



# BICESTERBUG

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## **Interim Submissions on Pioneer Roundabout Planning Application 20/01830/F**

**24 August 2020**

### 1. SUMMARY

The current roundabout design is problematic in that it is grossly over capacity for motor vehicle traffic, making it costly and dangerous. The design replicates the disastrous design issues that have plagued other roundabouts in Bicester such as the Vendee Drive Roundabout, the Bicester Village Roundabout, and the Rodney House Roundabout.

The gross over capacity makes it impossible to provide suitable provision for pedestrians and cyclists, in breach of the provisions of the Cherwell Local Plan, compliance with which is a legal requirement.

These issues have already been identified within Oxfordshire County Council ('OCC') and funds released to the designer to address them through an alternative design.

To date, none of the alternative designs so far produced have been workable because they were instead grossly *under* capacity. Despite OCC's brief not having been met, the designer and Graven Hill Development Company are pressing ahead with the original, flawed, design. Though steps to ensure that the designer meets OCC's brief may now be in train, these interim comments are addressed to the design as it currently stands.

### 2. RELEVANT PLANNING LAW

The Town and Country Planning Act 1990 S.70(2), read together with what are now s.38(6) of the Planning and Compulsory Purchase Act 2004 and Paragraph 11 of the National Planning Policy Framework, specifies that applications for planning permission must be

determined in accordance with the development plan unless material considerations indicate otherwise. As the House of Lords confirmed in *City of Edinburgh Council v Secretary of State for Scotland* [1997] 1 WLR 1447 (HL) *per* Lord Clyde: 'By virtue of [s.38(6)] ... If the application does not accord with the development plan it will be refused unless there are material considerations indicating that it should be granted.' (at p. 1458E-F)

Cherwell Local Plan, Policy SLE 4: Improved Transport and Connections

'All development where reasonable to do so, should facilitate the use of sustainable modes of transport to make the **fullest possible use of ... walking and cycling.**' (Emphasis added.)

In the context of the present planning application, there are no material considerations that would justify the design not making the fullest use of walking and cycling. As such, for the reasons set out below, the current design is unlawful.

### 3. OVERCAPACITY

#### 3.1 General Issues with the Design

There are numerous problems with the current design, but all flow from the primary focus by the designer on meeting the criteria of ensuring excessively high vehicle traffic flow through the unreflective use of the default setting for the ratio of flow:capacity (RFC) of 0.85 of the ARCADY software. One does not have to look far to see the negative consequences of the formulaic application of algorithms.

The design is generally poor, and copies many of the disastrous aspects of other roundabouts in Bicester that have led to serious usability issues for all road users, including fatal accidents and serious and repeated damage to infrastructure. Such roundabouts include the Vendee Drive Roundabout, the Bicester Village Roundabout, and the Rodney House Roundabout (apparently also designed by this designer). The roundabout is also due to be located on the A41 road to Aylesbury that has experienced more than 100 fatalities in the last 3 years.

The designers have focussed on providing excess motor vehicle capacity during narrow peak-time windows through mechanical acceptance of the default settings on the ARCADY software. This has led to the design being grossly over-capacity at all other times. Gross over-capacity has a number of negative consequences. At the construction stage, it leads to rapacious land consumption and excessive construction costs. In use, it leads to excessive and

unlawful motor vehicle speeds, which in turn result in loss of control, fatalities and serious injuries, and costly infrastructure damage. This subsequently necessitates costly redesign (see the Vendee and Rodney House Roundabouts). For that reason, it is unsurprising that Rodegerdts & Program (2010) observe:

'A volume-to-capacity ratio of 0.85 should not be considered an absolute threshold; in fact, acceptable operations may be achieved at higher ratios. Where an operational analysis finds the volume-to-capacity ratio above 0.85, it is encouraged to conduct additional sensitivity analysis to evaluate whether relatively small increments of additional volume have dramatic impacts on delay or queues. The analyst is also encouraged to take a closer look at the assumptions used in the analysis (i.e., the accuracy of forecast volumes). **A higher volume-to-capacity ratio during peak periods may be a better solution than the potential physical and environmental impacts of excess capacity that is unused most of the day.**' (Emphasis added.)

### 3.2 Provision for Walking and Cycling

No attempt appears to have been made to maximise walking and cycling. Instead, the designer has tried to make provision for active travel only at the very last stage of the design, by which point the only provision that can be made is negligible.

The problem stems from the wide, swept, approaches that result from the emphasis on high capacity and high-speed vehicle movements. In such a design, crossings can only be safely placed at a considerable distance from natural desire lines. For instance, the crossing on the A41 Aylesbury arm is almost 50 metres from the natural desire line.

In addition, high speed junctions limit the types of crossings that can be deployed, and the locations where they can be deployed. Designing to accommodate motor vehicle speeds of 40mph around the roundabout and with 3-lane wide carriageways limits the possible crossing choices to traffic light-controlled crossings, which are one of the least accommodating of active travel. In addition, traffic-light controlled crossings are required to be placed away from the give way point on a roundabout (and hence away from the natural desire line) so as to avoid causing confusion to motor vehicle drivers. It is for that reason that LTN 1/20 (2020) points out at 10.4.5: 'In many situations, reducing the speed of motor traffic using the carriageway will enable additional options for the crossing design to be considered.'

The design could be substantially improved by taking a more measured approach to the motor vehicle capacity and by designing the roundabout for slower speeds. Following the Dutch approach to roundabout design, the approaches to the roundabout could be straightened to improve visibility of pedestrians and cyclists and the geometry could be constrained to discourage unlawful speeding. This would then permit the pedestrian and cycle crossings to be placed very close to the natural desire lines, and for the crossings used to be those that are much more accommodating of pedestrians and cyclists, such as zebra or parallel crossings. Thought could also be given to crossings that would permit cyclists (who move more swiftly) to cross the carriageways in one movement rather than two (as with pedestrians).

Finally, in the light of the recent introduction of LTN 1/20, the design needs to be reviewed to take into account this guidance, for example the depreciation of shared pedestrian and cycle paths and corresponding requirement for segregated paths.

#### 4. HISTORY OF THESE ISSUES TO DATE

In compliance with the public sector equality duty, OCC correctly engaged with relevant interested parties such as BBUG at an early stage of the design. The concerns outlined above were identified by BBUG, the local county Councillor Dan Sames, and the county cycling champion Councillor Suzanne Bartington. The issue was reviewed at the OCC Assistant Director level. As a result, substantial funding was authorised to improve the provision for active travel by adopting a more liberal approach to motor vehicle capacity, reducing motor vehicle speeds by adopting aspects of Dutch designs such as straight approaches and constrained geometry, and providing acceptable facilities for pedestrians and cyclists.

However, rather than offering a workable alternative design, the designer squandered OCC's funds on a series of obviously unworkable designs that did not meet OCC's brief. While the designs explored were commendably inspired by standard Dutch 'CROW' designs, they were unworkable because they assumed either a single lane entry and/or a single lane exit which in any arrangement would be woefully unable to accommodate the necessary traffic flows. The designer's approach went from one extreme (gross over capacity) to the other (gross under capacity). Any reasonable designer ought to have been aware from the outset that a two-lane entry and exit roundabout would have been the minimum required. BBUG's suggested designs, provided to the designer, had always assumed two-lanes for entry and exit. When this issue was highlighted, the designer provided a revised design that was still unworkable due to gross under capacity,

primarily because the designer had used excessively constrained parameters for entry width, approach width, and flare length (the three most influential parameters for capacity).

Despite the designer not fulfilling OCC's brief to provide a workable alternative design, OCC did not initially press the issue further. As a result, Graven Hill Development Company have proceeded to planning with these concerns unaddressed. The design currently the subject of this planning application remains the original problematic design, with minor tweaks.

BBUG has raised these outstanding issues at the OCC Assistant Director level. We remain hopeful that OCC will press the designer to fulfil the brief set and produce a workable design that is lawful in that it meets the Cherwell Local Plan requirement of facilitating the fullest possible use of walking and cycling. In the meantime, we are providing this interim note of our concerns to illustrate the seriousness of the matters that remain outstanding in relation to the design of this roundabout.

## 5. REFERENCES

Adopted Cherwell Local Plan 2011-2031 (2015)

Local Transport Note 1/20, Cycle Infrastructure Design (2020).  
Department for Transport

Rodegerdts, L. A., & Program, N. C. H. R. (2010). Roundabouts: An Informational Guide. Transportation Research Board Signalized Intersections Informational Guide (2nd Edition).