

TECHNICAL NOTE

Job Name: Bicester Gateway Phase 1b Residential
Job No: 46463
Note No: 007
Date: 14 July 2020
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Subject: **CSW Scheme – Capacity checks**

1. Introduction

- 1.1. This Technical Note (TN) provides the outcome of capacity tests carried out at the A41/Vendee Dr roundabout, taking into account the pedestrian crossing scheme across Charles Shouler Way (CSW) proposed in support of the Bicester Gateway Phase 1b development designed in response to comments from, and engagement with, Bicester BUG. The originally submitted crossing proposals were considered acceptable by County Highways but a request was made by BBUG for enhancements to be provided. In addition, OCC requested improvements to pedestrian and cycle provision on Wendlebury Road alongside Phase 1a in the event that Phase 2 does not come forward. Bloombridge, our client, are able to accommodate both of these requests.
- 1.2. The proposed pedestrian crossing would modify the geometry of the CSW approach into the roundabout to deliver a safe crossing for pedestrians and cyclists. Stantec's drawing 46463/5501/001 Rev C illustrates the scheme proposed.

2. A41/Vendee Drive Roundabout capacity tests

- 2.1. The implications of the proposed crossing scheme on the operation of the CSW approach into the roundabout has been tested using the ARCADY software. The 2026 with development traffic prediction used in the Transport Assessment (TA) supporting the Phase 1b development have been applied to a set of geometric parameters reflecting the proposed crossing. The outcome of this test can then be compared to the outcome of the assessment presented in the TA at Table 8.5, as reproduced below.

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Table 2.1: A41 / Vendee Drive Roundabout 2026 With Development (Table 8.5 in the TA)

Arm	AM Peak			PM Peak		
	Max RFC	MMQ	Delay (secs)	Max RFC	MMQ	Delay (secs)
Vendee Drive	0.88	6.9	27.24	0.55	1.2	7.04
A41 North	0.58	1.5	3.64	0.61	1.6	3.45
Vendee Drive Link (CSW)	0.35	0.5	7.63	0.41	0.7	8.11
A41 South	0.66	2.1	4.04	0.74	3.0	5.40
Park & Ride	0.01	0.0	4.95	0.02	0.0	6.65

RFC = Ratio of Flow to Capacity

MMQ = Max. Mean Queue

2.2. Table 2.2 below provides the outcome of the test run with the revised geometry.

Table 2.2: A41 / Vendee Drive Roundabout – Revised geometry – 2026 With Development

Arm	AM Peak			PM Peak		
	Max RFC	MMQ	Delay (secs)	Max RFC	MMQ	Delay (secs)
Vendee Drive	0.88	6.9	27.24	0.55	1.2	7.04
A41 North	0.58	1.5	3.64	0.61	1.6	3.45
Vendee Drive Link (CSW)	0.34	0.5	7.33	0.40	0.7	7.81
A41 South	0.66	2.1	4.04	0.74	3.0	5.40
Park & Ride	0.01	0.0	4.95	0.02	0.0	6.65

RFC = Ratio of Flow to Capacity

MMQ = Max. Mean Queue

2.3. As can be seen above, highlighted in orange, the proposed revised geometry on the CSW approach to the roundabout would not affect the operation of that arm, with the test above returning similar operational results, with same predicted queues in both the AM and PM peak and marginally lower RFCs and delay.

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- 2.4. For reference, the RFC is the measure of flow over capacity, i.e the ratio between the level of traffic expected over the capacity available. So an RFC of 0.34 as predicted in the AM peak indicates that the predicted level of traffic on the approach would equate to 34% of the capacity available. In other words, this shows that there is plenty of spare capacity available on this approach.
- 2.5. Delay is expressed in seconds and per passenger car unit (PCU). PCUs are a measure of the number of vehicles expressed as one unit but reflecting the different characteristics of different types of vehicle. For example, a car is 'worth' 1 PCU and a HGV is 'worth' about 2 PCUs. It can be seen that the assessment carried out above shows that delay on CSW with the proposed scheme would be expected to be about 7 or 8 seconds per PCU, the same as with the current layout.
- 2.6. On that basis, it is concluded that the proposed crossing of CSW would have only a marginal effect on the operation of the CSW approach to the roundabout and can be considered neutral in capacity terms.

3. Response to Albion's concerns

- 3.1. Bloombridge telephoned Albion's planning advisor on 13th July in relation to concerns Albion have raised with the Phase 1b proposals; and it is understood that Albion are concerned at a potential loss of capacity on CSW as a result of the proposed crossing.
- 3.2. The tests carried out and presented above demonstrate that the proposed crossing would have a marginal and not significant effect on capacity of the CSW arm of the junction and the testing clearly demonstrates that the Phase 1b proposals are well within capacity for the junction. The concerns raised by Albion are therefore fully addressed and do not give rise to a basis for a highways objection.
- 3.3. In addition to requesting a capacity assessment (provided above), it is understood that Albion's further concern is that the proposed scheme reduces the CSW approach into the roundabout 'from 3 lanes to 2 lanes'. However, it must be acknowledged that in practice the current layout provides three lanes across the give-way line but one of these three lanes is only very short – about 11m. In addition, observations on site suggest that the three lanes across the give-way are almost never used all at the same time (i.e with three vehicles across), partly due to lack of vehicular traffic but more importantly because the three lanes are narrow and most of the approach to the flare is single carriageway. This indicates that the arm of the junction effectively operates as a two-lane layout with each lane as now proposed being slightly wider than the current three lane layout. It therefore follows that the loss of this very short third flare does not materially affect the operation of the arm as demonstrated by the assessment presented above. However, there is a betterment in terms of the ease of cycle and pedestrian crossing, consistent with the sustainable accessibility objectives of Policy Bicester 10.
- 3.4. Finally, it is worth noting that a signalised crossing on this west side of CSW is also technically possible as an alternative 'further enhancement'. County Highways have confirmed that this would act to elevate the priority and use of the new A41 3m combined cycle/footway included within the extant planning permission for Phase 1, with the enhancements to the former A41 slip road proposed with the current application being a further benefit.