Appendix 12

WEST YORKSHIRE+ TRANSPORT FUND PROJECT BOARD

PROJECT: HARD INGS ROAD IMPROVEMENTS - PHASE 1A & 1B

SUBJECT: LINK OPTIONS APPRAISAL

1. PURPOSE OF THIS REPORT

1.1 To provide the Project Board with the results of the current review of potential layout options for the improvement of Hard Ings Road, Keighley.

1.2 To offer a recommended option for progression to the Gateway 1 submission to the Combined Authority in March/April 2015.

2. BACKGROUND INFORMATION

2.1 A650 Hard Ings Road forms part of a strategically important route in the major development area of Airedale. The A650 is mostly dual carriageway in the north western part of the Airedale area except for a short section, Hard Ings Road, which runs between Bradford Road and Skipton Road roundabouts at Keighley. This section is a single carriageway and is surrounded by commercial, leisure and residential areas.

2.2 The latest traffic surveys show that on average of 32,500 vehicles use A650 Hard Ings Road on a weekday with 2,800 vehicles in the AM peak and 2,700 vehicles in the PM peak.

2.3 The capacity of the current two lane single carriageway arrangement is insufficient to accommodate the current volume of traffic. The single carriageway section is a key pinch point on a strategic section of the District's highway network and is a main cause of congestion, not only on the main route, but also in Keighley Town Centre as drivers divert onto other routes to avoid this length of road.

2.4 Speed records show that the average traffic speed is 10-14mph during the AM and PM peak periods whilst the maximum speed limit along this section is 30mph. This highlights the level of congestion currently experienced by motorists along this single carriageway section of Hard Ings Road. As well as the constraints of the existing highway, the presence of retail parks, other commercial premises and residential property in the vicinity of the road and the associated traffic movements of these uses contribute to the level of congestion along this length of road.

2.5 The improvement of Hard Ings Road will increase capacity and reduce congestion on the A650, adjacent routes and within Keighley Town Centre. This scheme also has the potential to open up the wider area

for new development and improves connectivity with other commercial centres around Keighley.

3.0 PROJECT OBJECTIVES

3.1 The WY+TF objectives should be borne in mind when delivering the Bradford to Keighley A650 Hard Ings Road scheme:

The primary WY+TF objective to be met across West Yorkshire and York is to:

- Maximise the increase in employment and productivity growth across West Yorkshire and York (irrespective of boundaries) by the delivery of transport interventions.

Objectives were put in place to ensure an equitable distribution between districts and communities. Against the primary objectives of supporting the maximum possible impact on GVA and employment, two accessibility minima have been agreed:

- A better than average improvement in employment accessibility for residents in the most deprived 25% of West Yorkshire communities; and

- Every West Yorkshire district to gain an average improvement in employment accessibility no less than half the average across West Yorkshire.

3.2 A further environmental objective was established as follows:

- The overall impact of the Fund's interventions would be carbon neutral at the package level.

The project will also support the LTP objectives of improving connectivity to support economic activity and growth in West Yorkshire and the Leeds City Region and improving Quality of Life through provision of safer walking and cycling facilities and reduced air pollution.

The project will contribute to Bradford Council's corporate policy of supporting the District's economy, jobs and skills and city centre regeneration, improving infrastructure and promoting enterprise.

The objectives specific to this project are:

- The works element of the project should be completed by December 2017 with monitoring and evaluation being undertaken in 2018

- The project should be completed within the allocated budget of £10.3million (NB these are indicative costs which include 44%

optimum bias at 2012 prices and are to be reviewed at each Gateway approval)

- The project should be designed to meet the requirements of Design Manual for Roads and Bridges (DMRB), Manual for Streets, any applicable locally determined standards and any relevant legislation e.g. Highways Act 1980, Traffic Signs Regulations and General Directions

- The project should seek to incorporate Added Value in line with the themes being developed by the Green Infrastructure Task Group where feasible and appropriate.

4.0. DEVELOPMENT OF OPTIONS LEADING TO THE IDENTIFICATION OF A PREFERRED OPTION FOR A GATEWAY 1 SUBMISSION

4.1 This report concentrates on link options. Junctions will be common between all options and are discussed below, however development work on the Beechcliffe junction is continuing to identify a preferred option.

4.2 Definitions:-
Phase 1A – the section of Hard ings Road between and including Bradford Road and Beechcliffe roundabouts
Phase 1B – a potential extension of the works between Beechcliffe and Skipton Road roundabouts.

4.3 One of the project's key challenges is the constraint placed on the site by existing properties and therefore the potential for unpopular property acquisitions. An existing road layout plan (Link Option 1, Do Nothing) is included in Appendix 1, and a plan indicating various constraints that have been taken into consideration as part of the design process, is included in Appendix 2.

4.4 Aimsun modelling techniques provide the predicted 2026 demand (to align with the Combined Authority's Urban Dynamic Model). Using these predicted capacities, in accordance with the DMRB, the type of road and carriageway width can be determined. This approach was chosen to quickly identify a footprint and hence the extent of the land and property issues.

4.5 The existing speed limit on the section of Hard Ings Road between the Bradford Road roundabout and the Beechcliffe Roundabout is 30mph. This section is built-up with development on both sides of the road, and much frontage activity. Therefore, the current 30mph speed limit is appropriate. The geometric parameters for the proposed road alignment are designed in accordance with the DMRB for the appropriate design speed.

4.6 This assessment identifies four Phase 1A options which could provide for the predicted demand:-–

- Link Option 2 - single 4 lane 14.6m wide carriageway,
- Link Option 3 - dual 6.75m wide carriageway (with sub options as the scheme was developed),
- Link Option 4 - dual 7.3m wide carriageway, and
- Link Option 5 - composite part dual 6.75m wide carriageway, part single 6.75m wide carriageway
- (note Option 1 is the Do Nothing for comparison purposes).
- All options allow un-restricted turning movements for the existing ambulance station. Link option plans are included in appendices 3 – 8.

4.7 In order to protect residential properties adjacent to the south-western kerbline, avoid legal issues with respect to the restrictive covenant in place at Victoria Park, and the re-location of the gas governor, the options restrict road widening to the north eastern side of the carriageway only.

4.8 Capacity of the existing signal controlled roundabout at the Bradford Road junction has been modelled for the design year, 2026. In discussion with the UTC Unit it is expected that any potential demand for increased storage can be controlled by adjusting signal timings. However, this is assuming that vehicles can undertake a right turn from Hard Ings Road into Lawkholme Lane rather than continuing to the Bradford Road roundabout and undertaking a U-turn. Therefore, these options have been developed with a signalised junction at Lawkholme Lane incorporating a formal pedestrian crossing (to replace an existing pedestrian refuge). There are also a significant number of right turning movements into the McDonalds and the adjacent petrol filling station from Hard Ings Road. Therefore, a right turn priority facility incorporating a turning lane (to allow through traffic to proceed unobstructed) has been included within the scheme at this location. Therefore Link Option 3A (no right turns) is discounted at this stage).

4.9 Early Aimsum modelling suggested the need to provide additional capacity on the link between Beechcliffe and Skipton Road roundabouts at the design year – works to this section have been termed as Phase 1B. Timing of this intervention was unclear, however further modelling and the ongoing development of options for the Beechcliffe junction indicate the junction could operate satisfactorily at the design year and it is unlikely that Phase 1B works will be required. A further report to the project board will be submitted in due course considering a preferred Beechcliffe junction layout and conclusion of the Phase 1B study. All Beechcliffe junction options can be accommodated within the existing junction footprint and with no additional land acquisition.

4.10 Discussions have taken place with bSpoke (the Bradford Cycling forum) on cycling provision as part of the Hard Ings Road Improvement scheme. There is a recently implemented advisory cycle route along Royd Ings

Avenue, a route that runs parallel with Hard Ings Road. However, it has been advised that cyclists travelling outbound tend to still use Hard Ings Road (as well as providing access to the retail park). The scheme has therefore been developed with a shared use facility on the outbound side of the carriageway. Therefore Link Option 3B (no cycle facilities) is discounted at this stage. Cross sections indicating various types of cycle facility and implications on road widths at two critical locations, United Carpets and Fibreline, are included in Appendix 9. From these cross sections, it is apparent that Type D cycle provision adjacent to the United Carpets and Fibreline frontages has the lesser land take implications, with Type C cycle provision provided generally elsewhere. It will also be necessary to vary footway widths to a minimum of 1.8m over short lengths on the inbound side of carriageway to avoid the demolition of properties. Improvements to the right turn for cyclists from Bradford Road into Royd Ings Avenue are also being considered as part of the scheme. Enhancements to the existing local cycle network could also be considered as mitigation measures through this project. A plan locating existing and proposed cycle routes in the vicinity of Hard Ings Road is included in Appendix 10.

4.11 Councillors have requested consideration be given to a one-way system incorporating outbound only on Hard Ings Road and inbound only along Royd Ings Avenue. There are two possible options. One option would require the construction of a new junction at the A629 dual section and Royd Ings Avenue. There is a significant level difference between Skipton bypass and Royd Ings Avenue. There are also industrial premises located in close proximity to Royd Ings Avenue at the location where earthworks / embankments would be necessary to provide the necessary link roads between A629 dual section and Royd Ings Avenue. This option is therefore rejected in engineering and cost terms.

4.12 Alternatively, Royd Way could provide one way access between Hard Ings Road and Royd Ings Avenue. However, it is likely that both Royd Way and Royd Ings Road would need full re-construction of the carriageway to accommodate the large increase in vehicle flows (this would be necessary for either option). Aimsun modelling has indicated that the existing Bradford Road roundabout would need significant junction re-modelling, i.e. replacement of existing gyratory with a full signalised junction. Junction remodelling would also be necessary at Royd Way / Hard Ings Road and either Royd Ings Road / Alston Road or Royd Ings Road / Bradford Road (depending on the route to Bradford Road roundabout). Aimsun modelling has indicated that there would be little benefit over the current arrangement at Hard Ings Road in respect to vehicle journey times compared with the high potential scheme cost. Therefore, this option has been rejected in cost / benefit terms. A plan indicating the route and the location of necessary junction re-modelling is included in Appendix 11.

4.13 A composite option (part dual) has benefits with respect to land take adjacent to Fibreline where there is a significant level difference between

the carriageway and the existing car park. The composite option (link option 5) is therefore recommended for carrying forward as the preferred option and further development for the gateway 1 submission. A plan for Link Option 5 is included in Appendix 8.

5.0 ASSESSMENT OF OPTIONS

5.1 An options comparison table is included in appendix 12 to assess all options and identify the recommended Option (link option 5) against the alternative options.

6.0 RECOMMENDATION

6.1 The Board is requested to ratify Option 5 as the preferred option for progression to the Gateway 1 submission.

7.0 APPENDICES

7.1	Appendix 1 –	Link Option 1, Do Nothing – Base Plan
7.2	Appendix 2 –	Phase 1A Constraints drawing
7.3	Appendix 3 –	Link Option 2, 4 Lane Single Carriageway
7.4	Appendix 4 –	Link Option 3A, Dual carriageway (6.75m) – No Right Turns
7.5	Appendix 5 –	Link Option 3B, Dual carriageway (6.75m) with Right Turn at Lawkholme Lane
7.6	Appendix 6 –	Link Option 3C, Dual carriageway (6.75m) with Right Turn and Cycle Facilities
7.7	Appendix 7 –	Link Option 4, Dual carriageway (7.3m) with Right Turn and Cycle Facilities
7.8	Appendix 8 –	Link Option 5, Composite Design (Part Dual)
7.9	Appendix 9 –	Cross section comparison for Cycle Provision
7.11	Appendix 10 –	Existing and Proposed Cycle Routes
7.12	Appendix 11 –	One-Way Option
7.13	Appendix 12 –	Comparison Table for all Options