

**Project:** NW Bicester  
**Client:** Firethorn Trust

## **Summary of Correspondence with OCC since the Planning Application was Submitted**

### **Submission:**

- Validated by CDC on the 06<sup>th</sup> of May 2021

### **OCC Consultation Response No 1:**

- 1<sup>st</sup> Consultation Response received from OCC on the 06<sup>th</sup> of July 2021
- 3 Objections for the following reasons:
  1. Some inaccuracies and omissions in the Transport Assessment and Environmental Statement mean that it is not possible to fully assess the impact of the development in accordance with paragraphs 109 and 111 of the NPPF.
  2. Some of the works to provide safe access are outside the red line and not on adopted highway, meaning that the development may fail to provide safe and suitable access to the site for all users in accordance with paragraph 108 of the NPPF.
  3. The site will create a desire line across the B4100 to the local church, and no safe crossing is offered by the development, contrary to paragraph 108 of the NPPF.

### **CDC Consultation Response No 1:**

- 1<sup>st</sup> Consultation Response received from CDC on the 21<sup>st</sup> of September 2021
- Relevant highway concerns were raised as follows:
  - Need to establish a suitable capacity for Access B to the Western Parcel.
  - There may be a need for a Grampian Condition to restrict the level of development permissible until such time as the realigned A4095 is in place and open to traffic.
  - The provision of a car park on site to accommodate users of the Church.

### **VTP Response to OCC and CDC:**

- VTP prepared the following Technical Notes to address the following matters:
  - TN003 – Consultation Responses (November 2021)
  - TN004 – Spine Road Suitability (November 2021)
  - TN005 – Grampian Condition Review (November 2021)

### **OCC Consultation Response No 2:**

- 2<sup>nd</sup> Consultation Response received from OCC on the 05<sup>th</sup> of January 2022
- 4 Objections for the following reasons:
  1. The assessment of the impact of the development in the absence of the A4095 diversion/Strategic Link Road is not sound and therefore it is not possible to predict the traffic impact of this proposal.
  2. The development as proposed would have an unacceptable congestion impact on the junction of Charlotte Ave/B4100 in its current form.
  3. The assessment of the traffic impact on Elmsbrook Spine Road does not take into account the suitability of narrow parts of the road for the volume of traffic.
  4. There is insufficient commitment to provide pedestrian/cycle connections through to adjacent sites, in order to maximise opportunities for sustainable travel.

### **VTP Response to OCC:**

- VTP prepared the following Technical Notes to address the following matters:
  - TN006 – A4095 Interim Improvement (March 2022)
  - TN007 – Response to OCC Comments (March 2022)

### **OCC Consultation Response No 3:**

- 3<sup>rd</sup> Consultation Response received from OCC on the 11<sup>th</sup> of May 2022
- 3 Objections for the following reasons:

1. The application seeks to bring forward the full development ahead of the A4095 diversion. The traffic assessment provided shows that this would have a severe congestion impact on the local network, and the proposed mitigation would make queueing worse on Lords Lane.
2. The number of dwellings proposed to access onto Charlotte Avenue is too high, given the narrow width of this road in places at its northern end. Without mitigation, there is a risk of footways being overrun as vehicles attempt to pass one another, with consequent risk to the safety of pedestrians, and deterioration of attractiveness for sustainable transport.
3. The need for improvements to cycle provision on Braeburn Avenue, as a result of vehicle traffic generated by the development, has not been addressed.

#### **VTP Response to OCC:**

- VTP prepared the following Technical Notes to address the following matters:
  - TN008 Rev A – A4095 Junction Modelling (May 2022)
  - TN009 – Response to OCC (May 2022)

#### **OCC Consultation Response No 4:**

- 4<sup>th</sup> Consultation Response received from OCC on the 23<sup>rd</sup> of June 2022
- 1 Objection for the following reason:
  1. The assessment of the traffic impact is not reliable

#### **VTP Response to OCC:**

- VTP prepared the following Technical Note to address the following matters:
  - TN008 Rev B – A4095 Junction Modelling (July 2022)

#### **OCC Consultation Response No 5:**

- 5<sup>th</sup> Consultation Response received from OCC on the 06<sup>th</sup> of September 2022
- 1 Objection for the following reason:
  1. The traffic congestion impact of the development prior to the construction of the A4095 realignment would be severe. The assessment of the impact of the proposed interim (mini roundabout) traffic mitigation scheme is not reliable, and the scheme is unlikely to provide any significant benefit.

#### **Summary:**

All of the above objections from OCC have been addressed with the exception of reaching agreement in relation to the impact of the proposed development traffic at the junction of the A4095 Howes Lane/Bucknell Road prior to the implementation of the A4095 Strategic Link Road (SLR), which is identified as being the appropriate mitigation to address the allocated development set out within the CDC Local Plan to 2031.

#### **Existing and Proposed Junction Layouts:**

**ATTACHMENT A** includes a copy of the Existing Priority Junction Plan (4600-1100-T-050 Rev A) and a copy of the Proposed Mini roundabout Plan (4600-1100-T-054 Rev C).

#### **A4095 Strategic Link Road:**

The A4095 SLR was granted planning permission on the 21<sup>st</sup> of August 2019 (Planning Ref 14/01968/F). A copy of the agreed layout of the A4095 SLR is included at **ATTACHMENT B**. The A4095 SLR was designed to alleviate congestion and traffic impacts along the existing A4095 corridor between the existing A4095 Lords Lane/B4100 Banbury Road roundabout to the north, and the A4095 Howes Lane/Middleton Stoney Road/Vendee Drive/B4030 roundabout junction to the south.

At the time that the planning application was validated by CDC (July 2021), the A4095 SLR was expected to be implemented in full by 2026. Phase 1 of these works has already been completed, which is in the form of a new tunnel below the existing railway line.

The future year traffic assessments that were undertaken as part of the Transport Assessment that supports the planning application were for 2031, the end of the Local Plan period. No interim year assessment was undertaken. The 2031 future year traffic data was set out within the Bicester Transport Model (BTM), which

included all of the allocated development identified within the CDC Local Plan that would be delivered by 2031, and the Infrastructure Improvements that were expected to be delivered by 2031.

On the 30<sup>th</sup> of November 2021, the Future Oxford Partnership (formerly the Oxfordshire Growth Board) announced that the identified funding for the A4095 SLR would be reallocated towards the A34 Lodge Hill interchange. Following this announcement, VTP engaged with OCC to request revised traffic flows from the BTM for 2026, which would exclude the A4095 SLR and account for an appropriate level of development that would be expected to be delivered by 2026, i.e. prior to the implementation of the A4095 SLR. OCC provided the updated BTM data for 2026 in March 2022.

**Assessment of the Interim Impact on the A4095 Howes Lane/Bucknell Road junction prior to the A4095 SLR:**

In response to the initial consultation comments from CDC in September 2021, VTP prepared TN005 – Grampian Condition Review, which considered the Technical Assessment undertaken by Hyder Consulting in a memorandum dated the 12<sup>th</sup> of December 2014 to establish an acceptable level of development that could come forward and be occupied prior to the delivery of the A4095 SLR. This approach was agreed with CDC and OCC and the assessment concluded that 900 units could be delivered prior to the implementation of the A4095 SLR.

Following agreement between CDC and OCC that the Hyder Consulting assessment was accepted, an additional assessment of the A4095 Howes Lane/Bucknell Road junction was undertaken by David Tucker Associates (DTA) in 2015 on behalf of the landowners of the Albion Land scheme (Planning Ref 12/00455/HYBRID). This additional assessment established that the implementation of the A4095 SLR would be required at a point between the occupation of 900 and 1,200 dwellings.

The revised assessment undertaken by VTP, as set out within TN005 and utilising the same agreed methodology that was acceptable to both CDC and OCC, established that there would be spare capacity for approximately 607 additional units on the wider masterplan site. As such, the 530 dwellings proposed on the NW Bicester application site, could all come forward prior to the implementation of the A4095 SLR without the need for a Grampian Condition.

OCC's consultation response dated the 05<sup>th</sup> of January 2022 included an objection to the assessment of the impact of the development in the absence of the A4095 SLR, noting that the assessment was "*not sound and therefore it is not possible to predict the traffic impact of this proposal.*" Further details of OCC's position in this regard are included in the consultation response, which notes that OCC consider that the methodology is too old and that the traffic data used to assess the impacts are out of date and do not include the local plan development at Heyford. Therefore, a further assessment should be undertaken using a revised reference case of the BTM. The OCC response included the need for "severity of impact should take into account the strategic function of the A4095 around Bicester."

In response to the OCC consultation comments from the 05<sup>th</sup> of January 2022, VTP requested clarity on when the revised BTM traffic data for the interim year of 2026 might be made available to undertake the further assessment of the junction to address OCC's concerns with regards to the methodology. OCC confirmed in an email dated the 14<sup>th</sup> of January 2022 that this data would be available towards the end of February 2022. A copy of this email is included at **ATTACHMENT C**.

In the interest of undertaking a comprehensive revised assessment of the A4095 Howes Lane/Bucknell Road junction, VTP commissioned an independent traffic survey of the existing junction arrangement to be undertaken on Wednesday the 02<sup>nd</sup> of February 2022, which included turning counts, automatic traffic counts, queue length surveys, and video surveys of all approaches to the junction. These updated observed traffic counts provided an indication of the operation of the existing junction in real time and informed the revised impact assessments set out within TN006 – A4095 Interim Improvement. This assessment identified the potential to introduce a mini roundabout scheme in place of the existing priority junction as a means of mitigating the impact of the proposed Firethorn development.

Key to note is that the Severity Thresholds were referenced in TN006 in line with the thresholds that were originally identified in the Hyder Consulting memorandum from 2014, which identified the "*severe*" trigger point on the A4095 Howes Lane approach as being the junction with Shakespeare Drive. In other words, it would be considered severe if the traffic queue on the A4095 Howes Lane approach to the junction were to extend back

to block the signal junction with Shakespeare Drive. No severe threshold was identified for the A4095 Lords Lane approach, which leads to the Bucknell Road (north) arm of the junction in question.

OCC's response dated the 11<sup>th</sup> of May 2022 maintained an objection to bringing forward the full development ahead of the A4095 SLR as the traffic assessment set out within TN006 would have a severe congestion impact on the local network, and the proposed mitigation would make queuing worse on the A4095 Lords Lane approach. The OCC response acknowledged that the assessment of the existing priority junction identifies that it is currently operating over capacity (based on February 2022 data). However, OCC noted that there is a discrepancy between observed and modelled queues, which suggested that there may be issues with the parameters of the model. In addition, TN006 included an assessment of the existing junction using the BTM 2026 flows, which excluded the A4095 SLR. The results of this assessment identified that the queues generated on both the A4095 Howes Lane and the A4095 Lords Lane approaches would block junctions upstream. TN006 also included an assessment of the proposed mini roundabout scheme using the BTM 2026 reference case and including the proposed development traffic flows. OCC accepted that the introduction of the mini roundabout scheme appears to improve performance in the AM peak hour, but while it reduces the queuing on the A4095 Howes Lane approach in the PM, the queues on the A4095 Lords Lane approach would be significantly worse when compared with the existing arrangement. The quoted queue was identified as being 1,196m, which is considered to mean that the back of the queue would reach or extend across the Banbury Road junction. This is therefore considered to be the definition of the "severe" trigger on the A4095 Lords Lane approach.

In order to address the comment from OCC that suggested that "*there is a discrepancy between observed and modelled queues, which suggests that there may be issues with some of the parameters in the model*", VTP prepared TN008 – A4095 Junction Modelling (Rev A) to set out a methodology for calibrating the junction capacity modelling. In short, the aim of calibrating the model is to ensure that the observed conditions on the local network are reflected in the model outputs. This calibration methodology seeks to adjust the parameters of the software model to reflect consistent queues that would be generated on a particular approach to the junction. As the geometry of the junction is considered to be accurate, and as per a recent topographical survey that was undertaken in February 2022, the only adjustments that could be made to the data that is entered into the software, would be the reduction in traffic flows on a particular approach to reflect the observed queues that are being generated by the junction, i.e. comparing the video and count evidence against the model outputs. As OCC's primary concern was identified as being the A4095 Lords Lane approach, TN008 Rev A set out a methodology for calibrating the model by reducing flows on this approach by 14% in both the AM and PM peak hour periods. It should be noted that TN008 Rev A suggests that this reduction in flows by 14% is considered to be robust and that a reduction of between 20% and 30% might be required to reduce the RFC (relative flow to capacity) below 1.0 which is considered to be the theoretical capacity of a junction as an RFC of over 1.0 would cause the junction to fail and yet this is an existing junction where the existing queues were observed to be constantly moving, i.e. a 'sliver' or 'rolling' queue. TN008 Rev A set out a number of reasons as to why there are discrepancies identified within the model outputs, which include the fact that the existing junction is so constrained that large HGVs turning left from the A4095 Howes Lane towards the A4095 Lords Lane actually block the traffic approaching from the opposite direction. In addition, as the demand for the traffic flows between the A4095 Howes Lane and the A4095 Lords Lane is so high, and the traffic flows from Bucknell Road south are so low, many drivers approaching from the south along Bucknell Road stop to allow traffic priority whereby the traffic from the south actually has priority over the traffic traveling between the A4095 Howes Lane and the A4095 Lords Lane. The software is not sophisticated enough to include these adjustments and will always assume that the traffic flows with priority (albeit these are very low), will prevent traffic from the minor arm (A4095 Howes Lane) or right turning traffic from the A4095 Lords Lane, from having priority.

Whilst the results of TN008 Rev A suggested that the calibrated model of the existing junction arrangement are representative of the observed operation of the junction, OCC's review of TN008 Rev A identified that they felt that the traffic data that was obtained in February 2022 was 'atypical' and therefore not representative of the normal conditions on the network. This was set out in an email from OCC dated the 09<sup>th</sup> of June 2022, a copy of which is included at **ATTACHMENT C**. As such, VTP commissioned further traffic surveys to be undertaken in July 2022 over a 3-day period to ensure that if any abnormal activity did occur over the survey period, at least 1 of the days would provide representative data. Upon receipt of the updated traffic count data, VTP prepared TN008 Rev B, which was an update of the calibration exercise that was previously undertaken. OCC confirmed that the traffic data obtained in July 2022 was acceptable for the revised assessment of the modelling but deferred to independent consultants, Stantec to review the methodology of the calibration. Stantec prepared a short

Technical Note dated the 31<sup>st</sup> of August 2022, a copy of which is included at **ATTACHMENT D**, which confirmed that the calibration methodology was acceptable. However, Stantec did query the suitability of applying this calibration methodology to the revised junction arrangement, i.e. the mini roundabout. This is because a mini roundabout would operate differently to a priority junction and in lieu of any observed movements at a mini roundabout junction in this location, there would be no opportunity to measure observed queues against the modelled outputs. As such, OCC's latest consultation response dated the 06<sup>th</sup> of September 2022 notes that the appropriate comparison should be the 2026 BTM reference case at the existing priority junction, and the 2026 BTM + Proposed Development at the proposed mini roundabout junction. However, there is also a case to be made that if the 2026 BTM + Proposed Development scenario operates without a "severe" impact with the existing priority junction, then in accordance with paragraph 111 of the NPPF, there should be no highways reason for refusal.

#### **A4095 Queue Length Assessment:**

In order to clearly present the impacts on the local network as a result of the assessments, VTP Drawing 4600-1100-T-074 Rev B has been prepared to identify the extent of queuing that would result from the respective scenarios. A copy of this plan is included at **ATTACHMENT E**. The results of the assessments show that by identifying what is considered to be an appropriate severe threshold for each of the approaches to the A4095 Howes Lane/Bucknell Road junction, i.e. the point at which the queue would reach or extend into the A4095 Lords Lane/B4100 Banbury Road junction on the A4095 Lords Lane approach (to the north), or the A4095 Howes Lane/Middleton Stoney Road/Vendee Drive/B4030 junction on the Howes Lane approach (to the south), it can be determined if a particular scenario is considered to be acceptable or not based on the severity of the impact.

#### **Existing Arrangement (Uncalibrated):**

This plan shows that in the uncalibrated arrangement, the Observed AM queue and the 2026 BTM + Proposed Development AM queue would extend beyond the severe threshold on the A4095 Lords Lane approach. For the Howes Lane approach, the 2026 BTM + Proposed Development PM queue would extend beyond the severe threshold.

#### **Existing Arrangement (Calibrated):**

This plan shows that in all scenarios and on all approaches, the severe threshold on the A4095 Lords Lane and the A4095 Howes Lane approaches would not be reached.

#### **Proposed Arrangement (Uncalibrated):**

This plan shows that there would generally be an improvement on all approaches when compared with the calibrated assessment of the existing junction arrangement, with the exception of the 2026 BTM PM and the 2026 BTM + Proposed Development PM scenarios. However, it should still be noted that the severe threshold is not breached.

#### **BTM Data:**

It is key to note that whilst we have consistently challenged the validity of the BTM traffic flows, particularly as there appears to be a vast increase in PM traffic flows from those observed in 2022 to the 2026 BTM reference case, OCC maintain that the BTM is an accurate reflection of the expected level of traffic flows that might be on the network in the future year. We have reviewed the Uncertainty Logs that were provided by OCC with regards to the 2026 BTM reference case and for info, this includes the following development:

- 7,523 residential dwellings
- 418,651sqm of employment floor spaces
- 14,971sqm of retail floor space
- 3,972 spaces for pupils in new schools

It would appear that all of the above development is expected to come forward and be completed by 2026, but without the need for the A4095 SLR and that the additional 530 dwellings associated with the Firethorn development are considered to increase the impacts on the local network to a point that is considered to be severe by OCC.

#### **Prepared by:**

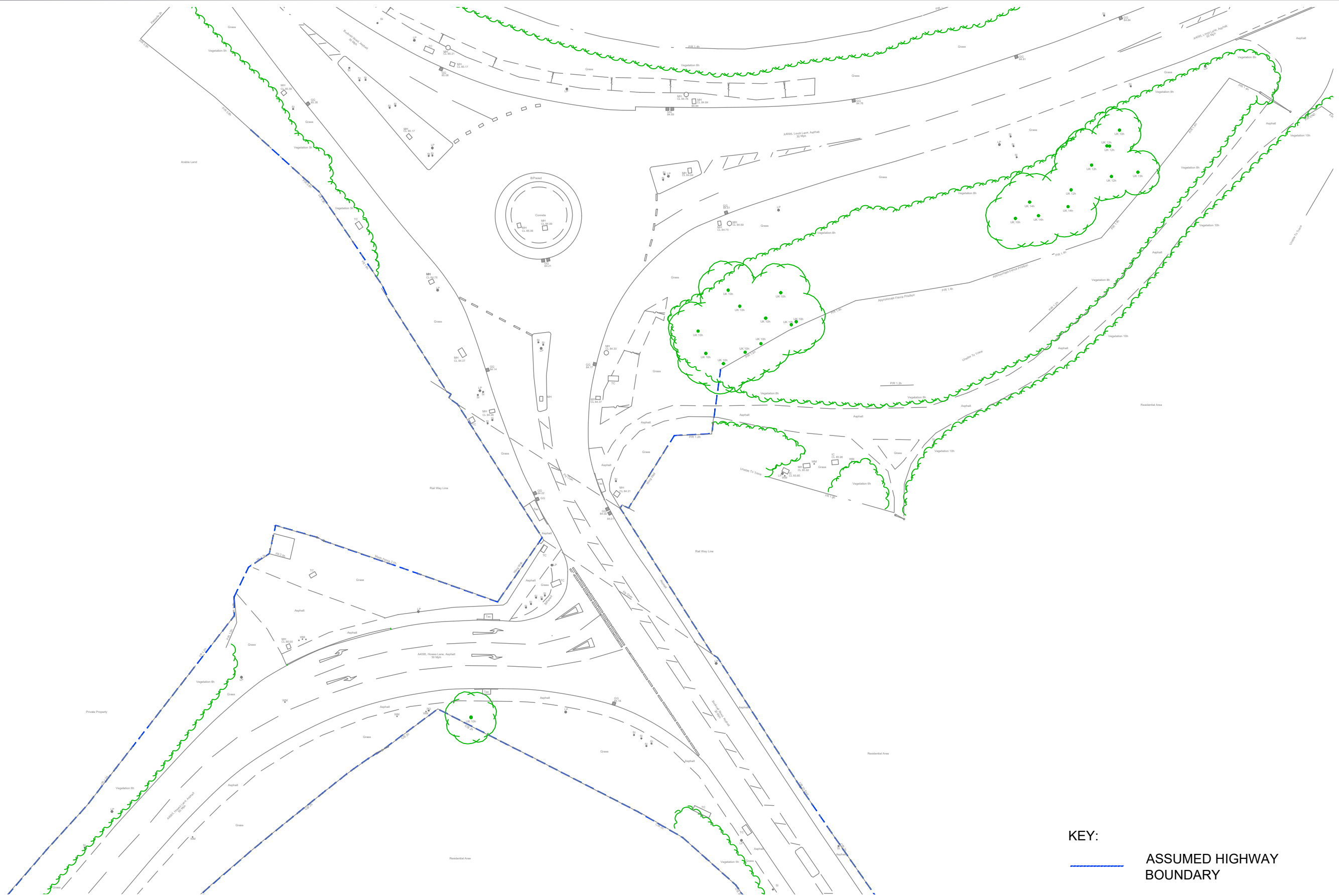
Mark Kirby

13<sup>th</sup> September 2022

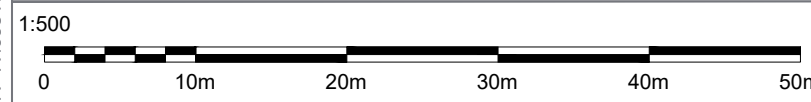
# ATTACHMENT A

Existing & Proposed Junction Arrangements

Drawing file: 4600-1100-T-050-A - A4095 Howes Lane - Bucknell Road - Existing Junction - General Arrangement.dwg Date: Mar 01, 2022 - 11:58am



**KEY:**  
**ASSUMED HIGHWAY BOUNDARY**



- Notes:**
1. DO NOT SCALE FROM THIS DRAWING.
  2. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
  3. THIS DRAWING IS TO BE PRINTED IN COLOUR.
  4. THE TOPOGRAPHICAL SURVEY INFORMATION HAS BEEN PROVIDED BY SURVEY SOLUTIONS (DRAWING NO 38942CVLS-01) AND VELOCITY TRANSPORT PLANNING SHALL NOT BE LIABLE FOR ANY INACCURACIES OR DEFICIENCIES.
  5. THIS DRAWING HAS BEEN ISSUED FOR INFORMATION PURPOSES AND MUST NOT BE USED FOR CONSTRUCTION.



Drawing Status  
**S2 - FOR INFORMATION**



Client  
 Architect

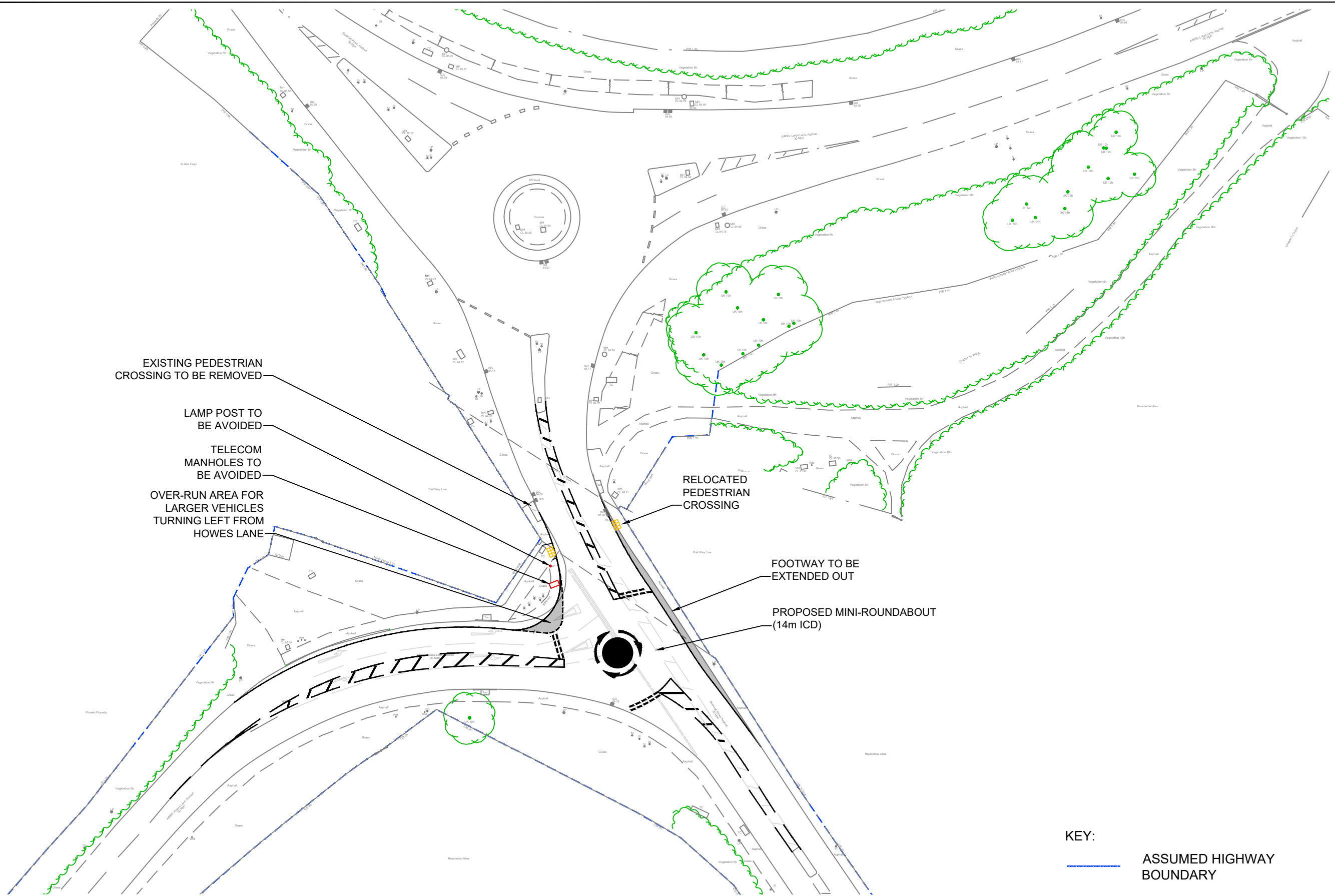
Project Title  
**NW BICESTER**

Drawing Title  
**A4095 HOWES LANE/ BUCKNELL ROAD  
 EXISTING JUNCTION  
 GENERAL ARRANGEMENT**

Scale @ A3 1:500	Date 01/03/22	Designed/Drawn GSF	Checked CR	Approved MK
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Project Ref 4600-1100	Drawing Number 4600-1100-T-050	Rev A
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Rev	Date	Description	Drn	Chk	App
A	01/03/22	FIRST ISSUE	GSF	CR	MK



KEY:  
 ASSUMED HIGHWAY BOUNDARY



Rev	Date	Description	Drn	Chk	App
C	25/05/22	RELOCATED PEDESTRIAN CROSSING	GSF	CR	MK
B	15/03/22	ALIGNMENT CHANGE	GSF	CR	MK
A	01/03/22	FIRST ISSUE	GSF	CR	MK

- Notes:
- DO NOT SCALE FROM THIS DRAWING. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
  - THIS DRAWING IS TO BE PRINTED IN COLOUR. THE TOPOGRAPHICAL SURVEY INFORMATION HAS BEEN PROVIDED BY SURVEY SOLUTIONS (DRAWING NO 38942CVLS-01) AND VELOCITY TRANSPORT PLANNING SHALL NOT BE LIABLE FOR ANY INACCURACIES OR DEFICIENCIES.
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Drawing Status  
**S2 - FOR INFORMATION**



Client

Architect

Project Title  
**NW BICESTER**

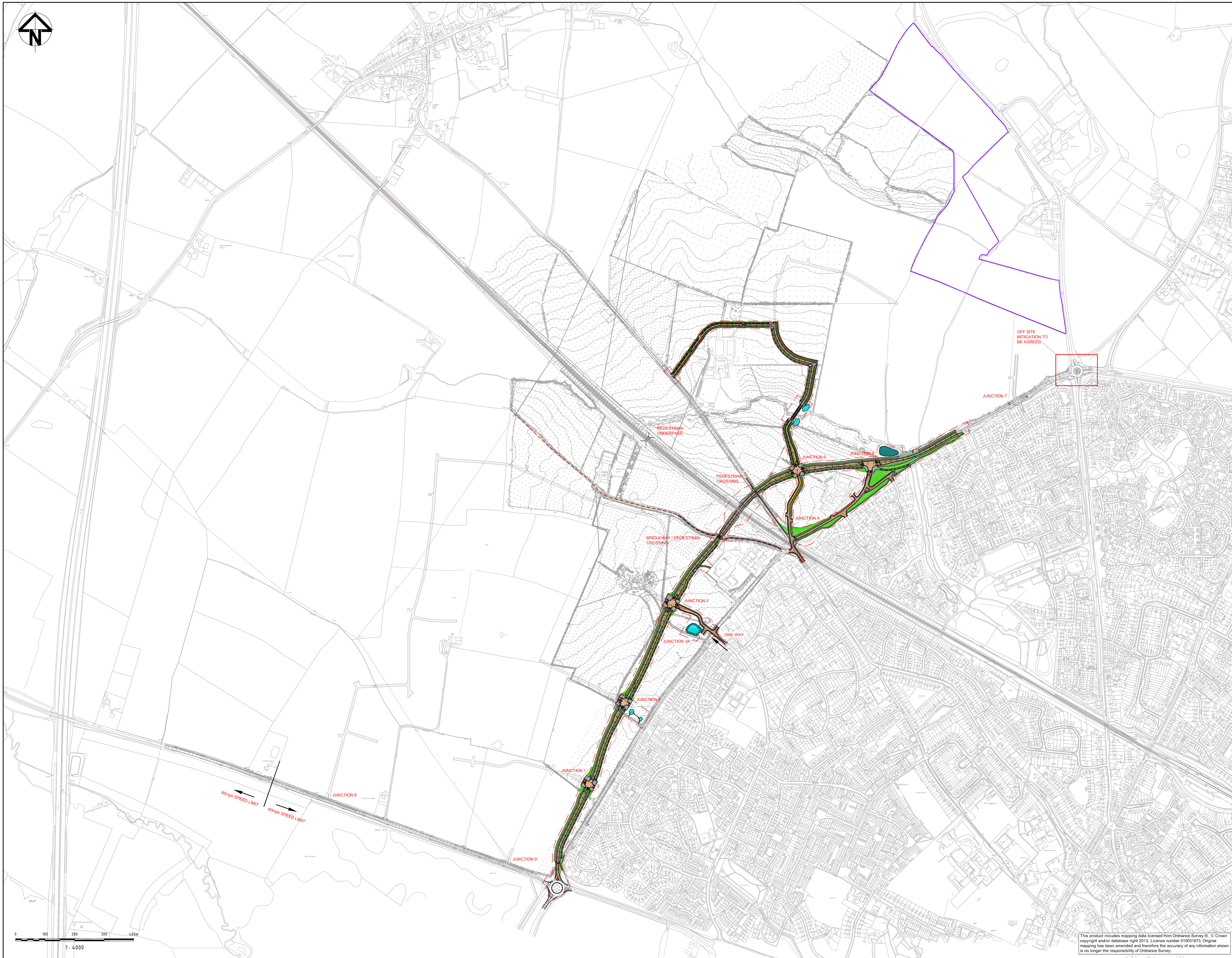
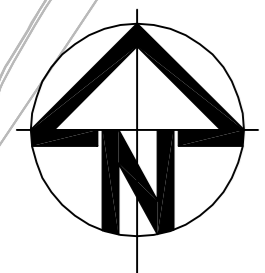
Drawing Title  
**A4095 HOWES LANE/ BUCKNELL ROAD  
 PROPOSED JUNCTION  
 GENERAL ARRANGEMENT**

Scale @ A3	Date	Designed/Drawn	Checked	Approved
1:500	01/03/22	GSF	CR	MK
Project Ref	Drawing Number		Rev	
4600-1100	4600-1100-T-054		C	



# **ATTACHMENT B**

**A4095 Strategic Link Road Scheme  
Oxford Future Partnership Letter (30/11/2021)**



**KEY**

- EXEMPLAR SITE BOUNDARY
- PLANNING APPLICATION 3 BOUNDARY
- CARRIAGEWAY
- BUS ONLY LINK
- BRIDLE WAY
- SWALE
- VERGE/LANDSCAPE
- FOOTWAY / CYCLEWAY (FOOTWAY 2.5m / 3.0m WIDE) (CYCLEWAY 2.5m WIDE)
- PIPED DRAINAGE
- DRAINAGE POND

Issue	Description	Date
03	FOR PLANNING	20-11-14
02	JUNCTION LAYOUTS REVISED	09-07-14
01	DRAFT ISSUE FOR DISCUSSION	JUL 14

<b>FOR PLANNING</b>	
Author	P. WILLIAMS
Checker	SA. DAVIES
Approver	SA. DAVIES
Grid	O.S. © Copyright reserved



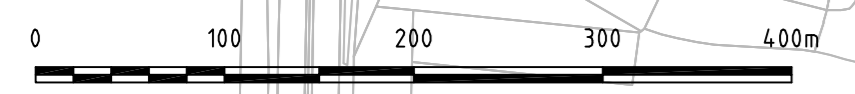
**Project**  
A4095 NW STRATEGIC LINK ROAD BICESTER

**Title**  
HIGHWAY LAYOUT MASTERPLAN

Drawing No	Project No	Issue
125	UA005241	03

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60mph SPEED LIMIT  
40mph SPEED LIMIT

**To:** Future Oxfordshire Partnership (formerly the Oxfordshire Growth Board)

**Title of Report:** Oxfordshire Housing and Growth Deal Infrastructure Programme – Six Month Review and Proposed Changes

**Date:** 30 November 2021

**Report of:** Owen Jenkins, Director & Senior Responsible Officer, Infrastructure Programme

**Status:** Open

**Executive Summary and Purpose:**

Changes to the Housing & Growth Deal (H&GD) Infrastructure programme have been made at various stages throughout the Deal's existence. These changes follow reviews by OCC of the latest cost and delivery profiles for the Infrastructure schemes and are designed to ensure that -

- the annual Infrastructure spend profile agreed with Homes England as part of the agreement (£30m pa for each of the 5 years of the H&GD) is met
- the housing numbers identified as being attributable to the delivery of the Infrastructure are maximised
- the Infrastructure schemes are deliverable both in terms of
  - their overall budgets as currently allocated (whether that be solely from H&GD or from multiple funding sources)
  - their delivery timescales aligning with the H&GD period (March 2023)

**How this report contributes to the Oxfordshire Strategic Vision Outcomes:**

The Infrastructure programme contributes towards enhancing connectivity and providing sustainable high quality resilient transport networks which support growth.

**Recommendations:**

That the Future Oxfordshire Partnership endorse the proposed changes to the H&GD Infrastructure Programme as recommended by Oxfordshire County Council as follows:

- a) the removal of further funding from a scheme currently within the H&GD – the A4095 [Howes Lane] re-alignment
- b) re-allocating this funding, to introduce a scheme presently outside the H&GD – the A34 Lodge Hill interchange.
- c) Increasing funding to Milton Heights Pedestrian and Cycle Bridge to cover a cost pressure.

## Introduction

1. The Housing and Growth Deal infrastructure programme is being delivered by Oxfordshire County Council. The programme is reviewed approximately every 6 months to ensure its deliverability. This report reflects the proposed changes required to deliver the obligations within the Housing & Growth Deal.
2. The recommended revisions to the programme have also been assessed within the context of the housing delivery requirements of the deal.
3. The A4095 [Howes Lane] re-alignment was flagged in the latest review due to issues relating to its allocated budget and delivery timescales.
4. This scheme is intended to re-align the A4095 at Howes Lane / Lords Lane with the new underpass near Bucknell Road / Howes Lane junction.
5. A separate but related Infrastructure scheme constructing an underbridge and underpass through the embankment supporting the twin track NAJ2 Marylebone to Aynho line at Bicester was successfully delivered in April 2021, partly funded by the H&GD.
6. The Howes Lane re-alignment is currently allocated £15.75m from the H&GD.
7. The latest review of the scheme indicates that significantly more will be needed to deliver the scheme. This increase in cost estimates includes additional drainage elements as well as a longer construction period.
8. At present, as with all schemes where the land identified as necessary to deliver the infrastructure has not been secured either by private treaty or s106 negotiation (or similar), OCC intend to authorise a CPO to support the necessary acquisitions.
9. Should a Compulsory Purchase Order (CPO) be necessary to secure the land, the scheme's construction phase would be concluded in Q2 2025 which is significantly past the H&GD 2023 funding window.
10. It has been indicated that a limited further contribution could be provided from CDC to support the scheme but this will not be confirmed until Feb 2022. However, to authorise a CPO, OCC must have full scheme funding in place.

## 11. Options

12. The 3 options considered to resolve the A4095 [Howes Lane] re-alignment's issues were
  - a) **fully fund the scheme**
  - b) **stop the scheme immediately and re-allocate funding**
  - c) **continue the scheme to the end of current stage and re-allocate funding then**

### **a) Fully fund the scheme**

13. The H&GD Infrastructure total funding is £150m, split between ~£143m for Capital expenditure and the remaining ~£7m as Revenue.
14. Allocating additional Capital to the A4095 [Howes Lane] re-alignment would necessitate removing that sum from other H&GD funded schemes' budgets.
15. Given the substantial additional sums involved in delivering the A4095 realignment and the contracts already in place across other schemes, the 2 viable options to release this sum would be to stop work immediately on either:
  - Woodstock Road corridor
  - NOC A44 Loop Farm to Cassington

### **Housing implications**

16. The latest housing projections indicate 150 houses will be brought forward in the H&GD period on the sites associated with the A4095 [Howes Lane] re-alignment in NW Bicester.
17. This compares with the 446 houses currently forecast for the NOC A44 Loop Farm to Cassington infrastructure.
18. The Woodstock Road corridor contributes to the overall / aggregated Oxford City housing numbers.
19. The latest A4095 [Howes Lane] re-alignment housing projection is also rated Amber in terms of certainty of deliverability, which is consistent with the overall trend for the sites in NW Bicester which had forecast 1000+ homes when the original H&GD allocation was made.

### **b) Stop the scheme immediately and re-allocate funding**

20. The scheme has completed Feasibility and is contract for both the Prelim and Detailed design stages with work underway but with break clauses in place in all contract(s).
21. Given the spend timescales and the housing delivery mandate of the H&GD monies, the proposal is to introduce a scheme into the H&GD Infrastructure programme - the A34 Lodge Hill interchange, a scheme which will provide South facing slips at the Lodge Hill interchange increasing routes around Abingdon and access to the strategic transport network.
22. The A34 Lodge Hill interchange supports the delivers 1673 homes and would add an additional *net* 200 houses to those delivered within the H&GD original period (350 in total) with a high level of confidence in the houses at North Abingdon being delivered. The construction of the interchange will directly release the housing obligations in the s106 agreement.

23. The Lodge Hill interchange scheme is already underway – as any option to deliver within the H&GD period at this point would have to be. Planning is intended to be submitted in Dec 2021 with a clear procurement route identified and construction intended to begin in Summer 2022.
24. This delivery timescale is dependent upon existing externally provided funding allocated to the Lodge Hill interchange remaining in place.
25. The Lodge Hill interchange is also necessary Infrastructure for other strategic sites inc Dalton Barracks

***c) Continue the scheme to the end of current stage and re-allocate funding***

26. Given that the eventual delivery of this scheme will now potentially be delivered by Developers, it is proposed that the County Council stop work now to avoid any abortive work and release as much as possible to other schemes.

**Financial Implications**

27. The proposal set out in the report will enabled the Housing from Infrastructure programme to remain deliverable against the profile. Through development of the projects, the estimates have become firmer, but also have been found to be lacking in detail and therefore costs have increase. At this stage in the 5-year programme, there needs to be a level of certainty around deliverability and where the full funding of projects is coming from to commit to delivery. The A4095 project has a substantial deficit, and this would have to be met from within the existing Growth Deal programme as the County Council does not have funding available to cover the shortfall.

**Legal Implications**

28. It is critical that Oxfordshire can fulfil the obligations in the funding agreement and can spend the £30m per year up until 2023. Therefore, movement in the programme is necessary to deliver on the obligations. The Councils will be asked to demonstrate that the infrastructure delivered is accelerating housing. Therefore, it is critical that projects are regularly reviewed for compliance against the agreement and also state aid.

**Other Implications**

29. There are some significant risks if the programme is not rebalanced. If the programme is not rebalanced, it could risk the spend of the £30m per year in the final years when the risk is highest for the Council through construction of the schemes.

## Conclusion

30. A primary role of the H&GD was to accelerate housing by delivering Infrastructure. It is important that the Infrastructure programme is deliverable both to cost and budget but also that the projects meet the criteria.
31. In the review, the A4095 [Howes Lane] re-alignment project was flagged for issues around deliverability within the H&GD period and the reduction in housing numbers from the start of the H&GD period.
32. Although this means H&GD funding will no longer deliver the A4095 realignment, an alternative delivery model working with developers will be sought.

Report Author:	<i>John McLauchlan &amp; Hannah Battye (Heads of Service, Infrastructure Programme Office and Infrastructure Delivery) on behalf of Owen Jenkins (SRO Infrastructure Programme)</i>
Contact information:	<a href="mailto:John.McLauchlan@Oxfordshire.gov.uk">John.McLauchlan@Oxfordshire.gov.uk</a> <a href="mailto:Hannah.battye@oxfordshire.gov.uk">Hannah.battye@oxfordshire.gov.uk</a>

# ATTACHMENT C

OCC Emails Correspondence



## Mark Kirby

---

**From:** White, Joy - Oxfordshire County Council <Joy.White@Oxfordshire.gov.uk>  
**Sent:** 14 January 2022 12:05  
**To:** Mark Kirby  
**Cc:** Caroline Ford; Cox, Jacqui - Oxfordshire County Council; Stevens, Eric - Oxfordshire County Council  
**Subject:** RE: NW Bicester - Highways Comments

[EXTERNAL] This message was sent from outside your organization

Hi Mark

Thanks for your email. I'm glad the response finally came through. I hadn't realised it had been held up in sign-off.

We met with Tetrattech earlier this week. With regard to the need to test the impact of the development in the absence of the A4095 diversion, Tetrattech are currently updating the 2026 and 2031 Bicester Transport Model reference cases, using the latest annual monitoring report and including some committed development that was not included in previous reference cases. The A4095 diversion is being removed from the 2026 RC, but not the 2031. As part of this work we are checking the various NW Bicester zones and their connectors, as well as obtaining information on the assumed trip generation and distribution for each. We anticipate that these reference cases will be available in approximately 6 weeks' time.

Kind regards

Joy

Joy White  
Principal Transport Planner  
Transport Development Control: Cherwell, West Oxfordshire and Oxford City  
Oxfordshire County Council  
Environment and Place  
Growth and Place  
Mobile 07554103522  
Email: [joy.white@oxfordshire.gov.uk](mailto:joy.white@oxfordshire.gov.uk)

Did you know that a new Oxfordshire Street Design Guide has been launched? You can view it [here](#).

---

**From:** Mark Kirby <mkirby@velocity-tp.com>  
**Sent:** 12 January 2022 10:39  
**To:** White, Joy - Oxfordshire County Council <Joy.White@Oxfordshire.gov.uk>  
**Subject:** NW Bicester - Highways Comments

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Morning Joy,

Just a quick email to follow up on our recent discussions in relation to the NW Bicester proposals.

How was your discussion with Jacqui Cox on the 05<sup>th</sup> of January about the updated BTM? Is there anything that you might be able to update me on, or is there anything that I might be able to assist with?

I noted from our discussion that you were expecting to submit further Highways Comments to Caroline Ford on the latest submission of information by Friday last week (the 07<sup>th</sup> of January). I assume that you have done so now, but having had a quick look on the CDC Planning Portal, nothing has been uploaded yet. I know that Hannah Leary of BW has asked Caroline to forward any further consultation responses as and when these come in, so I expect we will receive a copy of your comments in due course. However, if you are comfortable sending these across to me directly, it would be much appreciated.

Let me know if I can be of any further assistance, particularly with regards the position on the A4095 SLR.

Kind regards,

**Mark Kirby**

Associate Director

Mob: 07385 382 701



Unit A, Taper Studios, The Leather Market, 120 Weston Street, London, SE1 4GS



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## Mark Kirby

---

**From:** White, Joy - Oxfordshire County Council <Joy.White@Oxfordshire.gov.uk>  
**Sent:** 09 June 2022 09:31  
**To:** Mark Kirby  
**Cc:** Caroline Ford; Manku, Amrik - Oxfordshire County Council; Cox, Jacqui - Oxfordshire County Council  
**Subject:** RE: NW Bicester - Response to OCC Comments (16 May 2022)

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

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Hi Mark

Thank you for these notes. I am responding only regarding TN008 - I will respond separately on TN009.

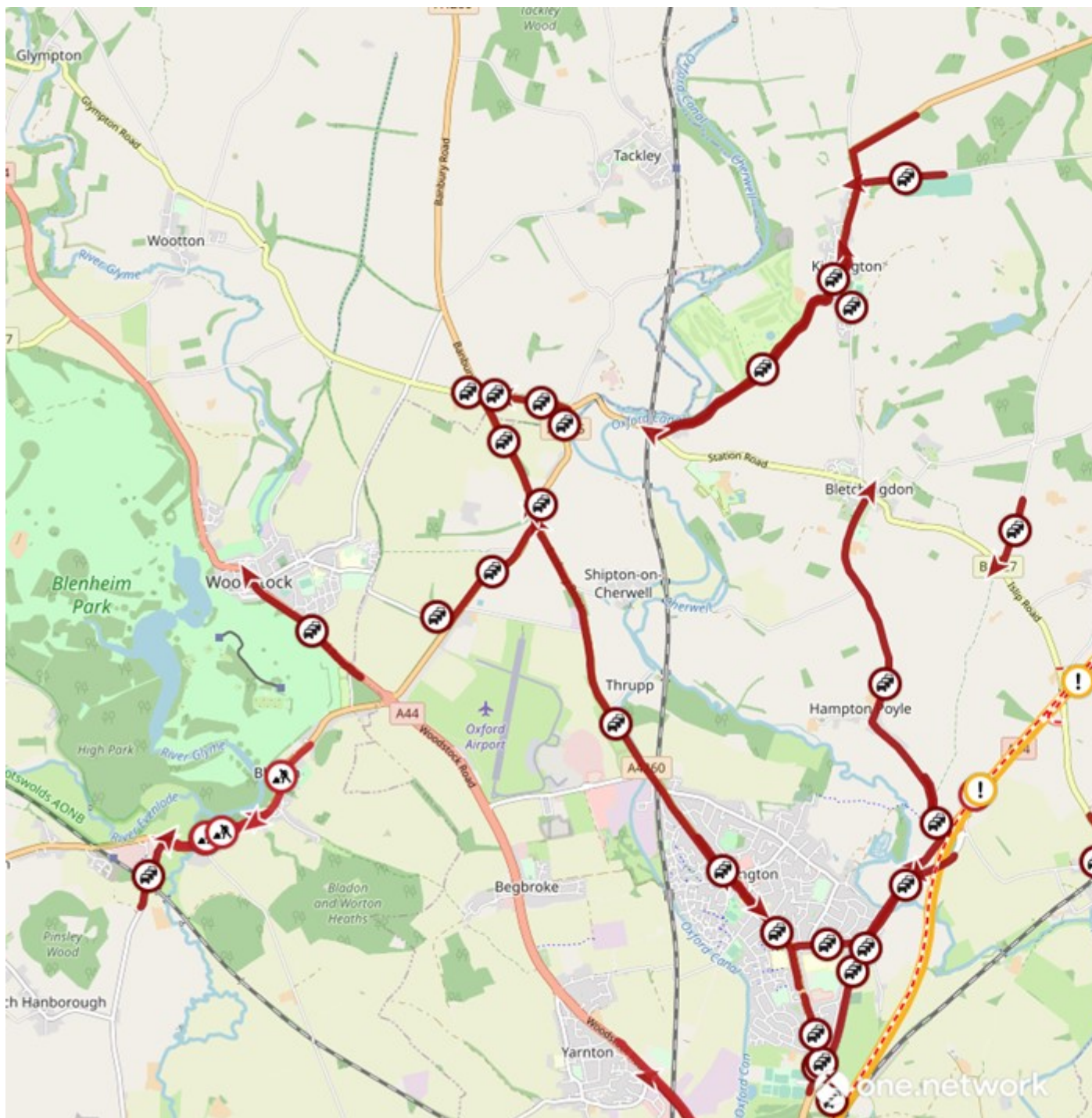
TN008 seeks to address the issue that the PICADY modelled queues did not validate with the observed traffic count queues.

I have discussed this with colleagues and referred to an article on the TRL website: [Queues are longer \(or shorter\) than ARCADY predicts - TRL Software](#) .

The first thing to investigate is the traffic counts. In this case they were done on one day, 2 February 2022, which on the face of it is a neutral, mid-week day. However, on investigation I have found that the counts on this day are very likely to be atypical, particularly in the afternoon peak. This is the information I have from our Network Management team:

There were a couple of incidents that day

- Kirtlington on the A4095
  - started 1500 approx
  - finished 1830 approx
  - average speed 1 – 5 mph
- A34
  - Start 1445
  - At some point all lanes closed
  - Fully Reopened 1945 – 2000 approx
  - Average speed 4mph
- Weston on the green
  - Similar times
  - Average speed 4mph



The A34 closure would have had very wide knock on effects, and would have delayed traffic that would otherwise have reached the A4095 during the peak hour.

This in itself means that it is not appropriate to reduce flows into the model to make the model validate, and is the likely explanation for the apparent anomaly between the counts and the BTM 2026 reference case.

However, even if the count was typical, we can't accept reducing the flow as a method of validating the model. The article referred to above advises regarding the next steps that should be taken if the traffic counts are deemed reliable, first double checking the geometry and using Lane Simulation Mode where there is unequal lane usage. The next step if all else fails is to calibrate the model using intercept adjustments. The advice does not include reducing the flows as a way of calibrating the model. The flows are what they are - it is the intercept parameters that need to be changed.

Unfortunately this suggests to me that a further traffic survey needs to be done or another existing one used. I will look into whether we have any data from other surveys.

Kind regards

Joy

Joy White  
Principal Transport Planner  
Transport Development Control: Cherwell, West Oxfordshire and Oxford City  
Oxfordshire County Council  
Environment and Place  
Growth and Place  
Mobile 07554103522  
Email: [joy.white@oxfordshire.gov.uk](mailto:joy.white@oxfordshire.gov.uk)

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**From:** Mark Kirby <[mkirby@velocity-tp.com](mailto:mkirby@velocity-tp.com)>  
**Sent:** 01 June 2022 18:02  
**To:** White, Joy - Oxfordshire County Council <[Joy.White@Oxfordshire.gov.uk](mailto:Joy.White@Oxfordshire.gov.uk)>  
**Cc:** Caroline Ford <[Caroline.Ford@Cherwell-DC.gov.uk](mailto:Caroline.Ford@Cherwell-DC.gov.uk)>; Claudio Ricci <[CRicci@velocity-tp.com](mailto:CRicci@velocity-tp.com)>  
**Subject:** NW Bicester - Response to OCC Comments (16 May 2022)

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Afternoon Joy,

Please find attached TN008 – A4095 Calibration Assessment and TN009 – Response to OCC, which provide further details to address the three reasons for OCC’s objection as set out in the recent consultation response dated the 16<sup>th</sup> of May 2022.

I appreciate that you are waiting on a response from Tetra Tech to address the discrepancy that we have identified for the PM Peak Hour flows from the updated BTM data, but as it is likely that any changes to the PM Peak Hour flows would result in a reduction in baseline traffic flows and not an increase, we felt that our Technical Note is considered to be robust.

You will note that our conclusion remains that the proposed Interim Improvement of the mini-roundabout junction still results in an acceptable mitigation solution and that once calibrated, in line with your comments in the consultation response, the identified queue on Lords Lane would actually reduce from that which would occur in the future in a ‘Do Nothing’ scenario with no development traffic associated with the Firethorn scheme.

Our comments in relation to the road narrowing along Charlotte Avenue and cycle facilities along Braeburn Avenue are set out within TN009.

I trust that you will find the attached acceptable, but please feel free to contact me if you wish to discuss any of the information.

Kind regards,

**Mark Kirby**  
Associate Director  
Mob: 07385 382 701

DDI: 020 3336 7320



Unit B, Taper Studios, The Leather Market, 120 Weston Street, London, SE1 4GS



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## Mark Kirby

---

**From:** White, Joy - Oxfordshire County Council <Joy.White@Oxfordshire.gov.uk>  
**Sent:** 06 July 2022 17:33  
**To:** Mark Kirby  
**Cc:** Claudio Ricci; Pearson, Sacha; Cox, Jacqui - Oxfordshire County Council; Stevens, Eric - Oxfordshire County Council; Caroline Ford  
**Subject:** RE: Firethorn - traffic flows and BTM query

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

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Hi Mark

With reference to your highlighted query below, Sacha has confirmed that the BTM has most definitely NOT been based (validated) on non-neutral month traffic data. His email of 6th June does not actually say that the traffic count data attached was used to validate the model.

The count is one of a large number that Tetrattech have on file for the Bicester area, not all of which have necessarily been used for validation purposes. The reason for sending that particular set of data was that it related to the junction that you were specifically highlighting.

I hope this clarifies this point.

Kind regards

Joy

Joy White  
Principal Transport Planner  
Transport Development Control: Cherwell, West Oxfordshire and Oxford City  
Oxfordshire County Council  
Environment and Place  
Growth and Place  
Mobile 07554103522  
Email: [joy.white@oxfordshire.gov.uk](mailto:joy.white@oxfordshire.gov.uk)

Did you know that a new Oxfordshire Street Design Guide has been launched? You can view it [here](#).

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**From:** Mark Kirby <mkirby@velocity-tp.com>  
**Sent:** 14 June 2022 05:59  
**To:** White, Joy - Oxfordshire County Council <Joy.White@Oxfordshire.gov.uk>  
**Cc:** Claudio Ricci <CRicci@velocity-tp.com>  
**Subject:** RE: Firethorn - traffic flows and BTM query

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Morning Joy,

I appreciate that we have asked if OCC would accept additional surveys undertaken over a 2 day period towards the end of June or the beginning of July, which would be outside of the summer holiday period, and therefore they should be acceptable. We await your response in this regard.

I have had a quick look at the data that Sacha Pearson sent across to you from Tetra Tech and I note that this survey data is from 2016, so relatively dated now and unlikely to be representative of what is on the network 6 years later. However, the counts appear to have been undertaken on the 11<sup>th</sup> of August 2016. This is right in the heart of the summer holiday period so the data is unlikely to be representative of normal traffic conditions on the network anyway. Has the entire BTM been based on traffic counts undertaken in a non-neutral month in the middle of the summer holidays? Is this potentially why there is such a large discrepancy in the AM and PM peak hour flows?

In your email dated the 09<sup>th</sup> of June 2022 (copy attached), you note that you discussed the suitability of the traffic counts that we undertook on the 02<sup>nd</sup> of February 2022. You note that this was a mid-week day in a neutral period, which we therefore would assume would have been a suitable period to undertake surveys. However, there were a number of delays identified on the network that are considered to have had an impact on the flows along the A4095. I have to admit, that as the plan included in your email identifies, these delays appear to have been to the south west of the M40 and therefore some distance away from the A4095 and Bicester as a town. However, if it is considered that the traffic flows were obtained on a suitable date, but due to local conditions, are unacceptable, we will hopefully be able to agree the additional counts and let's cross our fingers that nothing causes delays on the wider network on the day of the surveys.

With regards to the calibration of the observed junction flows, rather than question this further, if OCC consider that our collected data is flawed, then we will consider the potential calibration of the junction model once we obtain revised data for this junction.

I am sure that you appreciate that we are up against it now to obtain these revised traffic counts before the summer holiday period. As such, your confirmation that our proposed survey dates are acceptable at your earliest convenience, would be greatly appreciated.

As an alternative, you mentioned that you would check to see if suitable recent counts had been undertaken. Did you managed to find anything that we could use?

I look forward to hearing from you ASAP.

Kind regards,

**Mark Kirby**

Associate Director, Velocity Transport Planning

Mob: 07385 382 701

DDI: 020 3336 7320

---

**From:** White, Joy - Oxfordshire County Council <[Joy.White@Oxfordshire.gov.uk](mailto:Joy.White@Oxfordshire.gov.uk)>

**Sent:** 13 June 2022 15:13

**To:** Mark Kirby <[mkirby@velocity-tp.com](mailto:mkirby@velocity-tp.com)>; Claudio Ricci <[CRicci@velocity-tp.com](mailto:CRicci@velocity-tp.com)>

**Subject:** Firethorn - traffic flows and BTM query

[EXTERNAL] This message was sent from outside your organization

Hi Mark and Claudio,

Apologies, I should have forwarded this to you last week.

Kind regards



Joy

---

**From:** Pearson, Sacha <[Sacha.Pearson@tetrattech.com](mailto:Sacha.Pearson@tetrattech.com)>  
**Sent:** 06 June 2022 15:47  
**To:** White, Joy - Oxfordshire County Council <[Joy.White@Oxfordshire.gov.uk](mailto:Joy.White@Oxfordshire.gov.uk)>; Stevens, Eric - Oxfordshire County Council <[Eric.Stevens@Oxfordshire.gov.uk](mailto:Eric.Stevens@Oxfordshire.gov.uk)>  
**Cc:** Manku, Amrik - Oxfordshire County Council <[Amrik.Manku@Oxfordshire.gov.uk](mailto:Amrik.Manku@Oxfordshire.gov.uk)>  
**Subject:** RE: Firethorn application, NW Bicester

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Hi Joy

In terms of the turning movement spreadsheet that we created for the Albion Land scheme earlier this year, I have checked the data again (we obviously did this before issuing it the DTA) and I can confirm that it is all correct – I've attached PCU flow plots for each junction that show this.

With regard to traffic flows at the A4095 / Howes Lane junction, I've attached the traffic count that was undertaken in June 2016. I've summarised the total AM and PM flows in the table below, and you'll see that the PM is notably higher than the AM, so in keeping with the BTM.

Junction	Total Flow through Junction (PCUs)	
	AM	PM
3 - A4095 / Howes Lane	1224	1748

Kind regards

Sacha

**Sacha Pearson**  
Principal Transport Modeller

**Tetra Tech**  
Executive Park, Avalon Way, Anstey, Leicester, Leicestershire, LE7 7GR

**Tel:** +44 116 234 8206  
**Mob:** +44 781 175 7371  
[tetrattech.com](http://tetrattech.com)

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**From:** Claudio Ricci <[CRicci@velocity-tp.com](mailto:CRicci@velocity-tp.com)>  
**Sent:** 30 May 2022 13:02  
**To:** White, Joy - Oxfordshire County Council <[Joy.White@Oxfordshire.gov.uk](mailto:Joy.White@Oxfordshire.gov.uk)>  
**Cc:** Caroline Ford <[Caroline.Ford@Cherwell-DC.gov.uk](mailto:Caroline.Ford@Cherwell-DC.gov.uk)>; Mark Kirby <[mkirby@velocity-tp.com](mailto:mkirby@velocity-tp.com)>  
**Subject:** FW: Technical note, Firethorn NW Bicester

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Hi Joy,

Hope you had a good weekend.

As requested, please see below our observations on the BTM model data.

In terms of total vehicle flows (measured in PCUs) observed passing through the A4095 Howes Lane / Bucknell Road junction (referred to as 'Junction 3' within the data received), our traffic surveys undertaken in February 2022 identified the following.

Junction 3 Scenario	Total Flow through Junction (PCUs)	
	AM	PM
Observed 2022	1,734	1,433

You'll note that the total AM flow is higher, as would typically be expected given it accounts for School and workplace traffic flows etc.

However, when compared to the data received from the BTM back in March (attached for ease of reference and summarised below) for the 2026 reference case, you'll see that the PM is significantly higher than the AM. The PM also includes a significant increase from the flows observed in 2022 (61% or 871 PCUs), which is not as evident in the AM data. Whilst we would expect some increase within the BTM traffic data to reflect the Local Plan growth – we would not expect an increase this substantial in the PM. The AM increase of 11% would appear more reasonable. The flows below also do not include the Firethorn development.

Junction 3 Scenario	Total Flow through Junction (PCUs)	
	AM	PM
Observed 2022	1,734	1,433
BTM 2026	1,924	2,304
<b>Increase from Observed</b>	<b>11%</b>	<b>61%</b>

We have also identified that this variation between the AM and PM is present within the A4095 / Bucknell Road roundabout. However, it is not evident across the other junctions within the local area both upstream/downstream of the junction - so it isn't abundantly clear where this discrepancy is coming from, as it is not consistent across the data we've received.

Junction	Total Flow through Junction (PCUs)		AM:PM DISCREPANCY
	AM	PM	
1 - A4095/B4100 Banbury Road Rbt	3,550	3,660	110
2 - A4095/Bucknell Road Rbt	2,081	2,312	231

<b>3 - A4095 / Howes Lane</b>	<b>1924</b>	<b>2304</b>	<b>381</b>
4 - A4095 / Middleton Stoney Rbt	2663	2688	25
5 - B4030 / Empire Road	1162	1139	-23

Are you able to get your colleagues to take a look at this and revert back to us with their thoughts?

Many thanks,

Claudio

**Claudio Ricci**

Senior Transport Planner, Velocity Transport Planning

Mob: 07594 518 480

Ddi: 020 3336 7312

**VELOCITY**  
Transport Planning

Unit A, Taper Studios, The Leather Market, 120 Weston Street, London, SE1 4GS



---

**From:** Mark Kirby <[mkirby@velocity-tp.com](mailto:mkirby@velocity-tp.com)>

**Sent:** 27 May 2022 11:57

**To:** White, Joy - Oxfordshire County Council <[Joy.White@Oxfordshire.gov.uk](mailto:Joy.White@Oxfordshire.gov.uk)>

**Cc:** Caroline Ford <[Caroline.Ford@Cherwell-DC.gov.uk](mailto:Caroline.Ford@Cherwell-DC.gov.uk)>; Claudio Ricci <[CRicci@velocity-tp.com](mailto:CRicci@velocity-tp.com)>

**Subject:** RE: Technical note, Firethorn NW Bicester

No problem Joy,

I'll pull something together quickly and get this across to you so that you ask Tetra Tech to consider.

If they can provide a sensible reason as to why the increase in the PM traffic flows in the BTM Output for 2026 are so high, we will continue with our assessment. If this is a mistake (which logic might suggest it is), we can update our assessment to reflect the corrected PM traffic data.

Kind regards,

**Mark Kirby**

Associate Director, Velocity Transport Planning

Mob: 07385 382 701

DDI: 020 3336 7320

---

**From:** White, Joy - Oxfordshire County Council <[Joy.White@Oxfordshire.gov.uk](mailto:Joy.White@Oxfordshire.gov.uk)>

**Sent:** 27 May 2022 11:54

**To:** Mark Kirby <[mkirby@velocity-tp.com](mailto:mkirby@velocity-tp.com)>

**Cc:** Caroline Ford <[Caroline.Ford@Cherwell-DC.gov.uk](mailto:Caroline.Ford@Cherwell-DC.gov.uk)>

**Subject:** Technical note, Firethorn NW Bicester

[EXTERNAL] This message was sent from outside your organization

Hi Mark

Further to our meeting, if you can send me some brief text concerning the apparent anomaly in modelling outputs as soon as possible, I will ask colleagues/Tetrattech to consider.

Kind regards  
Joy

Joy White  
Principal Transport Planner  
Transport Development Control: Cherwell, West Oxfordshire and Oxford City  
Oxfordshire County Council  
Environment and Place  
Growth and Place  
Mobile 07554103522  
Email: [joy.white@oxfordshire.gov.uk](mailto:joy.white@oxfordshire.gov.uk)

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# ATTACHMENT D

Stantec Technical Note (31/08/2022)

# TECHNICAL NOTE

**Job Name:** NW Bicester - Firethorn application ref 21/01630/OUT  
**Client:** Oxfordshire CC  
**Job No:** 330610595  
**Note No:** TN001  
**Date:** 31 August 2022  
**Prepared By:** J. Hargreaves  
**Reviewed By:** Phil Brady / Dave Cope  
**Subject:** Modelling Review of Bucknell Road / Howes Lane Junction

---

## 1. Introduction

- 1.1. This Technical Note has been prepared on behalf of Oxfordshire County Council (OCC) to provide a review of the modelling undertaken by Velocity Transport Planning Limited (VTP) on the Bucknell Road / Howes Lane Junction as part of the NW Bicester - Firethorn application ref 21/01630/OUT.
- 1.2. This review considers the modelling approach used by VTP for the Junction assessments that were undertaken in TECHNICAL NOTE 08: A4095 JUNCTION MODELLING (May 2022). The existing tee-junction arrangement was modelled using PICADY and the proposed mini-roundabout mitigation scheme was modelled using ARCADY. Demand flows for assessing the junctions were based on observed traffic count data for the existing junction (surveyed 02 February 2022) and 2026 BTM (Bicester Transport Model) flows for the future case testing. The use of the BTM flow data for the future year assessments was agreed by OCC prior to the junction assessments.
- 1.3. The note provides details of the following elements:
  - Review of the of the existing junction modelling and observed calibration – PICADY Model.
  - Review of the of the future impact testing on the existing junction – PICADY Model.
  - Review of the of the proposed mitigation scheme modelling – ARCADY Model.
  - Comparative Impacts of the development on the existing and proposed scheme.
  - Summary and conclusions

## 2. Existing junction modelling and observed calibration – PICADY Model

- 2.1. The PICADY model used for the assessment of the existing junction indicated that there was insufficient capacity for the existing traffic demand surveyed in 2022. The model showed that there was a significant level of queuing on Bucknell Road (North) turning right into Howes Lane in the morning peak hour, some 165 vehicles. In the evening peak, the junction operated effectively with no queuing or delay issues.
- 2.2. To calibrate the model, VTP have taken the AM peak modelled queues (165 PCU's) on Bucknell Road (North) and compared it with the observed queue length of 53 vehicles. To achieve the correct queue lengths and calibrate the model VTP have reduced the traffic flows on Bucknell Road (N) (straight ahead from 169 PCU's to 145, and the right turn from 774 PCU's to 666) until the model matches the observed surveyed queue lengths. This approach is considered to be an acceptable method of dealing with the calibration of the AM peak model.

- 2.3. To calibrate the PM peak model the same 14% factor has been applied to the demand flows on Bucknell Road (North) as with the AM peak assessments. Although the PM base model and observed flows indicated that there was no oversaturated queueing on this arm, VTP have applied the same 14% factor to represent the underestimation of capacity in the future tests which show there are lengthy queues on Bucknell Road (North). As with the AM peak, this approach is considered to be an acceptable method of dealing with the calibration of the PM peak model.
- 2.4. The results of the calibrated VTM PICADY modelling for the existing junction arrangement are shown in Table 1.

**Table 1** – Taken from VTM TN08 - Table 2-4 A4095 Howes Lane / Bucknell Road Junction Modelling – Existing Priority Junction (Calibrated)

**Table 2-4: A4095 Howes Lane / Bucknell Road Junction Modelling - Existing Priority Junction (Calibrated)**

SCENARIO	ARM	AM PEAK (08:00-09:00)			PM PEAK (17:00-18:00)		
		QUEUE	RFC	JUNCTION DELAY (s)	QUEUE	RFC	JUNCTION DELAY (s)
Observed 2022	Howes Lane (Left Turn)	4.7	0.82	151	4.2	0.8	19
	Howes Lane (Right Turn)	0.2	0.18		0.1	0.09	
	Bucknell Road N (Right Turn)	67.5	1.14		4	0.76	
BTM Base 2026	Howes Lane (Left Turn)	7.8	0.9	191	114.1	1.3	281
	Howes Lane (Right Turn)	0.1	0.12		0.1	0.1	
	Bucknell Road N (Right Turn)	86.8	1.21		53	1.08	
BTM Base 2026 + Proposed Development (530 Units)	Howes Lane (Left Turn)	30.6	1.12	442	197.4	1.46	505
	Howes Lane (Right Turn)	1.7	0.97		0.2	0.15	
	Bucknell Road N (Right Turn)	174	1.38		89.9	1.17	

- 2.5. The predicted results in Table 1 show that the existing tee-junction will experience long queues on Bucknell Road (North) and Howes Lane approaches in the future 2026 BTM flow scenarios. The impact on this junction will need to be considered by OCC in relation to the uplift in traffic demand from the Firethorn Development over and above the impact of the reference case (BTM Base 2026) results.
- 2.6. As the results of the modelling on Bucknell Road (North) and Howes Lane in the reference case (BTM Base 2026) show that these arms are already over capacity, any further traffic generated by the Firethorn Development will essentially add to the queues on these junction approaches. Note, this outcome is based on the forecast traffic flows taken from the BTM model and the accuracy of the wider model data.

### 3. Proposed junction modelling (Mitigation Scheme) – ARCADY Model

- 3.1. To mitigate the impact of the proposed development on the Junction, VTP have proposed a mini-roundabout scheme and have assessed the capacity using a calibrated ARCADY model. In VTP TN08, the results of this model have been used to compare the capacity against the calibrated PICADY model and have used this to achieve a nil detriment capacity / queue argument with the impact of the existing and proposed junctions.
- 3.2. In the preparation of the calibrated ARCADY model process, VTP have attempted to adjust the model in the same way as the PICADY model using the 14% reduction in flow on Bucknell Road (North) - this they have called the proposed calibrated model. Whilst it has been considered an acceptable method of calibrating for the existing junction arrangement it is not possible to calibrate a new junction model and apply the same factors when the type of junction has fundamentally changed. In TN08, VTP have not given a reason why the calibration factors have been applied to the new junction.
- 3.3. The existing tee-junction and the proposed mini roundabout models (ARCADY and PICADY) are different programs and the way that traffic gives way to certain movements will change. For example, the right turn movement into Howes Lane in the existing junction would have to give way to the northbound traffic on Bucknell Road – this is reversed with the proposed roundabout scheme. To use a 14% reduction in traffic flows and duplicate this method for different types of junction models cannot be considered an acceptable and should not be used in assessing the future impact at the mini-roundabout junction.
- 3.4. A more representative set of capacity results for the mini-roundabout scheme would be to use unadjusted flows on Bucknell Road (North) and allow the ARCADY model to calculate the capacity / queues on the roundabout approaches and compare these to the calibrated PICADY results in Figure 1. Whilst these results were provided by VTP in TN08; they were not used to compare the impact of the new junction scheme. A copy of the unadjusted flow results is included in Figure 2 and copy of the calibrated results is included in Figure 3.

**Table 2** – Taken from VTM TN08 - Table 2-2 A4095 Howes Lane / Bucknell Road Junction Modelling – Proposed Mini-roundabout Junction

**Table 2-2: A4095 Howes Lane / Bucknell Road Junction Modelling - Proposed Mini-roundabout Junction**

SCENARIO	ARM	AM PEAK (08:00-09:00)			PM PEAK (17:00-18:00)		
		QUEUE	RFC	JUNCTION DELAY (s)	QUEUE	RFC	JUNCTION DELAY (s)
BTM Base 2026	Bucknell Road (south)	4.5	0.82	132	3.3	0.76	351
	A4095 Howes Lane	3.5	0.77		55.5	1.12	
	Bucknell Road (North)	68.1	1.13		153.8	1.27	
BTM Base 2026 + Proposed Development	Bucknell Road (south)	5	0.84	290	3.5	0.77	510
	A4095 Howes Lane	4.7	0.82		100.2	1.24	
	Bucknell Road (North)	139.4	1.25		203.5	1.34	



**Table 3** – Taken from VTM TN08 - Table 2-5 A4095 Howes Lane / Bucknell Road Junction Modelling – Proposed Mini-roundabout Junction (calibrated)

**Table 2-5: A4095 Howes Lane / Bucknell Road Junction Modelling - Proposed Mini-roundabout Junction (Calibrated)**

SCENARIO	ARM	AM PEAK (08:00-09:00)			PM PEAK (17:00-18:00)		
		QUEUE	RFC	JUNCTION DELAY (s)	QUEUE	RFC	JUNCTION DELAY (s)
BTM Base 2026	Bucknell Road (south)	3.9	0.79		3.3	0.76	
	A4095 Howes Lane	3.5	0.77	44	55.4	1.12	161
	Bucknell Road (North)	15.7	0.97		54.7	1.09	
BTM Base 2026 + Proposed Development (530 Units)	Bucknell Road (south)	4.9	0.83		3.5	0.77	
	A4095 Howes Lane	4.8	0.83	98	103.3	1.24	302
	Bucknell Road (North)	51	1.09		80.4	1.15	

- 3.5. By comparing Figure 2 and 3 the level of capacity (RFC), queuing and overall junction delay is significantly higher if the ARCADY model does not apply the calibration adjustments discussed above. As there is no justification for using these calibration adjustments it is therefore more representative to compare the results in Table 2 with the results in Table 1 for junction impact purposes.

## 4. Summary and conclusions

- 4.1. The VTP modelling has shown that the Bucknell Road / Howes Lane Junction is currently operating within capacity on all arms apart from Bucknell Road (North) which experiences lengthy queues in the AM peak hour. With the use of the 2026 BTM flows in the model the junction becomes significantly worse particularly in the PM peak hour where there are long queues on Bucknell Road (North) and Howes Lane. As these results show the junction is already over capacity, any further traffic generated by the Firethorn Development will essentially add to the severity of the queues and delays on the junction approaches.
- 4.2. In VTP TN08, the modelling results are indicating that the new mini-roundabout scheme is providing a nil detriment impact at the junction with the uplift in flows by the new Firethorn Development. This line of reasoning is only true if the ARCADY model has been adjusted in the same way as the calibrated PICADY model by reducing the flows on Bucknell Road (North). As there is no evidence or justification to support the adjustment of the proposed model in this way, these changes are not acceptable or reliable.
- 4.3. To demonstrate a more representative assessment of the new junction the ARCADY program should be utilised to test the full future flow demand scenarios and have confidence in the modelling results. A more realistic assessment of the likely impact of the development and the mitigation scheme would be to compare the results in the unadjusted ARCADY model (Table 2) and the calibrated PICADY model (Table 1).
- 4.4. The findings of the VTP ARCADY modelling results (Table 2) suggest that the implementation of a new mini-roundabout scheme (in its present form) would only marginally improve capacity at the junction and does not provide a nil detriment impact for the development traffic. On some approaches, the queues that are generated by the roundabout are longer than the predicted queues at the existing junction due to the different way the streams of traffic give-way.

# TECHNICAL NOTE



- 4.5. The capacity impact in relation to the uplift in traffic demand from the Firethorn Development on the junction will need to be considered by OCC. This can be undertaken in terms of comparing the development impact if the junction remains as a tee-junction or as a mini-roundabout scheme. Both junction arrangements are severely oversaturated with the future modelling results.

## DOCUMENT ISSUE RECORD

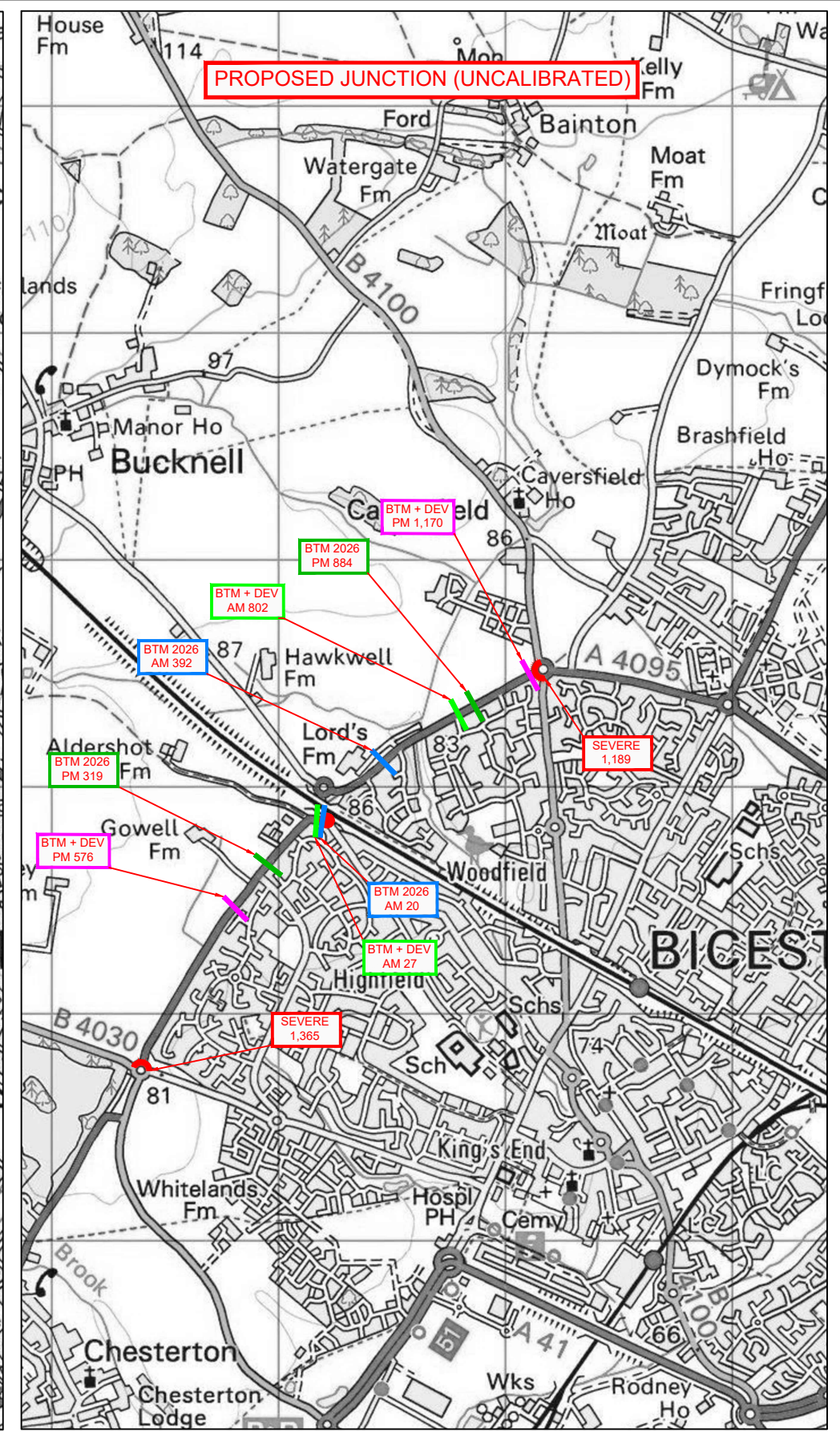
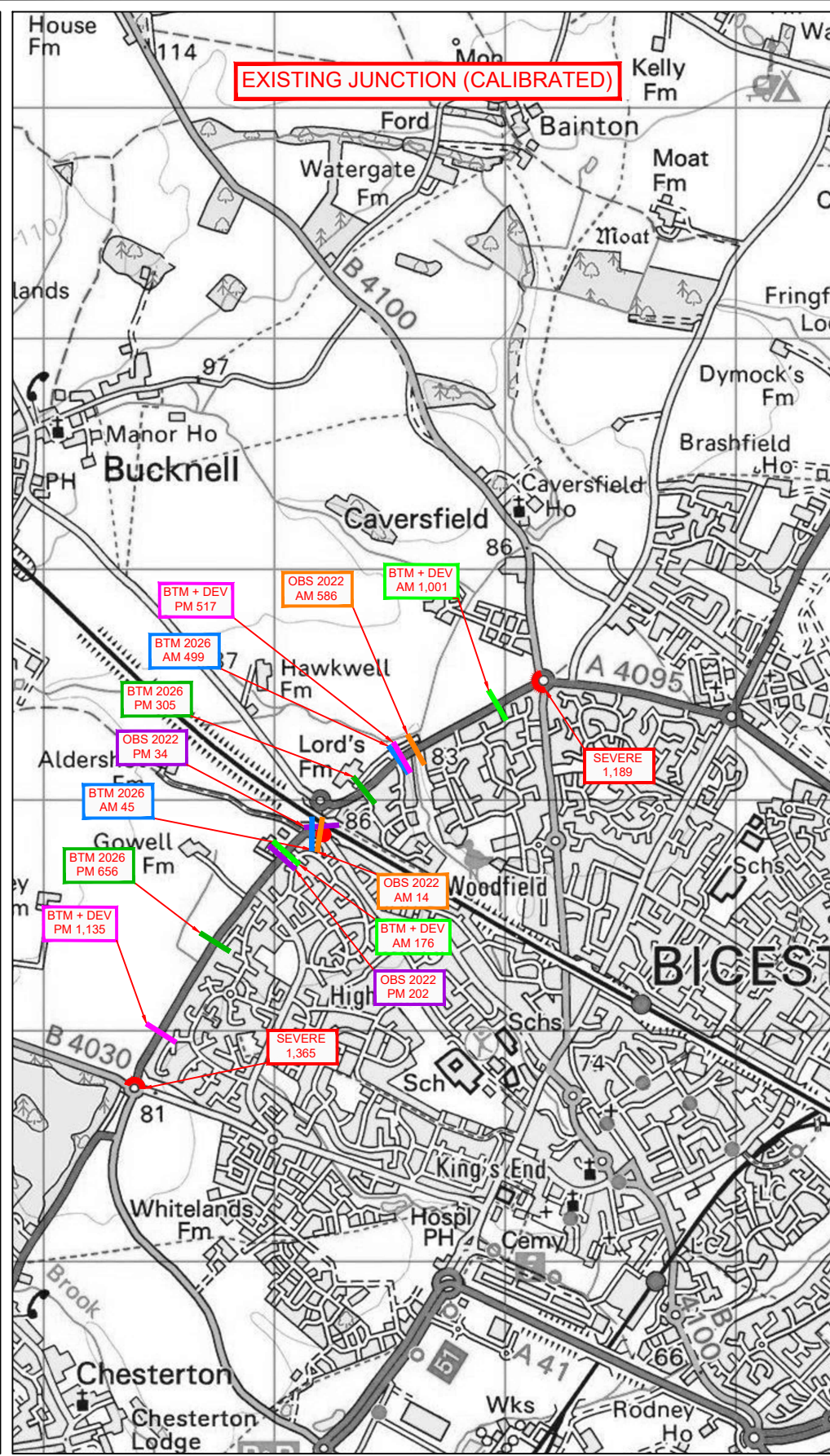
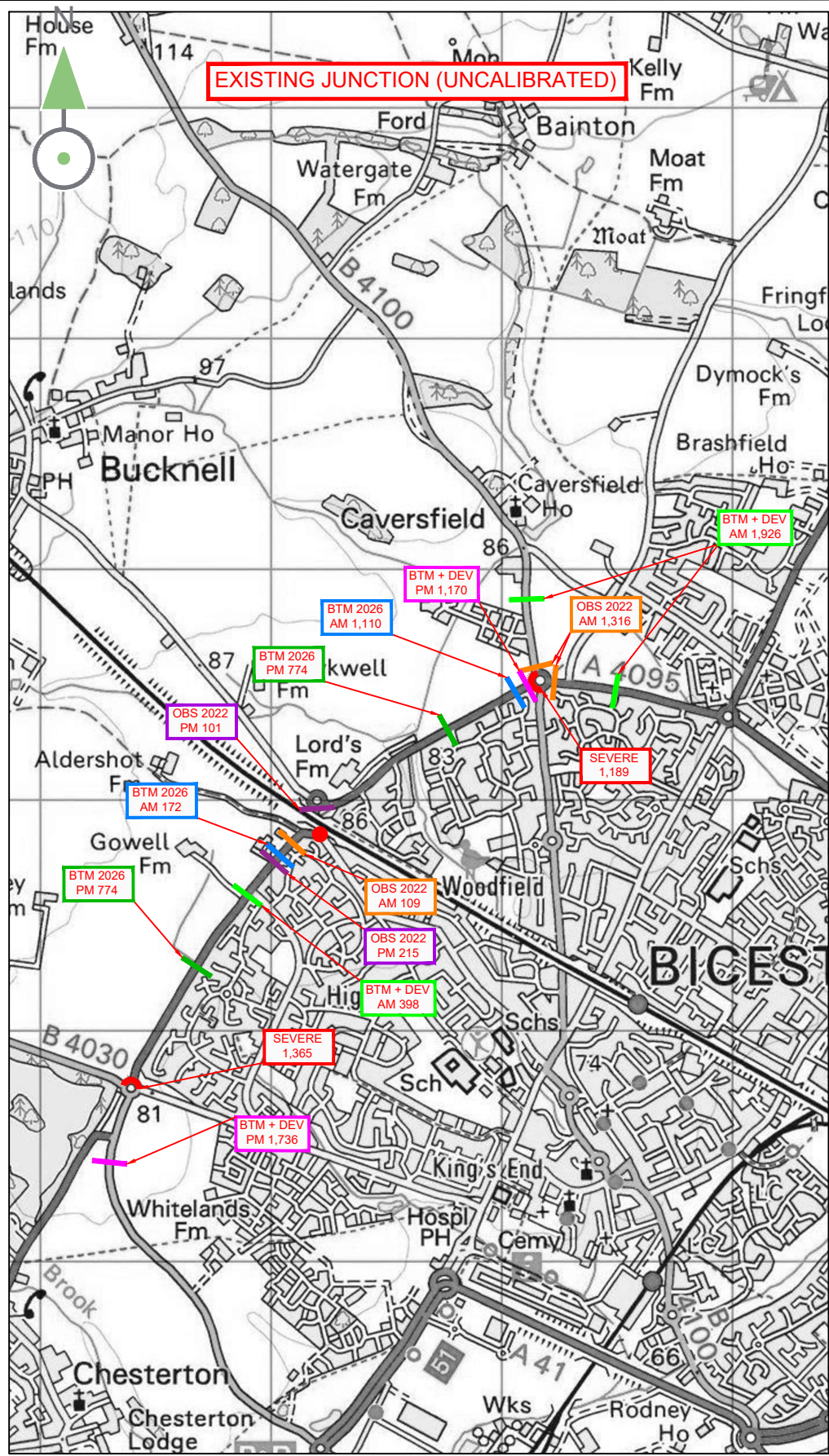
Technical Note No	Rev	Date	Prepared	Checked	Reviewed (Discipline Lead)	Approved (Project Director)
330610595/TN001		31.08.2022	Jerry Hargreaves	Dave Cope	Dave Cope	Phil Brady
330610595/TN001	V2	05.09.2022	Jerry Hargreaves	Dave Cope	Dave Cope	Phil Brady

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# ATTACHMENT E

A4095 Queue Length Assessment



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- Notes:
- DO NOT SCALE FROM THIS DRAWING.
  - ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
  - THIS DRAWING IS TO BE PRINTED IN COLOUR.
  - THIS DRAWING HAS BEEN ISSUED FOR INFORMATION PURPOSES AND MUST NOT BE USED FOR CONSTRUCTION.



Drawing Status  
**S2 - FOR INFORMATION**

Client



Architect

Project Title  
**NW Bicester**

Drawing Title  
**A4095 QUEUE LENGTH ASSESSMENT**

Rev	Date	Description	Drm	Chk	App
B	09/09/22	MEASUREMENTS UPDATED	GSF	MK	MK
A	09/09/22	FIRST ISSUE	GSF	MK	MK

Scale @ A3	Date	Designed/Drawn	Checked	Approved
NTS	09/09/22	GSF	MK	MK
Project Ref	Drawing Number		Rev	
4600-1100	4600-1100-T-074		B	

