommendation to the Combined Authority's Leadership Team for approval. Recent rail projects have been delivered by way of an implementation agreement with Network Rail, who then contract with the main contractor. Lessons learned from these projects, such as Kirkstall Forge and Apperley Bridge, indicated a need to look at alternative methods of delivery. This may be a wholesale change to Combined Authority led delivery, or by looking at how the implementation agreement with Network Rail is managed by both parties.

The Combined Authority held an internal procurement workshop on 4 October 2018 with input from external consultants. The workshop identified five high level options for delivery, ranging from Network Rail delivery with Combined Authority as funders, to Combined Authority delivery across all disciplines.

A more detailed assessment of the viable delivery routes is underway, exploring the risks, opportunities, limitations and legal implications of different models based on the previous experience.

3.2.2 Risk Allocation and Transfer

Risk allocation is tied to the role of scheme promoter, which for Elland station is Calderdale Council, though as funder the West Yorkshire Combined Authority would ultimately underwrite the risk.

Capital risks

The Combined Authority will be the funder of last resort and therefore it will have to cover any cost overrun.

Opportunities will be explored for transferring some of the delivery risk to the contractor / Network Rail (dependent on the procurement strategy) through fixed price contract or pain/gain mechanism.

Revenue risks

Before accepting the station within the current franchise Rail North Partnership will expect that the scheme promoter of the new rail station to underwrite the revenue risks of the scheme for at least the first three years of operation.

An assessment of the revenue risk conducted for this OBC has determined that the total operating and maintenance cost for Elland station is expected to be no more than £731k in the first three years of operations. This compares to a forecast fares revenue increase of £1.5m, demonstrating a significant operating surplus of £820k.

Table 3-1 below shows that the scheme would be expected to return a small deficit (£34k) in the opening year, before demand from new rail users has ramped up. From year 2 onwards however the station generates a substantial return.

Table 3-1 First three years' net revenue position

	Opening Year (2022/23)	Year 2 (2023/24)	Year 3 (2024/25)	Total
O&M Costs	£239k	£244k	£249k	**£731k**
Fares Revenue	£204k	£610k	£740k	**£1,550k**
Net Revenue	**-£34k**	**£366k**	**£488k**	**£820k**

Passenger growth forecasts do not play a significant role in the years immediately after opening, but it is worth noting that even in the low growth scenarios there is still expected be a surplus of £750k over the three year period.

3.2.3 Statutory and Other Regulatory Consents

State Aid issues

No material private sector beneficiaries of the scheme have been identified.

Agreements and approvals

It is envisaged that the following agreements / approvals will need to be in place throughout the life of the project:

Table 3-2 Statutory and Regulatory Consents

	Legal agreements	Parties involved	Stages reach agreer
1	Basic Services Agreement	Network Rail	OBC
2	Approval in principle (AIP) sign off	Network Rail	OBC

3	Network change	Network Rail	FBC	
4	Development Services Agreement/ Implementation Agreement/ Asset Protection Agreement	Network Rail	FBC	
5	CSM & Interoperability Approval	ORR	FBC	
6	Acceptance of new station into Northern franchise	Rail North Partnership	FBC	
5	Planning consent	CMBC	FBC	
6	Station Lease and Station Access agreements	Network Rail and TOCs	FBC	

Planning consent

Planning consents is part of the GRIP stage 4 work package which forms part of FBC work. However, planners are involved now and in the scheme definition stage in order that any potential planning issues can be identified at the early stage of development.

4. Economic Case

The purpose of the Economic Case is to demonstrate that the project offers value for money.

It is expected that any supporting documentation summarising work carried out to develop the Economic Case is referenced and attached as appendices.

The Preferred Option Testing section of the Economic Case (Section 4.3), this has been split into two parts:

- Part 1 – **Non-Transport** schemes should complete this section
- Part 2 – **Transport** schemes should complete this section

Note – All sections should be reviewed and updated if this is the Full Business Case. A summary of any key changes and their implications on the business case should be included

4.1 Long List Options Testing

4.1.1 What Long List of Options have been considered?

The station and Access Package schemes were developed through two separate optioneering processes. The sections below describe each.

Station

Previous studies conducted by Calderdale Metropolitan Borough Council and The Combined Authority have considered a wide range of potential interventions for improving strategic transport links between Elland and neighbouring towns and economic centres. Most recent of these was the Elland Transport Needs Assessment which in 2015 analysed current travel patterns in the Elland area. This report identified the existing roles played by road, bus and rail in Elland, and the opportunities each presents for improving strategic connectivity and providing new capacity for growth. Key findings as follows:

- Road:
  - Quantitative evidence demonstrates that many parts of the existing highway network are at, or close to, capacity, including local junctions and links to the M62 and the surrounding strategic highway network.
  - Access by road is not going to provide a longer term sustainable solution because of the limited capacity and issues that increased use would bring.
- Bus:
  - Trip making patterns suggest that sustainable travel options to local destinations such as Huddersfield and Halifax (including intermediate points) may be best delivered by improvements to bus services.
- Rail:
  - Longer distance travel to Leeds, Bradford and Manchester would be better serviced by rail, with a new station at Elland.
  - In addition to those within walking or cycling distance to the station, provision of sufficient car parking at the station would also provide the opportunity to intercept longer distance trips by car to remove them from the network.

Based on this prior research, no meaningful alternatives to a rail station have been identified that can deliver the required strategic outcomes for Elland. Though extensive investment is being made in the A629 and the bus network in Calderdale, neither road nor bus modes can deliver the strategic connectivity identified as a priority objective for this project.

The option development phase of this project has therefore not considered a broader range of potential transport options, instead focussing on identifying the optimum form and function of the station at Elland. Tables 4-1 to 4-3 below show the options developed for Elland in advance of an option sifting workshop on 15th February 2018. The different options presented included variations on the following:

1. Station location
2. Cross platform access,
3. Car parking

These are presented in the three tables below.

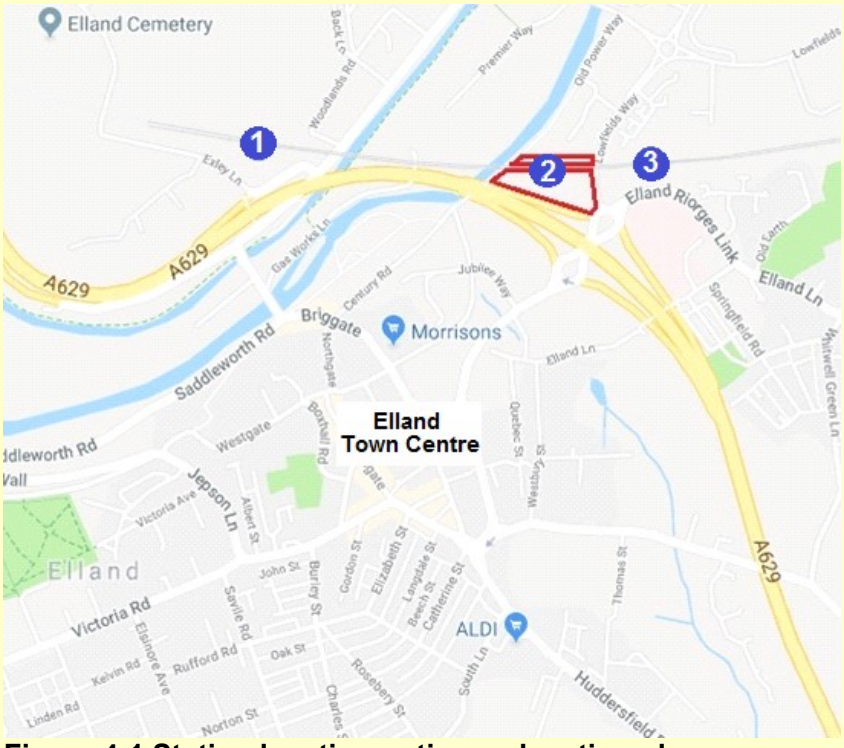


Figure 4-1 Station location options – location plan

Table 4-1 Station location options considered for a station at Elland

Option	Platform Length	Track Alignment	Equipment Alterations	Flood Risk	Land Purchase
1	150m	Straight (100m), Transition (50m)	4No. location boxes, NR Road Rail access point, Distribution Network Operator compound, track drainage present	No	Commercial business
2	125m	Curve 2,700m	None	Yes, car-park is in a flood zone 2/3	Green field

3	150m	Curve 2,700m	4No. LOCs, Signal HM4121, signal post telephone	Yes, car-park subject to surface water flooding	Green field / commercial business

Table 4-2 Cross platform access options for Elland Station

Option	Station Location Option 1	Station Location Option 2	Station Location Option 3
A	Provide a footbridge with both stepped and step-free access (only viable option).	Provide a footbridge with both stepped and step-free access.	Provide a footbridge with both stepped and step-free access.
B	N/A	Providing an underpass by a jacked box through the embankment.	Providing an underpass by a jacked box through the embankment.
C	N/A	Access provided via Lowfields Way only, no improvement / widening to Lowfields Way footway.	Access provided using existing underpass no. MVN2/170.
D	N/A	As Option C plus Lowfields Way footway widened under the bridge.	As Option C with additional access provided using Lowfields Way footway.
E	N/A	As Option D, plus second access path alongside River Calder. Additional stepped access provided at western end of station.	As Option D plus second station entrance provided on Lowfields Way (stepped access only, step free access provided towards MVN2/170).

Table 4-3 Car park options for Elland Station

Option	Station Location Option 1	Station Location Option 2	Station Location Option 3
W	No car park provided	No car park provided	No car park provided
X	Car Park Provided at current ground level providing approximately 150 spaces.	Car park provided at the current ground level. The car park will be situated in the parcel of land immediately south of the proposed station, adjacent to the A629 eastbound off slip. It is designed to have a capacity for 166 spaces; including 12 disabled bays, 8 electric charging spaces and 1 space designated for maintenance vehicles only. In addition to the vehicle parking spaces, 2 areas will be provided for motorcycle parking and 40 spaces for cycle storage. Car parking at the station is assumed to be free of charge.	Provide a small car park in the undeveloped green space providing approximately 44 spaces.

Y	N/A	Car park area reprofiled such that it is lifted above the 1:30 chance flood event.	As Option X with purchasing additional land (commercial premises) adjacent to Lowfields Way providing approximately 111 spaces (total).
Z	Multi storey car park provided, exceeding the capacity required upon opening. Likely significant additional capital cost.	Multi storey car park provided, exceeding the capacity required upon opening. Likely significant additional capital cost.	Provide a drop off and pick up point with a bus interchange in the undeveloped green space, with a footpath provided to a car park in Station Location Option 2.

Access Package
A desktop study, site visit and pedestrian and cycle PERS/ CERS audit of the area surrounding the proposed station have been undertaken in order to inform the extent of the study area for the Access Package. The routes identified reflect the principle desire lines into and through the town centre, taking account of existing land uses as well as proposed (such as the new station).

The routes identified were as follows:

Primary Routes
1. Elland Riorges Link
2. Century Road
3. Old Power Way
4. Lowfields Way
5. Elland Riorges Link/ Elland Lane
6. Riverside Park and canal crossing
7. Park Road

Secondary Routes
a. Elland Riorges Link to Eastgate
b. Wistons Lane/ Eastgate
c. Elland Bridge Riverside Park
d. Elland Bridge
e. Park Road/ Exley Lane underpass
f. Brook Street/ Elizabeth Street
g. Footpath to rear of station

In addition to the routes identified above within Elland the West Vale route is also classified as a Primary route between the station site and the West Vale area.

New bridge crossings over the River Calder and Navigation were explored at 6 locations:
- River Calder – adjacent A629/ railway bridge,
- River Calder – Riverside Park,
- Calder & Hebble Navigation – adjacent A629/ railway bridge,
- Calder & Hebble Navigation – previous footbridge location, and
- River Calder – West Vale (2 No. locations).

4.1.2 What Critical Success Factors (CSF)s have been used to evaluate the Long List of options?

Table 4-4 Critical Success Factors		
Ref.	**CSF**	**Description**
Achievable Options		
1	Technical feasibility / deliverability	Engineering, timetable, fit with developer's plans
2	Acceptability	Planning, political, stakeholder
3	Future flexibility	Accommodate future infrastructure enhancements
4	Scale of cost	Land, construction, operation
Meeting Objectives		
5	Local access to station (complementing the access package)	Ease and quality of walk and cycle access to the station from the town centre and nearby residential and employment sites.
6	Highway accessibility & parking capacity	Ease of access from major highway network and level of parking accommodated
Policy Commitments		
7	Environmental impact	Construction impacts, extent of potential mode shift from private car.
8	Equality impact	Impact the scheme may have on protected characteristic groups ('PCGs').

4.1.3 How has the Long List of Options been appraised?

Station

A stakeholder workshop was held on the 15th February 2018 at the West Yorkshire Combined Authority (WYCA) offices in Leeds to reduce the long list of options down to a short list that would be taken forward for further design and economic appraisal. Representatives from the following organisations were present:

- West Yorkshire Combined Authority
- Network Rail
- Transport for the North (TfN) and Rail North
- Leeds City Council
- Calderdale Metropolitan Borough Council (CMBC)
- Northern Rail
- Transpennine Express (TPE)
- White Young Green (on behalf of CMBC)

Prior to the workshop, a potential list of options for each station was sifted. This prior sifting process was based on engineering feasibility and deliverability, site constraints and overall objectives for the new station. This process identified any options which were not realistic or feasible, thereby ensuring that only deliverable options were considered at the stakeholder workshop.

To objectively compare and sift each of the long list options for Elland Station, a multi-criteria framework was developed prior to the stakeholder workshop. The framework (structured around the Critical Success Factors listed in Table 4-4 above) incorporated the strategic purposes of

the station with local and regional economic and transport priorities and key transport appraisal criteria to ensure the sifting process considered the full range of potential impacts.

The workshop successfully identified stakeholders' preferences for the location and form of the station, forming the basis for the GRIP 3 design:

- Station location option 2
- Using Lowfields Way for cross platform access (i.e. no overbridge or new underpass)
- Additional station access from the west
- Car park on the CMBC land to the south of the station site.

A Technical Note (WYCA New Stations Options Sifting) is included as Appendix A, summarising the outcomes of the sifting workshop and outlining details of the scoring rationale.

Access Package

Having identified a range of measures and budget costs for each of the primary and secondary routes consideration has been given to prioritising the proposed measures based on the proposed objectives for the Access Package measures and the budget costs identified.

In order to prioritise the measures/ routes a matrix has been produced that scores each of the proposed routes against the scheme objectives for the Access Package, whilst also taking account of the overall cost for each route and its deliverability. A copy of the matrix is included at Appendix B.

The matrix includes 5 categories (A – E below), based on the scheme objectives and route cost/ deliverability, with scores applied between 1 and 5, resulting in a maximum score of 25 and minimum score of 5. The higher scoring schemes are considered higher priority as they provide the most cost-effective improvements/ greatest access benefits.

A. Improve access for non-car modes between Station and Elland town centre and surrounding areas
B. Improve access for non-car modes between Station and major development sites
C. Improve environment/ public realm for access routes to/ from Station and surrounding areas
D. Cost
E. Deliverability

The scores identified for each of the routes ranged between 11 and 19. Based on the range of scores achieved the following summarises the relative priorities for the access measures/ routes:

- Score 17 – 19 – High Priority
- Score 14 – 16 – Medium Priority
- Score 11 – 13 – Low Priority

The overall scores for each of the primary and secondary routes are summarised in Table 4-5, along with an indication of the relative priority for the proposed measures.

The higher priority schemes identified are lower cost measures that provide improvements to existing routes in the vicinity of the station site, including Old Power Way, Lowfields Way and Elland Riorges Link/ Elland Lane. These schemes are prioritised as they provide a relatively high level of improvement to the public realm and access to the station, whilst being lower cost measures in terms of the proposed interventions. Only primary routes were identified as high priority schemes.

Table 4-5 Elland Access Package Route Prioritisation

Scheme ID	Overall Score	Priority
Primary Routes		

Elland Riorges Link (both sides)	15	Medium
Elland Riorges Link (west side)	15	Medium
Elland Riorges Link (east side)	16	Medium
Century Road	17	High
Old Power Way	18	High
Lowfields Way	19	High
Elland Riorges Link/ Elland Lane	18	High
Riverside Park and Canal Crossing	12	Low
Park Road	15	Medium
West Vale	11	Low
Secondary Routes		
Elland Riorges Link (link to Eastgate)	13	Low
Wistons Lane/ Eastgate	14	Medium
Elland Bridge Riverside Park	16	Medium
Elland Bridge	13	Low
Park Road/ Exley Lane underpass	16	Medium
Brook Street/ Elizabeth Street	14	Medium
Footpath to rear of station site	14	Medium

The prioritisation exercise, and subsequent value engineering processes, identified the high priority interventions that are affordable within the budget for the scheme.

- Two ped/cycle bridges providing traffic free access to the station from the Calderdale Greenway (Route 66) from the western side of Elland and West Vale/Greetland
- Widening the towpath alongside Park Road to give seamless access from the Calderdale Greenway over the Navigation Bridge onto Gas Works Lane then over the River Bridge into Riverside Park.
- Upgrading and adopting Century Road for direct, traffic free access to and from the Town Centre /station and connecting to Low Fields Industrial park. This links directly to Riverside Park.
- Upgrading Old Power Way to provide direct, traffic free access from the Brighouse direction and Low Fields.
- Improving walking and cycling route to and from the Town Centre/station via Eastgate serving the wider housing and employment catchment on the south-eastern part of the town and creating a new off-road route through Morrisons land along desire lines.

4.2 Short List Options Testing

4.2.1 What is the Short List of Options?

The station form follows industry guidance for station design and there are a number of railway engineering constraints that have dictated the layout.

The More and Less Ambitious variants are instead differentiated by levels of provision of the Access Package, as described in Table 4-6 below and also illustrated in the plan in Appendix C.

Table 4-6 Short List of Options

Option	Option Name	Option Description
1	Do Something - Preferred	Station plus two ped/cycle bridges and high priority links between station, business park and town centre.
2	Do Something - Less Ambitious	Station with no Access Package.
3	Do Something - More Ambitious	Station plus full Access Package proposal, including 3 new bridges over the river / Navigation and associated approach routes.
4	Do Nothing/Minimum	No station or Access Package.

4.2.2 How has the Short List of Options been appraised?

The appraisal has been conducted in line with the principles and guidance of DfT's WebTAG, as required by the Leeds City Region Assurance Framework for transport projects. Section 4.3 provides details.

4.2.3 How does the Scheme contribute to the SEP Headline Indicators (access the Plan here)?

Though provision of a new rail station in Elland will create conditions that will facilitate land use changes and investment in new businesses, jobs and homes (which the UDM would be used to estimate), the appraisal for Elland station has focussed on the more immediate wider economic impacts (in terms of labour supply, and agglomeration) associated with the improved journey times to and from Elland. Section 4.3.8 elaborates on the approach taken.

This analysis has provided estimates of GVA increases, which in turn has been used to estimate the number of new jobs this would equates, as shown below. Note that the nature of wider impacts modelling is insufficiently precise to discern any difference between the three levels of Access Package provision, hence the same jobs figures are quoted for all three options.

Table 4-7 Summary of Scheme Short List Options Contributions to SEP Headline Indicators

Headline Indicator	Option 1: Preferred		Option 2: Less Ambitious		Option 3: More Ambitious	
	Direct	Indirect	Direct	Indirect	Direct	Indirect
Jobs created / Safe Guarded	-	51	-	51	-	51
Businesses created /assisted	-	-	-	-	-	-
Commercial floorspace constructed / refurbished	-	-	-	-	-	-
Learning floorspace constructed / refurbished	-	-	-	-	-	-
Additional learner numbers & qualifications	-	-	-	-	-	-
Housing units completed	-	-	-	-	-	-
CO_2 reduction potential	-	-	-	-	-	-

4.3 Preferred Option Testing

Part 2: Appraisal of <u>Transport Schemes</u>

4.3.1 What methodologies have been used for modelling and appraisal of the scheme?

An Appraisal Specification Report (ASR) has been developed in consultation with The Combined Authority to agree the principles of the modelling and appraisal approach for the OBC. The ASR, which confirms that the approach to modelling and appraisal is consistent with DfT's WebTAG (as required by the WYCA Assurance Framework), is included as Appendix D and the Appraisal Specification Summary Table is reproduced below:

Table 4-8 Appraisal Specification Summary Table

Impacts	Sub-impacts	Proposed OBC appraisal methodology
Economy	Business users & transport providers	Monetised - user (rail) and non-user (highway congestion) benefits, arising from rail demand forecasts
	Reliability impact on Business users	High-level qualitative assessment of rail reliability impact (no performance modelling)
	Regeneration	Qualitative assessment
	Wider Impacts	Quantitative assessment of jobs and monetised assessment of GVA using a bespoke spreadsheet model informed by the Urban Dynamic Model (UDM)
Environmental	Noise	Monetised – estimated from veh-km reduction using WebTAG MEC approach
	Air Quality	Monetised – estimated from veh-km reduction using WebTAG MEC approach
	Greenhouse gases	Monetised – estimated from veh-km reduction using WebTAG MEC approach
	Landscape	Qualitative assessment
	Townscape	Qualitative assessment
	Heritage of Historic resources	Qualitative assessment
	Biodiversity	Qualitative assessment
	Water Environment	Qualitative assessment
Social	Commuting and Other users	Monetised - User and non-user benefits and revenue forecasts, arising from rail demand forecasts
	Reliability impact on Commuting and Other users	High-level qualitative assessment of rail reliability impact (no performance modelling)
	Physical activity	Monetised assessment using WHO's HEAT
	Journey quality	Quantitative assessment of Access Package public realm enhancements
	Accidents	Monetised – estimated from veh-km reduction using WebTAG MEC approach
	Security	Not considered significant
	Access to services	Qualitative assessment
	Affordability	Qualitative assessment
	Severance	Qualitative assessment
	Option values	Qualitative assessment
Public Accounts	Cost to Broad Transport Budget	Monetised – scheme capital and operating costs net of any fare revenue transfers
	Indirect Tax Revenues	Monetised assessment

4.3.2 What transport model(s) have been used for the scheme appraisal?

Rail

The trip end model developed for the purposes of Millshaw / White Rose, Elland and Leeds Bradford Airport stations considers demand at all stations within West Yorkshire and between Horsforth and Knaresborough within North Yorkshire. It is a two-stage process, firstly using a station choice model to derive a population catchment for each origin-destination pair, while the second element uses this data to develop trip rates. The model considers demand

between all stations within the model (i.e. internal to West Yorkshire and those areas of North Yorkshire included in the model). It also considers demand to several external stations outside the area, including Liverpool, Manchester, Manchester Airport, Newcastle, Scarborough, Selby and York. Demand is forecast for a base year 2016/17, with growth factors applied during the appraisal process.

The following sections provide a brief description of the model form.

Station Choice

The station choice stage considers all stations within West Yorkshire and all Census 'output areas' within both 20km of the West Yorkshire boundary and 20km from all stations included in the model. It assigns populations from each Census output area to the origin station which minimises the overall rail journey time to each identified station destination from that output area. Station destinations are limited to all stations within West Yorkshire, station between Horsforth and Knaresborough (included for the modelling of Leeds Bradford Airport that this model is also used for), and the following 'external stations':

- Hull;
- Manchester Stns;
- Manchester Airport;
- Newcastle;
- Scarborough;
- Selby; and
- York.

Weighting is then applied to the population in different output areas to reflect that the trip rate diminishes as passengers are required to travel further to the station and to reflect that passengers are less likely to 'double-back' to access a station. We have developed a trip-rate decay formula which is based on the station access element of GJT and distance.

The demographic data inherent in this station choice element is sourced from the 2011 Census and includes:

- Resident Population;
- Employment Population – i.e. those in employment living in the zone;
- Workplace Population – i.e. those in employment working in the zone;
- Proportion of households without access to a private car.

The result of the station choice process is a modelled origin catchment population specific to each origin-destination pair which forms the basis for forecasting. Note that we will also apply a maximum 'cut-off' to the catchment area based on the size of the station car park as specified in PDFH – 20km where the station has more than 75 parking spaces, 5km if the station has up to 75 parking spaces, and 2km where the station has no parking spaces.

Access distance to the station is limited to the minimum value of either the walking or driving distance. The walking catchment is assumed to be the crow-fly distance between output area centroid and station location at an assumed speed of 4kph. The driving catchment is based on the crow-fly distance between centroid and station assuming a speed of 30kph limited to a maximum driving access time of 30 minutes.

The result of the station choice process is a modelled catchment population specific to each origin-destination pair which forms the basis for forecasting. For example, the catchment of the proposed station at Elland for journeys towards Leeds will be different to that at Elland for journeys towards Halifax

Note that station facilities are not considered within the station choice element (being a new station, it is specified to meet current standards and hence passenger expectations), with the determining factor being the lowest Generalised Journey Time between true origin and destination station.

Trip Rate

The second stage of the model is to take these origin-destination specific catchment populations and forecast demand for the new station at an origin-destination level. A 'trip-rate' per thousand population for each origin-destination has been taken directly from comparator stations (Brighouse and Sowerby Bridge). This is based on 2016/17 station-station data from MOIRA NT05. Data has been subject to further modification using PDFH6 elasticities to account for the changes in trip rate as generalised journey time, fares and car journey time differ. Note that fares are sourced from revenue yields in MOIRA NT05, whilst car journey times are sourced from route planning software.

Fare elasticities are specific to each station, calculated using MOIRA data to account for different elasticities by trip purpose and by journey destination. Note that this trip rate calculation does not segment by trip purpose. Rather the total demand forecast at the station is segmented into business, commute and other trips.

Sowerby Bridge and Brighouse have been considered as they offer similar demographic and geographic characteristics as at Elland. This includes being reasonably remote from the Town Centre, having limited crossings of adjacent rivers and canals and having a reasonable bus service close to the station. Both of these stations are in the main served by a similar level of service as that which can be expected at Elland – Sowerby Bridge is served by two trains per hour towards Leeds via different routes, whilst Brighouse is served by the same two services which would call at Elland. Brighouse is also served by direct trains to London operated by Grand Central; we do not directly forecast services towards London so this is not considered to be an issue.

Forecasts include an estimate of abstraction from existing stations based on a 1:1 exchange of demand based on changes in the population catchments (e.g. if catchment population for Brighouse-Leeds trips reduces by 2% then 2% of Elland-Leeds demand is assumed to abstract to the new station). This is based on demand originating at the new station – we assume that demand destined to the new station will abstract in similar proportions (i.e. if 2% of Brighouse-Leeds demand abstracts to Elland than 2% of Leeds-Brighouse demand will also abstract).
The Forecasting Report (Appendix E), provides further detail on the above in particular on assumptions made, calibration and forecasting.

Access Package

Existing levels of walking and cycling in Elland have been established with reference to the Elland Transport Needs Assessment Final Report (WSP,2015). This took Journey to Work data (outbound, inbound and internal trips) counts from the 2011 census for cycling and walking for the Elland MSOA. These 2011 volumes were growthed to opening year using a factor of 0.57% per year (from NTEM6.2).

4.3.3 What forecasting methodologies have been used for the scheme appraisal?

Rail

Train Operations / Timetabling

The Do Minimum timetable includes considerations of route enhancements to be introduced as part of the Northern and Trans-Pennine Express franchise commitments. Timetables have been provided by Rail North which have been built in to the May 2017 base timetable. These are then run through MOIRA to provide revised demand, revenue and journey times for the do minimum scenario without the new stations. In summary, the following changes are considered.

- Wholesale changes to the Northern Trans-Pennine route to provide 6tph between Leeds and Manchester via Huddersfield, including 1tph Manchester Airport to Newcastle, 1 tph Liverpool to Scarborough, 1 tph Manchester Airport to Middlesbrough, 1 tph Manchester Piccadilly to Leeds and 1tph Manchester Piccadilly to Hull.
- Reorganisation of local services on the Calderdale Valley Line to provide:
    - 1tph Manchester Airport to Leeds via Manchester Victoria, Halifax and Bradford Interchange.
    - 1tph Chester to Leeds via Manchester Victoria, Halifax and Bradford Interchange.
    - 1tph Blackpool North to York via Halifax and Bradford Interchange.
    - 1tph Southport to Leeds via Manchester Victoria, Brighouse and Dewsbury.
    - 1tph Huddersfield to Leeds via Brighouse, Halifax and Bradford Interchange.

Also, the station choice model considers future developments within the station catchment. Calderdale Metropolitan Borough Council's Local Plan initial draft map and Kirklees Council's Spectrum Spatial Analysis have been consulted to identify areas of potential housing and employment developments. Appropriate assumptions have been applied in terms of development densities and household composition to develop revised population and workplace population for each station catchment.

Demand Growth

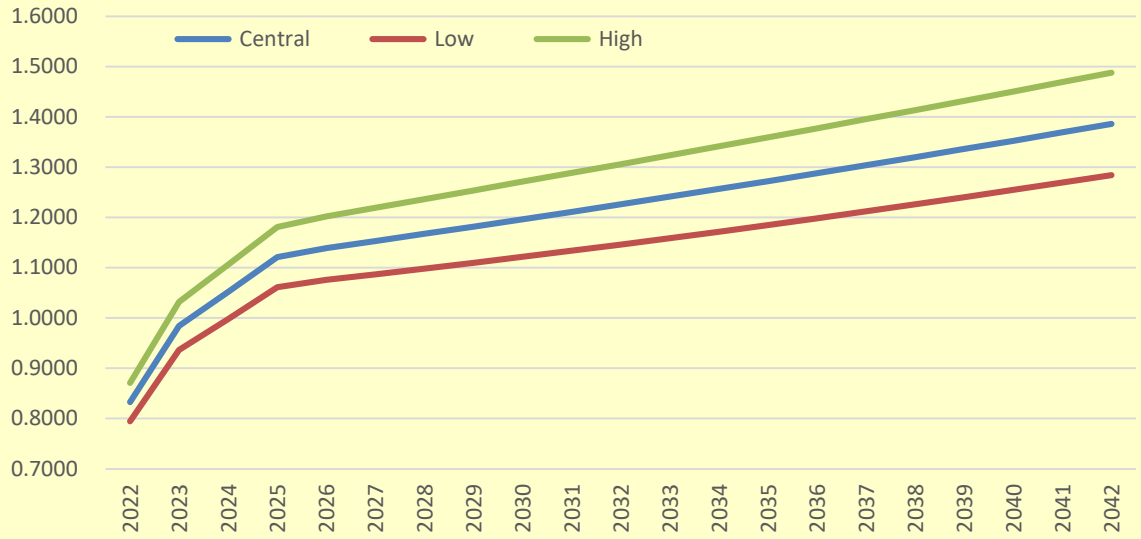
For future year growth the approach described in WebTAG Unit M4.8 has been utilised to produce high and low growth variants around the DfT's NMF crowding constrained, all day forecast index for Leeds.

Table 4-9 NMF Growth Indices

2018/2019	2023/2024	2028/2029	2038/2039
1	1.052	1.13908	1.28779

Incorporating background growth and the four year demand ramp up creates the following growth profiles:

Figure 4-2 Growth scenarios of demand of the new station



Source: Department for Transport NMF Crowding Constrained Forecasts for Leeds

Full details of the forecasts are given in the Forecasting Report (Appendix D) including a comparison of these rates, with estimates derived from the PDFH methodology.

TEMPRO 7.2 has been used to source demographic data, whilst the TAG data book (July 2017) has been used to source data on alternate modes. For bus fares and rail fares high level assumptions on future changes have been made – RPI+0% for rail fares and RPI+2% for bus fares.

Lag values have also been considered, whereby demand at the new station is assumed to build-up over a number of years rather than 100% demand realisation at the end of the first year. PDFH B12.1 has been referenced, which assumes that 65% of demand is realised at the end of Year 1, 85% at Year 2, 95% at Year 3 and 100% at Year 4.

Access Package

NTEM6.2 has been used to derive growth rates for the appraisal of active modes.

4.3.4 How has the impact of the scheme on travel demand and behaviour been incorporated?

Rail

The scheme has been assessed using a uni-modal model. It first looks at station choice and then applies the gravity model formulation to Elland as described in section 4.3.2. The model identifies new-to-rail demand, as well as trips which switch from existing stations. The impacts of journey time penalties to existing users on the trains which will call at Elland have also been considered.

Access Package

To establish the effect of the Access Package on walking and cycling it was necessary to make assumptions about the proportion of all pedestrians and cyclists that would encounter / benefit from the new infrastructure, and also about how the improvements might encourage increased levels of walking and cycling in the town. Key assumptions as follows:

1. On top of the journey to work trips, an uplift of 30% was applied to account for likely volumes of leisure users.
2. 60% of pedestrians and cyclists in Elland are assumed to encounter the network subject to the Preferred Access Package improvements (80% for the More Ambitious option).
3. The Access Package improvements will generate an increase in pedestrian and cycling demand of 11% (based on case studies from DfT and the Sustainable Travel Towns Programme).

4.3.5 What methodologies have been used to calculate the **Monetised Benefits**?

Monetised benefits associated with the rail station are forecast over a 60-year appraisal period (20 years for the Access Package) the and converted to 2010 prices, discounted to 2010 for the purposes of the Present Value of Benefits. Appraisal parameters are taken from the July 2018 WebTAG data book.

There are two components to the appraisal, Rail and Access Package:

Rail

The uni-modal model developed for this project produces the following outputs, which in turn are used to estimate monetised benefits:

1. Fares Revenues (which are treated as financial costs rather than economic benefits in the appraisal)
2. Rail journey time changes
   - User benefits
2. Road vehicle-kilometre changes (used to estimate monetary benefits for the following using WebTAG's Marginal External Costs method)
   - Decongestion
   - Noise
   - Air Quality
   - Greenhouse gases
   - Accidents

Access Package

In order to calculate the monetised benefits of the Elland Access Package we considered the following:

- **Urban Realm Benefits** (pedestrian Journey Quality) have been calculated for pedestrians based on the TfL tool kit. The pedestrian improvements have been given PERS (Pedestrian Environment Review System) Link and Space Scores between the base and scenario. A high level assessment of the current facilities and the proposed improvements. Justifications have been included to summarise why the values have been chosen.
- **Absenteeism** for both pedestrians and cyclists has been calculated. This has been calculated based on the average sick days per year in 2017 (4.1days), the reduction in absenteeism (6%) and the average earnings per day, this is based on the ONS data for the average earnings per week in Leeds (£551.9) divided by 5 for the average earnings per day.
- **Journey Quality** for cyclists this is using journey ambience benefits for as per the data book. It was assumed that the length of route to be improved is 2km and 20% of this is off

road segregated cycle way and 80% on road non-segregated. This section has been split into commuting cyclists, weekday leisure and weekend leisure. Weekday and weekend leisure is split 50/50 across the leisure cyclists.

- **Marginal External Costs** have been calculated based on the additional walking and cycling trips as a result of the scheme. It is assumed 80% of these walking and cycling trips will have been as a result of mode shift from car usage. This has then been converted into Car KM and the following MEC benefits have been calculated, Decongestion, Infrastructure, Local air quality, noise, greenhouse gases and indirect taxation using table A5.4.2 from the November 2018 data book.
- **Health impacts** have been calculated using WHO's HEAT (World Health Organisations Health Economic Assessment Tool). This has used a single case based the individuals shifting mode to cycling and walking from another sedentary mode of transport.

4.3.6 What methodologies has been used to calculate **Monetised Costs**?

Capital Costs

Estimates for the station and car park have been produced by Faithful & Gould using industry rates and standard GRIP process allowances to build up a base price, which has also been benchmarked and refined using outturn costs from recent new station schemes. These capital cost estimates include inflation to the mid-point of construction and the full breakdown is included as Appendix F.

A Quantified Risk Assessment workshop was conducted on 24th July 2018 with representatives from Faithful & Gould, Atkins, The Combined Authority and Network Rail. The resulting cost risk register is included as Appendix G.

Estimates for the Access Package have been produced by White Young Green, the consultant that produced the Access Package designs for Calderdale MBC. These estimates, including results of a QRA, are included as Appendix H.

Optimism Bias has been included in line with Table 8 of WebTAG Unit A1.2 for projects at stage 2 (18% for rail elements, 15% for car parks and on-street elements of the Access Package (with 23% is applied to the bridge structures).

Operating and Maintenance (O&M) Costs

The O&M model developed for the scheme accounts for types of costs as follows.

1. **Operational Costs:** these included utility, cleaning, CCTV maintenance, customer information screens and ticket machine leasing costs.
2. **Annual Long Term Charge:** is the charge levied by Network Rail from the station operator. It represents the long-term maintenance and renewal of the station structure.
3. **Car parking:** annual O&M cost per space was assumed to be 5% of the initial capital cost per space based upon advice from the Quantity Surveyor.

A summary of the O&M cost estimates is provided as Appendix I.

All costs have been processed in line with WebTAG guidance, including a 60-year appraisal period, application of GDP deflator, conversion to 2010 market prices and discounting to 2010. It is assumed that the Operations and Maintenance Costs are the same as those estimated for Kirkstall Forge, except for the car parking maintenance costs which are taken as 5% of the capital cost per annum.

Revenue Risk

Calderdale MBC are scheme promoter for Elland station but as funder West Yorkshire Combined Authority will ultimately be expected to underwrite the first three years' revenue risk. Any anticipated shortfall in net new revenue, compared to operating costs, therefore needs to be included in the scheme cost estimate.

However, based on the O&M costs described above, and the results of the revenue forecasting described in section 4.3.5, it is forecast that the promoter would not need to provide any subsidy to the operator. The Technical Note in Appendix J describes the analysis undertaken to reach this conclusion.

During the next stage of project development, discussions with Network Rail, Northern Rail and Rail North Partnership will be undertaken to firm up estimates of operating costs and the Long Term Charge, in order to achieve a final, agreed position on revenue risk.

4.3.7 How is uncertainty in the appraisal dealt with?

Three demand growth scenarios have been tested:

- Central Growth: DfT's crowding constrained NFM forecast for Leeds.
- Low Growth: derived in line with WebTAG Unit M4.8
- High Growth: derived in line with WebTAG Unit M4.8

A range of sensitivity tests have been performed to consider the extent to which the core appraisal results are sensitive to the main appraisal assumptions, as follows:

Rail Service Frequency

The effect of running 1 train per hour and 4 trains per hour from Elland station has been simulated to determine the impact on demand, revenue and economic benefits compared to the assumed service pattern of 2 trains per hour.

Increased Capital Costs

The outcome of the Quantified Cost Risk Assessment will provide a range of risk contingency values that will be added to the scheme cost estimates. This sensitivity test considers the impact of applying a risk allowance from the higher end of that range, and also establishes the breakeven capital cost, the level of capital cost at which the BCR equals 1.

Increased Operating Costs

Appraisal results are provided for a range of operating cost scenarios. Sensitivities are tested either side of the central estimate at 25% lower and 25% higher and also by establishing the breakeven operating cost, the level of operating cost at which the BCR equals 1.

Results of these sensitivity tests are reported in section 4.3.11.

4.3.8 Are there any Wider Scheme Benefits?

WebTAG differentiates between three levels of economic benefits:

- Level 1: direct economic impacts such as user time and fares impacts;
- Level 2: Wider Economic Impacts without land use change such as static agglomeration, more people working and output change; and
- Level 3 Wider Economic Impacts with land use change such as dynamic agglomeration, moves to more productive jobs and dependent development.

The conventional appraisal of user benefits and fares revenues comprises the Level 1 assessment, and a spreadsheet model has been created for the Level 2 appraisal of wider

economic impacts of the four West Yorkshire New Stations. It applies the percentage time reductions taken from the rail forecasting model to the journey time matrices from the Combined Authority's UDM to estimate uplifts in the Level 2 impacts of agglomeration, more people working and increased output in imperfectly competitive markets. It should be noted that the UDM has not however been used to provide an estimate of the Level 3 impacts.

The analysis of Level 2 wider economic impacts for Elland station predicts:

- GVA uplift of **£3.9m** per annum, equivalent to
- **51** new jobs.

A technical note covering the methodology of the model in more detail is included in Appendix K, which confirms that the analysis accords with WebTAG guidance as far as practicable.

Equality Impact Assessment (EqIA)

Analysis has been undertaken to support the initial EqIA that aims to understand the local communities, facilities and environment surrounding the proposed station. In summary, the current proposal for Elland station includes many opportunities to create an accessible railway station which could benefit the town of Elland (which is particularly deprived) and the wider Calderdale region. Key features which will bring benefits to Protected Characteristic Groups include:

- Increased accessibility to a range of services (including employment, education, and other community facilities) in neighbouring towns and cities.
- An accessible station with access by lift, ramp and stairs to both platforms, provision of disabled parking bays, and designated pick up/drop off facilities.
- Enhanced environment around the proposed station site through the regeneration of currently unused land and improvements to public realm and lighting.
- Creation of temporary and permanent employment during construction and operation of the scheme.

However, there are a range of potential issues that could cause negative impacts for PCGs which relate to construction traffic and activity (including impact of noise, air quality, and feeling of overall environment).

The following measures have been identified within this assessment that will enhance accessibility and mitigate against potential negative impacts resulting from the design, construction and operation of the scheme. These should be considered as the scheme progresses to detailed design.

- Enhancement of access routes to the station, including tactile paving and provision of ramps and steps.
- Provision of shelters at drop off/pick up areas and over staircases to platforms.
- Enhancement of features of the proposed station, such as seating areas and lift specifications.
- Ensuring a clear communication and engagement strategy is in place during construction as a two-way forum between constructors and communities.
- Ensuring an accessible communication strategy is adopted upon the station opening to effectively inform potential and current users of the station services and routes.

The equalities considerations identified in the EqIA have fed directly into the design of the options considered in the OBC and will be used to fully inform the scheme development. A range of impacts have been identified, some of which may be disproportionate. It is therefore necessary to undertake a full EqIA, prepared with the preferred option at the next stage of

design. The full EqIA will seek to ensure that positive outcomes on PCGs are maximised, and any negative impacts are mitigated appropriately to reduce any disproportionate impacts.
4.3.9 Are there any Low Carbon and Environmental Scheme Benefits?
SNC-Lavalin Atkins' Elland Environmental Constraints Report describes the environmental constraints evident at the site of the proposed station. At OBC stage, a full Environmental Impact Assessment has not been conducted and impacts have not been evaluated on the seven-point scale. The Appraisal Summary Table and Environmental Summary Table below include qualitative assessment of the impacts. The Analysis of Monetised Costs and Benefits table also includes some monetary estimates derived from vehicle-kilometre savings using WebTAG Marginal External Cost method.

Table 4-10 Environmental Appraisal Summary

Impact	Summary of Key Impacts	7 Point Scale
1. Noise	The existing background and average ambient sound is expected to be moderate to high. The nearest sensitive receptors to the site are the dwellings on Oliver Meadows, approximately 200m to the east. There is also a hospital (Spire Elland Hospital) located approximately 140m to the southeast. The potential noise and vibration impacts of the development include: - construction activities of the station and associated road and car park; - change in the nature of noise from railway activities (stop/start instead of steady pass by); - passenger announcements through the public address (PA) system; - car park activity; - change in traffic noise levels; and - external fixed mechanical and electrical (M&E) plant noise associated the station (if any new sources introduced).	N/a
2. Air quality	The Scheme is expected to result in a modal shift in transportation from car to train. This is expected to provide air quality benefits through a reduction in traffic flows/congestion. An overall reduction in vehicle kilometres travelled would result in a reduction in NO2 and PM10 emissions and a benefit in terms of reduced exposure to air pollution. The Calderdale Metropolitan Borough Council Air Quality Management Area (AQMA) at Salterhebble was declared due to	N/a

	exceedances of the annual mean NO2 objective and is located 1.9km northwest from the Scheme. The AQMA is located adjacent to the A629, which may also experience an increase in traffic flows with the Scheme. DEFRA Pollution Climate Mapping (PCM) for the A629 and A6025 adjacent to the Scheme indicates maximum projected roadside NO2 concentrations to be well below the EU limit value (25 µg/m3 and 19 µg/m3 respectively) in the Scheme opening year (2022). The Scheme has the potential to reduce traffic flows on the local road network as car drivers shift to the rail alternative for travel to the airport. However, it could increase traffic flows on certain routes as drivers travel to and from the train station to use the new services. Local air quality at sensitive locations could therefore either deteriorate or improve with the Scheme, depending upon their location. The Scheme is not expected to affect the frequency of trains serving the route. Rail emissions have therefore been scoped out of the local air quality assessment. A quantitative assessment will take place on a later design stage of the proposed scheme.	
3. Greenhouse gases	Due to modal shift from car to train, road decongestion benefits are expected from the proposed Scheme. An overall reduction in vehicle kilometres travelled is expected to result in an overall reduction in emissions of CO2. The proposed Scheme is not expected to impact the frequency of trains serving this route. Rail has therefore been scoped out of the greenhouse gas assessment.	N/a
4. Landscape	The surrounding environment of the proposed station is mostly urban in nature. The surrounding land use is dominated by industrial units and some residential properties. Specifically, Lowfields Business Park, which consists of light industrial units, is located to the north of the site. To the east of the site is the Lowfields Way road and there are some additional industrial estates further to the east. To the south of the site is the Calderdale Way (A629) and the adjoining southbound exit slip road, whilst further south there is a large industrial estate. The River Calder runs to the west of the site and the Low Laithe (railway) Bridge is also found to the west. Residential and industrial properties may experience adverse visual impacts, especially those in the immediate vicinity of the proposed site such as Spire Elland Hospital (140m to the south east) and local industrial and commercial properties (50m to the north). The proposed station site is not within the Green Belt. The Liverpool, Manchester and West Yorks Green Belt is located 350m away but, given the prior existence of the rail line and the	N/a
5. Townscape		N/a

	scale of development associated with the station, there is not anticipated to be any impact on the openness of the Green Belt based on the proposed development. There is a footpath within the site, but it is not a formal Public Rights of Way. The Elland station site is located within the Yorkshire Southern Pennine Fringe National Character Area (NCA).	
6. Heritage	There are two listed buildings, within 250m of the Elland station site. Between 250m and 500m of the site there are eleven Grade II listed buildings and one Grade I listed building. No adverse impact is expected on any of the listed buildings given their distance from the scheme. On a wider scale, neither construction nor operation phases of the proposed station would be expected to have an adverse impact as the proposed station is in line with the urban nature of the listed buildings' current surroundings. No other designated assets (World Heritage Sites, Scheduled Monuments, Protected Wreck Sites, Registered Park and Gardens, Registered Battlefields or Conservation Areas) are present within the 500m of the Elland station site. Further studies should consult the Historic Environment Record (HER) for any known archaeological and historical findings within the study area.	N/a
7. Biodiversity	The are no statutory sites within the immediate vicinity of the proposed station. There are two UK statutory sites within 2km of the proposed station; Cromwell Bottom (Local Nature Reserve (LNR)) located approximately 1.1km north-east of the site; and Elland Bypass (Site of Specific Scientific Interest (SSSI)) located approximately 1.2km to the south-east of the site. There is one European protected site within 10km of the proposed station which is the South Pennine Moors (SPA, SAC). The habitats within 1km of the proposed station are deciduous woodland (100m away from proposed station), National Forest Inventory-woodland/broadleaved (600m away) and ancient woodland Elland Park Wood (500m away). No significant adverse effects are anticipated on the above sites and habitats. The species survey revealed that there is possibility for some protected species to be present on the site. There are invasive species present within the site and consideration should be given for their removal. According to Calderdale Council data there are no Tree Preservation Orders (TPOs) recorded within 200m of the development. The proposed station sits within a wildlife corridor which forms part of the Calderdale Wildlife Habitat Network and as such the design of the station should not fragment or damage the continuity of the wildlife corridor.	N/a

8. Water environment	The River Calder and Calder and Hebble Navigation Canal are the primary sources of fluvial flood risk to the site. The Environment Agency flood map shows that the proposed station is located in Flood Zone 1 and the proposed car park is located in Flood Zones 2 and 3. The site is categorised as 'Less Vulnerable' development and is an acceptable development in this flood zone. The site is largely situated within an area classified as having a low susceptibility to surface water flooding, with small pockets of medium risk alongside the existing railway embankment and to the east of the proposed car park site adjacent to Lowfields Way. The site is considered to have a high susceptibility to groundwater flooding. However, the extent of flooding from groundwater is likely to be masked by the primary source of flooding from the River Calder so does not require any further assessment. The nearest sewer is a foul sewer located within the proposed car park running east to west across the site. As part of the design process, the capacity and performance of the systems should be analysed to confirm that they continue to operate effectively and do not pose an increased flood risk. Initial discussions have been held with Yorkshire Water, Calderdale Council and the Environment Agency regarding acceptable discharge rates. The risk of reservoir flooding is considered to be low as reservoirs are regularly inspected by the reservoir owners under stringent operator guidelines to identify any potential deterioration of any dam walls, etc. Climate change has been considered as part of the EA Hydraulic modelling with the 1% AEP value of 64.595 mAOD for the site.	N/a

4.3.10 How the scheme impacts across different social groups?

The Distributional Impact assessment is included as Appendix L, and Table 4-11 below summarises the main impacts.

Table 4-11 Social and Distributional Analysis

Item	Expected Impacts, positive or negative
1. User Benefits	Moderate Beneficial
2. Noise	Neutral
3. Air Quality	Neutral
4. Accidents	Neutral
5. Security	Slight Beneficial
6. Severance	Neutral

7. Accessibility	Large Beneficial
8. Affordability	Moderate Beneficial

4.3.11 What are the summary results from the appraisal of the scheme?

Rail

This section describes the key features of the demand forecasting results for the core appraisal scenario (a service of 2 trains per hour, NMF central growth).

Demand

Table 4-12 below shows that a total of 427,000 passengers would be expected to use Elland Station each year. This includes 259,000 new-to-rail passengers, and 168,000 that switch from other stations ('abstracted').

Table 4-12 Elland Station Demand Forecasts (2016/17 base year)

	Business	Commute	Other	TOTALS
New to rail	23,571	168,505	66,725	258,801
Abstracted	15,732	108,358	43,902	167,992
Total Elland Demand	**39,303**	**276,863**	**110,627**	**426,793**
Through-traveller	-1,078	-7,594	-3,034	-11,706
Total Demand Impact	***38,225***	***269,269***	***107,593***	***415,087***

This substantial new-to-rail demand would be expected to both include trips originating at / destined for Elland and trips currently undertaken on the highway that are shifting to rail as a result of the new station.

However, MOIRA estimates that approximately 12,000 existing through-passengers may switch to other modes or cease travelling because of the additional stop. This effect is marginal in the case of Elland, both because the additional halt imposes a relatively small percentage increase in journey time, but also because many services have a wait at Brighouse scheduled into their timetable so the additional halt can be accommodated without increasing through passenger journey time.

Revenue

The significant new-to-rail demand brings corresponding new fares revenue (yield assumptions are sourced from MOIRA demand and revenue figures and vary by destination), though this is partly offset by the loss of revenue from abstraction. The resulting revenue however remains positive, as demonstrated by Table 4-13.

Table 4-13 Elland Station Fares Revenue (2016/17 base year)

Fares Revenue £/pa	Business	Commute	Other	TOTALS
LENNON station revenue	***REDACTED – Commercially Sensitive***			
Reduced from abstraction				
Through-traveller				
Net Revenue				

Journey Times

Table 4-14 shows the impact that Elland station might be expected to have on journey times.

Table 4-14 Elland Station Journey Time Impacts (mins pa)

Journey Time Savings (mins pa)	Business	Commute	Other	TOTALS
New-to-rail	238,275	1,468,123	616,544	2,322,942
Abstracted	51,654	355,771	144,143	551,568
Through-traveller	-43,645	-274,563	-114,511	-432,719
TOTAL	**246,284**	**1,549,332**	**646,175**	**2,441,791**

Large journey time savings accrue principally for new users. Although through-user impacts again offset some of these benefits, the net effect remains strongly positive and transport user benefits are generated for businesses as well as commuters.

Road Vehicle-Kilometres

Table 4-15 shows the impact that Elland station might be expected to have on distance travelled on highways.

Table 4-15 Elland Station Vehicle Kilometre Impacts

Change in veh-km pa	Business	Commute	Other	TOTALS
New-to-rail	-188,180	-1,020,585	-464,842	-1,673,606
Abstracted	-6,245	-36,222	-15,871	-58,338
Through-traveller	15,018	81,628	37,131	133,777
TOTAL	**-179,407**	**-975,179**	**-443,582**	**-1,598,168**

The significant vehicle kilometres savings for the new-to-rail passengers indicate that the new station successfully prompts a mode shift from car to rail. Though some of these benefits are offset by the effects on through-passengers, the net result is a large reduction in vehicle kilometres, which translates into noise, greenhouse gas, accidents, and highway travel time benefits. The value of the highway decongestion / travel time benefits, in particular, is expected to be significant (as much as 40% of the total travel time savings).

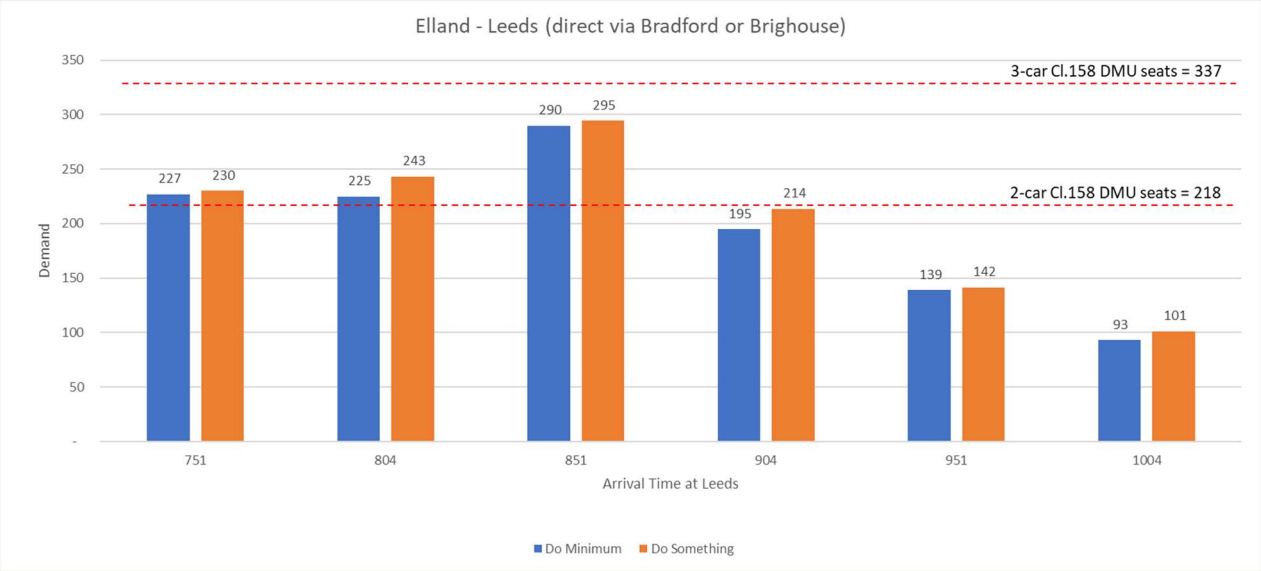
Crowding

A combination of the MOIRA demand forecasting program and the trip-rate based demand forecasting model developed for Elland has been used to provide a high-level forecast of crowding on trains into Leeds in the AM peak. MOIRA has been used to source predicted demand on train services, whilst MOIRA profiles for Brighouse-Leeds have been used to assign new-to-rail demand from Elland to the appropriate services.

This analysis has shown (see figure 4-3 below) that with forecast demand at Elland in the 2016/17 base year there is no material impact on crowding in the AM peak period. Demand from Elland is predicted to add a maximum of 20 passengers to trains into Leeds in the peak period. If these busiest services are operated by 3-car trains, demand at Elland can easily be accommodated on these trains. On the 0904 arrival into Leeds demand will be increased, although it is forecast that there will still be enough seating capacity to accommodate demand from Elland on a 2-car train.

The Technical Note included as Appendix M provides further details of this analysis, including a forecast to 2038/9.

Figure 4-3 2016/17 loadings on trains between Elland and Leeds (AM peak)



It is acknowledged that this early assessment of crowding will need to be augmented by further, more detailed analysis during the next stage of the project, but based on this initial assessment crowding would not appear to be a major risk to the viability of the new station.

Summary

The scheme appraisal has predicted positive net impacts regarding demand, revenue, journey time and road vehicle-kilometres. This is largely due to a significant number of induced new-to-rail passengers which is expected to include trips previously made by car. Through-passengers would, however, experience slightly longer journey times but these effects have a minimal impact.

Based on a high level assessment of train loading in the AM peak between Elland and Leeds, it is considered that the new demand generated by Elland would not meaningfully exacerbate existing levels of crowding.

Appraisal Summary Table

See Appendix N

Transport Economic Efficiency Table

Table 4-16 Economic Efficiency of the Transport System (TEE)

Non-business: Commuting User Benefits			**Road**	**Rail**	**Active Mode**
Travel Time	14,732		5,177	9,454	101

Vehicle Operating Costs	0		0	0	0
User Charges	0		0	0	0
During Construction & Maintenance	0		0	0	0
NET NON-BUSINESS BENEFITS: COMMUTING	14,732	(1a)	5,177	9,454	101

Non-business: Other User Benefits			**Road**	**Rail**	**Active Mode**
Travel Time	4,155		2,355	1,800	0
Vehicle Operating Costs	0		0	0	0
User Charges	0		0	0	0
During Construction & Maintenance	0		0	0	0
NET NON-BUSINESS BENEFITS: OTHER	4,155	(1b)	2,355	1,800	0

Business User Benefits			**Road**	**Rail**	**Active Mode**
Travel Time	2,977		952	2,025	0
Vehicle Operating Costs	0		0	0	0
User Charges	0		0	0	0
During Construction & Maintenance	0		0	0	0
Subtotal	2,977	(2)	952	2,025	0

Private Sector Provider Impacts					
Revenue	14,145		0	14,145	0
Operating Costs	-2,514		0	-2,514	0
TOC Profit	0		0	0	0
Investment Costs	0		0	0	0
Grant/Subsidy Payments	0		0	0	0
Revenue Transfer	-11,631		0	-11,631	0
Subtotal	0	(3)	0	0	0

Other Business Impacts					
Developer Contributions		(4)			
NET BUSINESS IMPACT	2,977				

TOTAL	
Present Value of Transport Economic Efficiency Benefits (TEE)	21,864

Analysis of Monetised Costs and Benefits Table

Table 4-17 Analysis of Monetised Costs and Benefits

Noise	58	*(12)*
Local Air Quality	6	*(13)*

Greenhouse Gases	296	*(14)*
Journey Quality	48	*(15)*
Physical Activity	773	*(16)*
Accidents	809	*(17)*
Absenteeism	9	*(18)*
MEC	0	*(19)*
Urban Realm	0	*(20)*
Cycling Accidents	0	*(21)*
Economic Efficiency: Consumer Users (Commuting)	14,732	*(1a)*
Economic Efficiency: Consumer Users (Other)	4,155	*(1b)*
Economic Efficiency: Business Users and Providers	2,977	*(5)*
Wider Public Finances (Indirect Taxation Revenues)	-3,046	*- (11) - sign changed from PA table, as PA table represents costs, not benefits*
Present Value of Benefits (see notes) (PVB)	20,816	*(PVB) = (12) + (13) + (14) + (15) + (16) + (1a) + (1b) + (5) + (17) - (11)*
Broad Transport Budget	3,770	*(10)*
Present Value of Costs (see notes) (PVC)	3,770	*(PVC) = (10)*
OVERALL IMPACTS	0	
Net Present Value (NPV)	17,046	NPV=PVB-PVC
Benefit to Cost Ratio (BCR)	5	BCR=PVB/PVC

Note : This table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Public Accounts Table

Table 4-18 Public Accounts

Notes: Costs appear as positive numbers, while revenues and 'Developer and Other Contributions' appear as negative numbers.

All entries are discounted present values in 2010 prices and values.

Local Government Funding		**Road**	**Rail**	**Active Mode**
Revenue	0	0	0	0
Operating Costs	0	0	0	0
Investment Costs	-39	-39	0	0
Developer and Other Contributions	0	0	0	0

Grant/(Subsidy) Payments	0		0	0	0
NET IMPACT	-39	*(7)*	-39	0	0
Central Government Funding: Transport					
Revenue	0		0	0	0
Operating costs	0		0	0	0
Investment Costs	15,443		0	15,443	0
Developer and Other Contributions	0		0	0	0
Grant/(Subsidy) Payments	0		0	0	0
Revenue Transfer	-10,695		0	-10,695	0
NET IMPACT	4,748	*(8)*	0	4,748	0
Central Government Funding: Non-Transport					
Indirect Tax Revenues	2,846	*(9)*	946	1,885	15
TOTALS					
Broad Transport Budget	4,710				
Wider Public Finances	2,846				

4.3.12 What is the Value for Money position?

For the Preferred option, the central growth scenario returns an Initial Benefit Cost Ratio (BCR) of **5.5**, representing Very High Value for Money.

Table 4.19 below shows the calculation of the BCR for the Preferred option, demonstrating that the high BCR results from a combination of strong economic benefits (PVB) but also a very low PVC resulting from the capital cost being substantially offset by new fares revenues.

Table 4-19 Preferred Option Economic Appraisal Results

PVB	£20.8m
PVC	£3.8m
NPV	£17.0m
BCR	5.5

Including the estimates of Wider Economic Benefits, the Adjusted BCR becomes 6.6.

The low PVC evident in Table 4-15 explains the disproportionate effect of the Less and More Ambitious options on this Preferred scenario, as presented in Table 4-20 below. It means that though the Access Package contributes meaningfully to the PVB in both the Preferred and More Ambitious options, the relatively small changes in scheme cost have a large percentage impact on the PVC, making the BCR very sensitive to the level of Access Package interventions included.

Table 4-20 Less and More Ambitious Options Economic Appraisal Results

	Less Ambitious	Preferred	More Ambitious
PVB	£19.9m	£20.8m	£21.3m
PVC	£1.7m	£3.8m	£6.1m
NPV	£18.2m	£17.0m	£15.3m
BCR	11.8	5.5	3.5

The nature of the Access Package and the difficulty reflecting its value in monetised economic terms means that, in isolation, it offers poor Value for Money with a BCR of 0.4 for the Preferred option and 0.3 for the More Ambitious. As a result, the inclusion of the costs and benefits of the

Access Package reduce the overall Value for Money position of the combined station and Access Package scheme, though the overall economic performance of the combined scheme remains very strong.

Table 4-21 below summarises the sensitivity of the Initial BCR to a range of factors:

Table 4-21 Economic appraisal sensitivity test results

Test	Description	BCR
Low growth	Lower than expected rate of passenger growth	4.1
High growth	Higher than expected rate of passenger growth	7.8
1 tph	1 train per hour service operating from Elland station	2.0
4 tph	4 trains per hour service operating from Elland station	Financially Positive

The above results show that even with some far more pessimistic assumptions about service patterns and passenger growth, there remains a case for investment in the station. In particular, should timetabling in the region evolve such that only 1 train per hour can be realised at Elland, the BCR remains sufficiently robust to justify the expenditure at 2.0 (1.7 at low growth).

Furthermore, analysis of the scheme costs suggests that construction costs would need to more than double for the BCR to reduce to below breakeven (i.e. a BCR of 1.0), and operating and maintenance costs would need to increase tenfold.

4.3.13 Preferred Option Selection and Justification

A combination of significant new fares revenue generation and a strong economic performance means that the Preferred option represents very High Value for Money.

While the More Ambitious option delivers marginally more benefit, it introduces significantly more costs as a result of the new bridge crossings and is both unaffordable and offers worse Value for Money.

The Less Ambitious option, with no Access Package, delivers the majority of benefits but at a lower cost, meaning that in purely monetised, economic terms, it would appear to offer the best Value for Money. However, it is considered that in borrowing mode-of-access behaviours from other nearby stations, the demand model assumes a certain standard of accessibility, wayfinding and route delineation for the new station that, in the absence of the Access Package, would not be realised. Hence it is considered that a portion of the forecast patronage and associated economic benefit is attributable to the Access Package.

This means that though the appraisal of the Access Package and station have been largely discreet, there is intuitively an overlap in terms of benefit realisation and it would be considered an oversight, for the reasons stated in the Strategic Case, to consider implementing the station without also addressing pedestrian and cycling access between the town centre, Lowfields Business Park and the station. On this basis it is recommended that the Preferred option be taken forward to the next project phase.

5. Financial Case

The purpose of the Financial Case is to demonstrate that the preferred option is affordable and has the necessary funding. This should include the capital and on-going revenue costs and impacts.

Note – All sections should be reviewed and updated if this is the Full Business Case. A summary of any key changes and their implications on the business case should be included.

5.1 Capital Costs

5.1.1 What is the total project outturn capital cost?

Below is a high level cost summary of main components of the scheme. Table 5-1 provides further detail:

Station	£	15.570m
Car Park	£	1.791m
Access Package (1° routes)	£	0.555m
Access Package (2° routes)	£	0.106m
Access Package (bridges)	£	2.017m
Land Assembly	£	0.300m
TOTAL AFC	**£**	**20.341m**

Note that the Land, though included for transparency, is contributed by Calderdale Council at no cost to the Combined Authority and WY+TF.

Table 5-1 Breakdown of Project Outturn Costs

	Total Project Outturn Costs (£m)	Brief Description	% of total costs
Direct Construction Works	£8,633,255	All rail, highway and public realm works	42%
Indirect Construction Works	£1,743,472	Preliminaries, overheads and profit	9%
Employer Indirect Costs	£2,221,907	Project / Design Team Fees and Other Project Development Costs	11%
Land Assembly	£300,000	*Land provided by CMBC at no cost	1%
Contingency	£1,908,175	15% applied to rail, 11% to Access Package prior to application of QRA and NR Fees	9%
QRA	£1,680,997	P50 risk allowance from QRA	8%
Inflation	£951,201	Inflation to midpoint of construction	5%
NR Fees	£2,902,231	NR fee and Industry Risk Fee	14%
Total (£m)	**£20,341,238**		**100%**

5.2 Funding Profile

5.2.1 What is the cash flow and funding profile for the project?

Below is a forecast of the likely spend required to each of the Combined Authorities decision points. Costs for the next phase are substantially comprised on technical design, surveys, project team costs and the Network Rail Development Services Agreement.

Table 5-2 Forecast Spend Profile

Milestone	Date	Funding Requirement
Activity 3 (Outline Business Case)	Mar '19	£0.884m
Activity 4 (Full Business Case)	Mar '20	£1.300m
Activity 5 (Full Business Case with final costs)	Feb '21	£0.254m
Activity 6 (Delivery)	Sep '22	£17.853m
Activity 7 (Close & Review)	Dec '23	£0.050m
TOTAL		**£20.341m**

Table 5-3 Cash flow and funding profile

	WYCA funds (£m)	Applicants' funds (£m)	Other public sector (£m)	Other private sector (£m)	Total Cost (£m)
Up to and including Year 1 2019/20	£2,034,748				£2,034,748
Year 2 2020/2021	£1,597,000		£300,000		£1,897,000
Year 3 2021/22	£14,147,493				£14,147,493
Year 4 2022/23	£2,211,997				£2,211,997
Year 5 2023/24			£50,000		£50,000
Total (£m)					**£20,341,238**

5.3 Revenue Costs

5.3.1 Are there any revenue, on-going/operational costs associated with the project?

It is Rail North Partnership's current policy for the scheme promoter of new rail stations to underwrite the revenue risks of the scheme for at least the first three years of operation.

An assessment of the revenue risk conducted for this OBC has determined that the total operating and maintenance cost for Elland station is expected to be no more than £731k in the

first three years of operations. This compares to a forecast fares revenue increase of £1.5m, demonstrating a significant operating surplus of £820k.

Table 5-4 below shows that the scheme would be expected to return a small deficit (£34k) in the opening year, before demand from new rail users has ramped up. From year 2 onwards however the station generates a substantial return.

Table 5-4 First three years' net revenue position

	Opening Year (2022/23)	Year 2 (2023/24)	Year 3 (2024/25)	Total
O&M Costs	£239k	£244k	£249k	**£731k**
Fares Revenue	£204k	£610k	£740k	**£1,550k**
Net New Revenue	**-£34k**	**£366k**	**£488k**	**£820k**

Passenger growth forecasts do not play a significant role in the years immediately after opening, but it is worth noting that even in the low growth scenarios there is still expected be a surplus of £750k over the three year period.

5.4 Funding Source

5.4.1 What other funding sources are there within the project?

Calderdale MBC is providing £50k funding and the land for the car park (valued at £300k).

Table 5-5 Funding Source

Funding Source	(£m)	Current status (secured, pending, applied for)
West Yorkshire Plus Transport Fund	£20.000m	Allocated, but subject to approval of the business case. Current project requirement at £19.991m
Calderdale MBC	**£0.350m**	
Total (£m)	**£20.350m**	

5.4.2 What are the main financial risks and how will they be managed?

Capital Cost

Table 6-5 sets out the headline risks, most of which relate to construction phase risks that would affect delivery programme and construction cost. These risks have been itemised and quantified and an appropriate allowance made in the scheme cost estimate and will be individually managed on an ongoing basis through the Combined Authority's risk management process. In most cases further survey work and design will mitigate much of this risk.

Revenue Risk

The economic appraisal undertaken for this business case suggests that the net new fares revenues generated by Elland station would outweigh the cost of operating and maintaining the new facility. However, this assessment is sensitive to a number of assumptions that will be kept under review through discussions with the operator (Northern Rail), the asset owner (Network Rail) and Rail North Partnership, which is responsible for any change to the franchise contract.
5.4.3 How will cost overruns be dealt with?
West Yorkshire Combined Authority will be the funder of last resort and therefore cover any cost overruns. Robust contingency and risk allowances have been made in the capital cost estimate, and procurement through a fixed price contract should further limit the Combined Authority's liability. The form of the train station cannot easily be rationalised to reduce cost, so potential targets for value engineering, should the need arise, would be the car park and Access Package.
5.4.4 Does the project offer any potential to generate a commercial return to pay back the WYCA funding?
The station is expected to generate surplus fares revenues over and above the cost of operating the station, and hence there may be an opportunity, through negotiation with the operator and Rail North Partnership, to offset the capital investment made by the Combined Authority.
5.4.5 Has the project considered any State Aid implications?
No material private sector beneficiaries of the scheme have been identified.
5.4.6 Is the WYCA funding a loan? **Only complete this section if applying for a loan from WYCA.**
N/A

When will the loan repayments start?	Not Applicable
When will the final loan payment be made?	Not Applicable

6. Management Case

The purpose of the Management Case is to demonstrate that the preferred option is capable of being delivered successfully, in accordance with recognised best practice.

Note – All sections should be reviewed and updated if this is the Full Business Case. A summary of any key changes and their implications on the business case should be included.

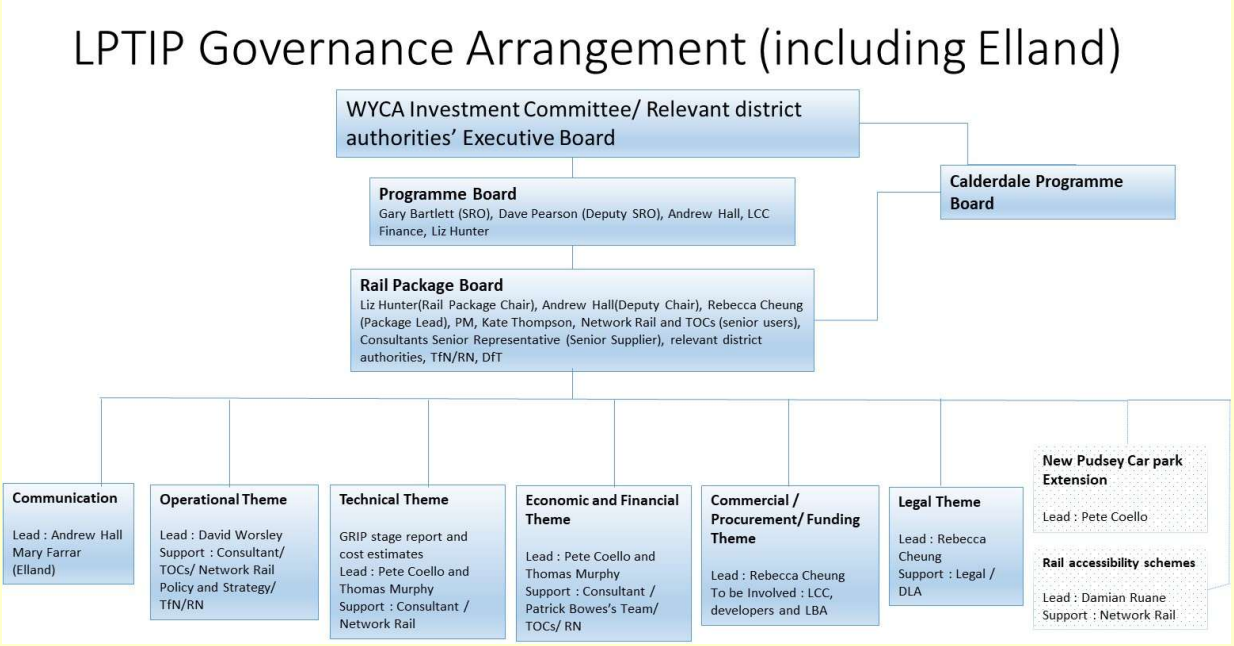
6.1 Deliverability

6.1.1 How will the delivery of the project will be managed?

Calderdale Council is the scheme promoter for Elland station with executive responsibility falling under the Rail Package of the Leeds Public Transport Improvement Programme (LPTIP). Although not funded by LPTIP there is a robust governance structure in place for the three LPTIP rail stations, therefore in an effort to drive efficiencies and utilise existing structures Elland station has been packaged with the LPTIP stations under the Rail Package Board. Elland station does not report to the LPTIP Programme Board.

West Yorkshire Combined Authority are leading the development of Elland station, with Calderdale Council developing the Access Package measures. The diagram below shows the management structure of the Rail Package and how it relates to wider Combined Authority governance.

Figure 6-1 LPTIP Governance Structure



The Combined Authority has appointed Atkins as Delivery Partner for the development of the station through to OBC and GRIP 3 'Approval in Principle' stage. WYCA and Atkins' joint delivery team have extensive experience of delivering similar schemes and are collaborating extensively with colleagues at Calderdale Metropolitan Borough Council, Transport for the North, Rail North, Department for Transport, Network Rail and Northern Rail to ensure the scheme satisfies key stakeholder requirements.

The Combined Authority, Atkins and Network Rail are co-located at least once a week in York in order that issues can be resolved quickly and at an early stage.

6.1.2 Which organisations are involved in the delivery and management of this project?

The Rail Package Steering Group has the following members / organisations:

Table 6-1 Rail Package Steering Group Membership

Role	***Name***	***Organisation***
Rail Package SRO	*Liz Hunter*	*WYCA*
Project Executive	*Rebecca Cheung*	*WYCA*
Project Manager	*Thomas Murphy*	*WYCA - Station*
Senior Users	*Kate Thompson*	*WYCA*
	Stephen Lee	*CMBC*
	Stephen Hind	*Network Rail*
	Fraser Langford	*Network Rail*
	Barry Graham	*Northern Rail*
Senior Supplier	*Hugh Chaplain*	*Atkins*
Relevant authorities	*Mark Livock*	*Department for Transport*
	Caroline Young	*Transport for the North / Rail North*

Table 6-2 Project Delivery Partners

Organisation	**Role in project delivery**
West Yorkshire Combined Authority	Governance, project management, legal, commercial and procurement.
Calderdale Metropolitan Borough Council	Scheme promoter, partner council.
Network Rail	Technical oversight and coordination with other parallel network enhancements.
Department for Transport	Coordination with Transpennine Route Upgrade and HS2 projects.
Transport for the North / Rail North	Strategic direction and franchise implications.
Atkins	Engineering, Operations, Finance, Economics and Business Case delivery partner.
Northern Rail	Franchise operator for local services operating through Elland.
Transpennine Express	Franchise operator potentially operating diverted services on Calder Valley Line during TRU works.

6.2 Scheme Programme

6.2.1 What is the anticipated scheme delivery timeframe?

The project is targeting an opening date in September 2022, with GRIP 4 and 5 (outline and detailed design) through 2020, and GRIP 6 to 8 (Implementation) from spring 2021 through to autumn 2022. Appendix O provides a Gantt chart

Table 6-3 Scheme Programme

Milestone	Date
Detailed feasibility work	
Outline Business Case	Jan-19
Initial land and legal assessment and discussion	Mar-19
Funding approvals / NR approvals	Jun-19
Outline and detailed design stage	
Tendering and award of contract (design)	Apr-19
Network Change	Nov-19
GRIP Stages 4	Feb-20
Planning application (complete)	Jan-20
FBC	Mar-20
Tendering and Contract Award (Contractor)	Aug-20
Completion of land acquisition and necessary agreements with the operator	Feb-21
GRIP5	Feb-21
FBC+	Feb-21
Implementation Stage	
Mobilisation	Mar-21
Construction	Mar-22
Test and commissioning + inspection + drivers training	May-22
Contingency	Sep-22
LIVE	Sep-22

6.3 Delivery Constraints & Risk Management

6.3.1 What Delivery Constraints exist?

The scheme does not require third party funding, land assembly or any statutory process beyond planning consents and public engagement to date has identified very little objection and generally strong support. Accordingly, the primary delivery constraints surround resourcing, technical approvals by Network Rail, franchise changes with the operator and RNP and agreement of the procurement vehicle.

Table 6-4 Key Delivery Constraints

Delivery Constraint	Scheme Position

Planning consents	Planning consents are part of the GRIP stage 4 work package which forms part of the FBC. However, Calderdale MBC's planners are involved now in the scheme definition stage in order that any potential planning issues can be identified at the early stage of development.
Compulsory Purchase Orders	N/a
Public Engagement	Public engagement was undertaken during autumn 2018. Details and findings are reported elsewhere in the OBC.
Public Inquiry	N/a
Traffic Restraint Orders	N/a
Transport and Works Act	N/a
Public sector match funding	N/a
Private sector match funding	N/a
Network change	To be completed by Network Rail at FBC stage.
Procurement contracts	Development Services Agreement/ Implementation Agreement/ Asset Protection Agreement
ORR	CSM & Interoperability Approval
Franchise change	Acceptance by RNP of new station into Northern franchise

6.3.2 What approach is being adopted towards risk management?

The Combined Authority has developed a risk management strategy for the New Stations project. The strategy (Appendix P) and corresponding risk register are owned by the Combined Authority Project Manager and have been designed to incorporate Network Rail's GRIP approach to categorising and evaluating risk. The risk strategy and key risks form an agenda item on the Rail Package Working Group meeting.

Station

For Elland the risks to the successful delivery of the Scheme are captured within the Scheme Risk Register. The risks have been identified, qualitatively and quantitatively assessed for both likelihood and cost impact. The detail of the risks and their assessments were developed during a facilitated workshop. The workshop was attended by members of the West Yorkshire Combined Authority, the design team and Network Rail. A high-level breakdown of the works to be delivered served as the framework for the identification and

assessment. The risks were captured using a best practise approach of identifying the cause of the risk, the risk event and the consequence of the risk should it occur.

Access Package

A risk register has been produced for the scheme in order to identify potential risks to delivery of the proposed Access Package measures. A copy of the risk register is included in Appendix Q.

6.3.3 What are the Scheme Headline Risks

Table 6-5 Headline Risks

	Risk Title	Risk Description	Risk Rating
1	Track Cant	There is an existing level of cant in the track in the area of the Scheme works that does not meet the current Network Rail Standards. There is a risk that the cant of the track may need to be removed as part of the project before the platform construction can start. Additional cost and schedule extension due to track work prior to the platform construction would be required.	High
2	Ground Conditions	The land has had previous railway use and other industrial uses. There is a risk that the ground conditions may differ from those assumed once on-site investigations commence. Some materials and contaminates would need to be removed from site.	High
3	Platform System Life	The design is based on a TSP system. There is a risk that the life expectancy of the proposed system may not be acceptable to Network Rail. Changes to the proposed system would be required for the platform with a longer life expectancy.	Medium
4	Gas Main	During the consultation events it was suggested by member of the public that a gas main exists in the area. There is a risk that the gas main may exist on the site. Additional works to divert the gas main would be required to be undertaken.	Medium
5	Earthworks	It is assumed that the existing earthworks are stable and there will be no changes to the loading as a result of the Scheme works. There is a risk that stabilisation works will be required when intrusive surveys are undertaken during GRIP4. Additional works would be required to stabilise the embankment.	Medium

6	Platform System Galvanising	The design is based on a TSP system. There is a risk that the level of galvanising in the proposed system may not be acceptable to Network Rail. Alternative system would be required for the platform with a different level of galvanising.	Medium
7	Mine Workings	There is no current evidence of previous mine workings in the area. There is a risk that mine workings may exist within the site boundaries. Ground work would be required to consolidate the ground conditions.	Medium
8	Timetable Planning Rules	The operational analysis undertaken so far has used the 2017 Timetable Planning Rules, which may not reflect the actual rules in force when the station is built.	Medium
9	Timetable Assumptions	The modelling and appraisal is based on earlier versions of the ITSS for TRU. Subsequent, updated versions may undermine the assumptions made about the level of service that can be realised at Elland.	Medium
10	NR Delivery Resource	The anticipated delivery approach relies on availability of Network Rail resources to procure and progress the later GRIP stages.	Medium
11	Flood Risk	Delay, cost increase due to unusual storm event causing flooding of site and 3rd party damage for long periods	Medium
12	Access Package Land Take	A requirement may be identified for third party land to deliver measures.	Medium
13	Shortfall in Fares Revenues	If patronage and fares revenues are lower than forecast the Combined Authority will have to underwrite any shortfall.	Medium

6.3.4 Has a Quantified Risk Assessment been carried out?

Station

To calculate the cost risk exposure of the Scheme, a Quantitative Cost Risk Analysis was undertaken. For each risk, the following were agreed:

- Likelihood of the risk occurring expressed as a percentage
- A realistic minimum cost should the risk occur
- A most likely cost should the risk occur
- A realistic maximum cost should the risk occur

The analysis assumed that no additional mitigation actions would be undertaken to reduce the risk exposure further.

A 'Monte Carlo' type modelling methodology was adopted for the analysis. The analysis was based on 10,000 iterations of the model as is standard practice. The analysis showed that the Scheme exposure to the impact of the risks identified in the Scheme Risk Register was **£1,360,000** at the Mean level. In addition, based on the risks identified in the Scheme Risk

Register there can be 80% confidence that the exposure to risk events will not exceed £1,820,000 and 20% confidence it will not exceed £886,000.

Access Package

The risk register for the Access Package identifies potential risks and proposed mitigation, where possible, in order to minimise the impacts of the risks identified. The register includes a Monte Carlo P50 Quantified Risk Assessment (QRA) allocating appropriate costs to the key project risks identified.

The main risks that are identified on the register are the requirements for 3rd party land to deliver the proposed bridge crossings and associated impacts on potential costs/ delivery. In addition the presence of Japanese Knotweed and other invasive species has been identified by the ecological review carried out and appropriate mitigation has been identified in order to minimise the impacts on the delivery of the measures.
Given the location of the bridge crossings there is also potential for flooding events to impact on the delivery of the schemes, although the majority of the proposals would not be directly affected by flooding events.

At this stage it is assumed that other risks identified could be appropriately reduced or mitigated in order to minimise impacts on the delivery of the proposed measures.
Based on the risks identified in the risk register the value of risk for all of the potential Access Package measures is £640k. For the priority package of measures included in the Preferred option, the QRA value is **£320k**.

6.4 Communications and Stakeholder Management

6.4.1 Does the Project have a Communications Strategy?

Stakeholder Management

The Stakeholder Management Plan for the WYCA New Stations project (the consultancy commission under which Atkins is acting as WYCA's delivery partner for Elland station) is included as Appendix R.

All of the key stakeholders sit on the Rail Package Board. Specifically, this includes WYCA, CMBC, Transport for the North, Rail North Partnership, Department for Transport, Network Rail, Northern Rail and Transpennine Express.

Equality Impact Assessment

An Equality Impact Assessment (EqIA) has been undertaken for the proposed Elland station and a summary of the key points arising is provided within section 4.3.8 of this OBC.

6.5 Monitoring and Evaluation

6.5.1 Is there a Benefits Realisation Plan?

See Appendix S

6.5.2 Is there a Monitoring and Evaluation Plan?
A Monitoring & Evaluation Plan will be prepared for the Full Business Case, and budget has been allocated in the capital cost estimate for delivering the Plan. Calderdale MBC, as the scheme sponsor, will be responsible for monitoring and evaluation in line with the Leeds City Region Assurance Framework.

6.6 Change Management
6.6.1 How will changes be managed
Material changes to the scope, budget or programme for Elland station will be escalated from the project to the Rail Package Steering Group. Where a change has a significant impact on the delivery programme or cost, so much so that the tolerances of the project are exceeded, these will be reported to the Combined Authority through the assurance framework.