

HILLS ROAD BRIDGE SAFETY SCHEME

To: **Cabinet**

Date: **26th January 2010**

From: **Executive Director: Environment Services**

Electoral divisions: **Trumpington, Coleridge**

Forward Plan ref: **Not applicable** *Key decision:* **No**

Purpose: **To consider the results of the trial of hybrid cycleways in both directions across Hills Road Bridge, Cambridge as part of the Cycling Town programme.**

Recommendation: **Cabinet is recommended to:**

(i) Note the results of the consultation; and

(ii) Approve the implementation of Hills Road Bridge safety scheme.

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1. BACKGROUND

- 1.1 Hills Road is a key route from the south east of Cambridge to the city centre. A combination of the high traffic flows, number of cyclists and the way in which the current traffic lanes are utilised means that the safety record is poor. There is often conflict between cyclists and cars and the number of cyclists riding on the pavement is dangerous for pedestrians. Prior to the current trial layout there were some facilities for cyclists on the approaches to the bridge but none on the bridge itself.
- 1.2 In late 2005 four different options for making safety improvements to the bridge were taken forward for consultation and in March 2007 in line with consultation results, it was agreed that further consultation should be undertaken on two of these. However, due to the uncertainty about funding, officers developed an additional low cost option, a reallocation of traffic lanes and the introduction of hybrid cycle lanes within the existing structure that could potentially be considered. The estimated cost of the of the scheme is £500,000 which is considerably less than the £4-5M cost of widening the bridge that was a previous option. Funding will be principally from Section 106 developer contributions made specifically for improvements to the bridge.
- 1.3 At its meeting on the 29th September 2009, Cabinet gave approval for the development and implementation of the Cycling Town programme including soft measures such as marketing, signing, cycle training and hard measures such as infrastructure schemes and cycle parking. One of the infrastructure schemes brought forward was the introduction of hybrid cycle lanes within the existing structure across Hills Road Bridge.
- 1.4 To ensure that the proposed scheme was fully understood, and to demonstrate the effects on motor traffic, a trial of the layout which was implemented in September was accompanied by a full public consultation.
- 1.5 The trial Hills Road bridge safety scheme has been progressed taking into account upcoming developments in the area, particularly at the rail station and the requirements for the Cambridge Gateway scheme.

2. SCHEME DEVELOPMENT

- 2.1 Feasibility work showed that a 2.1m cycle lane in both directions could be achieved by removing the existing central reserve and reallocating road space from two lanes in both directions to a single lane on the uphill section and two lanes on the down hill sections approaching the traffic signals. Parts of the central reserve were removed during the recent works for the Guided Busway. As part of this scheme the whole of the central reserve will now be removed and the level differences made up as part of the final resurfacing of the bridge. These costs are included in the overall scheme budget.
- 2.2 Recent roadworks necessitated periods of single traffic lane over the bridge and as a result, there was considerable disruption to traffic. This

disruption highlighted the need for clear lane marking and dedicated cycle facilities over the bridge.

- 2.3 The trial layout was designed to test the effect of the reallocation of road space on traffic, not to replicate the final scheme proposals. However, the trial layout has been beneficial in allowing the introduction of 2.1m wide cycle lanes on both uphill sections of the bridge. The on street trial was introduced at the beginning of September and is shown in **Plan 1 provided in the separate information pack** and the photographs in **Appendix A**. A large scale plan will be available at Cabinet.
- 2.4 The initial scheme design (as replicated in the trial) placed the hybrid lanes in the traditional location along the left hand edge of the carriageway. Cycle and vehicular traffic flows confirm the majority (between 60 and 85% of the total flow) of cyclists are going straight ahead at both the Brooklands Avenue and Cherry Hinton Road junctions. This flow results in a significant number of cyclists changing lanes as they are going over the bridge and on the approach to the traffic lights.
- 2.5 During initial consultation, the introduction of measures for cyclists was broadly supported, however, a number of key stakeholders were concerned that the south bound cycle lane did not start close enough to the Brooklands Avenue junction, i.e. at the beginning of the up hill section. The current limit of available land does not provide enough width to accommodate both a new south outbound cycle lane past the Earl of Derby pub and the existing traffic island needed for a separately signalled north bound cycle phase at the Brooklands Avenue junction.
- 2.6 With this in mind and following the trial layout, a permanent layout has been designed which removes the traffic island to better cater for all movements paying particular attention to the predominate flows of both drivers and cyclists going straight ahead. This means that the current dedicated separate signalled phase for cyclists will be removed but it is considered that the overall benefits for safety and cyclists will be greater under the current proposals. Similar changes have been made at the Cherry Hinton Road Junction. The proposed layout does not reflect traditional layouts which would require cyclists going straight ahead to cross from the left hand edge of the road to the central lane; rather focusing on providing a wide (2.1m) on carriageway cycle lane and reducing the need for cyclists to change lanes and also reducing traffic speeds. **Plan 2** in colour also provided as part of the separate information pack shows the proposed permanent layout, a large scale plan will be available at Cabinet.
- 2.7 The proposed final layout allows for one traffic lane up the bridge and two down in both directions to ensure the capacity for motor vehicles is retained, see paragraph 3.8. At the crest of the bridge the single traffic lane splits to ahead only and left turning traffic. Traffic speeds are kept low with the introduction of an island which also acts to segregate the flow from both directions, vehicles turning left being required to change lanes crossing the cycle lane over a designated section. This is the same layout employed safely in many locations around the city such as on the left turn approach to traffic signals at Trumpington Road in Brooklands

Avenue and on Newmarket Road approaching the Barnwell Road roundabout.

- 2.8 In this design, a cycle lane of 2.1m on the left hand side is provided in both directions on the up hill section of the bridge. At the top of the bridge the cycle lane moves to the right to the left hand side of the ahead only traffic lanes, thus ensuring the majority of cyclists need not cross the traffic lane. Cyclists turning left will be provided with a by- pass lane which filters out to the left hand side of the left turning traffic lane, again allowing cyclists the opportunity not to cross traffic lanes. Three traffic islands have been included to provide added protection to cyclists as the traffic lanes split.

3. ASSESSMENT OF THE ON-STREET TRIAL

- 3.1 The assessment of the on street trial falls broadly into four mains areas;
- traffic models
 - accident analysis
 - traffic flow and queue lengths
 - consultation feedback

Traffic modelling

- 3.2 A traffic model has been produced replicating the effect of Hybrid cycle lanes. The model has been based upon traffic flow rates without the traffic re allocation during and following the Cambridge Guided Busway works on Hills Road. It also takes into account the cumulative effect of the development and occupation of the CB1 development. This work shows little impact upon the operation of the junction and is in line with the results of the developers' own traffic assessment.

Accident analysis

- 3.3 There have been 50 reported injury accidents on the Hills Road bridge and the two adjacent junctions in the last five years. Thirty-two of theses accidents involve cyclists, of these almost half (16) of the accidents occurred whilst vehicles or cyclists were overtaking. Eight of the 50 accidents involved collisions after the traffic lights had been ignored. Five of these involve cyclists, in 3 of these cases the cyclist was at fault ignoring the traffic lights. The remaining accidents had a range of causes without discernable linking factors.

Traffic flow and queue length analysis

- 3.4 To provide a fuller picture of traffic, cyclists and pedestrian movements on the bridge, data was gathered during the trial by a specialist closed circuit television (CCTV) monitoring system. The monitoring took place 24h per day between the 21st and 27th of September and the 9th and 15^h November. In addition to the CCTV monitoring, officers have also been to site during both the peak and off peak periods on numerous occasions to observe the situation.

- 3.5 The monitoring results show the current level of vehicle flow on the bridge is 19,585 vehicles per day (VPD) in November 2009. This is slightly lower than in October 2006 with 20,505 VPD.
- 3.6 Table 1 shows a typical vehicle per day rate for each year from 2000 to 2009. The lower number of vehicles in 2009 reflects the natural re-routing due to drivers altering their journey to take into account recent road works on the bridge. The VPD figures are taken during a weekday. The monitoring results show a drop of some 22% at the week end which equates to approximately 4,300 vehicles per day (November 09 figures).

Table 1 Vehicle Flows (7am – 7pm)

	2000	2002	2004	2006	2009
Vehicle Flows	21601	21278	19137	20505	19585

- 3.7 Table 2 shows the number of cycle, pedestrian and bus passengers using the bridge both in 2005 and during the trial in 2009. Unlike the VPD, these figures show an increase in both cyclist and pedestrian numbers.

Table 2 Other travel modes flows (7am – 7pm)

	2005		2009	
	Weekday	Weekend	Weekday	Weekend
Cycles	4,041	2,064	5377	2217
Pedestrians	3,575	2,283	4420	1478
Cycles on footpath	390	330	203	109
Buses	752	-	755	-

- 3.8 Table 3 shows the observed average queue lengths and delay times with the trial scheme in operation. These results show only limited queuing with the trial in place and therefore support early traffic models in suggesting the trial lane layout does provide enough network capacity.

Table 3 Average queue lengths (no. of vehicles) and delay time (seconds)

	Average Queue Length		Delay Time (Seconds)	
	Morning Peak (7–9 am)	Evening Peak (5-7pm)	Morning Peak (7-9 am)	Evening Peak (5 -7pm)
Towards City	8	9	27	57
Towards Brooklands Avenue	6	5	35	39
Towards Addenbrooke's	9	10	43	37

Towards Cherry Hinton Road	3	7	21	21
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Consultation feedback

- 3.9 Two stakeholder workshops have been held on the 31st July and 12th October. Feedback was supportive for both the trial and the scheme as a whole. Local County and City Council members attended the workshops as well as a range of stakeholders including Stagecoach and the Cambridge Cycling Campaign.
- 3.10 A programme of public consultation was also undertaken which included four manned exhibitions (8th & 10th September & 24th & 30th November), a leaflet and questionnaire delivery in the local area (2,700 addresses). Information was also provided on the County Council website at www.cambridgeshire.gov.uk/transport/projects/cambridge . Press releases and local media such as radio was also used to build awareness of the projects and consultation.
- 3.11 Consultees were asked to complete a questionnaire (also available on line) indicating whether they supported the scheme and whether they supported the proposed details shown. They were also encouraged to add comments.
- 3.12 Three hundred and eighty two individual questionnaires were received representing all main modes of transport including cars (256 responses), cycling (312 responses), pedestrian (175 responses) and bus passengers (100 responses). It should be noted that many of the responses indicated more than one mode of transport was used.
- 3.13 When asked how the trial had affected their journey, 34% of motorists reported the trial had made their journey better/ improved / safer and 52% of motorists stated there was no effect or change whilst only 14% felt their journey had been made worse. Ninety-four percent of cyclists felt the trial had improved their journey and they felt safer, whereas 2% mentioned it was worse and felt more dangerous. Of the pedestrians responses 73% indicated that the trial had not affected their journey, with 23% reporting an improved/safer journey.
- 3.14 The majority of the responses received were positive showing that the trial had either improved or not affected journeys over Hills Road Bridge. The results of the consultation are contained in **Appendix B**.
- 3.15 Whilst the proposals receiving a number of different comments from Cambridge Cycling Campaign they were on the whole in favour of a scheme and support the introduction of good quality cycle lanes over the bridge.

4. NEXT STEPS

- 4.1 To move the scheme forward, the next key step is to advertise traffic regulation orders associated with the scheme.
- 4.2 It is proposed that at its meeting in April 2010 the Cambridge Traffic Management Area Joint Committee will be asked to resolve any Objections to the advertised traffic regulation orders.
- 4.3 Construction of the scheme will be in conjunction with planned works on the Cambridge Gateway scheme programmed to start in early summer. The current estimate for the duration of Cambridge Gateway works is nine months.

5. CONCLUSION

- 5.1 There is strong support for this safety scheme and much work has been undertaken to evaluate all comments and where possible incorporate new ideas within the scheme. Detailed evaluation of traffic modelling supports the introduction of the new layout and it is backed up by both trial layout monitoring data and feedback from the public and stakeholders alike.

6. SIGNIFICANT IMPLICATIONS

Resources and Performance

- 6.1 Cycling Town status offers the County Council and its partners the opportunity to effectively double its spend on cycling within the Cambridge area by harnessing an external source of funding.
- 6.2 The development of the scheme has been funded from Cycling England. The funding for the construction of the scheme will be wholly from Southern Area Transport Plan.

Statutory Requirements and Partnership Working

- 6.3 The project forms part of the wider Cambridge Cycling Town Initiative in partnership with Sustrans and the Cambridge Cycling Campaign, and the City and South Cambridgeshire District Councils. We are engaging with them well.
- 6.4 Traffic Regulation Orders are required.

Climate Change

- 6.5 One of the main aims of the projects is to create new and improved pedestrian and cyclist links across the bridge encouraging modal shift. If unsuccessful, the climate change benefits will not be secured.

- 6.6 The implementation of the schemes will result in positive climate change effects from less car journeys as people are encouraged to cycle because of improved facilities. This significantly outweighs any negative climate change effects due to construction and implementation.

Access and Inclusion

- 6.7 There are no significant implications for any of the headings within this category.

Engagement and Consultation

- 6.8 Significant consultation on the proposals was undertaken.

SOURCE DOCUMENTS

Documents	Location
Cycling England - Cycling Towns and Cities 2008-11 Application Form ‘Cambridge - Cycling Demonstration Town’, Joint Transport Forum 13/10/08 ‘Cambridge Cycling Demonstration Town - County Council Cabinet 4/11/08 ‘Cambridge - Cycling Demonstration Town’, Joint Transport Forum 20/11/08 Cambridge Cycling Town, Delivery Strategy and Programme – Dec 2008 ‘Cambridge - Cycling Town Initiative’ - South Cambs In Your Patch 01/09 Advisory Officer Technical Forum Minutes: 10/02/09, 12/03/09, 28/04/09, 07/07/09, 03/11/09 ‘Cambridge - Cycling Demonstration Town’ - Joint Transport Forum 11/03/09 ‘Cambridge - Cycling Demonstration Town’ - South Cambs AJC 20/04/09 ‘Cambridge - Cycling Demonstration Town’ - Cambridge AJC 27/04/09 ‘Cambridge - Cycling Town’ – South Cambs AJC 13/07/09 ‘Cambridge - Cycling Town’ – Cambridge AJC 20/07/09, 19/11/09 ‘Hills Rd Bridge Improvements’ – spokes 19/01/09, 27/04/09 Members& Key stakeholder meeting 31/07/09, 12/10/09	2 nd Floor A Wing Castle Court Shire Hall Cambridge CB3 0AP