
BELLHOUSE ROAD, SHIREGREEN PROPOSED ZEBRA CROSSING

ROAD SAFETY AUDIT STAGE 1 [PRELIMINARY DESIGN]

REPORT

**DEVELOPMENT SERVICES
TRANSPORT, TRAFFIC & PARKING SERVICES – ROAD SAFETY**
Safety Audit Ref: TE/16-591/LT1976/ST1
Date: 19th January 2017

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BELLHOUSE ROAD, SHIREGREEN PROPOSED ZEBRA CROSSING

STAGE 1 ROAD SAFETY AUDIT REPORT [PRELIMINARY DESIGN]

1.0 Introduction

- 1.1 This report results from a Stage 1 Road Safety Audit (RSA) carried out on the preliminary design of a proposed zebra crossing for Bellhouse Road, between its junctions with Beck Road and Mason Lathe Road, Shiregreen. The RSA was carried out at the request of Andrew Marwood of TTAPS Scheme Design & Assurance, and was received via email dated 20 December 2016. This is the first formal RSA of the proposals.
- 1.2 The Audit Team Membership for this RSA was:
- | | |
|----------------|--|
| Ashley Carnall | (Team Leader for this RSA)
Road Safety Audit Coordinator,
TTAPS – Road Safety,
Development Services,
Sheffield City Council |
| Dean Barker | (Team Member for this RSA)
Consultant Road Safety Auditor,
TTAPS – Road Safety,
Development Services,
Sheffield City Council |
- 1.3 The involvement of a police representative was not considered necessary at this stage.
- 1.4 The RSA was undertaken in accordance with the Sheffield City Council Road Safety Audit Standard 2005 and comprised an examination of the drawings detailed at Appendix A, and visits to the site. The site visit took place on the morning of Wednesday 04 January 2017. At the time of the visit the road surface was dry and the weather was fine. Traffic flows were moderate, and NMU movements were infrequent. No bus movements were observed.
- 1.5 The Auditors have examined and reported on the road safety implications for the scheme as presented and have not examined or verified the compliance of the designs to any other criteria.
- 1.6 All comments and recommendations are referenced to Problem Location plan numbered TE/16/LT1976/ST1/01 included at Appendix B.
- 1.7 This Stage 1 RSA was completed on 19th January 2017.

2.0 Scheme Description

2.1 The scheme proposes to provide a new zebra crossing on Bellhouse Road between the Mason Lathe Road and Beck Road junctions to capture the main pedestrian desire lines across Bellhouse Road. Elements include;

- New waiting restrictions;
- Speed cushions on the approaches to the crossing;
- Carriageway narrowing to address approach speeds;
- Removal of one vehicular access to the nursery;
- A new location for the northbound bus stop.

2.2 Full details of the proposals are given in Appendix A.

3.0 Notes for the Design Team - Unresolved Issues

3.1 In accordance with the Arbitration Procedure [outlined in the Sheffield City Council Road Safety Audit Standard 2005], after the Design Team has given due consideration to the problems raised by the Audit Team [and meetings have taken place between the Design Team and the Audit Team] any changes made to the design shall be submitted to the Audit Team for that part of the scheme to be re-audited.

3.2 Items in the Audit report that are not acted upon, either because they are felt to be outside the terms of reference of the project or deemed not appropriate by the Design Team should be included in an Exception Report. The Exception Report should be prepared by the Design Team, on behalf of the Project Sponsor, giving the reasons for rejection together with any alternative solutions and sent to the Arbiter with a copy to the Audit Team.

3.3 The Arbiter is to be the Head of Transport, Traffic and Parking Services or his nominees.

4.0 Supporting Information – Historical Collision Data

4.1 The Audit Team carried out an analysis of reported personal injury collision data in the immediate vicinity of the site. This is supplied by South Yorkshire Safer Roads Partnership and accessed via the ACCSMAP system.

4.2 In the 5 year period between 1st July 2011 and 30th June 2016 (provisional data) there have been 3 reported personal injury collisions within the limits of the proposed layout changes, resulting in 4 casualties. All of the casualty injuries were classified as “Slight”. Details of the collisions are summarised below:

Collision Frequency

	Year (01.07.11 to 30.06.16)						Total
	2011	2012	2013	2014	2015	2016	
Number of Collisions	1	1	1	0	0	0	3

The types of collision and the causation factors are shown in the table below.

Contributory factor / Incident	Total number of collisions
Casualty Type	
Car or other 4 wheeled vehicle	4
Collision Type	
Shunt on Mason Lathe Road	1
Junction collision (Bellhouse Road/Beck Road)	1
Sideswipe on Bellhouse Road	1
Time of day	
Daylight	2
Dark	1
Road Surface	
Wet/damp	0
Dry	3
Causation Factors	
405: Failed to look properly	1
406: Failed to judge other person's path or speed	1
602: Careless, reckless or in a hurry	2
603: Nervous, uncertain or panic	1
605: Learner or inexperienced driver/rider	1
706: Dazzling sun	1

4.3 The collisions are described as follows:

- K-02490-11 Mason Lathe Road at junction with Bellhouse Road (17/10/2011 at 07:40hrs - Slight
Car 1 approaching main road brakes, following car 2 collides with rear (shunt). Causation Factor: 602
- K-01817-12 Bellhouse Road at junction with Beck Road (23/07/2012 at 08:25hrs) - Slight
Car 1 turns right to main road across path of northbound car 2 and collision occurs. Causation Factors: 405, 406, 602, 603, 605, 706.
- K-02559-13 Bellhouse Road north of Beck Road junction (07/12/2013 at 17.00hrs) – Slight
Vehicle 1 travelling northbound when vehicle 2 pulls out from parking position and collides with vehicle 1. Causation Factors not given.

5.0 Problems Raised in this Stage 1 Road Safety Audit

Problems relate to preliminary design GA drawing SD-LT1976-P1

5.1 PROBLEM

Location: Reference 5.1 on Plan TE/16/LT1976/ST1/01 at Appendix B – Bellhouse Road northbound approach to new crossing; right turn to Mason Lathe Road

Summary: Offset centreline may result in increased risk of pedestrian collisions on crossing, as detailed below

The proposed road marking arrangement includes a 1004 / zigzag centreline along Bellhouse Road, along the approaches to and through the proposed crossing. To the south of the Mason Lathe Road junction, there is a formal on-street parking section on the western side of Bellhouse Road. Along the extents of this parking bay, the centre marking of Bellhouse Road is proposed to be offset to the east of the true centreline of the road, in order to leave equal running lane widths along the parking bay, northbound and southbound.

This offset centreline arrangement has been continued beyond the parking bay northwards, to and through the proposed crossing. The degree of offset past the Mason Lathe Road junction mouth is significant, resulting in a northbound lane width of over 4m.

Northbound drivers approaching the right turn to Mason Lathe Road would be likely to drive to this centre marking, positioning themselves as far to the offside of the running lane as is possible. There would be a likelihood that other northbound through drivers would attempt to pass to the nearside of these right turning vehicles, particularly powered two wheeled vehicles.

In the event that a pedestrian was crossing from east to west, the decelerating / waiting / turning vehicle would block inter-visibility between the crossing pedestrian and the driver of the through vehicle. This would result in an increased likelihood of pedestrian collisions.

RECOMMENDATIONS

Relocate the central zigzag markings along the true centreline of Bellhouse Road on the two crossing approaches, and tie the 1004 marking back across into the offset centreline between the limit of the zigzag, and the northern limit of the parking bay.

Design Team Response [1]

The centre line and zig zags were moved following a recommendation from the cycle audit to assist uphill cyclists – it is therefore recommended that the auditors decide which is the preferred lining and the design team will amend accordingly.

ROAD SAFETY AUDIT TEAM RESPONSE (1)

The Audit Team stands by its original comments.

A wide carriageway on the northern approach will also encourage faster approach speeds in this direction.

Furthermore, according to the drawing the narrower approach is on the uphill southbound direction. If the centreline were to be offset the usual practice would be to have a wider running lane in the uphill direction to provide more room for motor traffic to overtake a cyclist without squeezing them. The proposals are therefore likely to make the situation worse for cyclists travelling in this direction by making squeezing more likely. The risk of head-on collisions would also be increased in the event of overtaking manoeuvres taking place as northbound drivers are likely to be travelling in a position closer to the eastern edge of the carriageway as well as travelling faster than they do currently, whilst also being masked by the brow of the hill. If the Design Team wishes to implement the recommendations of the Cycle Audit then an Exception Report will be required.

Design Team Response [2]

The design will be amended to suit the comments made by the audit team – the revision will be shown at RSA2 for further comment if necessary.

ROAD SAFETY AUDIT TEAM RESPONSE (2)

Accepted.

5.2 PROBLEM

Location: Not referenced on plan at Appendix B – Bellhouse Road approaches to new crossing

Summary: Propensity for high crossing approach speeds along Bellhouse Road due to alignment and cross section results in increased likelihood of pedestrian injuries

The carriageway of Bellhouse Road is over 9m wide in places, and its horizontal alignment is generally straight throughout its length (including along both approaches to the proposed crossing). This geometry, and the fact that the road forms a significant local link between the A6135 and Ecclesfield Road, gives the impression that Bellhouse Road is a relatively major road in comparison to the surrounding estate roads which it serves access to. Although a 30mph speed limit is in force, it is highly likely that higher speeds are reached during quieter traffic periods.

Furthermore, despite the horizontal visibility envelopes being adequate, in the northbound direction (i.e. uphill) the vertical alignment limits forward visibility to carriageway level along the approach. In this direction, even though the beacons and upper portions of their poles would be visible, the crossing itself would not be. Smaller child pedestrians would also be unlikely to be clearly visible when waiting to cross. The fact that Bellhouse Lane is wide means that

the beacons and waiting pedestrians will be offset towards the outer limits of approaching drivers' forward vista.

The RSA Team are concerned that these factors could result in reduced driver reaction times to movements at the crossing (particularly northbound), with a resulting increased likelihood of pedestrian collisions on the crossing.

RECOMMENDATIONS

Provide surfacing with a PSV of 68+ on both approaches to the crossing, and provide zebra crossing warning signs (TSRGD diag. 544 with distance plates) in appropriate locations.

DESIGN TEAM RESPONSE [1]

In agreement with the audit team the PSV value will be increased and also warning signs will be added – this detail will be available at RSA stage 2 for comment.

ROAD SAFETY AUDIT TEAM RESPONSE (1)

Accepted.

5.3 PROBLEM

Location: Reference 5.3 on Plan TE/16/LT1976/ST1/01 at Appendix B – Beck Road over limits of carriageway bus-box markings

Summary: Lack of hazard warning line fails to inform drivers of potential hazard of buses manoeuvring, increasing collision risk

Along to the extents of the proposed opposing bus-box markings on Beck Road, a TSRGD diag. 1005 lane line is currently provided along the centre of the road. In such locations TSM recommends the provision of a diag. 1004 hazard warning line, to alert drivers to the possibility of buses manoeuvring into and out of the stops and vehicles overtaking stationary buses.

Failure to provide such a marking reduces awareness of the potential hazards ahead, adversely affecting safety and increasing collision risk.

RECOMMENDATIONS

Provide a TSRGD diag. 1004 hazard warning line along the extents of the bus-box markings extending northwest of them, over extents which accord with TSM Chapter 5 guidance.

DESIGN TEAM RESPONSE [1]

In agreement with the audit team the lining recommended will be added to the design and available at RSA 2 for further comment.

ROAD SAFETY AUDIT TEAM RESPONSE (1)

Accepted.

End of Problems Raised and Recommendations Offered in this Stage 1 Road Safety Audit

6.0 Additional Comments

There were some issues identified during this safety audit that are not directly connected to the scheme in so far as the RSA Stage 1 is concerned, but which the Audit Team wishes to draw to the attention of the Design Team and/or Audit Project sponsor. These issues are listed separately as follows:

6.1 COMMENT

Location: Reference 6.1 on Plan TE/16/LT1976/ST1/01 at Appendix B – Beck Road northwest bound bus-stop

Summary: Significant level difference across verge

It is proposed to relocate the Bellhouse Road northbound bus-stop into Beck Lane, to the above position. The drawing provided shows a strip of guidance paving running straight across the verge and footway, up to the new stop.

During the site visit it was noted there is a significant level difference across the verge in this location, as it falls towards the carriageway from the front of the footway. See photo;



It will not be possible to construct the paved strip as indicated due to the severe gradient. In order to provide passenger access between the footway and bus-stop, significant civils works will be required. There will be a need for the provision of ramps and steps, as a minimum.

There is also ongoing restoration work at the adjacent property. In the location indicated by the arrow in the above photograph, there is a gap in the fence at the front of the property. The property owner may be intending to use this area for driveway access to the property.

The Team will need to consider these issues during detailed design, to ensure that the chosen location is viable. An alternative proposal may be required.

DESIGN TEAM RESPONSE [1]

The design team have measured the level difference on the topographical survey and confirm that there is approximately 30cm – 40cm difference from back of footway to the front of the verge. Given the width of the footway/verge is 3.4 metres by raising the front with a bus border kerb to 200mm the fall will be approximately 7-8% or 1 in 20. Further details will be provided at RSA stage 2. If the property owner did decide to apply for an access this could be to one side of the bus stop. The drive would be blocked if a bus were to be stationary at the stop.

ROAD SAFETY AUDIT TEAM RESPONSE (1)

This satisfies the concerns of the Audit Team, subject to a review once further details are available at RSA 2.

DESIGN TEAM RESPONSE [2]

During the consultation on this scheme an objection was received from No. 2 Beck Road (16th March 2017). The reply to the resident in response to the points raised are available for the audit team to comment. The design team would welcome further comments in relation to the points raised by the resident before the response is finalised.

ROAD SAFETY AUDIT TEAM RESPONSE (2)

The objector has not raised any new road safety issues that were not considered fully by the Audit Team when visiting the site and subsequently producing this report (i.e. the location of the zebra crossing on Bellhouse Road and the position of the bus stop/speed of traffic on Beck Road). As such, the Audit Team has no comments to add to those already raised in this report.

End of Additional Comments Offered in this Stage 1 Road Safety Audit

7.0 Audit Team Statement

I certify that this RSA has been carried out in accordance with the Sheffield City Council Road Safety Audit Standard 2005.

AUDIT TEAM LEADER

Ashley Carnall
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Signed: *A Carnall*

Dated: 19th January 2017

AUDIT TEAM MEMBER

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APPENDIX A

Road Safety Audit Brief (list of drawings and documents considered)

Document Reference: Stage 1 RSA brief received by email dated 20 December 2016 from Andrew Marwood, included on following pages.

List of Information considered in this Stage 1 RSA;

Drawings: -

- SD-LT1976-P1 General Arrangement

Other Documents: -

- Personal Injury Collision data (5 calendar years to 31 December 2015)

BELLHOUSE ROAD – ZEBRA CROSSING
ROAD SAFETY AUDIT STAGE 1
AUDIT BRIEF

Drawing: SD-LT1976-P1

Feasibility / Preliminary Design:

The developed design can be seen in the plan provided

The scheme provides:

- A new zebra crossing between Mason Lathe Road and Beck Road to capture the main pedestrian desire line;
- Associated Waiting Restrictions;
- Speed Cushions on approach to the proposed crossing;
- Carriageway narrowing to address approach speeds;
- Removal of one vehicular access to the nursery;
- A new location for the downhill bus stop.

Timescales: It is hoped to construct the scheme in 2017/18. Please undertake the audit by 20th January 2017.

Departures from Standard: None

Accident data: The proposals have not been specifically developed to resolve an identified accident problem.

Previous RSA Reports: None

Andrew Marwood
Engineer Design & Assurance
20 December 2016

APPENDIX B
Problem Location Drawings

List of Drawings:

TE/16/LT1976/ST1/01

