

**PORTWAY / WESTBURY ROAD
& COPHEAP LANE JUNCTION, WARMINSTER**

1. Purpose of the Report

- 1.1 To provide information on a community concern issue raised by Warminster Town Council relating to traffic delays and safety issues for road users at the junction of Westbury Road / Portway & Copheap Lane, Warminster.

2. Background

- 2.1 The C360 Westbury Road / Portway forms the main access route into Warminster from its junction with the A350. Part way along this route is the priority junction with the C10 Copheap Lane. Copheap Lane serves as a popular distributor road for vehicles accessing the B3414, the military barracks and local amenities on the eastern side of the town including Kingdown Community School and the retail / commercial units on Fairfield Road.
- 2.2 Warminster Town Council has expressed concern regarding the ongoing problems experienced by road users negotiating the Westbury Road / Portway junction with Copheap Lane. One of the key issues is the difficulty vehicles have in identifying suitable gaps in the main road flow in order to exit the Copheap Lane junction. As a result significant peak hour congestion and vehicle queues have been reported.
- 2.3 In order to improve the free flow of traffic at the junction and alleviate some of the identified problems, Warminster Town Council has requested that consideration be given to the introduction of a mini roundabout. The request was included on the agenda of the Warminster Community Area Board at its meeting on the 4th March 2010 whereby it was agreed that Wiltshire Council highway officers would carry out a preliminary feasibility study and report their findings.
- 2.4 A correctly located mini-roundabout can improve the operation of a junction by reducing the dominance of one traffic flow, facilitate access by reducing delay at side roads and improve capacity at saturated junctions. In contrast incorrectly sited mini roundabouts can increase delays for main road traffic, encourage 'rat running' on unsuitable routes and increase the likelihood of collisions.

- 2.5 When examining the suitability of converting an existing junction to a mini roundabout there are number of key considerations which must be examined before any decision to proceed. It is important to identify factors which may suggest that a mini roundabout is an unsuitable choice early on in the assessment process. Typical reasons for rejection include, dual carriageways, junctions with five or more arms or where recorded 85th percentile speeds for the main road approaches exceed 35mph.
- 2.6 The procedure for assessing site suitability for mini roundabouts is typically undertaken in two separate stages. The first stage involves an initial site assessment to determine whether there is sufficient space within the constraints of the public highway to accommodate the construction of a mini roundabout.
- 2.7 The second stage of the assessment process involves the collection and evaluation of data. This allows the necessary engineering judgment to be made as to whether or not a mini roundabout is the most appropriate junction improvement. The data typically includes:
- Speed
 - Queue Length
 - Traffic Volume/ Turning count
 - Visibility
 - Collision history
 - Road character & Layout

3.0 Stage 1 – Initial Assessment

An initial inspection was undertaken at the Westbury Road / Portway junction with Copheap Lane which confirms there is sufficient carriageway width available within the bounds of the public highway to facilitate the provision of a mini roundabout. It should be noted however that some localised realignment of the existing kerb lines would be necessary in order to maximise junction capacity.

4.0 Stage 2 - Data Collection

Initial data collection activities have been undertaken and the findings outlined below:

4.1 Speed

On the 9th August 2010 data was obtained from the use of a hand held radar speed gun for vehicles travelling towards the Copheap Lane junction from both the direction of Westbury Road and Portway. The recorded 85th percentile speeds were 34.7mph and 34.0 mph respectively.

4.2 Queue Lengths

An assessment of the vehicle queue lengths along Copheap Lane was undertaken on 30th March 2010. During this time queue lengths were recorded at two minute intervals for both the morning peak (07:00 – 09:30) and the afternoon peak (15:00 – 17:30). The results indicated an average queue length of just under '2' vehicles during the morning peak, with a maximum of '11' vehicles recorded at any one time (08:16) During the afternoon peak the average queue length was just under '3' vehicles, with maximum of '14' vehicles recorded (16:32). See **Appendix 1**.

4.3 Traffic Volume / Turning Count

From data obtained in February 2008, the average '2' way' 24 hour flow along Copheap Lane was just under 8,000 vehicles. Unfortunately in the absence of recent data it is difficult to provide an accurate picture of current traffic volumes along this length. For the purposes of this report outline traffic data can also be extracted for Westbury Road / Portway and Copheap Lane from the peak hour turning count (07:00 – 09:30 & 15:00 – 17:30). A summary table is shown below:

	'2' way flow (AM Peak)	'2' way Flow (PM peak)
Westbury Road / Portway	3278	3096
Copheap Lane	1754	1471

4.4 On the 30th March 2010 a morning and afternoon peak hour turning count was undertaken at the Westbury Road / Portway junction with Copheap lane. During both periods a total of 1867 vehicles were recorded exiting Copheap Lane. Of that figure 643 vehicles (34%) turned left towards the town centre and 1224 vehicles (66%) turned right towards Westbury. See **Appendix 2**.

4.5 During the same period a total of 1762 vehicles were recorded turning into Copheap Lane from both Westbury Road and Portway. Of that figure 455 (26%) turned right from the direction of the town centre and 1307 vehicles (74%) turned left from the Westbury direction. See **Appendix 2**.

4.6 Visibility

Visibility to the right for vehicles travelling in a southerly direction along Westbury Road (towards the town centre) is approximately 50m. For vehicles travelling in a north easterly direction along Portway (towards the A350) the distance is approximately 35m, whereas for vehicles on Copheap Lane the figure is approximately 80m.

4.7 Collision History

An analysis of the collision history at the Westbury Road / Portway and Copheap Lane junction indicates no recorded 'Personal Injury Collisions' (PIC's) over the preceding 3 year period.

5.0. Data Analysis

5.1 Chapter 5 of the 'Traffic Signs Manual' 2003 advises that mini roundabouts should only be used on roads with a speed limit of 30mph or less. Whilst mini roundabouts are often intended to act as speed control measures they are not suitable where vehicles approach the junction at higher speed i.e. where 85th percentile speeds exceed 35mph. Vehicles must have slowed sufficiently to be able to stop and give way to circulatory traffic. The initial speed data for the Copheap Lane junction appears to indicate the recorded speeds are within the necessary range. However on the southern approach from Westbury Road the recorded 85th percentile speed is only marginally below the threshold of 35mph. This is a concern as vehicles failing to stop and give way in time for traffic turning right out into Copheap Lane may result in possible collisions. It would therefore be prudent to undertake a full seven day count to fully assess vehicle speeds before further consideration is given. In this instance there may be a

requirement to undertake accompanying speed management measures to reduce the approach speed.

- 5.2 Whilst from the outset the average queue length at the Copheap Lane junction during the recorded periods do not point to a specific problem, the results do indicate time periods during the morning and afternoon peak when longer queues form on the side road. During the morning rush hour the worst period is 08:00 to 08:30 where on average '5' cars are queuing at any one time; whereas during the afternoon the worst period is 16.00 – 16.46 with on average '4' vehicles waiting. It worth noting that at 16:32 a total of '14' vehicles were recorded queuing at the Copheap Lane, but at 16.34 this had reduced to zero.
- 5.3 For mini roundabouts to operate correctly, drivers must legally cede priority to vehicles approaching from the right. As a result it is essential that the junction type can be easily recognised and that drivers have sufficient forward visibility. For vehicles travelling at an 85th percentile speed of 30mph the minimum requirement for visibility to the right is 35m; at 35mph this figure increases to 40m. An estimate undertaken at the junction indicates that at the lower speed the visibility requirements can be achieved, although at 85th percentile speeds of 35mph the visibility on two of the approaches falls slightly short of the necessary figure.
- 5.4 The current collision record for the junction of Copheap Lane junction indicates that no personal injury collisions (PICS) have been recorded during the past three years. It is important to note that non-injury collisions are not recorded on the Police database and statistically a number of damage only collisions are likely to have occurred at this location.
- 5.5 The individual character and layout at road junctions in which mini roundabouts are under consideration is crucial in determining its overall suitability. Gradients, highway status, lane widths, pedestrian & cycle facilities and street lighting must all be assessed. In this particular instance the overall character and layout of the junction does suggest a mini roundabout is a viable proposal; although for the reasons outlined in paragraph 4.1, the downhill gradient, topography and subsequent speed of vehicles on Westbury Road is of key importance.

6.0 Further Issues for Consideration.

- 6.1 In order to maximise the operating capacity of the junction, in particular on the main through route, it would be desirable to incorporate twin lanes on the approach to the mini roundabout. In order to achieve this on Portway it would be necessary to relocate an advisory disabled bay and restrict parking in the vicinity of the junction. Given the obvious pressure on kerbside space available for parking, such restrictions are unlikely to be welcomed by local residents.
- 6.2 When considering the introduction of a mini roundabout the issue of both main and side road flow must be given careful consideration. Low side road volumes can frequently result in dominant streams on the main road which adversely affects the operation of the roundabout. If, due to low side road flows drivers become accustomed to not giving way for right turning traffic, an increased likelihood of side road collisions may result. Given the figures in paragraph 4.4, the numbers of vehicles exiting Copheap Lane is sufficient to allow a mini roundabout to operate as intended, however it must be noted that with any

change of junction control there is a risk of increased peak hour delay for vehicles on the main route. In this instance Portway would be the most affected.

- 6.3 A recent study of collision rates at all '3' arm mini roundabouts in Wiltshire indicate an average figure of '6' personal injury collisions per 100million vehicle movements through the junction. This compares with a priority 'T' junction figure of 21.5. Whilst the figures indicates that mini roundabouts have an inherently better safety record than 'T' junctions it should be noted that the introduction of a mini roundabout at the junction of Westbury Road / Portway and Copheap Lane is likely to lead to an overall increase in the number of current collisions.
- 6.4 Copheap Lane is considered a key route for vehicles using the local road network, particularly those who wish to avoid the town centre during the peak hours. As such the introduction of a mini roundabout is highly likely to increase Copheap Lane's attractiveness as the preferred local route. The 'knock on' effect of this will be negative as increasing numbers of vehicles use minor roads rather than the main routes to reduce overall journey times.
- 6.5 In the absence of the detailed design it is difficult to provide any surety regarding the potential cost for a mini roundabout at the Copheap Lane junction. Using a comparison for similar junctions within the county and likelihood of some service diversion work, the estimated cost is likely to be in the region £80,000 to £100,000. An indicative layout of a mini roundabout at the junction is shown at **Appendix 3**

7.0 Conclusion

Given the peak hour queues on Copheap Lane and not withstanding the points outlined above, there is little doubt that the provision of a mini roundabout would provide a obvious improvement to the overall traffic flow at the junction. Unfortunately in facilitating easier egress from the side road there is a likelihood this will lead to increased traffic volumes on the nearby road network, particularly Copheap Lane. Furthermore in the absence of any collision history at this location it is difficult to justify providing such a facility at the present time.

8.0 Recommendation

That:-

The introduction of a mini roundabout is not justified at the present time. It is suggested however that the Town Council undertake a survey of Copheap Lane residents outlining the advantages and disadvantages in order to establish the level of local support. The results could assist in formulating future local transport priorities for the Warminster area.

8.0 Financial Implications

- 8.1 There are no financial implications related to this report.

9.0 Legal Implications

- 9.1 There are no legal implications related to this report.

10.0 HR Implications

10.1 There are no HR implications related to this report

11.0 Equality and Diversity Implications

11.1 The provision of new pedestrian refuges at the junction would facilitate improved facilities for pedestrians, especially those with disabilities.

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Appendices:

Appendix 1 – Junction queue count
Appendix 2 – Turning count – Summary Diagram
Appendix 3 - Outline Plan of mini roundabout

No unpublished documents have been relied upon in the preparation of this report