Project Brief

Project Name:	A629 Southern Section Phase 1a (Jubilee Road to Free School Lane junction) and Phase 1b (Calder and Hebble junction)		
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Revision History

Date of next revision:

Revision Date	Previous Revision Date	Summary of Changes	Changes Marked

Approvals

This document requires approval from the proposed Project Executive or Programme SRO before submission to the Portfolio Office. A signed copy should be placed in the project files and uploaded to Covalent [SharePoint].

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Overview

Purpose A Project Brief is used to provide a full and firm foundation for the initiation of the project and is created in the Starting up a Project process.
In the Initiating a Project process, the contents of the Project Brief are extended and refined in the Project Initiation Documentation, after which the Project Brief is no longer maintained.

Contents

Project Definition

Established under the Government's Local Growth Deal and worth £1 billion over 20 years, the West Yorkshire Plus Transport Fund (WY+TF) comprises a programme of transport interventions that seeks to maximise the increase in employment and productivity growth in the districts of Bradford, Calderdale, Kirklees, Leeds, Wakefield and York (the Plus component)

Improvements to the A629 corridor connecting Huddersfield and Halifax are proposed to be delivered under the WY+TF in 4 stages:

- Phase 1a – 4km length corridor improvement between Jubilee Road and Free School Lane junctions; focussing upon signal efficiencies at Dudwell Lane, Dryclough Lane, Free School Lane and southbound upgrade to dual carriageway continuing from Dudwell junction down Salterhebble hill to Jubilee Road.
- Phase 1b – Focused upon Calder and Hebble junction, this notorious congestion black spot subject to a remodelled layout accommodating the interchanges respective travel movements and modes of transport.
- Phase 2 and 3 in Halifax town centre is subject to a separate brief.
- Phase 4 – Ainley Top roundabout at the interface with Junc 24 of the M62 subject to remodelling and exploratory park and ride strategy; separate brief
- Kirklees – Corridor improvements including duelling inbound to Ainley Top and junction remodelling at Calvary Arms signals; separate brief.

Combined these schemes seek to deliver transport network efficiency improvements along this principal corridor which will promote modal choice by enhancing multimodal accessibility, reduce congestion, reduce journey times and improve air quality with the ultimate aim of mitigating business accessibility concerns, increasing employment opportunity and unlocking new sites for development.

Improvements along the corridor are complementary to other WY+TF measures being pursued in Halifax town centre termed Phase 2. Collectively over 5 sub phases up to 2021 these will also see reduced journey times with upgraded public transport infrastructure, enhanced orbital highway routes, embellished public realm, access to new development land and upgrade to the bus and rail stations.

The overall purpose of the corridor improvements is to present a robust strategic case which will demonstrate the need for intervention and investment necessary for business plus local employment to flourish. This objective would contribute to the Leeds City Region Strategic Economic Plan reaching its full potential; success in this respect would unlock further central government investment beyond the initial 6 year period already assured under Growth Deals negotiated under the regional Strategic Economic Plan agenda.

Calderdale Council is seeking to work collaboratively with the West Yorkshire Combined Authority (WYCA), Local Authority partners, key stakeholders both statutory and informatory including land owners to deliver the plan in realisation of the future benefits across the board forecast.

Background

Despite an obvious need and a desire to improve the corridor, decades of inability to invest in appropriate major works means that the capacity of the local highway network is not sufficient to keep pace with population and the economic growth. This will result of increasing levels of congestion, rising costs of motoring and public transport and reduce the ability to recruit a workforce, interact with other businesses or transport goods and services to people and business that need them. Significant investment in transport is therefore needed, which the A629 corridor cumulating in Halifax complies with being the primary transport link and business centre access into the district:

Nationally Government Growth Deals as highlighted above present devolved powers to the regions represented by The Leeds City Strategic Economic Plan (2014) which recognises the economic potential of the region and the need to seize the potential of this 'game changing opportunity for the North'. It clearly articulates the contribution better transport connectivity will play in providing the driving force to the plan.

The proposal to create a £1billion fund to invest in transport in West Yorkshire and York over the next decade and the confirmation of the Leeds City Deal with Government last year was welcomed across the region. Briefly in response to the Leeds City Region securing City Deal (2012) and subsequent Combined Authority (2014) status the region was committed to developing a Single Appraisal Framework (SAF), to be approved by HM Treasury and DfT that would enable devolved investment decisions to be made. The SAF was developed to be fully operational by April 2015 to enable the LEP and the CA effective governance of the funding being made available by Central Government.

Before formally launching the Fund, Leaders approved £6million to be set aside in development of the overall Strategy and support early programme 'win' schemes which the A629 strategy has been a beneficiary of along the path to securing inclusion within the formal Transport Fund programme. The A629 corridor is considered to have several recognised issues which can be resolved with the appropriate funding:-

- high congestion particularly during peak periods at junctions and pinch points;
- slow journey times for buses contributing to declining public transport patronage on the corridor;
- no express bus services between Huddersfield and Halifax.
- delays for goods delivery vehicles travelling to and from M62,
- constrained access to the employment districts of Copley, Sowerby Bridge and Halifax
- Accessibility concerns of business deterring investment.
- improved air quality in a declared Air Quality Management Area (AQMA) located on the route

Classified as a Core project the A629 / Halifax strategy is intended to be a benchmark delivery project within the Fund programme (largest individual project), the success of which is fundamental to the future prosperity of Calderdale and wider area as a whole. The Core project programme aims to establish a new funding stream (Earn Back) arising from new employment growth which will enable development of more expansive regional Transformational projects beyond the 10 year Fund delivery period. Such projects include motorway strategic upgrades to the benefit of local towns / cities, expansion of the rapid transit trolley bus networks and preparing the local rail network for high speed rail links.

The A629 Southern Section corridor is to be delivered under phases 1a and 1b with the initial works being an enabling component upstream of the Calder and Hebble junction. This will ensure sufficient network capacity is achieved in advance of interventions addressing a renowned corridor pinch point at the major interchange north of Elland bypass. In parallel Kirklees are leading on improvements to the corridor south of Ainley Top roundabout with a dual carriageway approach on Halifax Road and remodelling of Calvary Arms junction. Ainley Top itself, although recently upgraded under a significant Section 278 scheme will be subject of a Calderdale led study to further embellish and consider park and ride potential.

Project Objectives

Time

As an early win scheme within the WY+TF programme corridor modelling and preliminary design studies have been ongoing since early 2014 culminating in Gateway 1 BusIness Case approval during march 2015 by the Combined Authority for the initail Phase 1a works. Monies are now released to complete scheme detail design programmed for Gateway 2 scrutiny during March 2016. Approval would authorise construction procurement, to be ratified under a final Gateway step (3) with works on site sheduled between July 2016 for a 9 month period up to March 2017.

A determining factor of this aspired programme is successfully negotiated 3rd party land acquisition; failure would lead to initiation of Compulsory Purchase Order legal procedures, likley to introduce delays of up to 12months.

Phase 1b is currently progressing towards Gateway 1 submission during July 2015 with consultant support delivering comprehensive modelling analysis at a strategic and junction overview level informing a recommended preliminary design layout for Calder and Hebble junction. Timescales trail phase 1a by 6months across the gateway processing with construction programmed as a phased approach from April 2017 through to March 2019 given the major remodelling anticipated. 3rd party land acquisition is also likely though in this case focued upon public bodies as opposed to private individual going concerns under Phase 1a.

Cost

For the West Yorkshire plus Transport Fund, the Growth Deal allows the WYCA to establish a £1 billion Transport Fund for West Yorkshire and York as shown below:

Table 1 WY+TF Overall Funding Available

Period	Funding Available	£m
2015/16 – 2020/21	LGF - 6 years @ £30m per year	180
2015/16 - 2024/25	Devolved DfT Major Scheme Funding	183
2021/22 – 2034/35	LGF - 14 years @ £30m per year (subject to satisfactory delivery/economic impact in first 6 yrs)	420
2015/16 – 2034/35	Public Sector match funding including committed levy	217
Total		**1,000**

The A629 Southern Section is to be funded from this WY+TF capital budget that has been allocated through the A629 corridor mandate. Overall across the full corridor including Halifax town centre and Kirklees elements £120.6million is budgeted with £17.5million mandated for the Southern Section.

Phase 1a is mandated at £4.5million with Phase 1b allocated £13million however outturn scheme development may require exception reporting to seek budget flexibility as necessary. Budgets estimates currently include optimum bias at 44% of works estimate so costs are likely to become refined as progression through the gateway stages develops a focused scheme.

Quality

The scheme will be subject to the Council's quality assurance framework and corresponding WYCA quality management principles applicable to the design and construction of WY+TF schemes. Passage through the gateway processes will also introduce peer quality oversights ensuring adherence to the expected professional standards.

While the southern section is operational highway infrastructure biased, sympathetic materials and design are expected particulary in 1a areas bordering the conservation zone and potentail for bridge structures in 1b where an aesthetic quality befitting the natural environment is aspired to.

Scope

The proposed scope of works along the A629 Southern Section has been defined around the following objectives:

- Promote mode choice by enhancing multimodal accessibility
- Enhance provision for sustainable modes
- Improve air quality

- Improve economic and employment opportunity throughout the District and unlock sites for development
- Mitigate accessibility concerns of businesses
- Interventions to be supportive of housing growth

- Reduce congestion along A629 corridor
- Deliver optimal capacity on the A629 corridor (people and goods)
- Enhance journey time reliability, particularly for public transport users
- Reduce bi-directional journey times for all modes on A629 corridor
- Ensure synergy with LTP and SEP investment
- Minimise impact on future revenue budgets

Risk

The project's approach to risk will be set out in the Risk Management Strategy which has been comprehensively prepared for the Gateway 1 submission. At this stage of the project, the risk objective is to minimise the consequences of risk on cost, time, quality and deliverables.

Land acquisition is the primary risk factor given several 3rd party plots are identified to achieve the highway widening proposals, primarily in the Salterhebble hill area. Negotiated settlements are sought, though CPO powers may have to be invoked implicating an elongation programme time.

Network efficiencies predicted in modelling software will be subject to scheme completion scrutiny with potential for public frustration if the predicted improvements fall short of predictions. This awareness will be particularly to the fore given extensive construction activities will bring inevitable periods of increased congestion.

Budget constraint and continued availability is also a risk factor though this would seem to have diminished following central government continuity in recent general election, who have statutory commitments highlighted in cost above.

Benefits

Benefits can be originated from national, regional and local strategic objectives each complimenting the overarching aims, these being to maximise the increase in employment and productivity growth across West Yorkshire, (irrespective of boundaries) by the delivery of transport schemes; and secondary to improve the ability of people in every West Yorkshire district and York to access jobs, with a particular focus on those living in the most deprived communities, and to achieve a carbon neutral impact at the package level.

Contributing to these targets at a scheme level the A629 Southern Section aims to contribute a Gross Value Added (GVA) ratio of 1.6 per £ spent over the whole life cost cycle to the local economy; this equates to over 1750 additional jobs by 2026.

Sensitivity tests for the Phase 1a gateway 1 submission showed a Benefit to Cost Ratio (BCR) of 15 to 1 and worst case scenario assuming a 10% increase in costs vs a large reduction in predicted economic activity the ratio is still 4.7 to 1; under DfT WEBTag criteria a ratio of 4 to 1 and above is classified very high value for money.

Desired Outcomes

Delivery of the A629 southern corridor will enable the economic productivity growth of Halifax town centre and greater district to evolve, unconstrained by transport apprehensions.

Works completion by summer 2017 of Phase 1a dovetails with early phasing of Transport Fund works in Halifax which seeks to complete the eastern gateway, essentailly upgrading the Charlestown Road corridor in mid 2017 followed by the northern gateway works in the Northbridge area by 2018. The southern gateway in the Shay area within a 2019 timeframe completes the town centre circulatory transformations which is sequentail with a similar 2019 delivery of the Phase 1b works to Calder and Hebble junction.

These interventions would form a linear network upgrade linking the southern corridors Borough boundary at Ainley top (M62 junction 24) with the northern side of Halifax centre. This improved regional access for Halifax town centre bound traffic would stimulate new development and employment opportunities; conversly through traffic flows would be more evenly districbuted around the west and east sides of town, as opposed to a western concentration currently. Strategically, integration and development of the towns outlying areas would facilitate consolidation of an expanded economic opportunity further embellishing Halifax town centres standing and contribution to the wider region.

The respective phases of the A629 southern section and town centre remodelling are currently programmed to ensure a deliverable proximity to each other upon the highway network; given the enormity of tasks this will become increasing difficult to manage if a phasing delay is experienced so there is an obvious desire to minimise outcome deviations or build in overall programme flexibility to prevent overlapping objectives.

Project Scope and Exclusions

Please note these plans remain confidential at this time and should be protected from wider public circulation due to the commercially sensitive nature of their content.

Phase 1a A629 southern corridor preliminary designs have been drafted informed by extensive traffic modelling outputs prepared for the Gateway 1 submission; in principal these establish the design brief though are subject to revision during detail design;1a scope in principal includes:-

- Remodelling Free School Lane / A629 signal junction to a crossroads configuration capable of increasing network efficiency for existing and future growth traffic volumes. Northbound approach would increase lane provision, full pedestrian signal phasing on respective arms, cycle infrastucture inclusion, dedicated right turn lane into Shaw Hill in anticiption of increased eastern corridor routing, creation of new soft landscape area capable of including a Halifax gateway feature, provisionally requires a nominal landtake strip into adjacent Spring Hall grounds.

- Remodell existing Pelican Crossings along the A629 corridor near the junctions with Coronation Road, Stafford Road and Jubillee Road. The current central island stagger arrangement to be considered for conversion to straight across pedestrian movement, which has potentail to allow c/way lane dualling along the corridor.
- Remodell existing signal junction at Dryclough Lane to increase network capacity; includes consideration for right turn movement ban from A629 southbound into Dryclough Lane. Northbound introduction of left turning slip lane into Dryclough Lane. Cycle and pedestrain facility inclusion.
- Corridor length between Dryclough / Dudwell signals to include new cycle lane provision. Potentail land take required from Calderdale Royal Hospital
- Remodell existing signal junction at Dudwell Lane to increase network capacity; includes signal sequencing link with adjacent Dryclough signals. Cycle infrastructure provision and relocating pedestrian crossing in Dudwell Lane to optiminal desire line. Left turn from Dudwell into A629 northbound corner radius chamfered to accommodate vehicle movements; involves land take from Calderdale Royal Hospital.
- Salterhebble Hill ugrade to dual carriageway standard southbound through to Jubillee Road while retaining existing northbound dualling. Includes northbound shared cycle / pedestrain path. Widening works require acquisition of 3rd party land on the western side of corridor, demolition of 3 shop units and relocation of retaining wall structures.
- Corridor remodelling through to Jubillee Road with consideration to side business access.

Phase 1b A629 southern strategy is to consider substantive remodelling of Calder and Hebble signal junction to improve general network and public transport efficiency. An ongoing consultancy commission is undertaking traffic modelling (Saturn, Paramics, Transyt) and preliminary design layout options which are considering:-

- Increased approach lane provision at the Calder and Hebble junction interface, primarliy in the A629 north / south directions.
- Integration of the A6026 Wakefield Road and B6112 Stainland Road flows into the strategic junction remodelling.
- Consideration of adjacent West Vale and Copley district centre traffic flows within corridor strategy
- Separation of Halifax northbound flows from west bound Copley flows at an early intervention junction situated on Elland Wood Bottom; potentailly a bridge link across to Stainland Road.
- Consideration of dedicated bus lane links within the remodelled interchange; accomodation of local and express bus service routes.
- Consideration of pedestrain and cycle movement through remodelled interchange
- Potentailly one way gryratory system to increase network efficiency.
- Consideration of new bridge link road over Yorkshire Water filter beds connecting Wakefield Road with A629.
- Roundabout vs Signal interchange options
- 3rd party Land encroachment degree.
- Gating at strategic points along the corridor to manage access and flows.

- Air Quality Management Area consideration.
- Neutral Carbon emission outcome.
- Network modelling integration with cross boundary corridor route into Kirklees

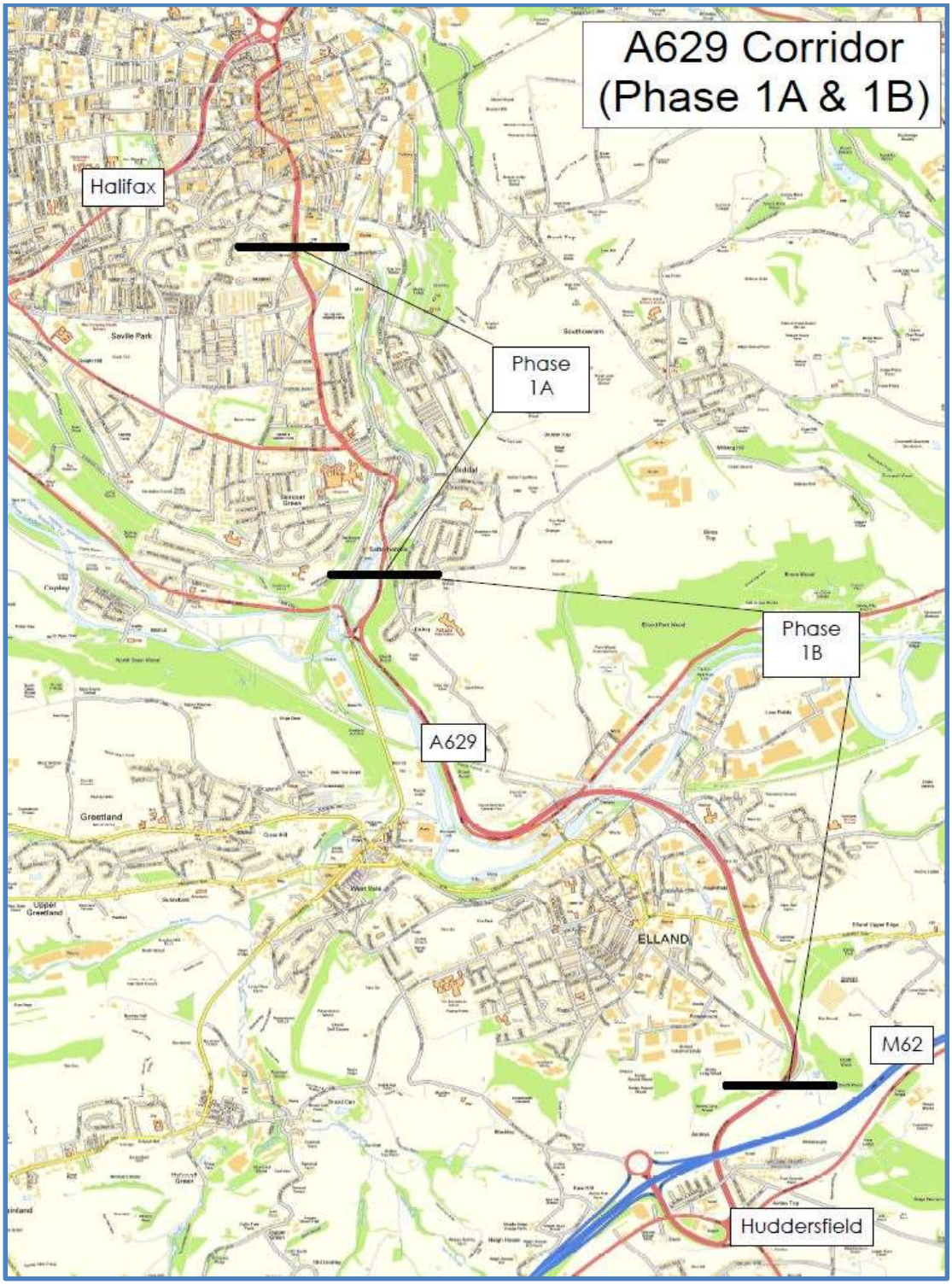


Figure 1: The A629 corridor and extent of Phases 1a and 1b

Exclusions

Whilst the below schemes include an interface with proposals along the A629 Southern Corridor, they are excluded from the scope of works specifically associated with this project:

- WY+TF schemes, A629 Phase 2. Works within Halifax Town Centre are likely to be delivered concurrently around the eastern corridor and Rail Station Gateway which although stratigically linked will be delivered via a separate procurement route.
- WY+TF schemes on the Calder Valley Rail line electrification. Whilst A629 improvements compliment district wide transportation improvement, proposals along rail corridors are not required to scope or fund any element of the A629 project.
- WY+TF schemes within the Kirklees border. Complimentary highway solutions south of Ainley Top roundabout present a linear corridor upgrade with the intention of reducing journey times between Huddersfield and Halifax which although programmed in tandem will be delivered independantly.

Constraints and Assumptions

Constraints

- **Interfaces** – delivery of the A629 Southern Section is an enabling strategy to facilitate regeneration opportunities in Halifax Town Centre, so a precursor to wider economic aspirations. Conversely Phase 1a is an enabling phase to the greater 1b scheme, ensuring the upstream highway network has sufficient capacity to accommodate more efficient throughput at Calder Hebble junction. Integration with LTP (Local Transport Plan) / Highway Maintenance strategies and close liaison with Kirklees will also be required to develop complimentary WY+TF programmes along the corridor.
  Support from affected stakeholders (notably Hospital, Yorkshire Water, Canal and Rivers Trust, public utilities) is also required, due to the resultant impact of the project on their own operations.
- **Funding** – Whilst preliminary design budget for the A629 improvements has been allocated as part of the WY+TF A629 scheme, the release of funding progressing towards detail design and construction is subject to satisfying future Gateway 1-3 requirements with respect to Phase 1b and 2-3 with Phase 1a given it successfully gained Gateway 1 approval in March 15.
- **Land acquisition** – potential requirements for third party land requires the instigation of negotiations with relevant landowners. Preliminary design options indicate 10 plots of land (inc Hospital and Council land at Spring Hall) will be required to deliver Phase 1a, concentrated upon the Salterhebble Hill area necessary to form the dual carriageway. A land valuation / compensation exercise has been undertaken by an independent specialist who advises £400k should be allowed for in budget estimating. Phase 1b will also require third party land though is dependent upon design options; likely impacts are statutory bodies Yorkshire Water and Canal and Rivers Trust as opposed to mainly private landlords in Phase 1a.

- **Timescales** – Phase 1a is classified as an 'early win' scheme within the WY+TF general programme as considered deliverable in the early years of the 20 year strategy. Gateway 2 approval is programmed to be sought during March 2016 with following on Gateway 3 construction authorisation in June. Construction is predicted to take 9 months in a network phased approach during July 16 to March 17. Phase 1b is trailing 1a by approximately 6months, so Gateway 1 business case approval is programmed for Oct 15 followed by Gateway 2 in December 16 and construction commencement in April 17 through to March 19 given the extensive remodelling envisaged.

  These timescales are dependent upon straightforward 3rd party land acquisition, which if proves so is likely to add 12 months to respective programmes.

- **Resources** – Phase 1a is currently in a detail design phase and mandated to be delivered via a combination of internal team and external framework partners. Signal design is to be undertaken by Leeds City Council, structural walling by consultant JBA, ground survey by Centara ltd; the remaining highway design function is targeted towards internal teams, though resource constraints are to the fore. Outsourcing to an external framework provider is a fall back option though being withheld until internal avenues are exhausted. Legal support again is a combination of internal advice and external expertise, particularly with respect to any CPO requirement.
  Phase 1b given its increased scheme size and distant programming is likely to be offered as a design and build contract under support from WYCA framework arrangements; client inexperience in this delivery method is to the fore so perceived as a constraint to procurement without external support.

Assumptions

- Third party land acquisition will be accomplished via either negotiated or legal power settlement.
- Design, construction and commissioning resource is available.
- Statutory procedures will be successfully discharged.
- The project is deliverable within the funding available.
- The project will be approved at respective WYCA Gateway stages.
- Forecast outturn benefits will be achieved.

Project Tolerances

To be agreed by the Project Board, though related to time and budget considerations given external influences.

End User and Other Interested Parties

The projects end user can fall into several categories; the travelling public whose daily journey for professional or personal purposes will increase in efficiency, business will benefit from increased accessability, public transport opportunitites will embellish and the potential for unlocking newly accessable sites will bring increased developer interest and general local economy gains.

As Calderdale's primary means of southern access (particulary from the motorway network and neighbouring Kirkless) onto the regional highway network means that economic benefits (in terms of jobs and GVA) will extend across the District and the wider Leeds City Region.

Interfaces

Improvements to A629 Southern corridor and its accessibility will be influenced by the following key interfaces:

- Other aspects of the A629 Halifax to Huddersfield Improvements, specifically phases 2a to 2e within Halifax town centre;
- Corridor upgrades within Kirklees at bordering Ainley Top roundabout and approaches including Calvary Arms signal junction.
- Introduction of a Park and Ride facility at Ainley Top would significantly influence the A629 corridor travel demands.
- Delivery of new motorway junction 24a at A641 Bradley which would redistribute travel patterns within the district.
- Other commercial and Council-led projects developed out of the Town Centre Delivery Plan;
- Competing future land development on identified new corridor linking highways.
- Existing and future LTP and LSTF capital commitments looking to deliver a north-south 'Green Travel Corridor' centred on the rail station
- Town centre parking strategy; new parking opportunity influencing destination choices.
- Public transport bus routing strategy including new express services.

Outline Business Case

Strategic Case

As the main point of access onto the regional and national highway network from the primary business centre within the District, investment in the A629 Corridor and its immediate surroundings will:

- Enable existing and new businesses to become more productive (through reducing lost time caused by highway congestion and better connecting them to regional and national markets);
- Enable the size of the workforce to be expanded (through better and more attractive journey connectivity);
- Expand the number and types of employment opportunities that can be reached from existing communities and new housing sites, increasing opportunities available to the existing and future workforce;

- Strengthen established business confidence within the district, ensure core business retention and animate continued local investment / expansion.
- Support the wider vision and objectives of the Town Centre Delivery Plan by better reflecting mobility and connectivity demands dictated by current and future economic drivers.

In summary at proforma stage it was envisaged that, in combination the A629 corridor strategy will result in the following:

- ❖ 50% reduction in bus journey times
- ❖ Congestion relief for all vehicle journeys
- ❖ Unlock development potential
- ❖ Creation of 1740 jobs by 2026

Context

The southern section of the A629 between Halifax town centre and Ainley Top serves as:

- A key regional road corridor linking Halifax and Huddersfield,
- A means of access onto the motorway network (via M62 Junction 24) for those living within Halifax and the upper Calder Valley,
- A key route providing onward access to major employment sites at Lowfields Business Park and Copley (the latter currently in receipt of SEP investment as a means of stimulating Local Plan growth),
- A key route to Lloyds National Bank Data Collecting centre in Copley and Lloyds Banking Group Northern Operations in Halifax,
- The primary access route to Calderdale Royal Hospital, a major local employer and significant attractor of healthcare trips / linked trips / emergency trips between its sister Hospital in Huddersfield,
- A designated route for abnormal loads accessing destinations in Halifax and areas to the north from the M62.

Traffic demand along the route is high, with just over 40,000 vehicles per day, furthermore, the topography of the wider District focuses travel demand onto a limited number of arterial routes (including the A629), leading to a higher than average proportion of commercial vehicles constrained into valley focused route options; conversely low pedestrian and cycle journey numbers are inherent.

The top three external origins/destinations of cross-boundary trips by rail are Leeds, Bradford and Manchester. The lower proportion of rail-based journeys to/from Kirklees reflects the poor quality of the rail service between Halifax and Huddersfield, further increasing pressure on the A629 road network to accommodate such cross-boundary flows. The delays and congestion that result are expected to worsen over

the coming years as both authorities seek to realise growth and development in line with their Local Plan aspirations.

Phase 1a also encompasses an Air Quality Management area (no1) attributed to high volumes of traffic along the A629, caused by pinch point 'friction' resulting in a high degree of 'stop-start' vehicular movements and particulates from large and slow moving vehicles accelerating up the steep gradients.

Issues for Public Transport

A strategic review of Calderdale's bus network undertaken in 2013 highlighted the continuing decline in bus patronage. The stretch of the A629 between Jubilee Road and Free School Lane is served by up to 14 buses per hour to a range of destinations, including Halifax, Huddersfield, Elland and Brighouse. In addition, a free half hourly shuttle service links Calderdale Royal Hospital with Huddersfield General Hospital, for use by patients, visitors and staff.

There are currently no express services operating directly via the A629 Elland Bypass due to the unreliability of journey times approaching the Calder and Hebble Junction from the south, with all Halifax to Huddersfield services routed via Stainland Road through West Vale and Elland. However, bus journey times remain slow, due in part to the congestion issues along the Phase 1a stretch highlighted above; the 5.6 mile journey between Halifax town centre and the M62 Ainley Top is timetabled as taking 25-30 minutes, at an average speed of just 10-15mph.

Interrogation of average and maximum Journey time delays shows both Phases 1a and 1b sections of the corridor to contribute the greatest proportion of total delays incurred. As such, the A629 has been designated a 'priority corridor' under a performance improvement partnership between CMBC and bus operator First.

Network Operation

Analysis of modelling software Paramics outputs shows journey times along Phase 1a to vary significantly throughout the day. Average speeds are approximately half the 30mph speed limit as noted in bus journey times. Taking inter-peak (IP) modelled journey times as representative of 'free-flow' conditions, the following delays (shown in Table 2) are observed in the 2014 base year, with most significant delay incurred outbound in the PM peak.

Table 2 A629 Phase 1a Modelled Delay (2014)

Direction	Time Period	Delay (sec)	Change from IP
A629 inbound	AM	15	+7%
	PM	27	+12%
A629 outbound	AM	24	+13%
	PM	99	+47%

Less delay is observed inbound during the AM peak due to the constraint imposed by the Calder and Hebble Junction, regulating the rate that traffic reaches the Phase 1a network. Modelling work is currently being undertaken for Phase 1b and is not currently available, however queues are renown to reach over 1.5km and present 15minute delays on the A629 approach to Calder and Hebble junction during peak periods daily.

The modelling forecasts are consistent with the emerging Local Plan, which is expected to be adopted by 2017. This focuses growth in Halifax in the town centre with around 183,000m^2 of potential employment floorspace by 2029 (which could bring up to 5,100 full time equivalent jobs). In addition up to 5,030 houses are planned for Halifax. Whilst not all of these are directly on the A629 corridor, access to / from the south on the A629 corridor is a clear constraint on realising this development. Overall, the demand for car travel through the Phase 1a network is predicted to increase by 18% between 2014 and 2031, which is in line with the Local Plan.

The impact of the increased traffic forecast by 2031 is shown to exacerbate existing issues identified in the 2014 base and lead to new problems, if appropriate measures are not implemented to address them. These include:

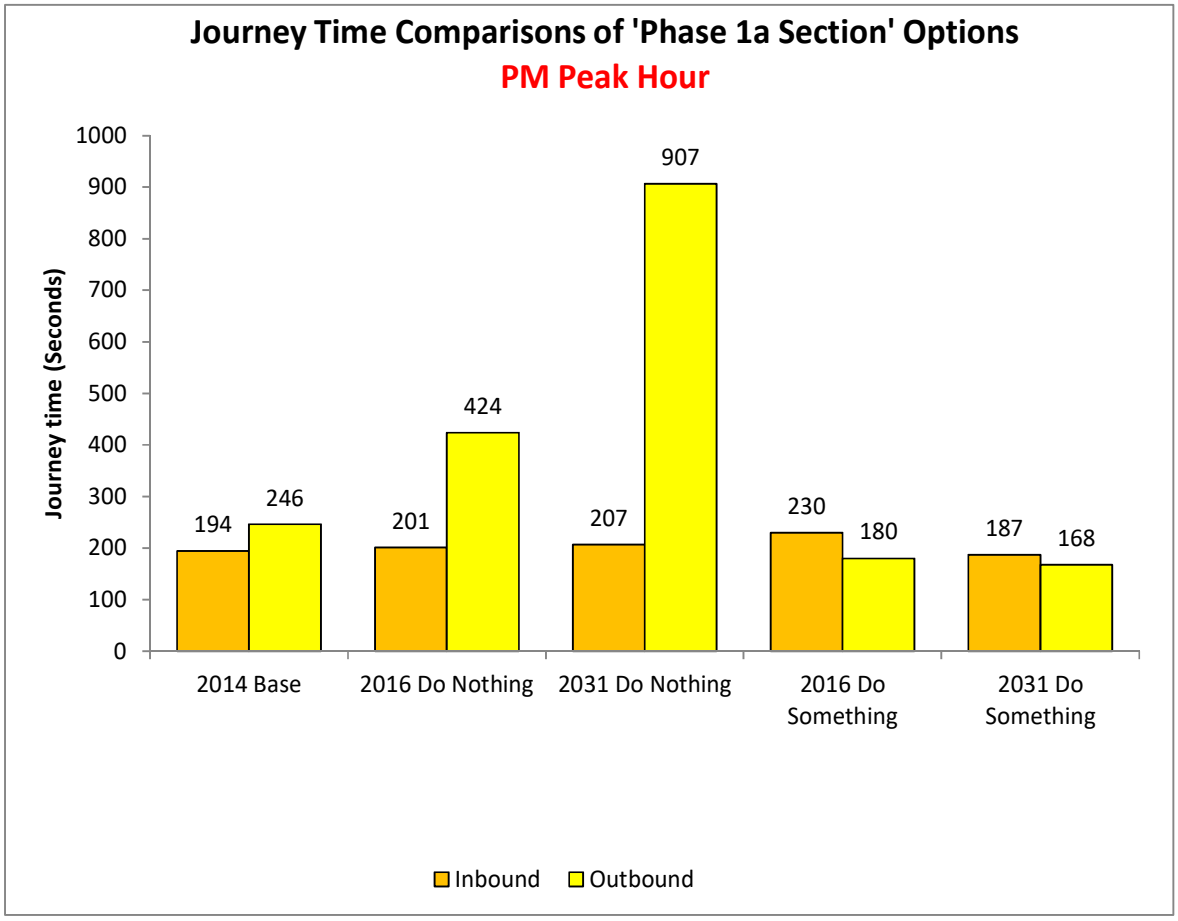
- Operation of the A629/Free School Lane/Shaw Hill Junction will exceed its operational capacity during the AM peak period, resulting in queues on the northbound approach exceeding 500m;
- Operation of the A629/Dryclough Lane Junction is also predicted to exceed its operational capacity in the AM and PM peak periods, with significant queues of up to 500m predicted on both northbound and southbound approaches; and
- Queuing outbound on Salterhebble Hill from the 2-to-1 merge is exacerbated, with traffic blocking back through and beyond the Dryclough Lane junction.
- Queuing around the Calder and Hebble interchange is predicted to increase exponentially in all directions if allowed to continue unchecked with associated detrimental impact upon Siddal, Exley, Copley, Westvale and Elland. The prevalence of ‘rat running’ traffic is also likely to increase through these district centres.

A comparison of Phase 1a peak hour journey times between 2014, 2016 and 2031 is presented in Figures 2 below. These predict a significant increase in outbound

journey times under a do-nothing scenario, particularly during the PM peak when an increase of 621 seconds (approximately 10 minutes) is forecast.

The Preliminary designs for Phase 1a address existing network capacity plus the future growth predictions and are calculated to not only overcome the 4 fold increase in future journey times but reduces the pm peaks times to less than present levels.

Figure 2 PM Peak Journey Time Comparison



Financial Case

Budget allocation for the A629 Southern Section is £17.6million with £4.6m of this identified for Phase 1a to date following a cost break down exercise shown in Table 3 below. Phase 1b costs are budget provision only given the work in progress.

Table 3 Total project cost for A629 Phase 1a scheme (undiscounted).

Element of Base Cost	Cost Estimate £000's
Construction Cost	£1,969,006
Maintenance	CMBC underwritten

Land Acquisition Cost	£600,000
Eligible Preparation Costs	£256,901
Supervision Cost	£100,000
Risk (5%)	£146,532
Scheme Cost (Q4 2014)	**£3,072,439**
Optimism Bias (44%)	**£**1,351,873
Total Scheme Cost	**£4,424,312**
Preparation costs to GW1	£150,000
Total Project Cost (incl GW1)	**£4,574,312**

A financial case for this capital expenditure can be made using spreadsheet analysis which indicates that the Benefit Cost Ratio (BCR) for the scheme is expected to offer "**very high value for money**" with a BCR of 16.4 (well in excess of 4 which is the classified as the very high entry point). Essentially the financial investment would gross a return 16.4 times greater in economic benefit. Table 4 shows a summary of the results**.** The "central case" is based on the forecast level of journey time savings from the 2016 and 2031 forecasts with the preferred scheme.

Note the Net Present Value (NPV) represents the absolute difference between the PVB and PVC. The Benefit Cost Ratio (BCR) is the ratio of PVB to PVC and represents the overall value for money of the scheme

Table 4 Benefit to Cost Ratio for preferred option

Benefit Cost / Indicators	**Value (in units of £1,000)**
Present Value of Benefits (PVB)	£69,597
Present Value of Costs (PVC)	£4,248
Net Present Value (NPV)	£65,349
Benefit to Cost Ratio (BCR)	**16.4**

Re running the test using worst case scenario data of limited future development growth coupled with a 10% increase in project costs the outturn calculation still meets a BCR of 4.6 i.e. still very high.

Table 5 Benefit to Cost Ratio for sensitivity test three

Benefit Cost / Indicators	**Value (in units of £1,000)**
Present Value of Benefits (PVB)	£21,606
Present Value of Costs (PVC)	£4,672
Net Present Value (NPV)	£16,934
Benefit to Cost Ratio (BCR)	**4.6**

Phase 1b analysis is currently ongoing so when interventions at Calder and Hebble junction are fully considered the justification case is likely to be embellished.

In summary a clear financial justification can be established using the economic forcasting tools universally applied across the UK and government departments.

The scheme has also been assessed against the Government's five objectives for transport:

- Environmental impact
- Safety
- Economy
- Accessibility
- Integration

Economic Case

The economic assessment has been carried out in accordance with DfT's WebTAG guidance to establish the benefits, costs and value for money associated with the scheme.

In addition to the traditional transport benefits considered within the appraisal, the wider economic impacts of the scheme have been assessed within the Urban Dynamic Model (UDM). The A629 scheme was originally modelled using WYCA's Urban Dynamic Model (UDM) in 2012 which was updated in August 2014 to more accurately reflect the specification at that time. The headline outputs from the UDM focus on jobs growth supported by the scheme and additional economic GVA (Gross Value Added) generated. The headline economic results from the West Yorkshire Urban Dynamic Model (UDM) are presented below in table 6 for the Halifax – Huddersfield A629 corridor & Halifax Town Centre.

Headline GVA/£ figures have been calculated based on the revised UDM testing and associated scheme costs. The GVA/£ metric is used to rank schemes within the Transport Fund and represents single year GVA for the forecast year of 2026 considered against the whole life cost of the scheme to the Transport Fund. Table 7 shows the GVA/£ for the original and current full package

Table 6 UDM model results (Phase 1a components)

Test	**WY Jobs**	**GVA p.a. 2009 Prices**
Original full package test	+1,380	+£99.0m
Current full package test	+1,740	+£126.8m
Phase 1a components	+214	+£14.0m
Phase 1b components	?	?

Table 7 GVA/£ for the Halifax – Huddersfield A629 corridor & Halifax Town Centre

Test	Capital Cost (incl. OB)	Whole Life Cost	GVA/£
Original full package test	£120.6m	£110.5m	0.9
Current full package test	£120.6m	£110.5m	1.1

Delivery of the A629 Corridor scheme may be considered as a means of facilitating (and ultimately augmenting) economic benefits attributable to both the A629 Halifax Town Centre scheme and wider Leeds City Region. Further refinement of these original estimates is now proposed as part of work to develop a Gateway 1 submission for the Phase 2 A629 Town Centre interventions. When considered alongside the A629 Phase 1b proposals, a greater cumulative economic impact is predicted, due to the greater multi modal journey time savings and more extensive quality improvements that will result.

Management Case

The A629 scheme improvements will be managed by Calderdale Council as part of their wider WY+TF portfolio. Internal Programme and Project Boards have been established to provide robust governance with membership comprising representatives from Corporate Projects, Planning and Highways, Business Development, Public Health, Risk Management and Regional Strategy.

Monthly Highlight reports are submitted to the WYCA Portfolio Office with Peer Review presentations attended on a bimonthly rota. Both Phases will be continually gauged against value for money alongside other schemes to verify their ongoing viability as WY+TF projects.