

REGENERATION, CULTURE AND ENVIRONMENT OVERVIEW AND SCRUTINY COMMITTEE

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REPORT ON THE OUTCOME OF INVESTIGATIONS INTO THE POSSIBLE PROVISION OF A MINI ROUNDABOUT AT THE MAGPIE HALL ROAD JUNCTION WITH PALMERSTON ROAD

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Summary

This report provides a response to a suggestion at the meeting of the Regeneration, Culture and Environment Overview and Scrutiny Committee in December 2016 on the possible introduction of a mini-roundabout at the Magpie Hall Road junction with Palmerston Road in Chatham.

1. Budget and Policy Framework

1.1 The decision to implement a mini-roundabout at the Magpie Hall Road junction with Palmerston Road is within the council's policy and budget framework and in particular the Local Transport Plan.

2. Background

2.1 At the former Regeneration, Community and Culture Overview and Scrutiny Committee meeting on 8 December 2016, the Committee requested that the Assistant Director Front Line Services investigate the possible provision of a mini roundabout at the junction of Palmerston Road with Magpie Hall Road and report back to the Committee on the associated benefits of this roundabout and the costs involved. This followed a petition received for a robust traffic calming system to reduce the speed of traffic to an acceptable level to ensure Magpie Hall Road is safer for local residents.

2.2 Magpie Hall Road, Chatham, is a local distributor road 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 has street lighting and is subject to a 30mph speed limit. There are designated on street parking bays to the western side of the road.

- 2.3 Palmerston Road is similarly a residential distributor road. However, it carries fewer vehicles and lies within the residential area. This road also has street lighting and is 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 is noted that the predominant movements at the junction were right turns out of Palmerston Road and left turns in.
- 2.4 The internal Highways Design Team were commissioned to undertake a design for a mini-roundabout at the junction and this is shown in Appendix A, drawing number 731818/1 rev 01. 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.
- 2.5 The design was subjected to a Stage 1 Road Safety Audit, see Appendix B, where the audit identifies potential road safety issues or problems that may affect all users of the highway and recommend measures to eliminate or mitigate these problems.
- 2.6 The problems identified in the Road Safety Audit can, in all probability, be resolved through the design process. However, one problem identified by the audit significantly undermines the feasibility of the scheme :

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.

- 2.7 Visibility splays have been plotted and these are shown in Appendix C, drawing number 731818- 02. Magpie Hall Road is subject to a 30mph speed restriction, where the visibility requirement to the right passes through a boundary wall. Likewise, Palmerston Road is also subject to a 30mph speed restriction, where the visibility requirement to the right passes through a boundary hedge. There is not sufficient highway land to achieve required

visibility and, therefore, this could lead to failure to stop, side impact or rear end shunt accidents.

- 2.8 The mini-roundabout is estimated to cost in the region of £30,000 to construct in order to resolve issues identified by the audit. However, costs are likely to significantly exceed this.

3. Options

- 3.1 Option 1 - Do Nothing.

- 3.2 At the time of the petition in December 2016, there were three reported casualties on Magpie Hall Road from Walderslade Road to Kitchener Avenue, one of which occurred in the past three years. Driver error was deemed the likely cause of this accident. Other locations in Medway where casualty numbers are higher would have a higher priority for investigation and mitigation measures. Accident records will continue to be monitored along this route.

- 3.3 Option 2 - Implement a mini-roundabout at the junction.

- 3.4 The introduction of a mini-roundabout at the junction will likely reduce approach speeds on Magpie Hall Road. However, there will also be an inherent risk due to the visibility issue, described in paragraphs 2.7 and 2.8, which cannot be resolved unless Magpie Hall Road and Palmerston Road are subject to self-enforcing 20mph speed limits, which would reduce the amount of visibility required.

- 3.5 The predicted mean frequency of personal injury accidents for three-arm mini-roundabouts is 0.79 accidents per year (Design Manual for Roads and Bridges, TD 54/07, Design of Mini-Roundabouts). This would equate to 2.37 accidents in a three year period, which is greater than the existing situation. Further, due to the poor visibility issue at the junction, which cannot be rectified, it is likely that the accident rate will be greater.

- 3.6 The economic justification for installing a safety scheme is usually based on its economic return. However, in this instance it is considered that the scheme would induce accidents and, therefore, no economic return would be gained.

- 3.7 Option 3 – Implement an alternative design at the junction.

- 3.8 The Highways Design Team were further commissioned to undertake a design for a raised table at the junction and this is shown in Appendix D, drawing number 731818-101 rev 01.

- 3.9 The design was also subjected to a Stage 1 Road Safety Audit, where the problems identified in the Road Safety Audit are summarised below:

1. Insufficient lighting and carriageway skid resistance may be factors of collision occurrence.
2. High approach speeds may contribute to loss of control.

- 3.10 Problem 2 is cause for concern, where excess speeds on the approach to what will be an isolated raised feature may contribute to incidents of loss of control accidents. This problem can be overcome by reducing traffic speeds on the approach to the proposed table. However, this involves the introduction of vertical traffic calming features on this section of Magpie Hall Road between Walderslade Road to Kitchener Avenue.
- 3.11 The raised table was costed at £25,119; though to resolve problems 1 and 2, costs are likely exceed £75,000. However, if traffic calming was introduced on Magpie Hall Road then the raised table itself would not be required and, therefore, the cost of the scheme would be in the region of £60,000 depending on site specifics.
- 3.12 The economic justification for installing a safety scheme is usually based on its economic return. This is generally calculated as an *estimated* First Year Rate of Return (FYRR), which is an estimate of the monetary benefits to be gained in accident savings in the first year set against the cost of the scheme.
- 3.13 The FYRR for Option 3 is calculated as below in two parts, the first with a raised table at the junction with associated traffic calming, the second with no raised table but just traffic calming on the route from Walderslade Road to Kitchener Road. Additional accidents Magpie Hall Road have been factored in, as these will be addressed by the proposed works.

1 - Raised table at junction and traffic calming on Magpie Hall Road

- 3 Personal Injury Accidents (PIAs) in 3 years - 1 PIA per year
- Raised table and traffic calming is expected to save 50% of accidents, equivalent to 0.50 PIAs per year.
- Average value for the prevention of an accident (from Reported Road Casualties Great Britain: 2015 – table RSA60001) is £76,466.
- Savings to be made by preventing 0.5 accidents = £38,233
- Cost of scheme = £75,000
- $FYRR = \text{savings} / \text{cost of scheme} = 51\%$

2 - Traffic calming on Magpie Hall Road

- 3 Personal Injury Accidents (PIAs) in 3 years - 1PIA per year
- Traffic calming is expected to save 50% of accidents, equivalent to 0.50 PIAs per year.
- Average value for the prevention of an accident (from Reported Road Casualties Great Britain: 2015 – table RSA60001) is £76,466.
- Savings to be made by preventing 0.50 accidents = £38,233
- Cost of scheme = £60,000
- $FYRR = \text{savings} / \text{cost of scheme} = 64\%$

- 3.14 For small schemes, a FYRR exceeding 100% would be expected. This represents a return the investment in one year. A scheme with a FYRR below 100% would not normally be justified on casualty reduction grounds alone.

4. Advice and analysis

- 4.1 One slight injury collision has been recorded during three years at this junction. It is recognised that accident levels fluctuate over time. However, at present there are other junctions in Medway that have a higher priority for investigation and possible works.
- 4.2 Research has shown that the introduction of mini-roundabout could lead to 0.79 accidents per year, which is greater than the existing rate. Additionally, visibility at junction would be restricted due to boundary walls and hedges, which could increase accident levels further and lead to failure to stop, side impact and rear end shunt accidents.
- 4.3 Visibility requirements could be reduced. However, approaching speeds would have to be significantly decreased through a system of traffic calming. A system of traffic calming would cost approximately £60,000 but would also negate the need for a mini-roundabout.
- 4.4 A stand-alone table at the junction was also considered but similar to above, a system of traffic calming would be required to reduce fast approach speeds and possible loss of control accidents. A system of traffic calming would cost approximately £60,000 but would also negate the need for a raised table at the junction.

5. Risk management

Risk	Description	Action to avoid or mitigate risk	Risk rating
Do Nothing	Accidents at the junction may increase.	Accident records on this section of Magpie Hall Road along with other strategic links on the highway network are annually monitored. If accident rates rise, these will be identified and actioned by the road safety team.	D3
Install a mini-roundabout at the junction with known restricted visibility.	On average accidents at the junction may increase due to junction type and restricted visibility.	Leave junction as it is.	C2
Install a stand alone raised table at the junction.	Accidents at the junction may increase due to isolated raised feature.	Leave junction as it is, or introduce traffic calming on Magpie Hall Road.	D3

6. Financial implications

- 6.1 The Highways Design Team has provided an estimate for the installation of a mini-roundabout at £30,000. However, to resolve the problems identified in the road safety audit the costs are likely to exceed £90,000 though detailed costs are unknown.
- 6.2 The Highways Design Team has provided an estimate for the installation of a raised table at £25,119; though, to resolve the problems identified in the road safety audit the costs are likely to exceed £75,000 though detailed costs are unknown.
- 6.3 However, to resolve issues identified, a system of traffic calming would be required, which would also negate the need for a raised table and, therefore, the costs can be a traffic calming system alone would be in the region of £60,000, though detailed costs are unknown.
- 6.4 There is no budget available for the implementation of a mini-roundabout; a raised table or a traffic calmed route.

7. Legal implications

- 7.1 There are currently no legal implications in respect of this report. However, if there is subsequently a decision by the Council to proceed with a raised table at the junction or vertical traffic calming on Magpie Hall Road, then in accordance with the Road Traffic Regulation Act 1984, a traffic regulation order would need to be advertised so that people have an opportunity to comment on the proposals if they wish to.

8. Recommendations

- 8.1 The Committee is requested to recommend
- a) that the Director of Regeneration, Culture, Environment and Transformation continue to monitor the accident levels at the Magpie Hall Road junction with Palmerston Road, and on Magpie Hall Road from its junction with Walderslade Road to the junction with Kitchener Avenue and take action as appropriate to reduce casualties.
 - b) that no action to be taken at this stage in recommending to Cabinet that a mini-roundabout be implemented at the Magpie Hall Road junction with Palmerston Road.
 - c) that no action to be taken at this stage in recommending to Cabinet that a raised table be implemented at the Magpie Hall Road junction with Palmerston Road.

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Appendices

Appendix A – Drawing number 731818/1 rev 01.

Appendix B – Road Safety Audit Stage 1, Magpie Hall Road junction with Palmerston Road, April, 2017.

Appendix C – Drawing number 731818- 02

Appendix D – Drawing number 731818-101 rev 01.

Background papers

Design Manual for Roads and Bridges, TD 54/07, Design of Mini-Roundabouts.

<http://www.standardsforhighways.co.uk/ha/standards/dmr/vol6/section2/td5407.pdf>

Department for Transport, Reported Road Casualties Great Britain: 2015, Annual Report, 2016.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/568484/rrcgb-2015.pdf