

Richard Bruce

From: Kate Okell [kateokell@axisllp.com]
Sent: 06 December 2017 16:39
To: Tariq Ghafoor
Cc: Jonathan Stott
Subject: RE: Urgent - Hard Ings Road Scheme
Attachments: HIMC reply Amended.docx

Tariq,

I refer to my email below. The Council's Traffic Modeller has now returned from annual leave and has reviewed the response below.

He has provided some additional information which I attach for information. The additional information is in red for ease of reference. If you have further concerns, I would be happy to arrange a meeting to discuss them.

Kind regards

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From: Kate Okell
Sent: 23 November 2017 15:35
To: 'Tariq Ghafoor' <tariq.ghafoor@me.com>
Cc: Jonathan Stott <jonathan.stott@gateleyhamer.com>
Subject: RE: Urgent - Hard Ings Road Scheme

Tariq,

As advised in my email earlier today, several members of the Council's Project Team are currently on annual leave. This includes the Council's Transport Planner/Modeller who has the detailed knowledge and data relating to the traffic modelling. I have nevertheless liaised with the Council's Engineers and set out responses to your queries below.

1. Please provide traffic modelling demonstrating the requirement for this dual carriageway link between the Bradford Road Roundabout and the Beechcliffe Roundabout.

03/01/2018

The average two way traffic flows for the length of Hard Ings Road is 2771 vehicles per hour in the morning peak (08:00-09:00) and 2829 vehicles per hour in the evening peak (17:00-18:00). This is based on data acquired from an Automatic Traffic Count (ATC) located on Hard Ings Road and manual traffic counts undertaken to build the traffic model. More recent traffic count surveys have also been conducted on three consecutive weekdays (13th to 15th March 2017), and the results of this survey also confirm the above mentioned average two-way traffic flows.

In accordance with the Design Manual for Roads and Bridges (DMRB) TA 79/99, the capacity of a two lane 9.0m wide UAP3 road type is 1530 vehicles per hour one-way. This equates to a capacity of 550 vehicles per hour in two-way flows. Therefore, at present the capacity of the existing road layout is inadequate at peak hours.

Traffic modelling results are included in the Gateway 1 report, available on the Council's website on the following link within the Compulsory Purchase Order and Side Road Order, Supporting Documents section. Other link options that were considered are included in Appendix 12 of the Gateway 1 report.

<https://www.bradford.gov.uk/transport-and-travel/major-highways-schemes/hard-ings-road-improvement-scheme/>

2. Please provide traffic modelling illustrating the effect of these improvements on the peak period traffic queues on all approaches to the Bradford Road Roundabout and the Beechcliffe Roundabout.

The capacity of Beechcliffe roundabout is improved in the Scheme by the remodelling of the roundabout to provide additional lanes on the roundabout itself, the implementation of traffic signals on all arms and an additional traffic lane on the approach to the roundabout from the A629. Two lanes have also been allocated for the exit into Hard Ings Road from the roundabout. This arrangement will increase the capacity of the Junction and will operate effectively in the design year, 2026. At present the single lane provision on Hard Ings Road causes congestion to back up onto and through Beechcliffe Roundabout and beyond at peak times.

The two lanes allocated in each direction for the full length of Hard Ings Road will remove bottlenecks when vehicles merge into one lane, compared with the current one lane provision in both directions, and will provide for the predicted demand in 2026. Bradford Road roundabout is currently operating with spare capacity. However, in the current situation, vehicles exiting the Bradford Road roundabout onto Hard Ings Road westbound, merge into one lane adjacent to the ambulance station, causing congestion to back up on and through Bradford Road roundabout and beyond at peak hours. Modelling has demonstrated that with the re-timing of signals, this junction will operate acceptably in the 2026 design year.

Traffic modelling results are included in the Gateway 1 report referred to above. Other junction options that were considered are included in Appendix 13 of the Gateway 1 report.

3. In 1996 traffic data forecasts suggested that traffic along Hard Ings Road would increase by 76% over 20 years whereas in reality it only increased by 11%. Please provide evidence to support the growth rates used in the traffic modelling of this proposal.

The Council has not had access to detailed plans or traffic analysis of the previous Department for Transport (DfT) scheme and are therefore unable to comment on its data in detail. Nevertheless the Council's case will show that traffic counts along Hard Ings Road have not seen a significant increase because the road is already running over capacity and cannot accommodate a significant increase in traffic flows since vehicles are unable to enter this section of road network and are held on the approaches in queues on the A629 / A650 Aire Valley Road.

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In accordance with the Design Manual for Roads and Bridges (DMRB) TA 79/99, the capacity of a two lane 9.0m wide UAP3 road type is 1530 vehicles per hour one-way. This equates to a capacity of **2550** vehicles per hour in two-way flows. Therefore, at present the capacity of the existing road layout is inadequate at peak hours.

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Queue Length Data: The mean queue length data was extracted within the modelled area to show a comparison between existing and proposed model for the traffic model year. The data is detailed below:

Beechcliff Roundabout:

Traffic Arm: A629			
Existing		Proposed	
AM	PM	AM	PM
27 vehicles	35 vehicles	2 vehicles	2 vehicles
Traffic arm: A650 Hard Ings Road (E)			
Existing		Proposed	
AM	PM	AM	PM
1 vehicles	1 vehicles	1 vehicles	1 vehicles
Traffic Arm: A629 Hard Ings Road (W)			
Existing		Proposed	
AM	PM	AM	PM
3 vehicles	4 vehicles	2 vehicles	1 vehicles

Bradford Roundabout:

Traffic Arm: A650 Airevalley Road			
Existing		Proposed	
AM	PM	AM	PM
3 vehicles	7 vehicles	2 vehicles	2 vehicles
Traffic arm: A6035 Bradford Road			
Existing		Proposed	
AM	PM	AM	PM
1 vehicles	2 vehicles	1 vehicles	2 vehicles
Traffic Arm: A650 Hard Ings Road			
Existing		Proposed	
AM	PM	AM	PM
3 vehicles	2 vehicles	2 vehicles	2 vehicles
Traffic Arm: B6265 Bradford Road			
Existing		Proposed	
AM	PM	AM	PM
3 vehicles	1 vehicles	2 vehicles	1 vehicles

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The Council has not had access to detailed plans or traffic analysis of the previous Department for Transport (DfT) scheme and are therefore unable to comment on its data in detail. Nevertheless the Council's case will show that traffic counts along Hard Ings Road

have not seen a significant increase because the road is already running over capacity and cannot accommodate a significant increase in traffic flows since vehicles are unable to enter this section of road network and are held on the approaches in queues on the A629 / A650 Aire Valley Road.

4. Please provide the following evidence in support of the proposed toucan crossing at the traffic signal controlled junction of the A650 Hard Ings Road with Lawkholme Lane :-

a) Evidence of cyclists and pedestrian surveys, desire lines and predicted peak hour demands.

b) Traffic modelling, vehicle and pedestrian phasing diagrams and queue lengths at all stop lines demonstrating the performance of this proposal in peak periods.

c) Evidence of consideration of alternatives such as a footbridge, underpass or improvements to the existing refuge crossing.

The signalised junction at Lawkholme Lane has been designed to provide a safe right turn into Lawkholme Lane from Hard Ings Road and a left turn out of Lawkholme Lane into Hard Ings Road. Loop detection is to be provided within the right turn lane on Hard Ings Road on the approach to the signalised junction with Lawkholme Lane. When the queue of traffic exceeds a designed queue length, this will call the signal on the westbound carriageway, stopping the traffic on this side of the road and permitting vehicles to turn right into Lawkholme Lane and left out of Lawkholme Lane.

A pedestrian survey was undertaken throughout the length of Hard Ings Road in 2014 (to input into the traffic model) indicates a total of 40 pedestrians cross Hard Ings Road between 07:00-10:00 and 88 cross the road between 16:00 – 19:00 on a typical weekday. Although, the number of pedestrians crossing Hard Ings Road is relatively low, for the reasons given above, it is advantageous to incorporate an at grade pedestrian crossing, since we are providing a signalised junction anyway at this location, and taking into consideration we are removing the existing pedestrian refuge at Hard Ings Road in the vicinity of Byrl Street.

A more recent pedestrian survey count was conducted between 07:00 to 19:00 on a weekday (21st September 2017) and Saturday (23rd September 2017) along Hard Ings Road. The results show a total 205 number of pedestrian crossing Hard Ings between time period 07:00-19:00 on weekday and a total 134 pedestrian crossing Hard Ings Road between 07:00-19:00 on Saturday. The detailed break down is as follows:

Weekday:

07:00-10:00 45 number of pedestrians crossing Hard Ings Road

10:00-16:00 124 number of pedestrian crossing Hard Ings Road

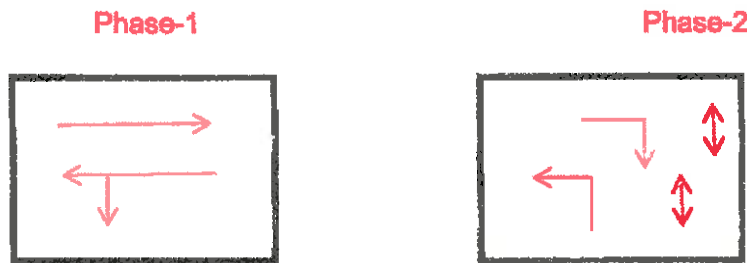
16:00-19:00 36 number of pedestrian crossing Hard Ings Road

Saturday:

07:00-10:00 19 number of pedestrians crossing Hard Ings Road
 10:00-16:00 74 number of pedestrian crossing Hard Ings Road
 16:00-19:00 41 number of pedestrian crossing Hard Ings Road

Traffic Signal Specification:

The signalised junction between Hard Ings Road and Lawkholme Lane works with two phases. In Phase-1, the movement of the main stream traffic along Hard Ings Road, and in Phase-2, the traffic is turning left out of Lawkholme Lane and traffic taking right turn into Lawkholme Lane from Hard Ings Road. The pedestrian phase will operate on demand only, i.e. only be called when a pedestrian uses the crossing. Throughout the week we would expect this to be an irregular occurrence, being used mainly at weekends when rugby matches take place at Cougars.



Queue Length Data:

The mean queue length for traffic turning out of Lawkholme Lane into Hard Ings Road (westbound Direction): 1 vehicle in morning peak time & 2 vehicles in the evening peak time.

The mean queue length for right turning traffic into Lawkholme Lane from Hard Ings Road: 1 vehicle in morning peak time & 2 vehicles in the evening peak time.

The mean queue length for traffic along Hard Ings Road (Westbound Direction): 1 vehicle in morning peak time & 1 vehicle in the evening peak time.

The proposed cycling facilities at Hard Ings Road have not been designed to meet an existing demand, but are included to encourage cycle usage and improve connections to other cycle routes in the area and have been developed in liaison with Bradford's cycling group BSpoke. There is a general national and local strategy to encourage cycling alongside integrated transport.

Consideration is given to the provision of either a subway or a pedestrian bridge where stopping traffic is not an option and where the number of users justify the costs.

Pedestrian overpasses over highways are expensive, especially when long ramps for wheelchair users are required. Without ramps, people with mobility issues will not be able to use the structure. One significant barrier to the use of a pedestrian bridge is the distance added to the pedestrian/bicyclist's route. Because of the need to get up above cars and HGV's, straight or spiral ramps are typically used that will be very long to achieve the

necessary ramp gradients for wheelchair users for Disability Discrimination Act (DDA) compliance. Most people tend to view the extra distance as a burden that will cause too much delay to them with the additional effort to climb up the bridge and go over it, and instead will cross at grade at the nearest convenient location sometimes jaywalking to avoid the obstacle of the bridge.

Throughout the Bradford district, footbridges and subways are being removed and replaced with surface crossings where it is feasible to do so. Similar to footbridges, subways can cause pedestrian detours and lengthen journeys on foot due to the length of ramps necessary to be accessible to disabled people. The design of subways removes any natural surveillance which can act as a precursor to crime problems or fear of crime. Both outcomes can in turn reduce the number of journeys on foot. Subways also provide a point of shelter which can result in anti-social and / or criminal behaviour, as well as a point for collecting wind borne rubbish thus making them unattractive to use.

There is also the additional land take to take into consideration for the provision of the installation of the ramps / steps to either a footbridge or a subway, which would have to be accommodated within a significantly widened footway on both sides of Hard Ings Road, probably in the region of an additional 6.0 metres adjacent to the extent of the ramp / steps structure. However, some land take would be saved by providing a reduced central island to accommodate traffic signals only and not a pedestrian refuge, in the region of approximately 1.0m.

There are also buildability issues to take into consideration, such as the diversion of Statutory Undertakers equipment and the existing sewer for a subway construction, as well as the presence of ramps / stairs in front of residential properties who take access directly off Hard Ings Road, with no garden area acting as a buffer between the footbridge structure and their windows, and the additional traffic management that would be necessary to provide these additional structures on Hard Ings Road.

Taking into consideration the above, both a pedestrian footbridge and subway options have been discounted at the Hard Ings Road / Lawkholme Lane junction. Instead, choosing to incorporate an at grade pedestrian crossing facility at the signalised junction designed to aid turning vehicles at this junction.

The detailed modelling in the format you have requested will become available at the next design stage.

5. Please provide evidence of the performance, including peak hour queue lengths, of all approaches to the proposed traffic signal control at the Beechcliffe Roundabout.

The lack of capacity on Hard Ings Road results in considerable congestion at peak times with traffic queuing on beyond both Bradford Road and Beechcliffe roundabouts. The Beechcliffe roundabout is also running over capacity, specially the traffic approaching from A629 suffer long delays. The average queue length on the A629 approach to Beechcliffe Roundabout at peak times is around a kilometer which reflects through speed data collected in 2016. This showed an average speed about 9mph against the posted speed limit of 70mph in evening peak period (17:00-18:00). The historic traffic speed data also shows the journey time on A629 has been increased by 54% within last five years from 2012 to 2016. The journey time in 2012 was 295 seconds which had been increased to 455 seconds in

2016. Similarly the journey time along A650 Aire Valley Road has been increase by 42% in morning peak and 26% in evening peak period. Speed records show that the average traffic speed along Hard Ings Road is 14mph during the AM and PM peak periods in the eastbound direction and 14mph in the AM peak and 11mph in the PM peak, in the westbound direction against a posted speed limit of 30mph. In addition to significant peak time congestion, the junction can also suffer from considerable delays at other times, in particular on a Saturday with local traffic trying to access the Keighley Retail Park which can only be accessed from Hard Ings Road. Saturday lunchtime traffic levels on Hard Ings Road approach those experienced in the commuting peaks during the week.

The capacity of Beechcliffe roundabout would also be improved by remodelling and the implementation of traffic signals on all arms and an additional traffic lane on the approach to the roundabout from the A629. Queues on the A629 will be much shorter due to the provision of an extra lane on the approach to Beechcliffe Roundabout. Two lanes have also been allocated for the exit into Hard Ings Road from the roundabout. This arrangement will increase the capacity of the junction and will operate effectively in the design year, 2026. At present the single lane provision on Hard Ings Road causes congestion to back up onto and through Beechcliffe Roundabout and beyond at peak times.