Public Document Pack

Cherwell DISTRICT COUNCIL NORTH OXFORDSHIRE

SUPPLEMENTARY INFORMATION

Planning Committee

5 November 2020

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Planning Committee – 5 November 2020 – Public Speakers

Agenda Item	Application Number	Application Address	Ward Member	Speaker – Objector	Speaker - Support
7	18/00825/HYBRID	Heyford Park, Camp Road, Upper Heyford, OX25 5HD		Jonathan Rees -Chairman Middleton Stoney Parish Council. (Andy Selway – local resident)	Mr Gavin Angell, Development Director of Dorchester Living
8	20/01830/F	Proposed Roundabout Access to Graven Hill and Wretchwick Green, London Road, Bicester	No Public Speaking as previously considered by Planning Committee		
9	20/01115/OUT	63 Priory Road, Bicester, OX26 6BL	Application withdrawn by applicant		
10	20/02227/OUT	The Beeches, Heyford Road, Steeple Aston, OX25 4SN		None	Mitchell Barnes - Framptons

CHERWELL DISTRICT COUNCIL

PLANNING COMMITTEE

5 November 2020

WRITTEN UPDATES

Site Visits

None proposed

Agenda Item 7

18/00825/HYBRID Heyford Park, Camp Road, Upper Heyford, OX25 5HD

Additional Representations received (2)

Daniel Scharf (Oxford Trust for Contemporary History) repeats that the site is the best-preserved remains of the Cold War in the UK and the (2010) appeal was allowed only to conserve the heritage. He goes on to say the Secretary of State should determine the application, not Cherwell DC, because:

- Council is guilty of cultural cleansing
- Heritage Assessments do not go far enough
- Challenges the expertise of Dorchester Living to undertake the heritage assessment
- International significance is not disputed.
- Tourist potential not fully assessed in transport or employment analysis
- Planning Officer going against conservation officer and English Heritage

The Environment Agency have notified the Council they may wish to review the conditions they have recommended.

Officer comment

The matter raised by Mr Scharf is addressed in the report at para 9.282. If Committee are minded to grant planning permission the application needs to be referred to the Planning Casework Unit who will decide, after consideration by the Secretary of State, whether the application should be called in or not.

If Committee support the Officer's recommendation it will allow for conditions to be amended, if necessary.

Change to recommendation

There is no change to the recommendation

Agenda Item 8

20/01830/F **Proposed Roundabout Access to Graven Hill and Wretchwick Green, London Road, Bicester**

Additional representations received

Oxfordshire County Council - The Local Highway Authority has produced a technical note in response to questions raised by Cherwell District Council following the deferral of the application. A copy of the technical note is attached as an appendix.

Bicester Bike User Group – We have received several e-mails on behalf of the bike user group. In response to the latest committee report, the following comments have been received:

> We have read your report in relation the above application. It does not accurately reflect the concerns of Bicester Bike Users' Group. I would be grateful if one particular concern was noted as part of your updated report, and that you have raised this with OCC Highways.
>
> I note that you record that OCC state that '… OCC would not be able to accept a design that was not in accordance with current speed limits [ie, 50mph].'
>
> We believe that OCC have made a serious error here. At the request of Councillor Constance, Cabinet Member of Highways, OCC Highways produced a briefing note dated 1 October 2020 explaining the basis of their belief that a 50mph design speed was appropriate for this roundabout. In that note, OCC Highways confirmed that the approach to local speed limits follows Department for Transport Circular 01/2013.
>
> Without prejudice to other issues, DfT Circular 01/2013 does not support OCC Highways' position. In particular, in relation to roundabout speed [41] specifies:
>
> 'Where several roads with different speed limits enter a roundabout, **the roundabout should be restricted at the same level as the majority of the approach roads**. If there is an equal division, for example where a 30 mph road crosses one with a limit of 40 mph, **the roundabout itself should take the lower limit**.'
>
> Given that the proposed speeds of the approach roads to the Pioneer Roundabout are 30, 30, 40, and 50, it appears that OCC Highways position is not supported by the standards that they purport to be relying on. The design speed for the roundabout should be 30mph.

A further representation has been received from the group requesting a condition:

> Given OCC Highways' requirement that the area of the A41 between Rodney House Roundabout and this Roundabout, and the Pioneer Roundabout itself remain at 50mph, I refer to the point made in my email of the 12 October 2020 that the provision of adequate pedestrian and cycle footways between the roundabouts would then become necessary.
>
> I therefore contacted a senior highway engineer and author of LTN 1/20 who confirms that this new standard requires that cycle provision of the standards set out in that document is also required to connect to such developments and highway improvements. He also confirms the type of provision required. See message below.
>
> In order to address the councillors' concerns and comply with LTN 1/20, at the minimum a condition should be required that compliant pedestrian and cycle provision should be

implemented between the roundabouts, or the application should be refused as not being compliant with the standards.

Officers are currently considering this request and will provide a further response to members at committee.

Representations – An objection has been received raising the following issues:

- Object to design
- Primary focus on motor vehicles
- Provides examples of alternative approaches to road layouts including case studies.

Agenda Item 9

20/01115/OUT 63 Priory Road, Bicester, OX26 6BL

Application withdrawn by applicant

Agenda Item 10

20/02227/OUT The Beeches, Heyford Road, Steeple Aston, OX25 4SN

Additional representations/Information received:
Further correspondence has been received from the applicant's agent seeking to address reasons for refusal on the grounds of lack of an appropriate S106 agreement being in place and also the lack of an appropriate sustainable drainage strategy.

In respect of the S106 issue the applicant has confirmed that: 'If there are any financial contributions arising from the development that can be justified by meeting the CIL tests in the NPPF, the applicant will agree to incorporate such provision in a planning obligation'.

In respect of the lack of detail considered necessary to demonstrate that an acceptable sustainable strategy could be achieved at the site an updated Flood Risk Assessment and Drainage Strategy was received on the morning of 03/11/2020. Further correspondence was also received 04/12/2020 (directed to the Lead Local Flood Authority (LLFA)), requesting that the LLFA considers the possibility of issues relating to drainage being dealt with by way of pre-commencement conditions, requiring a surface water drainage scheme (including infiltration testing), as have been applied to other outline applications in Cherwell.

Officer Comment:

In respect of the S106 requirements this is discussed within the officer report at paras. 9.134 and 9.135 on page 215 and 216 of the agenda reports pack. The applicant has been advised of the general provisions and requirements of any potential S106 should the Council resolve to grant planning permission. No Draft Heads of Terms has been agreed at this stage; therefore, should the application be approved further negotiations would be required in this respect; officers would request that such matters be delegated to officers to resolve.

With respect to drainage issues, the revised Flood Risk Assessment and Drainage Strategy has been submitted to the LLFA for further assessment and comment. However, due to the timing of this submission, coming very late in the day, no formal response has been received at the time of the preparation of this written update.

The LLFA contends that there remains an issue with regards to the lack appropriate testing having been undertaken; advising the applicant's agent that: 'It is unlikely the LLFA will remove the objection until infiltration testing has been undertaken and submitted for

review at Outline. It is not possible to assess the proposal without this information and ascertain whether an infiltrating sustainable drainage solution can be physically delivered on site'.

At this stage it remains unclear whether the revised information is sufficient for the LLFA to remove its objection. Should the LLFA resolve that the revised information is sufficient for their purposes in demonstrating that a sustainable drainage strategy could be achieved, then this reason for refusal would, in officer's opinion, fall away. However, should the Council resolve to grant planning permission, then appropriate detailed conditions would be required in this respect, and officers again would request that such matters be delegated to officers to resolve.

Change to recommendation:

No change. However, should a response be received from the LLFA removing their objection prior to the committee meeting then officers would look to remove the third reason for refusal relating to the lack of an appropriate sustainable drainage strategy.

Appendix 1 - Proposed Roundabout Access to Graven Hill and Wretchwick Green, London Road, Bicester

OCC Response to queries from CDC attached to update

Planning application reference 20/01830/F – Proposed roundabout junction of A41 and Pioneer Road, Bicester – 'Pioneer Roundabout'

OCC Response to queries from CDC:

Executive summary

The above application was deferred from committee on 8 October, to enable officers to further consider issues around the speed limit and the proposed design. CDC Officers have asked OCC to comment on the following broad topic areas, posing a series of specific questions as set out in the report:

- **Speed of approach roads**
- **Roundabout Design**
- **The impact of the South East Perimeter Road on the design of the roundabout**
- **How the roundabout fits into the wider strategic approach for Bicester and the Council's active travel strategies for the area.**

The report concludes that the A41 would not meet the DfT criteria for a 30mph speed limit, but that OCC will be consulting on a change to 40mph early in 2021. In line with DfT guidance, this speed limit reduction, taking into account the volume of traffic, would not permit a change to a compact or Dutch style roundabout or the introduction of pedestrian and cycle priority crossings at the roundabout. The report also provides information on the status of the planned South East Perimeter Road, which would connect into this roundabout, and future plans for the existing A41 corridor.

1. **Initial assessment of the speed limit between Rodney House roundabout and the proposed roundabout.**

   When OCC receives a request from a parish or town council to consider a speed limit change, there is an agreed process, which starts with an assessment of the proposed speed limit against DfT Guidance (DfT, 2013). It must meet the guidance to proceed further to consultation. This assessment has been carried out and the results are attached at Appendix 1.

   This concludes that the current conditions and the likely future conditions with development fully built out, particularly in relation to the lack of frontages onto the A41, do not meet the criteria for a 30mph limit, and that the DfT guidance for both Urban and Rural areas points to a 40mph speed limit being appropriate for this stretch of the A41.

   We are aware of statistics being quoted that 'A 20mph difference in actual speed leads to a doubling of collisions'. It is accepted that this general relationship between average speed and accident frequency is well founded

(e.g. TRL, 1994) which drew on a large number of studies in the UK and elsewhere , and also as evidenced through the monitoring of the changes in accident frequency following the introduction of traffic calming, speed cameras, VAS and speed limit changes in Oxfordshire).

However, in respect of speed limits, a critical consideration is the predicted actual change in speed as a result of a speed limit change - see e.g. Speed Limit Appraisal Tool (DfT, 2013), and the related issue of public acceptance. Paras 19 and 20 of the DfT guidance on speed limits (DfT, 2013) state: *19) Unless a speed limit is set with support from the local community, the police and other local services, with supporting education, and with consideration of whether engineering measures are necessary to reduce speeds; or if it is set unrealistically low for the particular road function and condition, it may be ineffective and drivers may not comply with the speed. 20) If many drivers continued to travel at unacceptable speeds, the risk of collisions and injuries would increase and significant and avoidable enforcement activity would be needed.*

It has been suggested that if the speed limit can't be reduced to 30mph, then the cycle and pedestrian facilities along the A40 east and west of the roundabout should be upgraded to meet current guidance. The current shared use facility was introduced in 1995 when the road was still a trunk road, and did help to reduce the number of cycle casualties along the route. It isn't to current standards, and we would agree that an improvement would be highly desirable, but is out of scope of the current planning application. It is intended to be reviewed as part of the forthcoming A41 Corridor Study (see points 7 and 8 below).

2. What impact would a change of speed limit (on the approach roads) have on the proposed roundabout? What potential timescales are involved? Any risks?

A speed limit change to 40mph would have no impact on the proposed design. The current national design standard is CD116 (DfT 2020a), which describes two types of roundabout: a 'compact' roundabout, with geometry akin to the Dutch style roundabout, and a 'normal' roundabout, with geometry like the proposed design. Paragraph 2.3.3 Note 2 states that where the posted speed limit is 40mph or less, compact roundabouts are recommended for traffic levels of less than 8,000 two-way AADT (Average Annual Daily Traffic) on all approaches and normal roundabouts are recommended for traffic levels of greater than 12,000 two-way AADT on any approach. Given the current and projected flows are above the threshold for a compact roundabout, a normal roundabout layout is indicated as being appropriate.

A change to 40mph would also still require signalised crossings, in accordance with LTN 1/20 (DfT, 2020b).

OCC plan to consult on a speed limit change to 40mph as part of a review of peripheral road speed limits in early 2021. As it would make no change to the design of the roundabout, it would be unreasonable to defer consideration of the planning application on this basis.

OCC would not take a 30mph speed limit change to the next stage because it clearly does not meet DfT guidance. It is also worth pointing out the potential inconsistency and frequent changes in speed limit along the A41 route, which would make imposing a 30mph speed limit here confusing to drivers.

However, if for some reason this was ignored and a 30mph proposal was taken to consultation, it is considered that it would not successfully achieve a reduction in actual speeds, due to poor compliance by drivers, given the nature of the road. While in the mid to longer term (10-15 years perhaps) speed limit compliance is likely to be much better controlled through vehicle based technology, speed cameras (really the only viable option for controlling speeds on a road of this type) would be expensive and highly unlikely to be supported by the police as things currently stand on the basis of recent discussions with Thames Valley Police.

The minimum timescale to implement any speed limit change would be approximately 5 to 6 months. The main risk to the change being achievable are objections, from members of the public and particularly Thames Valley Police, which have to be formally considered by OCC's Cabinet Member before approval.

3. Could the design speed for the roundabout be lowered to 30mph and if so, could the design be changed to give priority to cyclist/pedestrian crossings?

The proposed layout has been designed to be safe in the context of existing speed limits. If the applicant were to submit a design for a roundabout with a 30mph design speed, in the context of existing conditions, OCC highways would consider this unsafe.

When built, and the two new roads connect into the roundabout, it would be appropriate and in accordance with DfT guidance (DfT, 2013) to introduce a 30mph limit at the roundabout itself. DfT Circular 01/2013 says *Where several roads with different speed limits enter a roundabout, the roundabout should be restricted at the same level as the majority of the approach roads. If there is an equal division …. the roundabout itself should take the lower limit.*. In this case, as the speed limit on the two new roads joining the roundabout would be 30mph, it would be appropriate for the limit to be signed 30mph immediately at the roundabout on the A41 approaches. However, it is anticipated that the roundabout would be open to traffic before the Wretchwick Green spine road is connected, so this would not be appropriate from the outset, but could be introduced later.

However, for the avoidance of doubt, this is not the same as saying the roundabout could be designed at a 30mph design speed. Speed limit and

design speed are not the same thing, as set out in Design Manual for Roads and Bridges CD109 (DfT, 2020c) – design speed is higher and includes a margin for vehicle speeds in excess of the speed limit. The design speed is a tool used to determine geometric features of a new road during design.

Experience of roundabouts where a 30mph speed limit is applied is that approach speeds do not appreciably reduce as a result of the posted speed limit. Applying estimates of the projected speed reductions actually achieved by a lower speed limit calculated using the DfT's speed limit appraisal tool (referred to in circular 01/2013) suggests that a 30mph speed limit could be expected to reduce the above average speeds by between 1 and 2mph.

What this means is, that imposing a speed limit immediately at the roundabout, would not reliably bring speeds down to the level that would safely allow the roundabout to be designed in accordance with a 30mph design speed, and this includes the type of crossing on the arms. By 'priority to cyclist/pedestrian crossings', I am assuming this means crossings where pedestrians and cyclists can cross without waiting for a signal, and do not have to give way to traffic – i.e. a zebra crossing. LTN 1/20 describes a 'parallel' crossing where cyclists cross (in the same way) on an adjacent cycle crossing.

The Traffic Signs Manual (DfT, 2019) (paras 16.1.4 and 17.1.2 respectively) states that zebra crossings or parallel crossings are not recommended to be installed on roads with an 85th percentile speed of 35mph or above, which would almost certainly be the case on the A41 at Pioneer Roundabout in this case. LTN 1/20 (DfT, 2020b) table 10-2 advocates a signalised crossing as the 'provision suitable for most people' where traffic flows to be crossed are in excess of 10,000 per day (as they would be on the A41), at 40mph or 50mph. Parallel crossings only become suitable for most people where the speed limit is up to and including 30mph AND where the daily traffic flow is up to 8000 vehicles.

Further, LTN 1/20, in a footnote to table 10-2 states 'if the 85th percentile speed is more than 10% above the speed limit, the next highest speed limit should be applied.', meaning that even where traffic flows are up to 8000 vehicles per day, if the measured speeds show 85th percentile speeds are over 33 mph, then the crossing type selected should be suitable for 40mph.

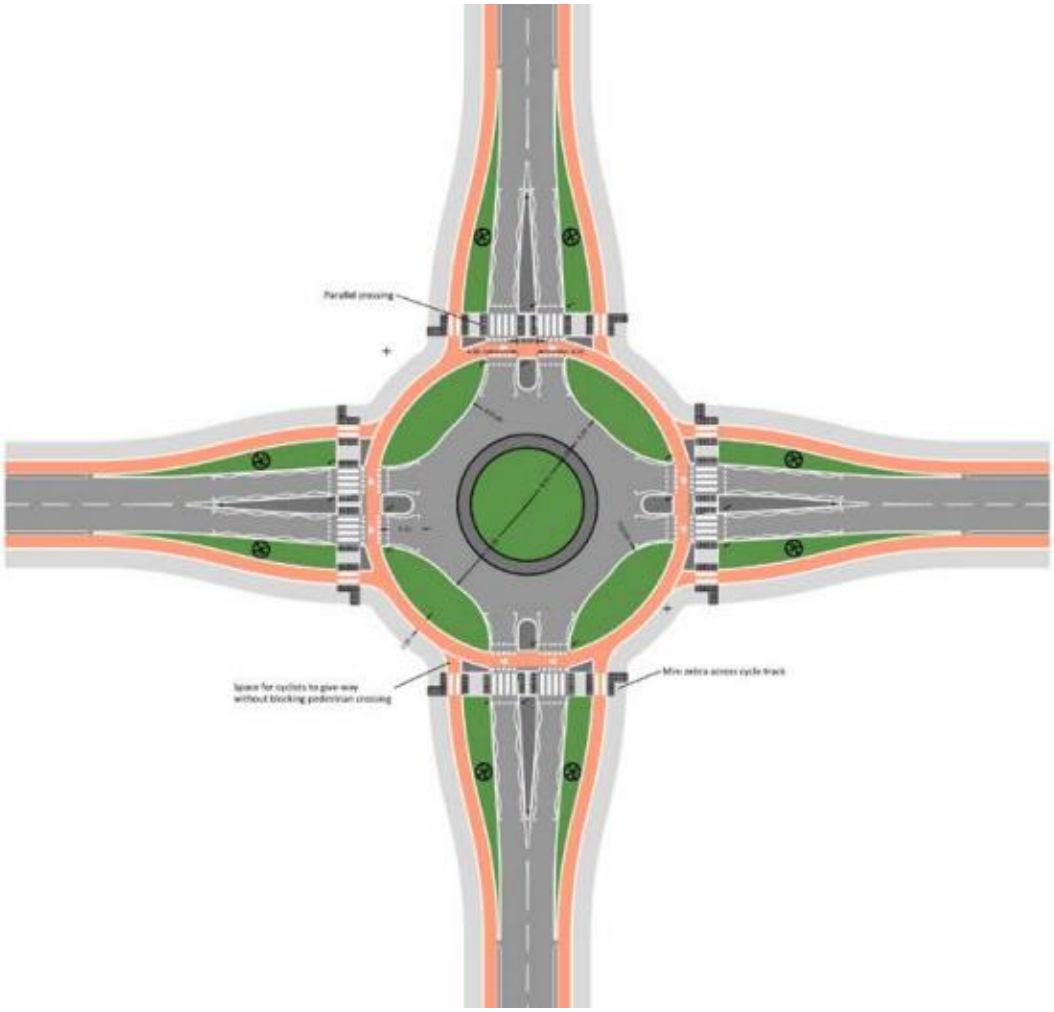
It is worth noting that roundabouts signed at 30mph where approach roads have higher limits, e.g. on Oxford ring road, are not designed geometrically for 30mph speeds, and do not have zebra crossings on the arms.

In summary, once the new roads are connected to the roundabout, whilst the speed limit at the roundabout itself could be set at 30mph by virtue of its connecting arms which will have a speed limit of 30mph, unsignalized crossings where pedestrians and cyclists do not have to give way to traffic would still be considered unsafe, because of the higher speed of approaching traffic. In the case of the A41 at Pioneer Roundabout, they are also unsuitable and contrary to guidance, because of the high volumes of traffic.

4. **Has a 'Dutch style' roundabout been considered and would this style be appropriate for this junction?**

During preapplication discussions, OCC officers asked the designer to investigate the suitability of a Dutch style roundabout on the basis of a sketch provided by Bicester Bike Users Group, and they provided a technical note to OCC at preapp stage. This note is attached as Appendix 2. Note that this did not form part of, and was not referred to, in the planning application, but shows that consideration was given in detail both to safety and capacity issues. From this OCC concluded that there would be both safety and capacity issues that make the Dutch style roundabout unsuitable for this location.

It is worth noting that there has been some confusion over what exactly is meant by a Dutch style roundabout. LTN 1/20 (DfT, 2020b) provides 'a suggested layout for a roundabout with one-way off-carriageway cycle tracks and parallel crossings' (fig 10.37) which I copy below:



This is modelled on Dutch roundabouts in urban areas and features 'parallel crossings, where a zebra crossing (for pedestrians) sits beside a circular, uni-directional cycle track, where cyclists have priority over motor vehicles, which

have to give way to them. We understand that it is this type of crossing that the Bicester Bike Users Group is suggesting at this location.

Just as with a zebra crossing, for it to be safe, the motorist has to be aware of, and slow down for, people at or approaching the crossings who may be about to cross, by bike or on foot. This places the pedestrian or cyclist at considerable risk, both from drivers approaching the roundabout, who will be concentrating on giving way to vehicles from the right, and from drivers leaving the roundabout, who will be concentrating on their exit path. While this might be suitable in a slow speed, urban environment, on an A road approach at the edge of town, OCC officers consider it particularly dangerous and likely to result in death or serious injury.

The A41 is a wide single carriageway road, some 10m wide in the vicinity of the location of the roundabout, and the photographs below (taken from the Transport Assessment) I think illustrate how it has the look and feel of a high speed road, where drivers would not be expecting pedestrians and cyclists to have priority.

Photograph 1: A41 (West of Pioneer Road)

Photograph 2: A41 (East of Pioneer Road)

LTN 1/20 states ‘in urban areas, parallel crossings may be appropriate’, and in a recent webinar hosted by the Dutch Cycling Embassy (Mobycon, 2020), it was stated that at roundabouts in the Netherlands, outside urban areas, cyclists do not have priority. Pioneer Roundabout is outside the urban area of Bicester, and even when the adjoining developments are built out, it will not appear like an urban area.

Additionally, in the Netherlands, approach speeds at such roundabouts are expected to be around 30 kph. Reliably getting vehicle speeds down to this level would require a redesign of the approach roads, which is out of scope of the current application.

It is also advised in the Netherlands, where cycles are given priority, for safety reasons they should only cross one approach lane of traffic at a time, as per the example above. In the UK, whilst zebra crossings are allowed across two approach lanes of traffic, there are no examples in Oxfordshire, as officers consider it unsafe, since a driver's view of a pedestrian on the crossing from one lane could be masked by a queue of traffic in the other.

Such roundabouts in the Netherlands, with their single lane approaches, are only deemed suitable for traffic flows where the overall daily flow at the roundabout is up to 25000 vehicles per day. The forecast traffic flows at Pioneer Roundabout are around 69,000 vehicles per day. Modelling has shown that a roundabout in this location with single lane approaches would cause very severe congestion. Congestion at this location, which is planned to become a junction of the future south eastern perimeter road linking the A41 south of Bicester, with the A41 east of Bicester, would detract from the perimeter road's ability to take traffic away from the A41 corridor through Bicester, including a large amount of HGV through traffic, and potentially undermine its business case.

Dutch roundabouts outside urban areas can have two lane approaches but as stated above, they do not have cycle or pedestrian priority at the crossings. In urban or rural settings, Dutch roundabouts are characterised by straight, perpendicular approaches, which runs contrary to DMRB guidance (CD116) (DfT, 2020a) which sets out the need for deflection on the approach to a roundabout to reduce speeds. With straight approaches, there must be other features to reliably reduce vehicles' speed before they reach the roundabout. As stated above, re-engineering the A41 east and west of the roundabout is out of scope of this planning application.

While Dutch style roundabouts have great merit in providing high quality cycle and pedestrian infrastructure, they need to be placed within a suitable and safe context in terms of vehicle speeds and driver awareness. Following careful consideration OCC officers do not consider the A41 on the south-eastern edge of Bicester to be a suitable location.

5. Could anything be done to incorporate zebra crossings on a roundabout at this location?

Please see the answer to question 3, which sets out why this type of crossing would not be suitable on the A41. It may be possible to introduce a zebra/parallel crossing on the Wretchwick Green arm, as that will have the look and feel of entering a residential development, depending on whether, when we see the detail of the spine road, we consider that speeds will be reliably low enough.

On the Graven Hill spine road, I am not convinced that the transition, particularly the left turn from the A41 E, into the spine road will be sufficiently marked to influence driver behaviour to expect pedestrians, and certainly cyclists, to emerge onto the crossing without giving way. As this route is

currently used by school pupils from Ambrosden on route to secondary schools in Bicester, I would certainly recommend this crossing is signalised, as opposed to a zebra/parallel crossing.

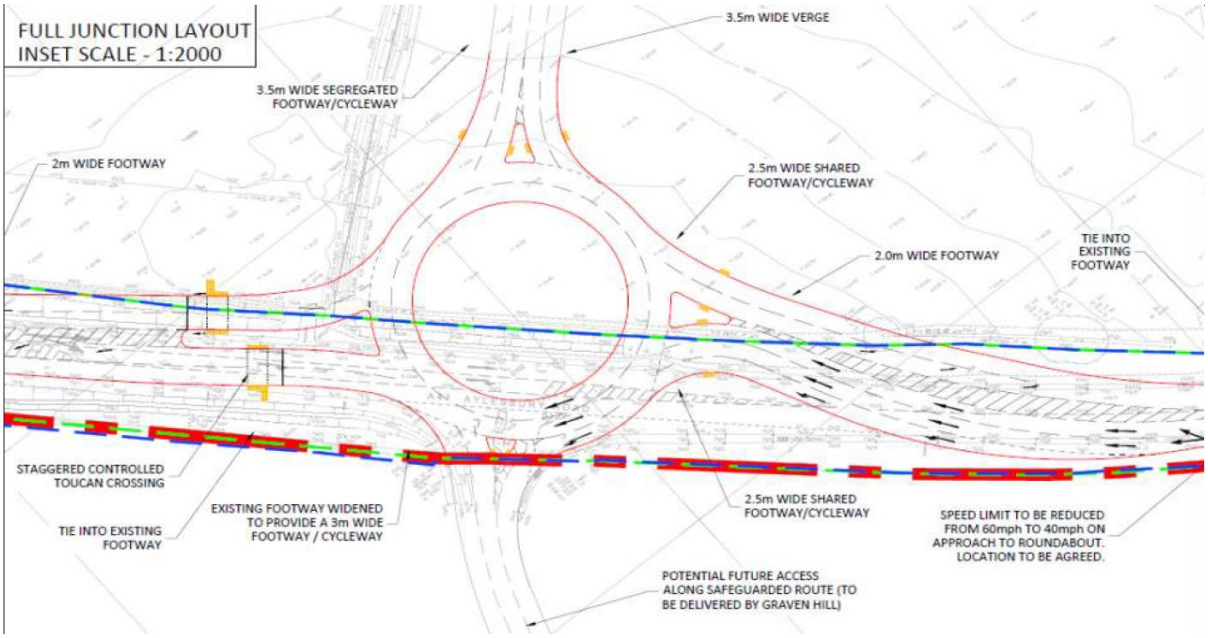
6. **If an alternative design (including cyclist/pedestrian priority) was proposed as part of the planning application, would it be likely to receive technical approval at a later stage?**

   All highway schemes carried out by others require a legal agreement to be entered into with the Highway Authority under S278 of the Highways Act 1980, which grants permission to carry out the works on the highway. This requires detailed scheme designs to pass stringent technical audits. For the reasons set out above, if a design was submitted incorporating cyclist/pedestrian priority crossings on the A41 arms, it would fail its S278 technical audit on safety grounds and could not be implemented until changes had been made to the design to overcome the safety issues.

7. **The key benefits of the current proposed design when compared to the Wretchwick Green proposal (that currently has a resolution to grant permission)**

   Proposals for a roundabout access to Wretchwick Green, that would also provide access to Graven Hill, were submitted as part of the Wretchwick Green outline planning permission, which has a resolution to grant permission. It is at approximately the same location as the proposed Graven Hill roundabout, but slightly further north, as it is deliverable without using Graven Hill land, but using Wretchwick Green Land. Effectively, when permission for Wretchwick Green is granted, this roundabout will also have planning permission and could be delivered, subject to S278 technical approval, if the Graven Hill proposed roundabout is not delivered first.

   An extract of the drawing for this roundabout is reproduced below, taken from the Transport Assessment:



Although they are similar in layout, the Graven Hill roundabout has the following advantages over this design:

- Signalised crossing on the A41E arm
- Unstaggered crossing on the A41W arm, closer to the roundabout
- Segregated pedestrian and cycle paths around the roundabout, in accordance with LTN 1/20

8. Please could you advise on the current status of the proposed SERR and what impact that potentially has on the consideration of the piece of infrastructure?

The realignment of the A41 along a South East Perimeter Road (SEPR) is an integral part of the Local Transport Plan area transport strategy for Bicester. In 2015 OCC commissioned Amec Foster Wheeler to complete a preliminary ecological appraisal, provide planning advice and high-level engineering feasibility for optional alignments. The report was consulted upon, but the proposals for a SEPR were put on hold at this stage awaiting the outcome of Garden Town work into proposals for a new motorway junction and awaiting the outcome of the Oxford-Cambridge Expressway options work. OCC wrote to CDC asking the district to safeguard the land for the preferred alignment and has been securing S106 contributions from development towards its delivery.

The eastern section of the SEPR, as it passes through Graven Hill, is the subject of a current planning application. It will form the access to the employment area of Graven Hill. A plan showing the potential alignment of the SEPR, which is taken from a 2015 feasibility study, is attached at

Appendix 3. Please note that the alignment of the road as it passes through Graven Hill has since changed slightly.

The roundabout has been designed to provide sufficient capacity for the traffic predicted to use the SEPR. As explained above, it is vital that the roundabout junction does not cause congestion on the SEPR approach, as this would dilute its benefits in removing traffic from the existing A41 corridor through Bicester.

However, even without the SEPR, and even if a speed limit reduction to 40mph was achievable, the roundabout design would still need to be a 'normal' roundabout, as opposed to a compact roundabout, in accordance with CD116 (DfT, 2020a).

8. **How does this roundabout fit in with the wider strategic approach for Bicester and the Council's active travel strategies for the area?**

The Pioneer roundabout will be a major junction for the South East Perimeter Road and the realignment of the A41. The new link road will need to be designed to enable active and healthy travel modes to travel along it and across it, but the road will also need to carry a high volume of traffic, including buses and heavy goods vehicles.

Realignment of the A41 would enable the relieved roads (the existing A41 corridor through Bicester) to be redesigned to accommodate active and healthy travel modes.

References:

DfT, 2013: Circular 1/2013, Setting Local Speed Limits: https://www.gov.uk/government/publications/setting-local-speed-limits/setting-local-speed-limits

DfT, 2019: Traffic Signs Manual, Chapter 6, Traffic Control https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/851465/dft-traffic-signs-manual-chapter-6.pdf

DfT, 2020a: Design Manual for Roads and Bridges, *CD116: Geometric Design of Roundabouts,* https://www.standardsforhighways.co.uk/dmrb/search/2b5901c6-3477-4826-b780-cf99003fb5e0

DfT 2020b: Local Transport Note 1/20, Cycle Infrastructure Design, https://www.gov.uk/government/publications/cycle-infrastructure-design-ltn-120

DfT, 2020c: Design Manual for Roads and Bridges, *CD109, Highway Link Design,* https://www.standardsforhighways.co.uk/dmrb/search/c27c55b7-2dfc-4597-923a-4d1b4bd6c9fa

Mobycon, 2020: Webinar: Designing Safe Roundabouts for All Road Users, streamed live on 15 October 2020 https://www.youtube.com/watch?v=dBp1pQNNIok

TRL, 1994: Project Report 58 *Speed, Speed limits and Accidents*

Appendix 1

A41 East of Bicester - speed limit assessment

National guidance on setting local speed limits

1. The Department for Transport (DfT) provides guidance on speed limits - the current advice issued in January 2013 is DfT Circular 1/2013 Setting local speed limits:

   https://www.gov.uk/government/publications/setting-local-speed-limits/setting-local-speed-limits

Recent changes to changes to the speed limit on the A41 east of Bicester

2. In 2017, a review of the speed limit was carried out as part of the planning appraisal for the Symmetry Park development east of the Ploughley Road junction, and following consultation, a 50mph speed limit (in place of the national speed limit of 60mph) was approved following consultation at the Cabinet Member for Environment decisions meeting on 29 June 2017 (agenda item 5)

   https://mycouncil.oxfordshire.gov.uk/ieListDocuments.aspx?CId=931&MId=5161

3. In 2018, as part of the signalisation of the A41 Rodney House roundabout junction with the A4421 and B4100 funded by the Graven Hill development, a 40mph speed limit was approved following consultation at the roundabout and the A41 / A4421 approaches (the B4100 already being 40mph) at the Cabinet Member for Environment decisions meeting on 8 February 2018 (agenda item 9)

   https://mycouncil.oxfordshire.gov.uk/ieListDocuments.aspx?CId=931&MId=5167

Review of further speed limit change for proposed Pioneer Road roundabout

4. The above DfT guidance has been applied to the above review; this guidance is separated into three sections, covering urban areas, rural areas and villages respectively.

5. While the guidance does not give a specific definition of what constitutes an urban or rural area, paragraph 133 states that for the purpose of applying a 30 mph in a village, there should be 20 or more houses (on one or both sides of the road) and a minimum length of 600 metres. It is clearly understood that the houses (or other buildings) would be expected to have their own accesses onto the road, as opposed to be simply being adjacent to the road with there being no 'active' frontage.

6. Although this specific guidance is provided in respect of villages, it is also used to inform the terminal points of 30mph limits in Urban areas.

7. Taking account of the above and that the current development plans adjacent to the A41 will not result in the level of active frontage to meet the criteria for a 30mph limit, the DfT guidance for both Urban and Rural areas point to a 40mph speed limit being appropriate for the A41 (considering the route as a whole) – see the following tables from the DfT guidance:

   a) DfT Urban speed limit guidance summary

Speed limit (mph)	**Where limit should apply**
20 (including 20 mph zone)	In streets that are primarily residential and in other town or city streets where pedestrian and cyclist movements are high, such as around schools, shops, markets, playgrounds and other areas, where motor vehicle movement is not the primary function.
30	In other built-up areas (where motor vehicle movement is deemed more important), with development on both sides of the road.
40	On higher quality suburban roads or those on the outskirts of urban areas where there is little development, with few cyclists, pedestrians

	or equestrians. On roads with good width and layout, parking and waiting restrictions in operation, and buildings from the road. On roads that, wherever possible, cater for the needs of non-motorised users through segregation of road space, and have adequate footways and crossing places.
50	On dual carriageway ring or radial routes or bypasses that have become partially built up, with little or no roadside development.

b) DfT Rural speed limit guidance summary

Speed limit (mph)	**Where limit should apply:**
60	Recommended for most high-quality strategic A and B roads with few bends, junctions or accesses.
50	Should be considered for lower quality A and B roads that may have a relatively high number of bends, junctions or accesses. Can also be considered where mean speeds are below 50 mph, so lower limit does not interfere with traffic flow.
40	Should be considered where there are many bends, junctions or accesses, substantial development, a strong environmental or landscape reason, or where there are considerable numbers of vulnerable road users.

Appendix 2 – Waterman technical note – please see separate files

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Graven Hill - Pioneer Roundabout

Technical Note

Date: May 2020

Client Name: Graven Hill Village Development Company (GHVDC)

Document Reference: WIE 11386-145-TN-2-1-3

This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS EN ISO 45001:2018)

Issue	Prepared by	Checked & Approved by
	James Picton Senior Consultant	Nick Jones-Hill Senior Associate Director

1. Introduction

1.1 Background

Waterman Infrastructure & Environment Limited (Waterman) were appointed by Graven Hill Village Development Company to consider feasibility options in respect to a proposed roundabout on the A41 at the junction with Pioneer Road (Graven Hill) and the Wretchwick Green Development in Bicester. The proposals have been developed following discussions and consultation with key stakeholders including Oxfordshire County Council (as local highway authority), local Councillors and the Bicester Bike User Group (BBUG).

The current proposals include a four arm roundabout with a 3 lane approach on the A41 eastern arm with two-lane approaches on the remaining arms of the A41 (western arm), Pioneer Road and the proposed Wretchwick Green Development to the north.

1.2 Wretchwick Green Development

The Wretchwick Green Development is located to the north of the A41 and to the east of the A4421 and is classed as a mixed-use development. The development proposes to deliver up to 1,500 dwellings with 7ha of employment land for B1 and B8 uses with a local centre with retail and community uses and a primary school.

A total of three vehicular access are proposed, one to the north and one to the south of Bicester onto the A4421 and one to the south of the site onto the A41. A link road would route through the development connecting all junctions.

The development has been designed to include integrated and accessible transport systems with a focus on reducing out-commuting which is to provide jobs alongside the housing growth. The development has been laid out with three residential areas. The first area is located to the north west of the site and will be largely served by the proposed access onto the A421 / Gavray roundabout. The second area is to the south west of the site and will be served by the secondary access onto the A421 Wretchwick Way at its roundabout with Pegergrine Way. The third area is located to the east of the site and will be accessed from the link road. The employment area will be situated to the south east of the site with access provided onto the A41 and the link road running through the development. The other main trip generator within the development is the primary school, which will be accessed via the secondary access road from the A421.

With the site being classified as mixed use it was agreed with council that 10% reduction of vehicle residential trips would account for the internalisation of trips within the development and would be re-allocated to other travel modes. Using the Multi-Modal trip generation for the employment area the 2016 TA predicted in the AM peak there would be 12 two-way cyclists and 14 two-way cyclists in the PM peak. It is predicted that some 34 pedestrian movements would occur in the AM peak and 42 pedestrian movements in the PM peak. It should be noted that in the 2018 TA addendum, with the reduction in total employment floorspace, when comparing it with the original TA employment associated traffic levels reduce by around 60% (Wretchwick Green Addendum TA Para.3.2.12).

To assist in the modelling of the A41 roundabout it is necessary to understand the number of cycle and pedestrian trips that would occur through the A41 roundabout travelling north-south between Wretchwick Green and Graven Hill. It was decided to take a 'worst case' scenario which assumes all pedestrian and cycles associated with Wretchwick Green would route via the A41. In reality however residential trips would likely use alternative accesses off the A421 to travel to / from Bicester. In respect to the controlled crossings at the A41 roundabout, the numbers predicted will in reality be less than those modelled as some pedestrians and possibly cyclists would cross using the uncontrolled crossing points.

2. Stakeholder Response

Through consultation with Oxfordshire County Council and other stakeholder groups, a number of queries have been raised regarding alternative roundabout designs, manoeuvrability around the junction for vulnerable users and operational capacity of the junction in respect to modelling that has been undertaken. This following section considers junction modelling and alternative designs including "Dutch Style" roundabouts.

2.1 Ratio to Traffic Flow Capacity

Through consultation with Oxfordshire County Council and other stakeholders, clarification has been sought in respect to consideration of operational capacity of junctions and the Ratio to Flow Capacity (RFC) that is reported when considering junction modelling outputs.

The RFC is an indicator of the likely performance of a junction for a particular scenario and future year testing. TA 23/81 'Junctions and Accesses: Determination of Size of Roundabouts and Major / Minor Junctions" (now superseded) previously identified that variations between different sites could result in a standard error of prediction of the entry capacity by +/- 15%. It is for this reason that the desirable maximum RFC is generally considered to be 0.85 as this is generally considered to provide adequate capacity at un-signalised roundabouts.

It is suggested that when the RFC exceeds 0.85, the operation of the roundabout will likely deteriorate and there can be expected to be an expediential increase in delays and queues as you approach 1 (100%). As 1 is exceeded the increase in delays / queues will increase significantly. This can be seen below which is taken from the TfL Traffic Manager and Network Performance Best Practice.

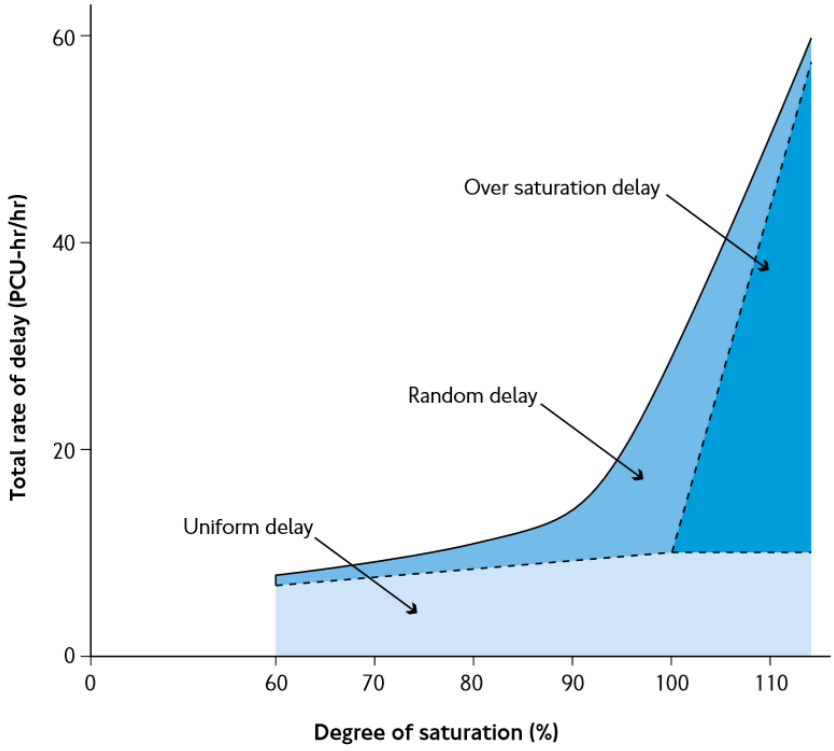


Figure 1: Relationship between junction degree and degree of saturation

Source: *Traffic Modelling Guidelines – TFL Traffic Manager and Network Performance Best Practice Version 3

It is acknowledged that in the latest DMRB guidance, CD116 'Geometric Design of Roundabouts', there is no longer reference made to RFC. Furthermore, consideration of delay and queues is now considered to be essential when determining the operational capacity of a junction as opposed to seeking to achieve a particular RFC value. With this in mind, and as discussed later in this note, criteria in respect to levels of delays and queues have been agreed with Oxfordshire County Council and will be considered when summarising the junction modelling outputs.

2.2 Alternative Roundabout Designs

"Dutch Style" Roundabouts

To gain a greater understanding of a Dutch style roundabout, a review of the CROW- Fietsberaad "Design Manual for Bicycle Traffic" 2019 has been undertaken. Dutch style roundabouts are generally only one lane wide. They are kept small so that the radius is tight which decreases speeds. When they are built outside of the built-up area cyclists and pedestrians do not have priority. Cyclists and pedestrians cross the entrances and exits at some distance which is easier because of the low speeds and because of the fact cyclists only have to cross one lane of traffic at a time. An example of a single lane dutch style roundabout can be seen in **Figure 2**.

Figure 2: Dutch Style single lane approach example

This type of roundabout has been designed and modelled using the Dutch dimension guidelines set out in Crow 2019 and has been attached as drawing reference WIE11386-A41-04-003.

An alternative style of Dutch roundabout is the 'turbo-roundabout' which is usually several lanes wide and has a spiral shape. The aim of this type of roundabout is to allow the traffic to flow at a higher speed than normal, with the design minimising the occurrence of vehicles changing lane within the roundabout itself. This eliminates weaving conflicts so traffic can travel at greater speeds. Cyclists are not expected to use the roundabout due to the dividers and the narrow lanes which leads to traffic being unable to overtake any cyclists. It is recommended that due to the high speeds no cycle or pedestrian infrastructure is present in the vicinity of the roundabout and is normally grade separated at some distance away.

An example of a “turbo-roundabout” can be seen in **Figure 3**.

Figure 3: An example of a ‘Turbo Style’ Dutch Roundabout

With cycle and pedestrian usage in mind this particular type of design is not recommended to be taken any further forward.

Bicester Bike User Group (BBUG) Design

A design has been prepared by BBUG of an alternative roundabout layout that would be expected to accommodate motor vehicular traffic whilst promoting active travel. The aim of this design would be to slow traffic down, maintaining capacity of 40,000 PCU, providing a smaller footprint for the junction, shorter distance for pedestrian and cyclists to cross at the junction and placing crossing points in accordance with the desire lines.

A copy of the sketch prepared by the BBUG can be seen in **Figure 4** overleaf.

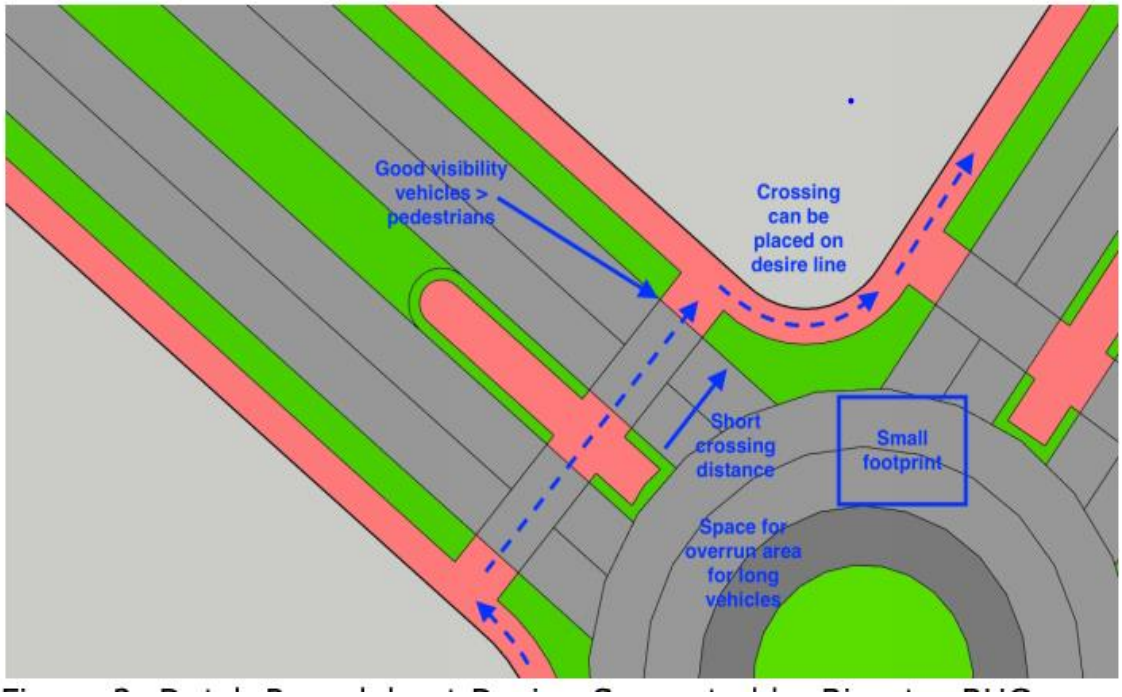


Figure 4: Proposed Dutch Roundabout Design by Bicester Bug

A model of this design, which is considered to be a hybrid of the traditional single-lane Dutch style roundabout has been designed and run in Arcady and is reported upon in the following section.

3. Junction Capacity Assessment Results

A series of designs have been modelled in Juctionsn9 to understand the operational effects of the differing layouts on the traffic queues and delays.

Through consultation with Oxfordshire County Council highways, it has been agreed that for the purposes of the modelling an RFC over 0.85 would be acceptable, subject to the following not being exceeded:

- No more than 30 vehicles queuing or blocking any other junction on the approaches to the roundabout; and
- A delay per vehicle of no more than 120 seconds.

3.1 A41 Pioneer Roundabout Design

The current design for the roundabout, as shown on drawing WIE11386-SA-03-026-A02 attached, has been modelled in Arcady using Junctions 9.

The results of the capacity assessments are summarised in **Table 1** overleaf.

Junction Arm	AM Peak		PM Peak	
	Max RFC	Max Queue	Max RFC	Max Queue
	2031 Do Something			
A41 – Eastern Arm	0.72	3	0.90	8
Pioneer Road	0.61	2	1.02	27
A41 – Western Arm	0.61	2	0.77	3
Wretchwick Green Comm Dev	0.76	3	0.70	2

Table 1: A41 Pioneer Roundabout Design Capacity Assessment Results

As can be seen from the results summarised in **Table 1**, the design will have capacity to accommodate the predicted traffic flows passing through the junction. The highest recorded RFC occurs on the Wretchwick Green Committed Development arm in the AM peak reaching 0.76 with a queue of 3 PCus. During the PM peak the highest recorded RFC occurs on the Pioneer Road arm reaching 1.02 with a queue of 27 PCus. This has been modelled as a benchmark for the other designs to be compared against when looking at the comparable results.

The recorded delays for all arms, as shown in the results appended to this Note are below the 120 seconds per vehicle threshold set out earlier.

3.2 A41 Pioneer Roundabout Design – "Dutch Style" Single-lane Approach with segregated Cycle Crossing (uncontrolled)

Using the dimensions from the CROW- Fietsberaad "Design Manual for Bicycle Traffic" (2019) for a single lane Dutch Style Roundabout, a model has been developed using Junctions 9.

The single lane approach roundabout with uncontrolled crossings has been kept small which will reduce the traffic speeds so for this to occur the diameter of the roundabout has been greatly reduced. The lane widths have been reduced so that pedestrians and cyclists have less distance to cross the highway. An uncontrolled pedestrian and cycle lane crossing has been placed 5 meters back from the stopline on each of the desire lines.

The results of the capacity assessments are summarised in Table **2**.

Junction Arm	AM Peak		PM Peak	
	Max RFC	Max Queue	Max RFC	Max Queue
	2031 Do Something			
A41 – Eastern Arm	1.60	607	2.06	1160
Pioneer Road	0.91	8	1.24	121
A41 – Western Arm	1.04	27	1.15	62
Wretchwick Green Comm Dev	1.69	285	1.36	159

Table 2: A41 Pioneer Roundabout Design – Dutch Style Single-lane Approach with segregated Cycle Crossing (uncontrolled) Capacity Assessment Results

As can be seen from the results summarised in **Table 2**, the Dutch Style single lane approach junction with uncontrolled crossings would operate significantly over capacity in 2031. The highest recorded RFC occurs on the Wretchwick Green approach during the AM Peak with an RFC of 1.69 whilst the largest recorded queues occur on the A41 Eastern arm during both peak periods. The longest recorded queues (max queue) on this arm is recorded at 1160 during the PM Peak.

With the volume of traffic using the junction this design option would not accommodate the vehicular demand and would be unable to maintain a continual flow on the highway network. Queues would likely extend far beyond other localised junctions on the A41 and that the junction arrangement is not considered therefore to be suitable without posing an inherent capacity and highway safety risk.

3.3 A41 Pioneer Roundabout Design – Hybrid Dutch Style Two-lane Approach with segregated Cycle Path (controlled)

Dimensions from the CROW- Fietsberaad “Design Manual for Bicycle Traffic” (2019) have been used to develop a hybrid of the single lane Dutch Style Roundabout, which includes a two-lane approach. A junction model has been developed using the Junctions 9 software. As shown pedestrians can cross at the junction using uncontrolled crossing points, whilst toucan crossings are provided further along each arms of the roundabout for both cyclists and pedestrians. Flare lengths have been shortened, for safety reasons, and lane widths decreased as per the CROW- Fietsberaad (2019) design guide. This ensures that there is the minimum distance for pedestrians to cross. Additionally, the width of the roundabout has been reduced as per the guidelines, which seeks to reduce the speed of traffic approaching the roundabout as well as on the circulatory.

The results of the capacity assessments are summarised in Table **3** overleaf.

Junction Arm	AM Peak		PM Peak	
	Max RFC	Max Queue	Max RFC	Max Queue
	2031 Do Something			
A41 – Eastern Arm	1.34	315	1.71	815
Pioneer Road	0.72	3	0.99	20
A41 – Western Arm	0.80	4	1.00	18
Wretchwick Green Comm Dev	1.30	122	1.17	73

Table 3: A41 Pioneer Roundabout Design – Dutch Style Two-lane Approach with segregated Cycle Path (controlled) Capacity Assessment Results

As can be seen from the results summarised in **Table 3**, the hybrid Dutch style roundabout with two-lane approach junction and toucan crossings would operate significantly over capacity in 2031. The highest recorded RFC's are recorded on the A41 Eastern arm during both of the peak periods. The longest recorded queues are also on the A41 Eastern Arm with a predicted max queue of 315 vehicles in the AM peak and 815 vehicles in the PM Peak.

In addition to the predicted queue lengths, the delays on the majority of the arms of the roundabout would be expected to exceed the 120 seconds per vehicle.

With the volume of traffic predicted to pass through the junction this design option would not accommodate the vehicular demand and would be unable to maintain a continual flow on the highway network. Queues would likely extend a significant distance from the junction on the A41 and the junction arrangement is not considered therefore to be suitable without posing an inherent capacity and highway safety risk.

3.4 A41 Pioneer Road Roundabout Design – Alternative Geometry with Reduced ICD

An alternative design to that shown on Drawing WIE11386-SA-03-026-A02 has been developed to improve the accessibility and manoeuvrability of cyclists and pedestrians around the junction by using the design ideas from the Dutch Style Roundabouts, which slightly reduce operational capacity by slowing vehicle speeds down but making it easier to cross the highway for both pedestrians and cyclists.

The proposals included a reduced inscribed circle diameter (ICD) of the roundabout which will have the affect of slowing vehicles down on approach to the roundabout as well as on the circulatory carriageway. Additionally, on the A41 western arm, where the majority of the pedestrian and cyclist desire lines would be found between Graven Hill and Wretchwick Green the flare length has been shortened so that the Toucan crossing can be input at a minimal safe distance from the stop line. Additionally, the lane widths at the stop line have been reduced making the carriageway crossing width shorter so that it is easier and safer for the pedestrians to cross via the uncontrolled crossings.

Given the low number of predicted pedestrian and cyclist movements on the A41 eastern arm, and given the majority of movements will be north-south, the traffic signal controlled pedestrian crossing (Toucan) is not considered to be on a main desire line and therefore this crossing point has been removed. This has allowed for the reduction in the ICD by compacting some of the approaches to the roundabout.

The results of the capacity assessments are summarised in Table **4** below.

Junction Arm	AM Peak		PM Peak	
	Max RFC	Max Queue	Max RFC	Max Queue
	2031 Do Ssomething			
A41 – Eastern Arm	0.74	3	0.92	10
Pioneer Road	0.62	2	1.03	29
A41 – Western Arm	0.70	2	0.91	8
Wretchwick Green Comm Dev	0.76	3	0.69	2

Table 4: A41 Pioneer Road Roundabout Design – Alternative Geometry with Reduced ICD Capacity Assessment Results

As can be seen from the results summarised in **Table 4**, the alternative A41 roundabout design would have sufficient capacity to accommodate associated traffic. The highest recorded RFC occurs on the Wretchwick Green Approach in the AM peak reaching 0.76 with a queue of 3 PCus. In the PM peak the highest recorded RFC occurs on the Pioneer Road (Graven Hill) Arm reaching 1.03 and predicted queues of 29 PCUs. The max delay on this arm is 95 seconds, which is within the parameters set out earlier in this Note. The maximum queue on the A41 Western arm is 8 vehicles and on the Eastern arm is 10, which would not obstruct any existing junctions on the mainline A41.

4. Road Safety Audit Review

In addition to the junction modelling discussed earlier in this note, consideration of each of the junctions in respect to highway safety has also been undertaken. A brief summary of the Stage 1 Road Safety Audits (RSA) on each of the designs is provided in this section of the Note, and the full reports are appended to this Note for information.

4.1 A41 Pioneer Roundabout Design

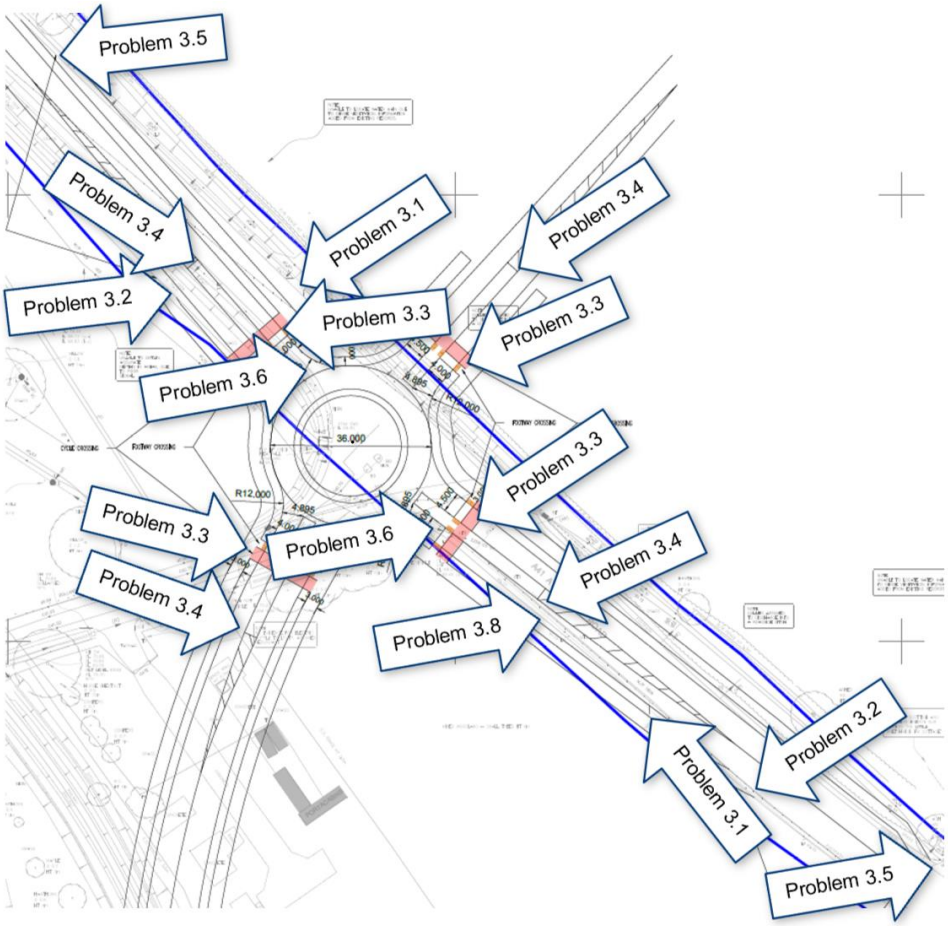
A Stage 1 RSA was initially undertaken in November 2019 on the proposed A41 roundabout. The RSA report and subsequent Designers Response are appended to this Note for information. A subsequent Stage 1 RSA was undertaken in April 2020 on the current junction design. Following the RSA the design has been updated and is shown on Drawing WIE11386-SA-03-026-A02. The changes made to the design reflect the problems identified during the course of the April 2020 Audit, which is also appended to this Note for reference.

The current design shown on Drawing WIE11386-SA-03-026-A02 is considered to be acceptable from a highway safety consideration.

4.2 A41 Pioneer Roundabout Design – "Dutch Style" Single-lane Approach with segregated Cycle Crossing (uncontrolled)

A Stage 1 RSA was undertaken on this roundabout design during May 2020. The RSA report is appended to this Note for information. In total, 8 problems were identified by the Audit Team and these are briefly summarised below, and shown on the extract also in terms of their locations on the design.

- **Problem 3.1 -** Lack of provision of existing access points (field accesses)
- **Problem 3.2 -** Narrow footway / cycleway width
- **Problem 3.3 –** Tactile paving inconsistent
- **Problem 3.4 –** Kerb alignments of the refuge islands
- **Problem 3.5 –** Lack of provision for cyclists at the start / end of the footway / cycleway
- **Problem 3.6 –** Junction geometry inconsistent with adjacent highway network
- **Problem 3.7 –** Vehicle tracking requirements
- **Problem 3.8 –** Vehicle collision with kerb or splitter island



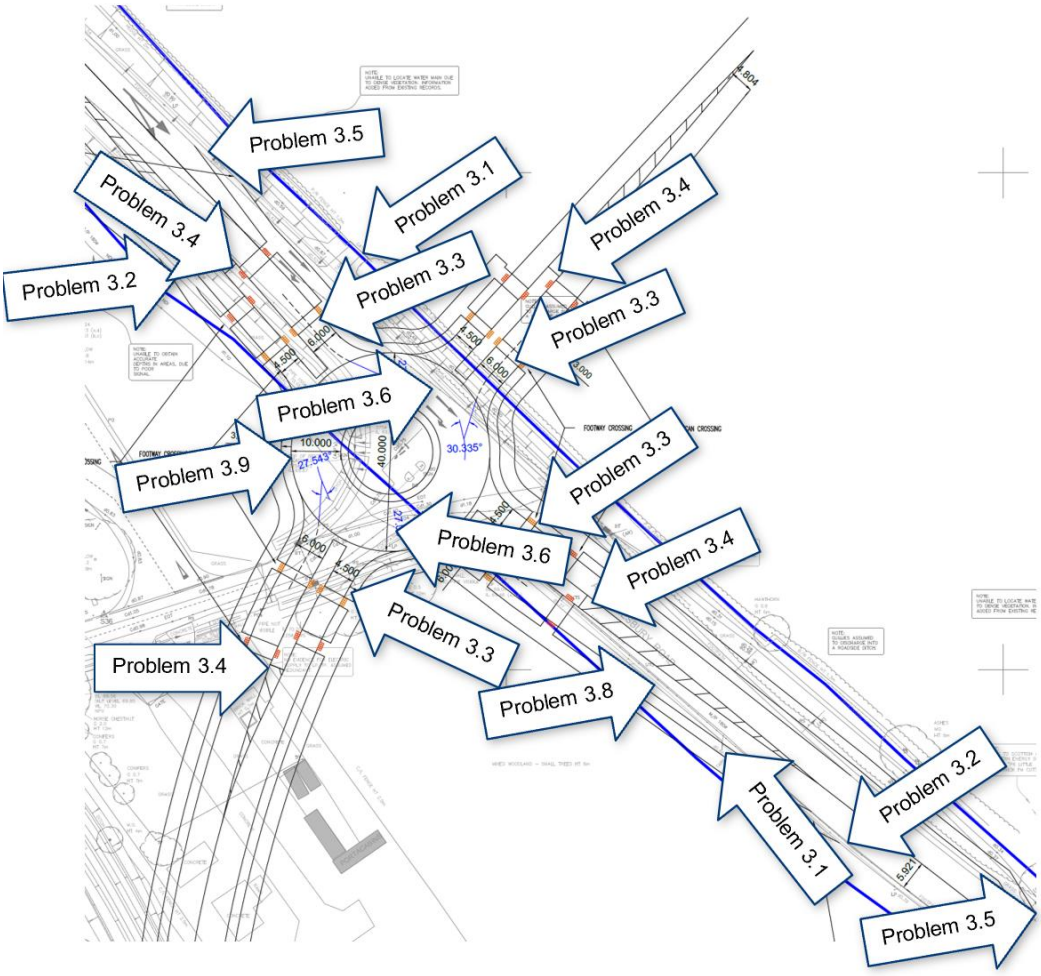
Of particular note is Problem 3.6 which suggests that the design and ethos of this roundabout compared to other nearby junctions could be of safety concern given the nature and speed limit of the A41. The RSA summary highlights that drivers may be caught out by the driving requirements to safely negotiate the proposed layout and this itself could be an inherent safety concern.

The Auditors recommendation is that a junction layout capable of accommodating higher vehicle design speeds, as well as providing appropriate operational capacity, is provided.

4.3 A41 Pioneer Roundabout Design – Hybrid Dutch Style Two-lane Approach with segregated Cycle Path (controlled)

A Stage 1 RSA was undertaken on this roundabout design during May 2020. The RSA report is appended to this Note for information. In total, 9 problems were identified by the Audit Team and these are briefly summarised below and shown on the extract in terms of their locations on the design.

- **Problem 3.1 -** Lack of provision of existing access points (field accesses)
- **Problem 3.2 -** Narrow footway / cycleway width
- **Problem 3.3 –** Uncontrolled crossing provision located near controlled crossings
- **Problem 3.4 –** Kerb alignments of the refuge islands
- **Problem 3.5 –** Lack of provision for cyclists at the start / end of the footway / cycleway
- **Problem 3.6 –** Junction geometry inconsistent with adjacent highway network
- **Problem 3.7 –** Vehicle tracking requirements
- **Problem 3.8 –** Vehicle collision with kerb or splitter island
- **Problem 3.9 –** Concern over the ratio of the entry width to the adjacent circulatory carriageway



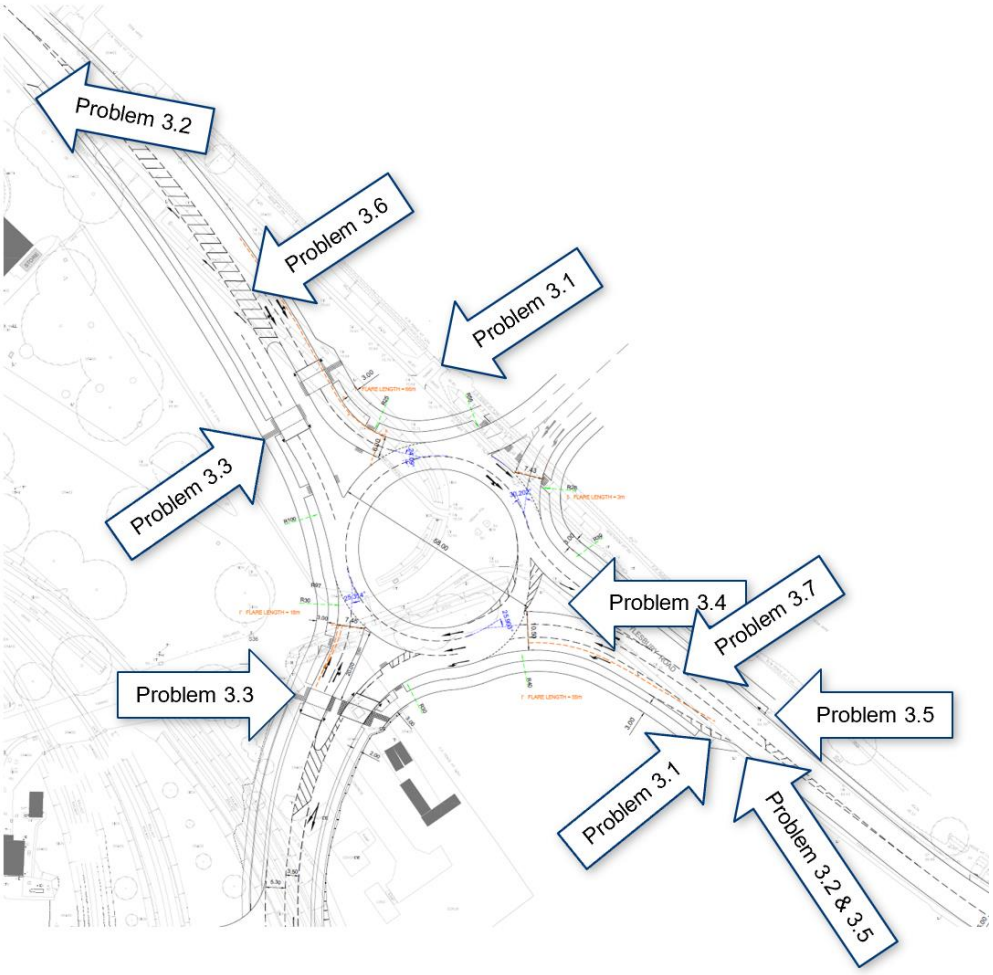
Similar to the problems identified for the “Dutch Style” single lane design, of particular note is Problem 3.6 which suggests the design and ethos of this roundabout compared to other nearby junctions could be of safety concern given the nature and speed limit of the A41. The RSA summary highlights that drivers may be caught out by the driving requirements to safely negotiate the proposed layout and this itself could be an inherent safety concern.

The Auditors recommendation is that a junction layout capable of accommodating higher vehicle design speeds, as well as providing appropriate operational capacity, is provided.

4.4 A41 Pioneer Road Roundabout Design – Alternative Geometry with Reduced ICD

A Stage 1 RSA was undertaken on this roundabout design during June 2020. The RSA report is appended to this Note for information. In total, 7 problems were identified by the Audit Team and these are briefly summarised overleaf and shown on the extract in terms of their locations on the design.

- **Problem 3.1 -** Lack of provision of existing field accesses
- **Problem 3.2 -** Narrow footway / cycleway width
- **Problem 3.3 –** uncontrolled crossing provision located near controlled crossings
- **Problem 3.4 –** Lack of provision for pedestrians/cyclists to cross to the east of the roundabout
- **Problem 3.5 –** Lack of provision for cyclists at the start / end of the footway / cycleway
- **Problem 3.6 –** Insufficient lane width
- **Problem 3.7 –** Poor lane marking alignment



A number of the problems identified above are consistent with those for all the designs that have been considered. Further amendments to the design could be undertaken to ensure that the problems identified by the Audit Team are overcome, where these are considered appropriate and necessary.

It is clear from the RSA that the design of the roundabout is considered to be acceptable and in keeping with nature of the A41 and the other junctions in the local vicinity.

4.5 Road Safety Audit Summary

It is clear from the Audits undertaken that there are problems identified during the course of the RSA which are consistent across all the designs / options.

With regards to the Dutch style roundabouts of particular concern is Problem 3.6, which is highlighted on both Dutch roundabout options, that the consistency of the roundabout design with those in the local vicinity, and given the nature and high speeds on the A41 is not considered to be suitable for this location. The Auditors recommendation is that a junction layout able to safely accommodate higher vehicle speeds, along with appropriate operational capacity, is delivered.

5. Recommendation

In conclusion the alternative roundabout design for the A41 junction with Pioneer Road and the Wretchwick Green Development has been modelled and shown to operate satisfactorily.

In comparison with the original design some of the operating capacity has been lost but the surrounding road network has sufficient capacity to cater for this. Additionally, the alternative design seeks to reduce speeds on the approaches to the roundabout as well as on the circulatory carriageway which would improve highway safety for both vehicular and vulnerable users. The reduction of the A41 Western approach lanes means that there is shorter distance for pedestrians and cyclists to cross the carriageway which will make it safe. The toucan crossing has been brought closer to the perceived desire line between the two developments which will attract and assist the individuals and cyclists in crossing the carriageway. From the results of the safety audit it was decided to remove the uncontrolled crossing and the toucan crossing on the A41 eastern arm due to the distances involved in crossing the carriageway.

Junction modelling undertaken on the two ‘Dutch Style’ roundabouts shows significant queueing and delays which could impact on junctions further along the A41 mainline. Furthermore, the road safety audits have raised concerns regarding the designs and the ethos of the junctions in respect to those in the local vicinity. Given the high speed nature of the A41 it is likely that significant changes in the design criteria at the A41 Pioneer Road roundabout could in itself lead to inherent highway safety issues, with the auditors recommending that that a junction layout capable of accommodating higher vehicle design speeds, as well as providing appropriate operational capacity, is provided

The alternative roundabout design should alleviate concerns raised by Oxfordshire County Council and Bicester Bike User Group (BBUG) with regards to the previous design, as well as making it safer and more accessible for vulnerable road users to access both developments north and south of the A41.

Appendix 3 – Alignment of potential South East Perimeter Road