

# CAMBRIDGESHIRE COUNTY COUNCIL

## ROAD SAFETY ENGINEERING

### SAFETY AUDIT STAGE 2

**Scheme:** North West Cambridge Huntingdon Road signal junction

**Date of Report:** 5<sup>th</sup> February 2014

**Auditor(s):** S Parsons  
P Taylor  
J O'Donnell

**Information Supplied:** See attached sheet appendix A

#### Introduction

The Audit was carried out at the request of:

**Name** Ian Dyer

**Job Title** Lead Engineer

**Organisation** Cambridgeshire County Council

The terms of reference of the audit are as described in HD 19/03. The audit has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria or design standards. Design standards are quoted only where those standards have road safety implications.

All comments and recommendations are referenced to the detailed design drawings specified above.

#### **Notified Departures from Standard - None notified**

*Scheme outline: a new signal junction on the A1307 Huntingdon Road and an independent pedestrian crossing.*

**Daytime site visit:** 20<sup>th</sup> January 2014

**Attending:** S Parsons, P Taylor and J O'Donnell

**Conditions at Visit:**

**Weather:** Fine Dry and cold

**Traffic:** Moderate

Other

Existing Injury Accident Details (Where applicable):

The accidents have been assessed over a five year period.

There are no verified injury accidents in this area.

There is one unverified injury accident, however from the detail it would appear that this occurred closer to the A14.

## A PROBLEMS RAISED AT THE PREVIOUS STAGE 1 SAFETY AUDIT

The following Problems raised at the Stage 1 Road Safety Audit were still outstanding at the time of undertaking the Stage 2 Road Safety Audit visit. These items should be included in the designer's response. Where a Problem has been dealt with via an Exception Report it has not been included in this audit.

### Problem A1.

#### A3.2 Problem

*Location: Huntingdon Road Junction, East, south west of the proposed junction*

*Summary: reduced visibility splays when exiting.*

As drivers exit this access their visibility to the right may be further restricted as the carriageway has been widened and the junction pulled further back. This is especially difficult for vehicles turning right out of the access as the lane starts to diverge at this point.

#### **Recommendation**

Review the need for this access and can it be relocated or diverted.

### **FURTHER COMMENTS BY THIS ROAD SAFETY AUDIT TEAM**

On the day of the site visit in Jan 2014 there was solid high metal fencing along the entire length of the site. It is not clear from the drawing that this access will be fully closed off. Please confirm this will be closed off.

#### A4.2 Problem

*Location: Huntingdon Road Junction, East, Huntingdon Road*

*Summary: no crossing facilities have been proposed on Huntingdon Road within the junction.*

No crossing facilities are proposed across Huntingdon Road. There are likely to be numerous pedestrian desire lines in this area which may result in pedestrians utilising the small traffic islands as refuges as they cross in this area. This may put them at greater risk of collision with vehicles.

In addition to this a stand alone crossing is proposed to the south east of this junction.

#### **Recommendation**

Review the pedestrian desire lines and ideally include the crossing facilities at the junction. This may negate the need for the stand alone crossing which is less than 100 m from the junction.

#### **FURTHER COMMENTS BY THIS ROAD SAFETY AUDIT TEAM**

This item remains.

#### A5.2 Problem

*Location: Huntingdon Road Junction, East, Pedestrian Island in the new access.*

*Summary: reverse stagger on the island, reduced pedestrian awareness of approaching traffic.*

Pedestrians walking between the crossings on the island will do so with their back to the approaching traffic. There is a potential for them not to observe the oncoming traffic prior to crossing. This may result in vehicular/pedestrian collisions.

#### **Recommendation**

Ideally correct the stagger so that the pedestrians face the oncoming traffic as they approach the second crossing.

Also careful consideration should be given to the location of push button display units and the potential for see through.

#### **FURTHER COMMENTS BY THIS ROAD SAFETY AUDIT TEAM**

This item remains

### A5.3 Problem

*Location: Huntingdon Road proposed toucan crossing*

*Summary: Close proximity to existing and proposed junctions.*

This crossing is in very close proximity to the proposed eastern signal junction and the very new NIAB signal junction.

LTN 2/95 recommends that a minimum of 100m should be between signals. This crossing will be one of 3 sets of signals within about 300m. This may lead to driver frustration, confusion and the potential for red light running.

### **Recommendation**

Ideally incorporate this crossing within the signal junction.

### **FURTHER COMMENTS BY THIS ROAD SAFETY AUDIT TEAM**

This item remains

Further information should be provided on the rationale of the crossing location

## **B ITEMS RAISED AT THIS STAGE 2 AUDIT**

### **B1 GENERAL COMMENTS**

#### **B1.1 Problem**

Location: Bus stop to the south east of the stand alone crossing

Summary: blocked visibility of signal heads approaching the crossing, potential for vehicle/pedestrian and cycle collisions.

The location of the bus stop raises concern as it is on the approach to the stand alone crossing.

If a bus was to stop to pick up or drop off passengers and a vehicle was to overtake the bus the driver would have a reduced forward visibility of the signal heads. The driver may not have sufficient time to react and stop if the lights were on red. This puts vulnerable road users at an increased risk when on the crossing.

#### **Recommendation**

Whilst the bus stop could be relocated the auditors preferred option would be to incorporate the controlled crossing within the signalled junction and retain the bus stop in its current location.

### **B2 THE ALIGNMENT**

#### **B2.1 Problem**

Location: the north west arm of the junction

Summary: alignment issues with the potential for a conflict point resulting in cycle collisions

There are two issues that raise concern;

Approaching the junction from the north west the right turn lane is very short, if additional stacking is required drivers are likely to use the hatched area putting them closer to the north west bound traffic.

When heading out of Cambridge, north west, the alignment appears to change direction twice over a short length, first to the right and then the left.

As drivers are likely to be accelerating away from the junction they may take a straight line approach. This may place cyclists at risk as drivers may shy away from the stacking traffic in the right turn lane and veer more towards the mandatory cycle lane.

#### **Recommendation**

Adjust the alignment of the south west kerb line, smoothing out the potential conflict point between north west bound drivers and the cyclists in the cycle lane.

## **B3 NON MOTORISED USERS**

### **B3.1 Problem**

Location: Cycle off road slip entering the site.

Summary: potential confusion for drivers.

As drivers turn into the junction there is a small risk that they will follow the kerb line as it diverts towards the footway at the start of the off road facility for cyclists.

This may result in minor collisions if vehicles strike the kerbing.

#### **Recommendation**

Include a short section of white lining in this area to reinforce the route to take for on road traffic.

### **B3.2 Problem**

Location: within the site, western footway as it rejoins the carriageway.

Summary: cyclists heading south west may come into conflict with north east bound traffic.

Cyclists heading down the shared use footway in a south west direction will have to rejoin the carriageway into approaching traffic from the south west.

In order to continue to travel in this direction the cyclist will need to cross several lanes of traffic. There is a potential for vehicle/cycle collisions in this area.

#### **Recommendation**

Provide a directional arrow to indicate this is an off slip.

Extend the shared use facility further to the south west to an appropriate crossing point that has been detailed on the internal arrangement plans. Adjust the signing accordingly.

### **B3.3 Problem**

Location: footways exiting/entering the new junction, both sides.

Summary: footway adjacent to embankments, pedestrian/cyclist falls.

The footways are detailed as being at the back of the available area close to embankments. It is not clear what fall there will be on these embankments but there is a potential for pedestrian/cyclist falls in this area.

There is a very long length of tactile paving, the tail, that extends to the back of the footway.

#### **Recommendation**

Relocate the footway mid way between the top of the embankment and the edge of the carriageway.

This will remove the need for fencing and reduce the length of tactile paving required on the tail.

## **B4 SIGNS AND ROAD MARKINGS**

### **B4.1 Problem**

Location: junction of Whitehouse Lane.

Summary: confusing markings potential for overshoots

At the head of the junction the advisory cycleway markings may be misunderstood by drivers. They may pull forward to the advisory marking and potentially collide with cyclists using the on road facility.

#### **Recommendation**

Remove the advisory cycle lane markings and retain the red surfacing.

## **B5 SIGNALS AND LIGHTING**

### **B5.1 Problem**

Location: The stand alone crossing

Summary: unknown desire lines, potential indiscriminate crossing movements and pedestrian/vehicle collisions.

It is not known if this crossing is to be on any future desire lines. The recent site visit revealed no crossing movements in the vicinity of the proposed crossing.

In addition to the above it is not known if the crossing is going have the appropriate usage and will it achieve the required PV<sup>2</sup> assessment?

If the crossing is not in the most appropriate location then it is unlikely to be used and pedestrians and cyclists will cross away from the crossing.

If the usage is only very light and it does not achieve the required PV<sup>2</sup> then frequent drivers may become used to never having to stop and may find it difficult when they suddenly have to.

This puts both pedestrians and cyclists at risk of collision with other traffic on the A1307.

### **Recommendation**

Submit any proposed footway/cycleway connections that explain the reasoning behind a crossing in this location.

Submit the outcome of the PV<sup>2</sup> so that the suitability of the crossing can be established.

Ideally the auditors would prefer to see this crossing incorporated within the signal junction as it offers further safety improvement over a stand alone crossing.

## **B5.2 Problem**

Location: The stand alone crossing

Summary: accesses in close proximity to the signal crossing increasing the risks and potential for vehicular/pedestrian or cyclist collisions.

Whilst the distance to the stand alone crossing from the proposed signal junction and to Whitehouse Lane may be very close to the acceptable standards it leaves little or no room for manoeuvre. The auditors believe that there are still substantial risks with this location.

There are two accesses just to the south east side of the crossing. Drivers exiting at these points may be looking at approaching traffic from the right and may not have full view of the signal heads. There is a risk that a driver emerging from these accesses may collide with pedestrians on the crossing.

In addition to the above, drivers exiting White House Lane turning right towards the A14, have multiple elements to review before making a decision. The new signals at the crossing, the right turn facility that leads into the junction and a reduced visibility to the right. The presence of the proposed crossing increases the risks to emerging traffic in this location and to pedestrians/cyclists on the crossing.



**Recommendation**

Relocate the crossing away from Whitehouse Lane and the two accesses.

Ideally incorporate the crossing within the signalled junction

**B5.3 Problem**

Location: Approaches to the signals and crossing.

Summary: High friction surfacing safety issues with risks to pedestrians/cyclists

The drawing details approximately 30m of high friction surfacing.

This is below the standard that would normally be applied on the approach to signals, especially crossings. A reduced length may have the effect of reducing a drivers ability to stop. Where crossings are concerned this puts pedestrians and cyclists at a greater risk of collision with vehicular traffic.

This type of material is well known to create areas of debris made up from the loose chippings. This creates a problem for two wheeled vehicles as they may loose control in these areas.

It also has a much shorter life than a standard carriageway surfacing with high psv stone.

Although there are still some areas in Cambridge that have buff coloured high friction surfacing it is believed that the white lining does not stand out as well as on a black or grey surfacing.

**Recommendation**

Ideally specify and use a standard carriageway surfacing with a high psv stove for a distance not less than the speed of the road +10m. On a 30mph road apply 40m.

If there is no alternative and a coloured surfacing is to be used ensure that a black or grey is used rather than a buff.

Also ensure that it is not placed in a cycle lane or partially in the right turn facility for Whitehouse Lane.

**B5.4 Problem**

Location: tree line north eastern side of the carriageway.

Summary: trees obscuring signal heads, possibility of confusion and shunt type accidents

Several trees extend out across the footway and may obscure the forward visibility to the new signal heads. In the summer months this situation will worsen as the trees produce foliage and hang lower.

**Recommendation**

Ensure that the problematic trees are removed or severely cut back.

**Audit Team Statement**

We certify that we have examined the drawings and documents listed at the commencement of this report. The examination has been carried out with the sole purpose of identifying any features of the design that could be removed or modified in order to improve the safety of the scheme. The problems identified have been noted in this report together with associated safety improvement suggestions which we recommend should be studied for implementation. No one in the Audit Team has been involved with the scheme design.

**Sue Parsons**

Road Safety Engineering Team  
Economy, Transport and Environment Services  
Cambridgeshire County Council  
CC1309  
Shire Hall  
Cambridge  
CB3 0AP

Signed S. Parsons

Date 6<sup>th</sup> February 2014

**Peter Taylor**

Road Safety Engineering Team  
Economy, Transport and Environment Services  
Cambridgeshire County Council  
CC1309  
Shire Hall  
Cambridge  
CB3 0AP

Signed P. Taylor

Date 7<sup>th</sup> February 2014

## CAMBRIDGESHIRE COUNTY COUNCIL ROAD SAFETY ENGINEERING

### RESPONSE TO STAGE 2 SAFETY AUDIT

Scheme:

Safety Audit No: \_\_\_\_\_

Date of Report: \_\_\_\_\_

Auditor(s): \_\_\_\_\_  
\_\_\_\_\_

The Audit was carried out at the request of:

Name \_\_\_\_\_

Job Title \_\_\_\_\_

Organisation \_\_\_\_\_  
\_\_\_\_\_

Please give your comments on the points raised in the audit in the table below, continuing on the attached sheet as necessary. For CCC personnel, this form is available electronically and a copy may be obtained by emailing [accident.investigation@cambridgeshire.gov.uk](mailto:accident.investigation@cambridgeshire.gov.uk).

<i>Item Reference</i>	<i>Accepted (Y/N)</i>	<i>Action Taken/Reasons for Non-Compliance</i>

Respondent's Name

Signed \_\_\_\_\_

Date \_\_\_\_\_

Received by Audit Team

Date \_\_\_\_\_

<b>Item Reference</b>	<b>Accepted (Y/N)</b>	<b>Comments</b>

**Appendix A (Drawings assessed Stage 2)**

<b>AUDITED</b>			<b>SUPPLIED BUT NOT AUDITED</b>		
NWC1-URS-HRE-010-XX-DRG-CE-0001	P0	3	NWC1-URS-HRE-020-XX-DRG-CE-0002	P0	1
NWC1-URS-HRE-020-XX-DRG-CE-0001	P0	3	NWC1-URS-HRE-020-XX-DRG-CE-0003	P0	1
NWC1-URS-HRE-050-XX-DRG-CE-0001	P0	3	NWC1-URS-HRE-050-XX-DRG-CE-0002	P0	1
NWC1-URS-HRE-051-XX-DRG-CE-0001	P0	3	NWC1-URS-HRE-050-XX-DRG-CE-0003	P0	1
NWC1-URS-HRE-051-XX-DRG-CE-0002	P0	3	NWC1-URS-HRE-051-XX-DRG-CE-0003	P0	1
NWC1-URS-HRE-051-XX-DRG-CE-0005	P0	1	NWC1-URS-HRE-051-XX-DRG-CE-0004	P0	1
NWC1-URS-HRE-070-XX-DRG-CE-0001	P0	3	NWC1-URS-HRE-051-XX-DRG-CE-0006	P0	1
NWC1-URS-HRE-070-XX-DRG-CE-1000	P0	3	NWC1-URS-HRE-051-XX-DRG-CE-0007	P0	1
NWC1-URS-HRE-070-XX-DSE-CE-1001	P0	3	NWC1-URS-HRE-070-XX-DRG-CE-0002	P0	1
NWC1-URS-HRE-070-XX-DSE-CE-1002	P0	3	NWC1-URS-HRE-070-XX-DRG-CE-0003	P0	1
NWC1-URS-HRE-070-XX-DSE-CE-1003	P0	1	NWC1-URS-HRE-070-XX-DRG-CE-1001	P0	1
NWC1-URS-HRE-110-XX-DDE-CE-0002	P0	3	NWC1-URS-HRE-070-XX-DRG-CE-1002	P0	1
NWC1-URS-HRE-110-XX-DDE-CE-0003	P0	3	NWC1-URS-HRE-070-XX-DRG-CE-2001	P0	1
NWC1-URS-HRE-110-XX-DDE-CE-0004	P0	1	NWC1-URS-HRE-070-XX-DRG-CE-2002	P0	1
NWC1-URS-HRE-110-XX-DRG-CE-0001	P0	3	NWC1-URS-HRE-070-XX-DRG-CE-2003	P0	1
NWC1-URS-HRE-110-XX-DRG-CE-0011	P0	3	NWC1-URS-HRE-070-XX-DRG-CE-3000	P0	3
NWC1-URS-HRE-120-XX-DRG-CE-0001	P0	3	NWC1-URS-HRE-070-XX-DRG-CE-3001	P0	3
NWC1-URS-HRE-50-XX-DDE-CE-0001	P0	3	NWC1-URS-HRE-070-XX-DRG-CE-3002	P0	3
NWC1-URS-HRE-50-XX-DDE-CE-0002	P0	1	NWC1-URS-HRE-110-XX-DRG-CE-0002	P0	1
NWC1-URS-HRE-130-XX-DRG-CE-0001	P0	3	NWC1-URS-HRE-110-XX-DRG-CE-0003	P0	1
23035/053/003			NWC1-URS-HRE-110-XX-DRG-CE-0012	P0	1
23035/053/002			NWC1-URS-HRE-110-XX-DRG-CE-0013	P0	1
			NWC1-URS-HRE-120-XX-DRG-CE-0002	P0	1
END			NWC1-URS-HRE-120-XX-DRG-CE-0003	P0	1
			NWC1-URS-HRE-130-XX-DRG-CE-0002	P0	1
			NWC1-URS-HRE-130-XX-DRG-CE-0003	P0	1
			NWC1-URS-MW-010-XX-DRG-CE-0002	P0	3
			NWC1-URS-MW-010-XX-DRG-CE-0003	P0	1
			NWC1-URS-MW-010-XX-DRG-CE-0004	P0	2
			END		

