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Regeneration, Culture, Environment and Transformation Directorate

Road Safety Audit Stage 1

Junction alterations

Magpie Hall Road junction with Palmerston Road

Chatham

Date: 20th April 2017

Report produced for: Ephraim Mpofu, Highway Design

Report produced by: Medway Council Road Safety

Council's Representative:

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Appendix B.....Comment location plan

1 INTRODUCTION

- 1.1 This report describes a Stage 1 Road Safety Audit carried out on a proposal to alter existing priority junction of Magpie Hall Road and Palmerston Road, Chatham. The audit was requested by Ephraim Mpofo, Highway Design, Medway Council.
- 1.2 The Audit Team membership was as follows:

David Warner, Senior Road Safety Engineer, Medway Council: Audit Team Leader

Chris Rogers, Road Safety Engineer, Medway Council: Audit Team Member
- 1.3 The audit was undertaken in accordance with the audit brief and HD 19/15 (as reasonably practicable), The Design Manual for Roads and Bridges.
- 1.4 The documents available at the time this report was compiled are detailed in Appendix A.
- 1.5 The locations of each Problem have been indicated on a plan at Appendix B.
- 1.6 A joint site visit was undertaken during the afternoon of 13th April 2017. Weather conditions at the time of the site visit were fine and bright, the road surface was dry. Vehicle flows and speeds were moderate.
- 1.7 This report has been compiled only with regard to the safety implications for road users of the layout presented in the supplied drawings. It has not been examined or verified for compliance with any other standards or criteria. This safety audit does not perform any "Technical Check" function on these proposals nor verify any justification for the scheme. It is assumed that the Project Sponsor is satisfied that such a "Technical Check" has been successfully completed prior to requesting this safety audit.
- 1.8 The auditors have not been informed of any Departures from Standards in this scheme design. It is however noted by the auditors that the visibility requirements of TD 54/07 do not appear to be met.

2 THE SCHEME

- 2.1 The proposal involves two options to alter the existing priority junction replacing it with a mini roundabout or placing the existing priority junction on a raised table.
- 2.2 The introduction of a mini roundabout would see the roundabout inscribed circle cutting into the existing green space verge on the southern side of Magpie Hall Road. The Palmerston Road junction mouth kerb lines would be altered to 6m radii with overrun areas introduced to accommodate the swept paths of larger vehicles. The overrun areas are to have 25mm upstands.
- 2.3 The second option would see the existing skewed junction placed on a raised table with ramps placed on each arm and the entire priority junction raised. Uncontrolled dropped kerb crossing points are proposed across the eastern and northern junction arms.

3 TRAFFIC CONDITIONS

- 3.1 Magpie Hall Road, Chatham, is a local distributor that borders a large residential area, it links Chatham at its northern extremity with the surrounding suburban areas. At this point Magpie Hall Road is residential in nature, however, it is only developed to the western side of the road. On the eastern side there is a wide grass verge and beyond a wooded embankment. The road is street lit and subject to a 30mph speed limit. There are designated on street parking bays to the western side of the road.
- 3.2 Palmerston Road is a similarly a residential distributor road, however it carries fewer vehicles and lies within the residential area. This road is also street lit and subject to a 30mph speed limit. Palmerston Road meets Magpie Hall Road at a skewed T-junction. Visibility at the junction can be limited by adjacent on street parking. It was noted that the predominant movements at the junction were right turns out of Palmerston Road and left turns in.
- 3.3 On site observations indicated that flows were moderate and free flow speeds were high. Some pedestrian activity was observed throughout the scheme area.
- 3.4 No traffic or pedestrian data was supplied at the time of the audit.

4 ITEMS RAISED AT THE STAGE 1 ROAD SAFETY AUDIT

Mini roundabout

4.1 PROBLEM

Location: Magpie Hall Road junction with Palmerston Road.

Summary: Insufficient lighting and carriageway skid resistance may be factors of collision occurrence.

Whilst it is acknowledged that the proposal is presented for stage 1 road safety audit, it is however considered important that early consideration is given to the following;

- The standard of current lighting at this junction is unconfirmed. Insufficient illumination at the junction may be a factor of collision occurrence during the hours of darkness.
- The current carriageway skid resistance is unconfirmed. Insufficient carriageway skid resistance properties may be a factor of collision occurrence at the revised junction layout.

RECOMMENDATION

That early consideration should be given to these matters.

4.2 PROBLEM

Location: Approaches to junction.

Summary: Inappropriate approach speeds may contribute to junction collision occurrence.

Free flow speeds were observed to be high on the Magpie Hall Road approaches to the junction. Inappropriately high approach speeds may contribute to failure to stop / side impact collisions.

RECOMMENDATION

That traffic speeds should be surveyed to determine if they are appropriate for the introduction of a mini roundabout, in line with the requirements of TD 54/07. If speeds are not appropriate, appropriate traffic calming measures should be employed.

4.3 PROBLEM

Location: Approaches to junction.

Summary: Insufficient visibility may be a factor of collision occurrence.

The proposed mini roundabout layout does not meet the visibility requirements of TD 54/07 Users need to be sure it is safe to enter the circulatory area. Insufficient visibility may contribute to failure to stop / side impact collisions.

RECOMMENDATION

That an alternative junction arrangement should be proposed or that speed reducing measures should be employed to provide speeds commensurate with the available junction visibility.

4.4 PROBLEM

Location: Eastbound approach to the crossing.

Summary: Masked signing may contribute to failure to stop collisions.

The mini roundabout sign on the nearside of the eastbound approach is preceded by on road parking. Traffic generally runs alongside this parking. Larger vehicles parked in this area may mask the mini roundabout sign. Failure to understand that eastbound users may need to give way to right turners into Palmerston Avenue may contribute to eastbound users failing to stop.

RECOMMENDATION

That sufficient signing is provided to ensure they are visible on the approach to the junction.

4.5 PROBLEM

Location: Magpie Hall Road approaches to junction.

Summary: Limited actual deflection may be detrimental to safe operation.

There is limited deflection for the Magpie Hall Road movements through the proposed junction. On the eastbound approach particularly traffic is already offset southwards with the centreline not in the centre of the carriageway as indicated on the plan. This means that traffic is already running well away from the nearside kerb therefore any deflection proposed at the junction does not influence the driven path. Lack of deflection is likely to be a factor of lack of speed reduction and understanding the circulatory nature of the junction layout. This may therefore contribute to collision occurrence.

RECOMMENDATION

That physical splitter islands should be introduced to provide adequate deflection and increase conspicuity of the roundabout.

4.6 PROBLEM

Location: Palmerston Road approach to mini roundabout.

Summary: Use of give way signing may be misleading contributing to collision occurrence.

A give way sign is proposed to accompany the mini roundabout sign on the Palmerston Road approach to the junction. In this position road users approaching the mini roundabout will have an entry arm to the left and to the right. The give way sign may be misleading as to who should have priority, undermining the give way to the right rule at mini roundabouts.

RECOMMENDATION

That a give way sign should not be provided on the Palmerston Road approach.

4.7 PROBLEM

Location: Palmerston Road approach to mini roundabout.

Summary: Lack of pedestrian facilities may contribute to collisions involving vulnerable users.

There is currently a pedestrian dropped kerb facility across the mouth of Palmerston Road. The proposed junction layout will create overrun areas at the mouth of Palmerston Road that will likely be unable to accommodate a crossing point. Lack of infrastructure to aid footway users may contribute to incidents involving this user groups as they may continue to try a use existing crossing routes, or cross at other inappropriate locations where they risk conflict with motorised traffic.

RECOMMENDATION

That facilities to assist non-motorised users should be taken into account as part of the design.

Raised Table

4.8 PROBLEM

Location: Magpie Hall Road junction with Palmerston Road.

Summary: Insufficient lighting and carriageway skid resistance may be factors of collision occurrence.

Whilst it is acknowledged that the proposal is presented for stage 1 road safety audit, it is however considered important that early consideration is given to the following;

- The standard of current lighting at this junction is unconfirmed. Insufficient illumination at the junction may be a factor of collision occurrence during the hours of darkness.
- The current carriageway skid resistance is unconfirmed. Insufficient carriageway skid resistance properties may be a factor of collision occurrence at the revised junction layout.

RECOMMENDATION

That early consideration should be given to these matters.

4.9 PROBLEM

Location: Magpie Hall Road junction with Palmerston Road.

Summary: High approach speeds may contribute to loss of control.

Speeds in excess of the speed limit were observed on site on Magpie Hall Road. Excess speeds on the approach to what will be an isolated raised feature may contribute to incidents of loss of control.

RECOMMENDATION

That traffic speeds should be lowered on Magpie Hall Road in advance of the proposed table.

5 AUDITOR TEAM STATEMENT

We certify that this audit has been carried out, as reasonably practicable, in accordance with HD 19/15.

Audit Team Leader

David Warner, BEng (Hons),
HA RSA Cert of Competence
Senior Road Safety Engineer
Medway Council

Signed:

Date:

Audit Team Member

Chris Rogers, BEng (Hons), PG Dip, MCIHT,
HA RSA Cert of Competence
Road Safety Engineer
Medway Council

Signed:

Date:

APPENDIX A

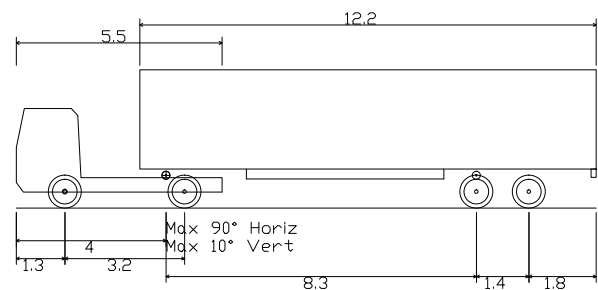
List of relevant Drawings submitted for auditing:

Drawing Number:

- 731818/1Rev01
- 731818/2Rev01
- 731818/3Rev01
- 731818-101Rev01

Supporting Documentation:

- Design Principles



FTA Design Articulated Vehicle (1983)
 Overall Length 15.500m
 Overall Width 2.500m
 Overall Body Height 3.695m
 Min Body Ground Clearance 0.428m
 Track Width 2.500m
 Lock to Lock Time 6.00s
 Kerb to Kerb Turning Radius 6.750m

Design AutoTrack Vehicle. Not to Scale

Entire junction
 Items: 4.1, 4.2,
 4.3

Item 4.7

Item 4.4

Item 4.5

Item 4.6

NOTE:
 The AutoTracks are possibly only illustrative as these turning movements may already not be feasible on the existing junction layout.

HGV turning left (1) or right (2) into Magpie Hall Road.

New 600mm signs, Diagram No. 602 on Palmerston Road only to go with the Give Way Triangle

Kerbklines to be modified to R6m to have large vehicles overrun areas with 25mm kerb upstand

New 600mmØ signs, Diagram 611.1 at the positions as shown

Existing (red) Lamp Column and Road nameplate to be relocated outside the new kerblines

Medway Council Amenities Grass

Road widening

Shrub/flower beds

Other relevant details are shown on Drawings /2 and /3

AUDIT ISSUE

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Notes :
 All dimensions are in millimetres unless otherwise stated.

Rev	Description	By	Date	Chk'd	Appr'd
01	Updated to Improve Deflections	EM	20/3/17	N/A	EM
	Previous Issued for Client Comments				



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Magpie Hall Road/Palmerston Road, Chatham.
 Mini-Roundabout Investigation

Title
 General Layout, with AutoTracks
 Sheet 1 of 3

Plot #
 A3

Scale
 1: 250

Drawn
 EMM
 Date
 2 Feb 17

Checked
 N/A
 Date
 N/A

Approved
 EMM
 Date
 23 Mar 17

Drawing No.
 731818/1

Rev
 01



All new or refreshed road markings are shown, bold

Existing drop kerb crossing to be removed and a new uncontrolled crossing constructed to suit the raised junction.

Item 4.8



New sign 600mm size, placed on an existing lamp column nearest to but not less than 45m from the raised junction ramps.

Existing Give Way sign.

Magpie Hall Road



Diagram No. 557.1 - road hump ahead. New sign, 600mm size, placed at 45m from the raised junction ramps.

New raised junction.
Assumed gullies and drainage. To be finalised at detailed design

Item 4.9

on grass verge side to be controlled crossing with new surfaced area around the new crossing.

New sign 600mm size, placed on an existing lamp column nearest to but not less than 45m from the raised junction ramps.



New kerbline to suit 100mm high raised junction above the existing finished road level.

Magpie Hall Road

AUDIT ISSUE

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Rev	Description	By	Date	Chk'd	Appr'd
01	Previous Issued for Client Comments	EM	23/3/17	N/A	EM

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Project Magpie Hall Road/Palmerston Road, Chatham. Raised Junction Cost Estimates				Plot # A3
Title General Layout				Rev 01
Scale 1: 250	Drawn EMM Date 2 Feb 17	Checked N/A Date N/A	Approved EMM Date 23 Mar 17	Drawing No. 731818-101