

1 INTRODUCTION

1.1 INTRODUCTION

1.1.1 Velocity Transport Planning (VTP) has been appointed by Firethorn Trust (the Applicant) to provide highways and transport planning advice for an outline planning application relating to the development of up to 530 dwellings on land which forms part of the North West Bicester Eco Town development (Policy Bicester 1 of the adopted CDC Local Plan), located in Oxfordshire.

1.1.2 The Application Site falls within the administrative area of Cherwell District Council (CDC) and within the authority of Oxfordshire County Council (OCC), which is the local highway authority.

1.1.3 The Proposed Development description for the outline planning application, planning reference: 21/01630/OUT, is as follows:

“Outline planning application for up to 530 residential dwellings (within Use Class C3), open space provision, access, drainage and all associated works and operations including but not limited to demolition, earthworks, and engineering operations, with the details of appearance, landscaping, layout and scale reserved for later determination.”

1.2 PLANNING CONTEXT

1.2.1 The outline planning application was originally validated by CDC on the 06th of May 2021. A response to the outline planning application was received from OCC on the 06th of July 2021 and from CDC on the 21st of September 2021, with the third page of the CDC letter covering matters related to transport. It is noted that paragraph four of the CDC transport comments referred to the potential need for a Grampian Condition to restrict the level of development prior to the implementation of the A4095 Strategic Highway Improvement scheme (known locally as the A4095 Strategic Link Road – SLR), which was consented by CDC on the 21st of August 2021 (Planning Ref 14/01968/F).

1.2.2 In response to the comments from both OCC and CDC, VTP produced a Technical Note (TN) in November 2021, titled ‘Grampian Condition Review’ TN005, which was submitted as part of the wider response to the consultation comments received. TN005 referred to previous consultant work at the A4095 Howes Lane / Bucknell Road junction, which determined the level of development that could come forward in the area prior to the implementation of the A4095 SLR.

1.2.3 Further details on the historical and planning context of the A4095 SLR are detailed within the VTP ‘Grampian Condition Review’ TN005.

1.2.4 It is understood that the previously agreed funding and timescales for the delivery of the A4095 SLR are uncertain as OCC took the decision to “reallocate” the agreed funding to other strategic highway schemes within the County. This information was only made public after the submission of information to CDC for consideration in November 2021.

1.2.5 Following the submission of the further documentation to address the concerns raised in relation to the potential traffic impact at the critical junction of the A4095 Howes Lane / Bucknell Road priority junction, further comments on the technical work were received within an OCC response dated the 05th of January 2022, which included the following objection:



TECHNICAL NOTE: A4095 JUNCTION MODELLING

“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”

- 1.2.6 With respect to the A4095 Howes Lane / Bucknell Road junction assessments within TN005, the OCC response stated that the previous methodology applied at this junction was no longer applicable and that any new assessments must use the latest version of the Bicester Transport Model (BTM).
- 1.2.7 Whilst it was accepted that the response from OCC in early January 2022 identified the need to utilise data from an updated BTM, no indication was provided by OCC as to when this updated information would be available. As such, VTP commissioned a series of traffic surveys at the junction of the A4095 Howes Lane / Bucknell Road during the week commencing the 31st of January 2022, which included manual classified turning counts (MCC) for the 12-hour period of 07:00 – 19:00 on Wednesday the 02nd of February 2022 and observed queue lengths for the same period.
- 1.2.8 In response to the OCC comments, a new document was prepared by VTP (TN007) in March 2022, which provided a comprehensive response to the wider OCC comments, including the comments on the assessments at the A4095 Howes Lane / Bucknell Road junction.
- 1.2.9 Within TN007, a separate TN006 titled ‘A4095 Interim Improvement Assessment’ was included as an attachment which set out the details of a proposed interim mitigation scheme at the A4095 Howes Lane / Bucknell Road junction to mitigate the impact of the proposed development in the interim, i.e. whilst the delivery mechanisms for the A4095 SLR are agreed.
- 1.2.10 TN006 set out an interim solution, in the form of a proposed mini-roundabout scheme at the A4095 Howes Lane / Bucknell Road junction, with capacity assessments are undertaken to demonstrate the impact of the mitigation at the junction.
- 1.2.11 Following this, a subsequent response to the TN007 and supporting technical work within TN006 was received from OCC dated the 16th of May 2022.
- 1.2.12 The latest OCC response raised three key reasons for objection, including the suitability of the proposed mini-roundabout mitigation scheme in light of the initial modelling results. The other two reasons for refusal will be addressed separately within a separate Technical Note produced by VTP, to which this TN will be appended.
- 1.2.13 For completeness, the relevant objection in relation to the further assessment of the proposed Interim Improvement scheme, as set out in the OCC consultation response, is as follows:

“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 queuing worse on Lords Lane.”

A4095 STRATEGIC HIGHWAY IMPROVEMENTS COMMENTARY

- 1.2.14 The responses from OCC to date in relation to the assessment of the A4095 Howes Lane / Bucknell Road junction are particularly relevant, as the timescales for the implementation of the A4095 SLR have less certainty.
- 1.2.15 This is primarily due to the fact that it is expected that the funds for the A4095 SLR, which has been agreed to be the appropriate mitigation for all of the allocated development identified within the CDC Local Plan, are expected to be provided through contributions from developers seeking to deliver schemes within the allocated North West Bicester Masterplan.



TECHNICAL NOTE: A4095 JUNCTION MODELLING

1.2.16 The “reallocation” of the funding for the A4095 SLR by OCC has created a scenario whereby development opportunities are considered to be restrained, as the agreed strategic mitigation can no longer be provided to “unlock” development - which in turn would have provided an opportunity for the cost of the A4095 SLR to be “clawed back” through financial contributions from these developments through the respective Section 106 Agreements.

1.2.17 It is generally accepted that the permitted A4095 SLR is required to alleviate pressure at the A4095 Howes Lane / Bucknell Road junction and across the wider local highway network that is to be associated with the development traffic expected to be generated by the allocated sites within the adopted CDC Local Plan. However, the proposed interim improvement scheme seeks to provide a mitigation solution that will accommodate the impact of all of the traffic associated with the 530 dwellings of the proposed Firethorn development. This approach ensures a robust assessment, even if all of the 530 dwellings are not occupied by the time the A4095 SLR is implemented.

1.3 REPORT PURPOSE AND STRUCTURE

1.3.1 This TN seeks to present the technical information to respond to the latest OCC comments in order to address the reason for objection that relates to the impact of the proposed development on the A4095 Howes Lane / Bucknell Road junction in the absence of the A4095 SLR.

1.3.2 Following this Introduction, this TN is structured as follows:

- ⦿ **Section 2:** A405 Junction Assessment; and
- ⦿ **Section 3:** Conclusions.



TECHNICAL NOTE: A4095 JUNCTION MODELLING

2 A4095 JUNCTION ASSESSMENT

2.1 OCC RESPONSE CONTEXT

2.1.1 The latest OCC consultation response dated the 16th of May 2022 stated the following as a reason for objection in relation to the impact of the proposed development on the A4095 Howes Lane / Bucknell junction:

“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.”

2.1.2 In particular, the OCC response referred to the proposed interim mini-roundabout mitigation scheme generating a queue of 208 PCUs on the A4095 Lords Lane approach, which would extend into and through the A4095 / B4100 junction to the east. This is noted by OCC as being an ‘unacceptable’ impact within the response, and therefore an objection was raised to the proposed interim mini-roundabout scheme.

2.1.3 The response from OCC is nonetheless acknowledged, and for the purposes of this revised assessment, vehicles queuing into the A4095 Lords Lane / B4100 Banbury Road junction are considered to form the threshold for a ‘severe’ impact.

2.1.4 With respect to ‘severity’, paragraph 111 of the National Planning Policy Framework states that (emphasis added):

*“Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be **severe**.”*

2.2 REVISED ASSESSMENT

2.2.1 It is noted that the assessment undertaken within TN006 assessed a total of 550 units at the proposed Firethorn scheme, which was the original level of development being considered for the scheme. However, it is acknowledged that the application is for up to 530 dwellings.

2.2.2 For completeness, an updated version of the previous assessment within TN006 is presented below with a minimum development quantum of 500 units and a maximum development quantum of 530 units at the proposed Firethorn scheme on both the existing junction arrangement and the proposed interim improvement mini-roundabout arrangement.

2.2.3 The assessment methodology is otherwise as per the assessments within TN006, including the model parameters and traffic flows. It is noted there was a discrepancy within the PM traffic data within the PICADY model, which has been addressed within the assessment below.

2.2.4 Within discussions with OCC prior to the submission of this TN, the validity of the traffic data provided by the updated BTM for the future year of 2026 was questioned. A comparison of the observed February 2022 traffic data for the AM and PM peak hours was undertaken against the updated BTM 2026 data for the AM and PM peak hours.



TECHNICAL NOTE: A4095 JUNCTION MODELLING

2.2.5 For ease of reference, the total vehicle movements observed at the junction of the A4095 Howes Lane / Bucknell Road junction in February 2022 were identified as being 1,734 movements in the AM peak hour (08:00 – 09:00) and 1,433 movements in the PM peak hour (17:00 – 18:00). The total vehicle movements identified by the updated BTM in 2026 are identified as being 1,924 movements in the AM peak hour and 2,304 movements in the PM peak hour. This equates to an increase of 11% in total movements in the AM peak hour, which is considered to be generally acceptable and as would be expected for the period of 4 years, but an increase of 61% in total movements in the PM peak hour, which is considered to be excessively high over a 4 year period, particularly as all other development, either allocated or not, would also be subject to restrictions due to impacts on the local network prior to the implementation of the A4095 SLR.

2.2.6 **Table 2-1** presents the assessment of the existing priority junction arrangement in the BTM 2026 scenario, with a copy of the Junctions 10 output files included in **ATTACHMENT A**.

Table 2-1: A4095 Howes Lane / Bucknell Road Junction Modelling - Existing Priority 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 | Howes Lane (Left Turn) | 29.9 | 1.17 | 490 | 135.3 | 1.4 | 465 |
| | Howes Lane (Right Turn) | 6.3 | 999,999 | | 0.5 | 0.37 | |
| | Bucknell Road N (Right Turn) | 193.0 | 1.40 | | 134.6 | 1.25 | |
| BTM Base 2026 + Proposed Development | Howes Lane (Left Turn) | 69.3 | 1.26 | 376,644 | 301.9 | 1.88 | 1,043 |
| | Howes Lane (Right Turn) | 12.1 | 999,999 | | 6.7 | 999,999 | |
| | Bucknell Road N (Right Turn) | 334.9 | 1.62 | | 203.5 | 1.36 | |

2.2.7 **Table 2-2** presents the assessment for the proposed mini-roundabout mitigation scheme, with the Junctions 10 output files included in **ATTACHMENT B**.

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 | |



TECHNICAL NOTE: A4095 JUNCTION MODELLING

| SCENARIO | ARM | AM PEAK (08:00-09:00) | | | PM PEAK (17:00-18:00) | | |
|----------|-----------------------|-----------------------|------|--------------------|-----------------------|------|--------------------|
| | | QUEUE | RFC | JUNCTION DELAY (s) | QUEUE | RFC | JUNCTION DELAY (s) |
| | Bucknell Road (North) | 139.4 | 1.25 | | 203.5 | 1.34 | |

2.2.8 In accordance with the previous assessment within TN006, the proposed mini-roundabout mitigation provides a significant improvement in the AM peak, reducing the queues on all approaches as well as reducing the total junction delay by 200 seconds (over three minutes). There is a notable improvement on Bucknell Road (north) in the AM peak, reducing the queue back onto Lords Lane from 193 PCUs to 139 PCUs.

2.2.9 With respect to the PM peak, the proposed mini-roundabout mitigation reduces the queueing on the A4095 Howes Lane when compared to the existing priority junction arrangement in the BTM Base 2026 scenario by approximately 34 PCUs (approx 161m). It is acknowledged that the mini-roundabout junction increases the queueing in the PM peak on Bucknell Road (north) back onto Lords Lane, with a queue of 203.5 PCUs (note that this is less than the previously identified 208 PCUs to reflect the reduction in dwellings from 550 to 500). Nonetheless, it is noted that the existing priority junction will experience a queue of 193 PCUs in the BTM 2026 scenario irrespective of the proposed Firethorn development coming forward in the 'Do Nothing' scenario.

2.2.10 In comparison to the previous assessment within TN006, the reduction in the quantum of development at the proposed Firethorn scheme from 550 units down to 500 units has reduced the queue by approximately 5 PCUs. This is due to the Bucknell Road arm already being significantly over capacity within the BTM Base 2026 PM peak scenario (accounting for the spurious 61% increase in base traffic flows), meaning any additional development traffic does not enter the junction and instead sits at the back of the existing queue.

2.2.11 Crucially, the modelling undertaken suggests that the existing A4095 Howes Lane / Bucknell Road priority junction will be significantly over capacity, with an RFC exceeding 1.0 on two approaches in the BTM 2026 scenario across both the AM and PM peak hours, irrespective of whether the proposed Firethorn development comes forward or not.

2.3 ALTERNATIVE ASSESSMENT

2.3.1 As set out on page 7 of the OCC response, it is noted that OCC refers to discrepancies within the observed and modelled queues. For completeness, the observed junction assessment for the existing priority junction arrangement of the A4095 Howes Lane / Bucknell Road is provided in **Table 2-3**.

Table 2-3: A4095 Howes Lane / Bucknell Road Junction Modelling - Existing Priority Junction Observed 2022

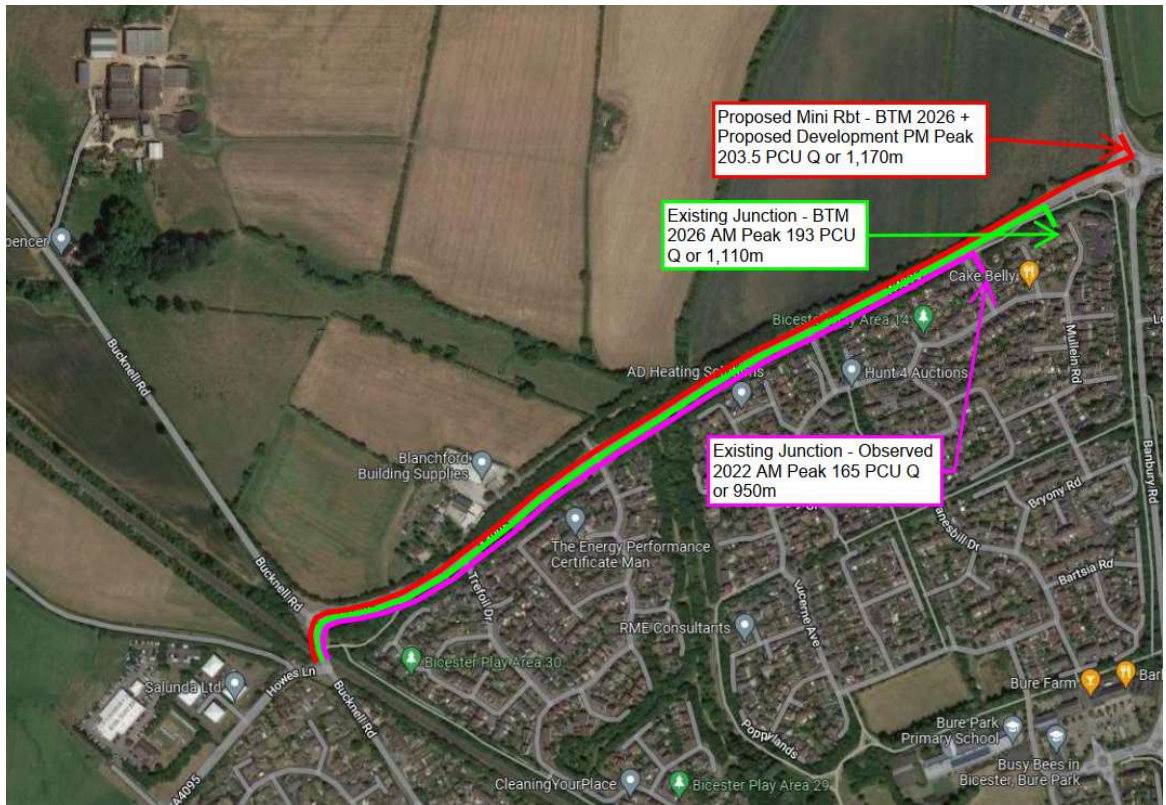
| SCENARIO | ARM | AM PEAK (08:00-09:00) | | | PM PEAK (17:00-18:00) | | |
|---------------|------------------------------|-----------------------|------|--------------------|-----------------------|------|--------------------|
| | | QUEUE | RFC | JUNCTION DELAY (s) | QUEUE | RFC | JUNCTION DELAY (s) |
| Observed 2022 | Howes Lane (Left Turn) | 8.5 | 0.93 | | 4.3 | 0.81 | |
| | Howes Lane (Right Turn) | 1.4 | 0.62 | 412.85 | 0.1 | 0.11 | 28.31 |
| | Bucknell Road N (Right Turn) | 165 | 1.33 | | 8.8 | 0.89 | |



TECHNICAL NOTE: A4095 JUNCTION MODELLING

- 2.3.2 Of particular note, the modelling undertaken suggests that the existing junction currently experiences a queue of up to 165 PCUs in the AM peak, with an RFC in excess of 1.0; which theoretically cannot be possible within an observed model, as it suggests the junction has exceeded its maximum capacity and no more traffic can pass through the junction.
- 2.3.3 Evidently, an RFC in excess of 1.0 would not be possible for this junction, as traffic was observed passing through the junction within the surveys, which included substantial video evidence from a number of angles and for a considerable distance along the approaches to the existing priority junction.
- 2.3.4 In terms of the severity thresholds noted earlier within this TN, **Figure 2-1** provides a schematic overview of the queueing back onto the A4095 Lords Lane for the following scenarios, based on the modelling undertaken:
- Existing Priority Junction - Observed 2022;
 - Existing Priority Junction - BTM Base 2026; and
 - Proposed Mini-roundabout Junction – BTM Base 2026 + Proposed Firethorn Development (500 units).

Figure 2-1: Junction Modelling Impact - Queue Overview



- 2.3.5 It is noted that there are limited opportunities to calibrate priority junctions within PICADY, excluding slope and intercept adjustments on the minor arm (in this instance, the minor arm is the A4095 Howes Lane). However, this would not assist with appropriately calibrating the traffic flows along Bucknell Road.
- 2.3.6 Nonetheless, it is acknowledged that the model appears to be significantly overestimating the queuing on the approaches to the junction, which is believed to be due to driver behaviour and operation of the junction, whereby the dominant movements do not have priority and are focused on vehicles turning right onto the A4095 Howes Lane from Bucknell Road (north) and left from the A4095 Howes Lane onto Bucknell



TECHNICAL NOTE: A4095 JUNCTION MODELLING

Road (north) - as opposed to north to south along Bucknell Road as would typically be expected.

- 2.3.7 This is also considered to be the case as the model parameters have been obtained from a topographical survey, meaning the discrepancies are unlikely to be associated with the geometry of the junction.

2.4 OBSERVED QUEUES AND CALIBRATION

- 2.4.1 In line with the above and in response to the OCC comment, it is proposed to calibrate the PICADY model manually by adjusting the traffic flows through the junction to more closely align with the observed queues. This calibration exercise is considered to provide a more representative model than that which is observed in the February 2022 surveys.

- 2.4.2 An analysis of the video surveys has been undertaken to identify the observed queuing and operation of the junction. Due to the substantial file sizes, the video surveys can be provided to OCC upon request.

- 2.4.3 In the AM peak, it is noted that traffic is generally free-flowing through the junction between Bucknell Road (north) and the A4095 Howes Lane, with relatively low volumes of traffic entering/exiting from Bucknell Road (south).

- 2.4.4 Even when the Bucknell Road (north) approach begins to queue, it is observed that the queue is not stationary and instead forms a 'sliver' or rolling queue, whereby vehicles continue to move through the junction at a slow speed. The greatest queue observed in the AM peak (despite still slowly moving) was approximately 400m in length back to the Purslane Drive junction, the equivalent to a queue of 69.5 PCUs, albeit vehicles were spaced out and also giving way at the Trefoil Drive junction.

- 2.4.5 An extract of this observed queue is provided below in **Figure 2-2**.

Figure 2-2: A4095 Lords Lane Observed Queue - AM Peak



- 2.4.6 In relation to the PM peak, it is again noted that there was little queueing observed and traffic was generally free-flowing between Bucknell Road (north) and the A4095 Howes Lane, with traffic on Bucknell Road (south) in some instances giving way to the other traffic in the junction, despite it having priority. The typical queue observed was approximately 4 PCUs (extract provided in **Figure 2-3**).

TECHNICAL NOTE: A4095 JUNCTION MODELLING

- 2.4.7 Whilst not directly relevant to the calibration exercise, it is also acknowledged that the PICADY software would not account for the existing junction not being able to accommodate Heavy Goods Vehicle (HGV) movements without all the other movements giving way at that time, as shown in **Figure 2-4** (overleaf).
- 2.4.8 Nevertheless, this is regarded as an additional constraint, not currently factored in or accounted for within the modelling for the existing junction, which would likely reduce the performance and increase any queuing within the existing junction further.

Figure 2-3: Bucknell Road Observed Queue - PM Peak



TECHNICAL NOTE: A4095 JUNCTION MODELLING

Figure 2-4: Bucknell Road Observed HGV Movement through junction



- 2.4.9 In order to calibrate the model to reflect the observed conditions, a reduction of 14% has been applied to the Bucknell Road (north) approach AM and PM traffic flows only in order to reflect the queues observed within the AM and PM video surveys. This is a comparable methodology to how a roundabout would be calibrated within ARCADY, with the reduction replicating an 'arm capacity adjustment'.
- 2.4.10 It is considered that the Bucknell Road (north) approach could be calibrated further than a 14% reduction, as the RFC still exceeds 1.0. However, for the purpose of this assessment and in order to be robust, only a 14% reduction will be applied. In order to bring the RFC below 1.0, a reduction in the order of 20-30% would be required.

2.5 EXISTING JUNCTION ARRANGEMENT (CALIBRATED)

- 2.5.1 The results of the junction modelling for the calibrated existing priority junction across all scenarios is provided in **Table 2-4**.
- 2.5.2 To ensure a robust assessment of the proposed Firethorn scheme, a development quantum of 530 units has been assessed, which is consistent with the development quantum, which forms the basis of the planning application.
- 2.5.3 The Junctions 10 output files are included in **ATTACHMENT C**.

TECHNICAL NOTE: A4095 JUNCTION MODELLING

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 | | 4.2 | 0.8 | |
| | Howes Lane (Right Turn) | 0.2 | 0.18 | 151 | 0.1 | 0.09 | 19 |
| | Bucknell Road N (Right Turn) | 67.5 | 1.14 | | 4 | 0.76 | |
| BTM Base 2026 | Howes Lane (Left Turn) | 7.8 | 0.9 | | 114.1 | 1.3 | |
| | Howes Lane (Right Turn) | 0.1 | 0.12 | 191 | 0.1 | 0.1 | 281 |
| | 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 | | 197.4 | 1.46 | |
| | Howes Lane (Right Turn) | 1.7 | 0.97 | 442 | 0.2 | 0.15 | 505 |
| | Bucknell Road N (Right Turn) | 174 | 1.38 | | 89.9 | 1.17 | |

2.5.4 Once calibrated, the existing junction would experience a queue of 67.5 PCUs in the AM peak and a queue of 4 PCUs in the PM peak, which is considered to be an appropriate representation of the operation of the existing junction based on the video surveys available.

2.5.5 Within the BTM Base 2026 scenario, the queue on the A4095 Howes Lane will reach 114 PCUs in the PM peak, which would queue through and past the Shakespeare Drive signal junction. The queue on Bucknell Road (north) will also reach 86 PCUs, the equivalent to circa 500m and will queue past the Purslane Drive junction.

2.5.6 With the addition of the proposed Firethorn development, the queue on Bucknell Road reaches a peak of 174 PCUs, although it is noted that this does not meet the 'severe' threshold of 193 PCUs previously considered to be acknowledged by OCC as this is what would occur in the 'Do Nothing' scenario. It is also regarded that the queue on the A4095 Howes Lane reaches 197 PCUs or the equivalent to a 1,083m queue. However, this arm is predicted to queue through the Shakespeare Drive junction in the BTM Base 2026 scenario anyway. Crucially, the queue does not reach the A4095 / Middleton Stoney Roundabout, so the impact could not be deemed as any more severe than which is likely to take place in a 'Do Nothing' scenario without the proposed Firethorn development.

2.5.7 On that basis, whilst the addition of the proposed Firethorn Development increases delay and queueing at the existing junction when added to the BTM Base 2026 scenario, it does not result in a 'severe' impact on the existing arrangement once calibrated.

2.6 PROPOSED MINI-ROUNDAABOUT (CALIBRATED)

2.6.1 An assessment of the proposed mini-roundabout mitigation scheme with the same calibration factors



TECHNICAL NOTE: A4095 JUNCTION MODELLING

applied to Bucknell Road (north) is provided in **Table 2-5**.

2.6.2 The Junctions 10 output files are included in **ATTACHMENT D**.

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 | |

2.6.3 The junction capacity assessment for the calibrated proposed mini-roundabout arrangement suggests that the mitigation scheme will result in a significant improvement in junction capacity in the AM peak, reducing the RFC and queue on Bucknell Road (north) to 1.09 and 51 PCUs, respectively. In addition, the total delay is reduced by 100 seconds even with the addition of the proposed Firethorn development.

2.6.4 With respect to the PM peak and when incorporating traffic associated with the proposed Firethorn development, the proposed min-roundabout scheme reduces the RFC and queue on the A4095 Howes Lane to 1.24 and 103 PCUs, respectively, down from 1.3 and 114 PCUs in the BTM Base 2026 scenario with the existing priority junction arrangement.

2.6.5 It is accepted that the proposed mini-roundabout mitigation scheme increases the queue from 53 PCUs up to 80 PCUs (with the addition of the traffic associated with the proposed Firethorn development) when compared to the BTM Base 2026 scenario with the existing arrangement. However, reference is made to the severity thresholds referenced by OCC and queueing back through the A4095 Lords Lane / B4100 Banbury Road junction as being identified as the point at which the impact becomes 'severe'.

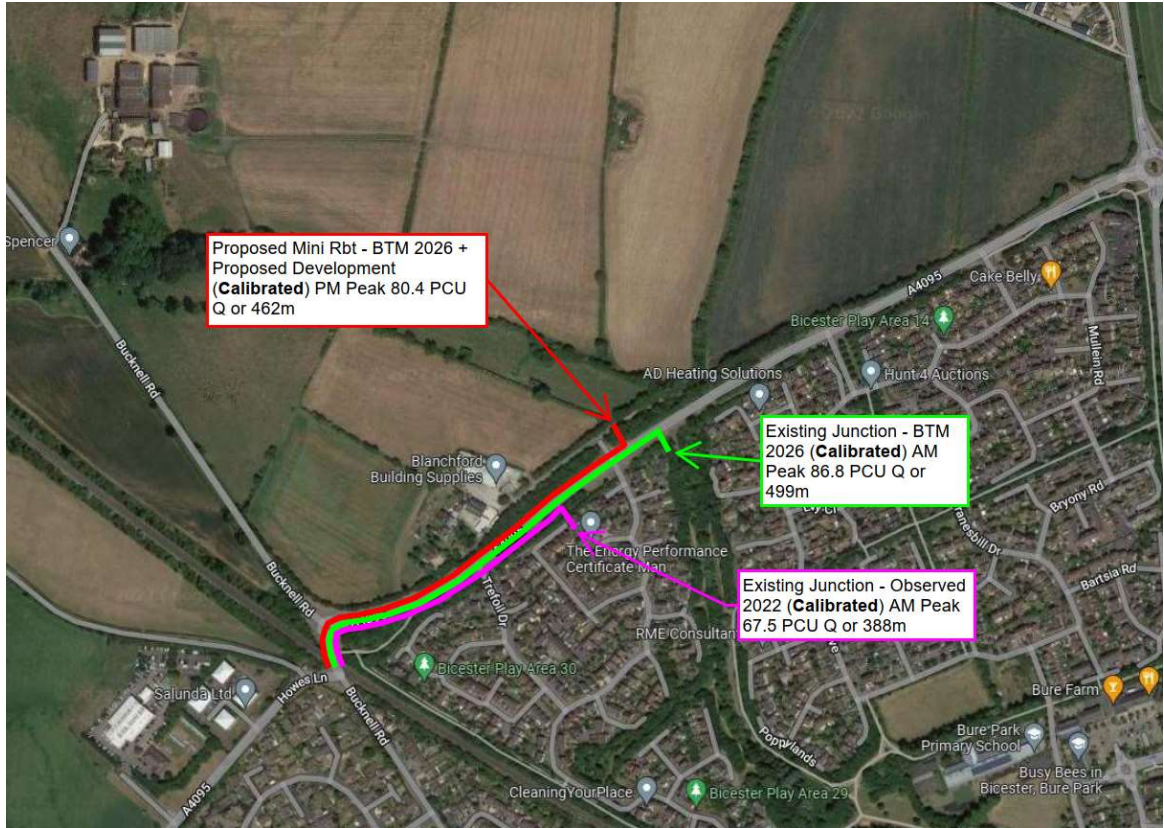
2.6.6 **Figure 2-5** provides a schematic diagram of the modelled queueing across the following scenarios:

- ⊙ Existing Priority Junction - Observed 2022 (Calibrated);
- ⊙ Existing Priority Junction - BTM Base 2026 (Calibrated); and
- ⊙ Proposed Mini-roundabout Junction - BTM Base 2026 + Proposed Firethorn Development (530 units, Calibrated).



TECHNICAL NOTE: A4095 JUNCTION MODELLING

Figure 2-5: Junction Modelling Impact - Queue Overview (Calibrated)



- 2.6.7 Whilst the proposed mini-roundabout mitigation scheme increases the queuing for the PM peak past the Purslane Drive junction, this is still below the queuing that would be taking place anyway at the existing junction in the BTM Base 2026 scenario AM peak, in a 'Do Nothing' scenario assuming the proposed Firethorn development has not come forward.
- 2.6.8 On that basis, it is considered that the proposed mini-roundabout scheme helps to achieve a nil detriment position in the PM peak and improves the performance of the junction significantly in the AM peak.
- 2.6.9 In the PM peak, the proposed mini-roundabout scheme also improves the performance of the A4095 Howes Lane approach. Whilst there is a minor reduction in performance on the Bucknell Road (north) approach, this is not considered to result in a severe impact and is also below the queuing that is predicted to take place in the calibrated BTM Base 2026 AM scenario in a 'Do Nothing' situation.



TECHNICAL NOTE: A4095 JUNCTION MODELLING

3 A4095 ASSESSMENT

3.1 OVERVIEW

- 3.1.1 Velocity Transport Planning (VTP) has been appointed by Firethorn Trust (The Applicant) to provide highways and transport planning advice for an outline planning application relating to the development of up to 530 dwellings on land which forms part of the North West Bicester Eco Town development, located in Oxfordshire.
- 3.1.2 This Technical Note (TN) has been prepared to respond to comments from OCC in relation to the impact of the proposed development on the A4095 Howes Lane / Bucknell Road junction, in the absence of the A4095 Strategic Highway Improvements, also referred to as the A4095 Strategic Link Road (SLR).
- 3.1.3 The “reallocation” of the funding for the A4095 SLR by OCC has created a scenario whereby development opportunities are considered to be restrained, as the key strategic mitigation can no longer be provided to “unlock” development - which in turn would have provided an opportunity for the cost of the A4095 SLR to be “clawed back” by these developments through the respective Section 106 Obligations.
- 3.1.4 An interim mitigation scheme in the form of a mini-roundabout arrangement has been developed to address the impact of the proposed development whilst the delivery mechanisms and funding for the A4095 SLR are agreed.
- 3.1.5 It is generally accepted that the permitted A4095 SLR is required to alleviate pressure at the A4095 Howes Lane / Bucknell Road junction and across the wider local highway network that is to be associated with the development traffic expected to be generated by the allocated sites within the adopted CDC Local Plan. However, the proposed interim improvement mini-roundabout scheme seeks to provide a mitigation solution that will accommodate the impact of all of the traffic associated with the 530 dwellings of the proposed Firethorn development.

3.2 ASSESSMENT METHODOLOGY

- 3.2.1 Following consultation comments from OCC that acknowledged there was a disparity between the observed and modelled queues within the previous assessments, a calibration exercise has been undertaken to ensure that the model appropriately reflects the observed conditions within the video surveys.
- 3.2.2 In order to calibrate the model to reflect the observed conditions, a reduction of 14% has been applied to the Bucknell Road (north) approach AM and PM traffic flows only in order to reflect the queues observed within the AM and PM video surveys.

3.3 EXISTING PRIORITY JUNCTION

- 3.3.1 Once calibrated, the existing priority junction would experience a queue of 67.5 PCUs in the AM peak and a queue of 4 PCUs in the PM peak, which is considered to be an appropriate representation of the operation of the existing junction based on the video surveys available.
- 3.3.2 Within the BTM Base 2026 scenario, the queue on the A4095 Howes Lane will reach 114 PCUs in the PM peak, which would queue through and past the Shakespeare Drive signal junction. The queue on Bucknell Road (north) will also reach 86 PCUs, the equivalent to a 500m queue, which would queue past the Purslane Drive junction to the east.



TECHNICAL NOTE: A4095 JUNCTION MODELLING

- 3.3.3 With the addition of the traffic associated with the proposed Firethorn development, the queue on Bucknell Road (north) reaches a peak of 174 PCUs, although it is noted that this does not meet the 'severe' threshold of 193 PCUs previously considered to be acknowledged by OCC.
- 3.3.4 It is also regarded that the queue on Howes Lane reaches 197 PCUs or the equivalent to a 1,083m queue. However, this arm is predicted to queue through the Shakespeare Drive junction in the BTM Base 2026 scenario anyway. Crucially, the queue does not reach the A4095 / Middleton Stoney Roundabout further to the west, so the impact could not be deemed as any more severe than what is likely to take place in a 'Do Nothing' scenario without the proposed Firethorn development.
- 3.3.5 On that basis, whilst the addition of the traffic associated with the proposed Firethorn development increases delay and queueing at the existing junction when added to the BTM Base 2026 scenario, it is considered that it does not result in a 'severe' impact on the existing arrangement once calibrated.

3.4 PROPOSED INTERIM MINI-ROUNDBABOUT

- 3.4.1 Once calibrated, the junction capacity assessment for the proposed mini-roundabout arrangement suggests that the interim mitigation scheme will result in the following (assuming the proposed Firethorn development is implemented):
- ⦿ A significant improvement in junction capacity in the AM peak, reducing the RFC and queue on Bucknell Road (north) to 1.09 and 51 PCUs, respectively, as well as a reduction in the total delay by 100 seconds, even with the addition of the traffic associated with the proposed Firethorn development.
 - ⦿ A reduction in the PM peak to the RFC and queue on the A4095 Howes Lane to 1.24 and 103 PCUs, respectively, down from 1.3 and 114 PCUs in the BTM Base 2026 scenario with the existing junction arrangement.
- 3.4.2 Whilst the proposed mini-roundabout mitigation scheme increases the queue from 53 PCUs up to 80 PCUs on Bucknell Road (north) in the PM peak (with the addition of the traffic associated with the proposed Firethorn development) when compared to the BTM Base 2026 scenario with the existing priority arrangement, reference is made to the severity thresholds referenced by OCC of queueing back through the A4095 Lords Lane / B4100 Banbury Road junction being identified as the point at which the impact becomes 'severe'.
- 3.4.3 Whilst the proposed interim mitigation scheme increases the queuing from the PM peak past the Purslane Drive junction, this is still below the queueing that would be taking place anyway at the existing junction in the BTM Base 2026 scenario AM peak, in a 'Do Nothing' scenario assuming the proposed Firethorn development has not come forward.
- 3.4.4 In the PM peak, the proposed mini-roundabout scheme also improves the performance of the A4095 Howes Lane approach. Whilst there is a minor reduction in performance on the Bucknell Road (north) approach, this is not considered to result in a severe impact and is also below the queueing that is predicted to take place in the calibrated BTM Base 2026 AM scenario in a 'Do Nothing' situation.
- 3.4.5 On that basis, it is considered that the proposed interim mini-roundabout scheme helps to achieve a nil detriment position in the PM peak and improves the performance of the junction significantly in the AM peak.
- 3.4.6 It should also be noted that the assessments contained within this Technical Note do not make any adjustments to the traffic flows derived from the updated BTM 2026 data, albeit a spurious increase of 61%



TECHNICAL NOTE: A4095 JUNCTION MODELLING

in traffic from that which was observed in the February 2022 PM period, has been identified.

3.5 SUMMARY AND CONCLUSIONS

- 3.5.1 It is generally accepted that the permitted, and partially constructed, A4095 SLR is required to alleviate pressure at the A4095 Howes Lane / Bucknell Road junction and across the local highway network to address the cumulative impact of the traffic associated with the allocated sites included within the adopted CDC Local Plan.
- 3.5.2 However, the proposed mini-roundabout mitigation scheme seeks to provide an interim mitigation solution that will accommodate the full level of development associated with the 530 dwellings prior to the implementation of the A4095 SLR.
- 3.5.3 Nonetheless, the assessments undertaken within this TN have demonstrated that whilst the proposed Firethorn development does impact the operation of the A4095 Howes Lane / Bucknell Road junction, the impact on the existing arrangement would not be 'severe', as it would be no worse than in a 'Do Nothing' scenario.
- 3.5.4 On that basis, the proposed development is considered to be in accordance with paragraph 111 of the National Planning Policy Framework as it does not generate 'severe' transport impacts.



ATTACHMENT A

EXISTING PRIORITY JUNCTION MODELLING

| |
|--|
| Junctions 10 |
| PICADY 10 - Priority Intersection Module |
| Version: 10.0.3.1598 © Copyright TRL Software Limited, 2021 |
| For sales and distribution information, program advice and maintenance, contact TRL Software: +44 (0)1344 379777 software@trl.co.uk trlsoftware.com |
| The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution |

Filename: 2022.05.19 - NW BICESTER - HOWES LANE (Existing).j10
Path: P:\Firethorn Trust_4600\1100 - NW Bicester\Analysis\Modelling\Picady\BTM 2026 FLOWS
Report generation date: 23/05/2022 10:57:34

- »BTM Base 2026, AM
- »BTM Base 2026, PM
- »BTM 2026 + Proposed Dev, AM
- »BTM 2026 + Proposed Dev, PM
- »OBS 2022, AM
- »OBS 2022, PM

Summary of junction performance

| | AM | | | | | | PM | | | | | |
|--------------------------------|--------|-------------|--------------|---------------|-----|--------------------|--------|-------------|-----------|---------------|-----|--------------------|
| | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) |
| BTM Base 2026 | | | | | | | | | | | | |
| Stream B-C | | 29.9 | 199.32 | 1.17 | F | | | 135.3 | 728.04 | 1.40 | F | |
| Stream B-A | D1 | 6.3 | 2239.45 | 999999999.00 | F | 490.10 | D2 | 0.5 | 145.00 | 0.37 | F | 465.55 |
| Stream C-AB | | 193.0 | 893.76 | 1.40 | F | | | 134.6 | 528.30 | 1.25 | F | |
| BTM 2026 + Proposed Dev | | | | | | | | | | | | |
| Stream B-C | | 69.3 | 492.19 | 1.26 | F | | | 301.9 | 2007.83 | 1.88 | F | |
| Stream B-A | D3 | 12.1 | 599999940.00 | 9999999999.00 | F | 376644.81 | D4 | 6.7 | 2405.01 | 9999999999.00 | F | 1043.48 |
| Stream C-AB | | 334.9 | 1593.79 | 1.62 | F | | | 203.5 | 791.70 | 1.36 | F | |
| OBS 2022 | | | | | | | | | | | | |
| Stream B-C | | 8.5 | 55.41 | 0.93 | F | | | 4.3 | 27.96 | 0.81 | D | |
| Stream B-A | D5 | 1.4 | 217.34 | 0.62 | F | 412.85 | D6 | 0.1 | 15.59 | 0.11 | C | 28.31 |
| Stream C-AB | | 165.0 | 730.60 | 1.33 | F | | | 8.8 | 40.04 | 0.89 | E | |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

| | |
|-------------|------------|
| Title | (untitled) |
| Location | |
| Site number | |
| Date | 02/11/2021 |
| Version | |
| Status | (new file) |
| Identifier | |
| Client | |
| Jobnumber | |
| Enumerator | VTP\CRicci |
| Description | |

Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|---------------------|-------------------|---------------------|
| m | kph | PCU | PCU | perHour | s | -Min | perMin |

Analysis Options

| Calculate Queue Percentiles | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|-----------------------------|-----------------------------|---------------|-----------------------------|-----------------------|
| | | 0.85 | 36.00 | 20.00 |

Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|-------------------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D1 | BTM Base 2026 | AM | ONE HOUR | 07:45 | 09:15 | 15 |
| D2 | BTM Base 2026 | PM | ONE HOUR | 16:45 | 18:15 | 15 |
| D3 | BTM 2026 + Proposed Dev | AM | ONE HOUR | 07:45 | 09:15 | 15 |
| D4 | BTM 2026 + Proposed Dev | PM | ONE HOUR | 16:45 | 18:15 | 15 |
| D5 | OBS 2022 | AM | ONE HOUR | 07:45 | 09:15 | 15 |
| D6 | OBS 2022 | PM | ONE HOUR | 16:45 | 18:15 | 15 |

Analysis Set Details

| ID | Network flow scaling factor (%) |
|----|---------------------------------|
| A1 | 100.000 |

BTM Base 2026, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 490.10 | F |

Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left | Normal/unknown | 490.10 | F |

Arms

Arms

| Arm | Name | Description | Arm type |
|-----|----------|-------------|----------|
| A | untitled | | Major |
| B | untitled | | Minor |
| C | untitled | | Major |

Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right-turn storage | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|-----|--------------------------|----------------------------|------------------------|-------------------------------|---------|----------------------|
| C | 6.40 | | | 250.0 | ✓ | 1.00 |

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

| Arm | Minor arm type | Lane Width (Left) (m) | Lane Width (Right) (m) | Visibility to left (m) | Visibility to right (m) |
|-----|----------------|-----------------------|------------------------|------------------------|-------------------------|
| B | Two lanes | 3.00 | 2.80 | 41 | 250 |

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

| Stream | Intercept (PCU/hr) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|--------|--------------------|---------------|---------------|---------------|---------------|
| B-A | 602 | 0.108 | 0.272 | 0.171 | 0.389 |
| B-C | 781 | 0.118 | 0.297 | - | - |
| C-B | 719 | 0.274 | 0.274 | - | - |

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D1 | BTM Base 2026 | AM | ONE HOUR | 07:45 | 09:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 470 | 100.000 |
| B | | ✓ | 539 | 100.000 |
| C | | ✓ | 915 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| From | To | | |
|------|-----|-----|-----|
| | A | B | C |
| A | 0 | 174 | 296 |
| B | 13 | 0 | 526 |
| C | 180 | 735 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| From | To | | |
|------|----|----|----|
| | A | B | C |
| A | 0 | 10 | 10 |
| B | 10 | 0 | 10 |
| C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------|--------------|---------------|-----------------|---------|
| B-C | 1.17 | 199.32 | 29.9 | F |
| B-A | 999999999.00 | 2239.45 | 6.3 | F |
| C-AB | 1.40 | 893.76 | 193.0 | F |
| C-A | | | | |
| A-B | | | | |
| A-C | | | | |

Main Results for each time segment

07:45 - 08:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 396 | 694 | 0.571 | 390 | 1.4 | 12.828 | B |
| B-A | 10 | 289 | 0.034 | 10 | 0.0 | 14.180 | B |
| C-AB | 662 | 744 | 0.890 | 632 | 7.4 | 31.579 | D |
| C-A | 27 | | | 27 | | | |
| A-B | 131 | | | 131 | | | |
| A-C | 223 | | | 223 | | | |

08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 473 | 674 | 0.701 | 469 | 2.4 | 18.879 | C |
| B-A | 12 | 218 | 0.054 | 12 | 0.1 | 19.222 | C |
| C-AB | 823 | 751 | 1.096 | 732 | 30.0 | 106.545 | F |
| C-A | 0 | | | 0 | | | |
| AB | 156 | | | 156 | | | |
| AC | 266 | | | 266 | | | |

08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 579 | 638 | 0.907 | 560 | 7.1 | 43.036 | E |
| B-A | 14 | 102 | 0.140 | 14 | 0.2 | 44.610 | E |
| C-AB | 1007 | 718 | 1.402 | 717 | 102.6 | 344.260 | F |
| C-A | 0 | | | 0 | | | |
| AB | 192 | | | 192 | | | |
| AC | 326 | | | 326 | | | |

08:30 - 08:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 579 | 496 | 1.167 | 488 | 29.9 | 156.451 | F |
| B-A | 14 | 2 | 8.227 | 1 | 3.4 | 2239.448 | F |
| C-AB | 1007 | 718 | 1.402 | 718 | 174.9 | 690.814 | F |
| C-A | 0 | | | 0 | | | |
| AB | 192 | | | 192 | | | |
| AC | 326 | | | 326 | | | |

08:45 - 09:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|---------------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 473 | 513 | 0.922 | 506 | 21.5 | 199.317 | F |
| B-A | 12 | 0 | 999999999.000 | 0 | 6.3 | 1448.059 | F |
| C-AB | 823 | 751 | 1.096 | 750 | 193.0 | 893.761 | F |
| C-A | 0 | | | 0 | | | |
| AB | 156 | | | 156 | | | |
| AC | 266 | | | 266 | | | |

09:00 - 09:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 396 | 525 | 0.755 | 466 | 4.1 | 84.937 | F |
| B-A | 10 | 22 | 0.455 | 18 | 4.2 | 1074.123 | F |
| C-AB | 662 | 744 | 0.890 | 747 | 171.6 | 892.302 | F |
| C-A | 27 | | | 27 | | | |
| AB | 131 | | | 131 | | | |
| AC | 223 | | | 223 | | | |

BTM Base 2026, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 465.55 | F |

Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left | Normal/unknown | 465.55 | F |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D2 | BTM Base 2026 | PM | ONE HOUR | 16:45 | 18:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 504 | 100.000 |
| B | | ✓ | 764 | 100.000 |
| C | | ✓ | 1036 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| | | To | | |
|------|---|-----|-----|-----|
| | | A | B | C |
| From | A | 0 | 178 | 326 |
| | B | 13 | 0 | 751 |
| | C | 390 | 646 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| | | To | | |
|------|---|----|----|----|
| | | A | B | C |
| From | A | 0 | 10 | 10 |
| | B | 10 | 0 | 10 |
| | C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------|---------|---------------|-----------------|---------|
| B-C | 1.40 | 728.04 | 135.3 | F |
| B-A | 0.37 | 145.00 | 0.5 | F |
| C-AB | 1.25 | 528.30 | 134.6 | F |
| C-A | | | | |
| AB | | | | |
| AC | | | | |

Main Results for each time segment

16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 565 | 687 | 0.824 | 548 | 4.4 | 26.043 | D |
| B-A | 10 | 281 | 0.035 | 10 | 0.0 | 14.572 | B |
| C-AB | 674 | 852 | 0.791 | 654 | 5.0 | 19.240 | C |
| C-A | 106 | | | 106 | | | |
| AB | 134 | | | 134 | | | |
| AC | 245 | | | 245 | | | |

17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 675 | 666 | 1.014 | 632 | 15.2 | 72.831 | F |
| B-A | 12 | 212 | 0.055 | 12 | 0.1 | 19.707 | C |
| C-AB | 916 | 938 | 0.976 | 868 | 16.9 | 50.469 | F |
| C-A | 16 | | | 16 | | | |
| AB | 160 | | | 160 | | | |
| AC | 293 | | | 293 | | | |

17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 827 | 630 | 1.312 | 628 | 64.9 | 249.256 | F |
| B-A | 14 | 112 | 0.128 | 14 | 0.2 | 40.234 | E |
| C-AB | 1141 | 909 | 1.255 | 903 | 76.4 | 195.723 | F |
| C-A | 0 | | | 0 | | | |
| AB | 196 | | | 196 | | | |
| AC | 359 | | | 359 | | | |

17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 827 | 589 | 1.403 | 589 | 124.4 | 573.980 | F |
| B-A | 14 | 39 | 0.366 | 13 | 0.5 | 144.997 | F |
| C-AB | 1141 | 909 | 1.255 | 908 | 134.6 | 422.041 | F |
| C-A | 0 | | | 0 | | | |
| AB | 196 | | | 196 | | | |
| AC | 359 | | | 359 | | | |

17:45 - 18:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 675 | 632 | 1.068 | 632 | 135.3 | 728.039 | F |
| B-A | 12 | 54 | 0.218 | 12 | 0.3 | 97.252 | F |
| C-AB | 916 | 938 | 0.976 | 952 | 125.4 | 528.298 | F |
| C-A | 16 | | | 16 | | | |
| AB | 160 | | | 160 | | | |
| AC | 293 | | | 293 | | | |

18:00 - 18:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 565 | 677 | 0.835 | 672 | 108.7 | 654.656 | F |
| B-A | 10 | 126 | 0.078 | 11 | 0.1 | 34.598 | D |
| C-AB | 674 | 852 | 0.791 | 880 | 73.8 | 444.965 | F |
| C-A | 106 | | | 106 | | | |
| AB | 134 | | | 134 | | | |
| AC | 245 | | | 245 | | | |

BTM 2026 + Proposed Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 376644.81 | F |

Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left | Normal/unknown | 376644.81 | F |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|-------------------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D3 | BTM 2026 + Proposed Dev | AM | ONE HOUR | 07:45 | 09:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 470 | 100.000 |
| B | | ✓ | 579 | 100.000 |
| C | | ✓ | 1027 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| From | To | | |
|------|-----|-----|-----|
| | A | B | C |
| A | 0 | 174 | 296 |
| B | 13 | 0 | 566 |
| C | 180 | 847 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| From | To | | |
|------|----|----|----|
| | A | B | C |
| A | 0 | 10 | 10 |
| B | 10 | 0 | 10 |
| C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------|--------------|---------------|-----------------|---------|
| B-C | 1.26 | 492.19 | 69.3 | F |
| B-A | 999999999.00 | 59999940.00 | 12.1 | F |
| C-AB | 1.62 | 1593.79 | 334.9 | F |
| C-A | | | | |
| AB | | | | |
| AC | | | | |

Main Results for each time segment

07:45 - 08:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|--------------|-------------------------------|
| B-C | 426 | 693 | 0.615 | 419 | 1.7 | 14.153 | B |
| B-A | 10 | 256 | 0.038 | 10 | 0.0 | 59999940.000 | F |
| C-AB | 773 | 754 | 1.025 | 703 | 17.6 | 57.750 | F |
| C-A | 0 | | | 0 | | | |
| AB | 131 | | | 131 | | | |
| AC | 223 | | | 223 | | | |

08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|--------------|-------------------------------|
| B-C | 509 | 671 | 0.758 | 503 | 3.1 | 22.731 | C |
| B-A | 12 | 164 | 0.071 | 12 | 0.1 | 59999940.000 | F |
| C-AB | 923 | 731 | 1.262 | 728 | 66.5 | 223.358 | F |
| C-A | 0 | | | 0 | | | |
| AB | 156 | | | 156 | | | |
| AC | 266 | | | 266 | | | |

08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|--------------|-------------------------------|
| B-C | 623 | 496 | 1.255 | 488 | 37.0 | 167.155 | F |
| B-A | 14 | 3 | 5.598 | 2 | 3.2 | 59999940.000 | F |
| C-AB | 1131 | 700 | 1.616 | 700 | 174.3 | 628.844 | F |
| C-A | 0 | | | 0 | | | |
| AB | 192 | | | 192 | | | |
| AC | 326 | | | 326 | | | |

08:30 - 08:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|---------------|---------------------|-----------------|--------------|-------------------------------|
| B-C | 623 | 496 | 1.255 | 495 | 68.9 | 396.581 | F |
| B-A | 14 | 0 | 999999999.000 | 0 | 6.8 | 59999940.000 | F |
| C-AB | 1131 | 700 | 1.616 | 700 | 282.0 | 1181.555 | F |
| C-A | 0 | | | 0 | | | |
| AB | 192 | | | 192 | | | |
| AC | 326 | | | 326 | | | |

08:45 - 09:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|---------------|---------------------|-----------------|--------------|-------------------------------|
| B-C | 509 | 513 | 0.992 | 507 | 69.3 | 492.186 | F |
| B-A | 12 | 0 | 999999999.000 | 0 | 9.7 | 59999940.000 | F |
| C-AB | 923 | 731 | 1.262 | 731 | 330.1 | 1495.063 | F |
| C-A | 0 | | | 0 | | | |
| A-B | 156 | | | 156 | | | |
| A-C | 266 | | | 266 | | | |

09:00 - 09:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|---------------|---------------------|-----------------|--------------|-------------------------------|
| B-C | 426 | 525 | 0.812 | 517 | 46.7 | 406.726 | F |
| B-A | 10 | 0 | 999999999.000 | 0 | 12.1 | 59999940.000 | F |
| C-AB | 773 | 754 | 1.025 | 754 | 334.9 | 1593.788 | F |
| C-A | 0 | | | 0 | | | |
| A-B | 131 | | | 131 | | | |
| A-C | 223 | | | 223 | | | |

BTM 2026 + Proposed Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 1043.48 | F |

Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left | Normal/unknown | 1043.48 | F |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|-------------------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D4 | BTM 2026 + Proposed Dev | PM | ONE HOUR | 16:45 | 18:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 504 | 100.000 |
| B | | ✓ | 847 | 100.000 |
| C | | ✓ | 1091 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| | | To | | |
|------|---|-----|-----|-----|
| | | A | B | C |
| From | A | 0 | 178 | 326 |
| | B | 13 | 0 | 834 |
| | C | 390 | 701 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| | | To | | |
|------|---|----|----|----|
| | | A | B | C |
| From | A | 0 | 10 | 10 |
| | B | 10 | 0 | 10 |
| | C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------|--------------|---------------|-----------------|---------|
| B-C | 1.88 | 2007.83 | 301.9 | F |
| B-A | 999999999.00 | 2405.01 | 6.7 | F |
| C-AB | 1.36 | 791.70 | 203.5 | F |
| C-A | | | | |
| AB | | | | |
| AC | | | | |

Main Results for each time segment

16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 628 | 686 | 0.915 | 598 | 7.5 | 37.259 | E |
| B-A | 10 | 265 | 0.037 | 10 | 0.0 | 15.487 | C |
| C-AB | 747 | 870 | 0.858 | 718 | 7.2 | 24.460 | C |
| C-A | 74 | | | 74 | | | |
| AB | 134 | | | 134 | | | |
| AC | 245 | | | 245 | | | |

17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 750 | 665 | 1.128 | 653 | 31.5 | 126.519 | F |
| B-A | 12 | 190 | 0.061 | 12 | 0.1 | 22.135 | C |
| C-AB | 981 | 926 | 1.060 | 892 | 29.3 | 82.841 | F |
| C-A | 0 | | | 0 | | | |
| AB | 160 | | | 160 | | | |
| AC | 293 | | | 293 | | | |

17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 918 | 619 | 1.484 | 618 | 106.5 | 454.166 | F |
| B-A | 14 | 73 | 0.197 | 14 | 0.2 | 66.147 | F |
| C-AB | 1201 | 882 | 1.361 | 880 | 109.7 | 293.660 | F |
| C-A | 0 | | | 0 | | | |
| AB | 196 | | | 196 | | | |
| AC | 359 | | | 359 | | | |

17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|---------------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 918 | 489 | 1.879 | 489 | 214.0 | 1162.530 | F |
| B-A | 14 | 0 | 999999999.000 | 0 | 3.8 | 2310.071 | F |
| C-AB | 1201 | 882 | 1.361 | 882 | 189.5 | 606.247 | F |
| C-A | 0 | | | 0 | | | |
| AB | 196 | | | 196 | | | |
| AC | 359 | | | 359 | | | |

17:45 - 18:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|---------------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 750 | 506 | 1.480 | 506 | 274.8 | 1725.721 | F |
| B-A | 12 | 0 | 999999999.000 | 0 | 6.7 | 2405.008 | F |
| C-AB | 981 | 926 | 1.060 | 925 | 203.5 | 791.697 | F |
| C-A | 0 | | | 0 | | | |
| AB | 160 | | | 160 | | | |
| AC | 293 | | | 293 | | | |

18:00 - 18:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 628 | 519 | 1.209 | 519 | 301.9 | 2007.834 | F |
| B-A | 10 | 12 | 0.832 | 10 | 6.7 | 2390.143 | F |
| C-AB | 747 | 870 | 0.858 | 883 | 169.6 | 785.140 | F |
| C-A | 74 | | | 74 | | | |
| AB | 134 | | | 134 | | | |
| AC | 245 | | | 245 | | | |

OBS 2022, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 412.85 | F |

Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left | Normal/unknown | 412.85 | F |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D5 | OBS 2022 | AM | ONE HOUR | 07:45 | 09:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 251 | 100.000 |
| B | | ✓ | 540 | 100.000 |
| C | | ✓ | 943 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| From | To | | |
|------|-----|-----|-----|
| | A | B | C |
| A | 0 | 84 | 167 |
| B | 29 | 0 | 511 |
| C | 169 | 774 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| From | To | | |
|------|----|----|----|
| | A | B | C |
| A | 0 | 10 | 10 |
| B | 10 | 0 | 10 |
| C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------|---------|---------------|-----------------|---------|
| B-C | 0.93 | 55.41 | 8.5 | F |
| B-A | 0.62 | 217.34 | 1.4 | F |
| C-AB | 1.33 | 730.60 | 165.0 | F |
| C-A | | | | |
| AB | | | | |
| AC | | | | |

Main Results for each time segment

07:45 - 08:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 385 | 724 | 0.532 | 380 | 1.2 | 11.366 | B |
| B-A | 22 | 312 | 0.070 | 22 | 0.1 | 13.593 | B |
| C-AB | 681 | 780 | 0.874 | 654 | 6.7 | 28.474 | D |
| C-A | 29 | | | 29 | | | |
| AB | 63 | | | 63 | | | |
| AC | 126 | | | 126 | | | |

08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 459 | 708 | 0.649 | 456 | 1.9 | 15.537 | C |
| B-A | 26 | 247 | 0.106 | 26 | 0.1 | 17.913 | C |
| C-AB | 848 | 800 | 1.059 | 774 | 25.0 | 87.230 | F |
| C-A | 0 | | | 0 | | | |
| AB | 76 | | | 76 | | | |
| AC | 150 | | | 150 | | | |

08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 563 | 675 | 0.833 | 552 | 4.6 | 29.768 | D |
| B-A | 32 | 144 | 0.222 | 31 | 0.3 | 35.055 | E |
| C-AB | 1038 | 784 | 1.325 | 782 | 89.2 | 274.638 | F |
| C-A | 0 | | | 0 | | | |
| AB | 92 | | | 92 | | | |
| AC | 184 | | | 184 | | | |

08:30 - 08:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 563 | 605 | 0.930 | 547 | 8.5 | 55.406 | F |
| B-A | 32 | 54 | 0.595 | 28 | 1.2 | 143.388 | F |
| C-AB | 1038 | 784 | 1.325 | 783 | 153.0 | 580.822 | F |
| C-A | 0 | | | 0 | | | |
| AB | 92 | | | 92 | | | |
| AC | 184 | | | 184 | | | |

08:45 - 09:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 459 | 595 | 0.772 | 476 | 4.2 | 36.763 | E |
| B-A | 26 | 42 | 0.620 | 25 | 1.4 | 217.341 | F |
| C-AB | 848 | 800 | 1.059 | 800 | 165.0 | 730.598 | F |
| C-A | 0 | | | 0 | | | |
| A-B | 76 | | | 76 | | | |
| A-C | 150 | | | 150 | | | |

09:00 - 09:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 385 | 675 | 0.570 | 395 | 1.5 | 14.679 | B |
| B-A | 22 | 81 | 0.268 | 26 | 0.4 | 74.357 | F |
| C-AB | 681 | 780 | 0.874 | 784 | 139.3 | 713.452 | F |
| C-A | 29 | | | 29 | | | |
| A-B | 63 | | | 63 | | | |
| A-C | 126 | | | 126 | | | |

OBS 2022, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 28.31 | D |

Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left | Normal/unknown | 28.31 | D |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D6 | OBS 2022 | PM | ONE HOUR | 16:45 | 18:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 174 | 100.000 |
| B | | ✓ | 550 | 100.000 |
| C | | ✓ | 709 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| | | To | | |
|------|---|-----|-----|-----|
| | | A | B | C |
| From | A | 0 | 44 | 130 |
| | B | 28 | 0 | 522 |
| | C | 173 | 536 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| | | To | | |
|------|---|----|----|----|
| | | A | B | C |
| From | A | 0 | 10 | 10 |
| | B | 10 | 0 | 10 |
| | C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------|---------|---------------|-----------------|---------|
| B-C | 0.81 | 27.96 | 4.3 | D |
| B-A | 0.11 | 15.59 | 0.1 | C |
| C-AB | 0.89 | 40.04 | 8.8 | E |
| C-A | | | | |
| AB | | | | |
| AC | | | | |

Main Results for each time segment

16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 393 | 738 | 0.532 | 388 | 1.2 | 11.161 | B |
| B-A | 21 | 393 | 0.054 | 21 | 0.1 | 10.648 | B |
| C-AB | 451 | 764 | 0.591 | 444 | 1.7 | 12.210 | B |
| C-A | 83 | | | 83 | | | |
| AB | 33 | | | 33 | | | |
| AC | 98 | | | 98 | | | |

17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 469 | 728 | 0.644 | 467 | 1.9 | 14.954 | B |
| B-A | 25 | 349 | 0.072 | 25 | 0.1 | 12.209 | B |
| C-AB | 563 | 790 | 0.713 | 558 | 3.0 | 16.912 | C |
| C-A | 74 | | | 74 | | | |
| AB | 40 | | | 40 | | | |
| AC | 117 | | | 117 | | | |

17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 575 | 713 | 0.806 | 566 | 4.0 | 25.528 | D |
| B-A | 31 | 291 | 0.106 | 31 | 0.1 | 15.180 | C |
| C-AB | 741 | 837 | 0.886 | 722 | 7.8 | 32.201 | D |
| C-A | 39 | | | 39 | | | |
| AB | 48 | | | 48 | | | |
| AC | 143 | | | 143 | | | |

17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 575 | 713 | 0.806 | 574 | 4.3 | 27.964 | D |
| B-A | 31 | 285 | 0.108 | 31 | 0.1 | 15.587 | C |
| C-AB | 741 | 837 | 0.886 | 737 | 8.8 | 40.044 | E |
| C-A | 39 | | | 39 | | | |
| AB | 48 | | | 48 | | | |
| AC | 143 | | | 143 | | | |

17:45 - 18:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 469 | 728 | 0.645 | 478 | 2.1 | 16.347 | C |
| B-A | 25 | 340 | 0.074 | 25 | 0.1 | 12.604 | B |
| C-AB | 563 | 790 | 0.713 | 585 | 3.4 | 21.398 | C |
| C-A | 74 | | | 74 | | | |
| AB | 40 | | | 40 | | | |
| AC | 117 | | | 117 | | | |

18:00 - 18:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 393 | 738 | 0.533 | 396 | 1.3 | 11.692 | B |
| B-A | 21 | 388 | 0.054 | 21 | 0.1 | 10.809 | B |
| C-AB | 451 | 764 | 0.591 | 458 | 1.8 | 13.263 | B |
| C-A | 83 | | | 83 | | | |
| AB | 33 | | | 33 | | | |
| AC | 98 | | | 98 | | | |

ATTACHMENT B

PROPOSED MINI-ROUNDBOUT JUNCTION MODELLING

| |
|--|
| Junctions 10 |
| ARCADY 10 - Roundabout Module |
| Version: 10.0.3.1598 © Copyright TRL Software Limited, 2021 |
| For sales and distribution information, program advice and maintenance, contact TRL Software: +44 (0)1344 379777 software@trl.co.uk trisoftware.com |
| The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution |

Filename: 2022.05.19 - NW BICESTER - HOWES LANE (Mini RBt Mitigation) - 500 unit.j10
Path: P:\Firethorn Trust_4600\1100 - NW Bicester\Analysis\Modelling\Picady\BTM 2026 FLOWS
Report generation date: 31/05/2022 14:37:29

- »BTM Base 2026, AM
- »BTM Base 2026, PM
- »BTM 2026 + Proposed Development, AM
- »BTM 2026 + Proposed Development, PM

Summary of junction performance

| | AM | | | | | | PM | | | | | |
|--|--------|-------------|-----------|------|-----|--------------------|--------|-------------|-----------|------|-----|--------------------|
| | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) |
| BTM Base 2026 | | | | | | | | | | | | |
| Arm A | D1 | 4.5 | 33.19 | 0.82 | D | 132.46 | D2 | 3.3 | 22.31 | 0.76 | C | 351.31 |
| Arm B | | 3.5 | 22.05 | 0.77 | C | | | 55.5 | 221.62 | 1.12 | F | |
| Arm C | | 68.1 | 248.48 | 1.13 | F | | | 153.8 | 607.00 | 1.27 | F | |
| BTM 2026 + Proposed Development | | | | | | | | | | | | |
| Arm A | D3 | 5.0 | 36.90 | 0.84 | E | 290.56 | D4 | 3.5 | 23.66 | 0.77 | C | 510.35 |
| Arm B | | 4.7 | 28.30 | 0.82 | D | | | 100.2 | 446.13 | 1.24 | F | |
| Arm C | | 139.4 | 555.80 | 1.25 | F | | | 203.5 | 785.51 | 1.34 | F | |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

| | |
|-------------|-------------|
| Title | (untitled) |
| Location | |
| Site number | |
| Date | 02/11/2021 |
| Version | |
| Status | (new file) |
| Identifier | |
| Client | |
| Jobnumber | |
| Enumerator | VTPI\CRicci |
| Description | |

Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|---------------------|-------------------|---------------------|
| m | kph | PCU | PCU | perHour | s | -Min | perMin |

Analysis Options

| Mini-roundabout model | Calculate Queue Percentiles | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|-----------------------|-----------------------------|-----------------------------|---------------|-----------------------------|-----------------------|
| JUNCTIONS 9 | | | 0.85 | 36.00 | 20.00 |

Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------------------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D1 | BTM Base 2026 | AM | ONE HOUR | 07:45 | 09:15 | 15 |
| D2 | BTM Base 2026 | PM | ONE HOUR | 16:45 | 18:15 | 15 |
| D3 | BTM 2026 + Proposed Development | AM | ONE HOUR | 07:45 | 09:15 | 15 |
| D4 | BTM 2026 + Proposed Development | PM | ONE HOUR | 16:45 | 18:15 | 15 |

Analysis Set Details

| ID | Network flow scaling factor (%) |
|----|---------------------------------|
| At | 100.000 |

BTM Base 2026, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|-----------------|-----------------------|-----------|--------------------|--------------|
| 1 | untitled | Mini-roundabout | | A, B, C | 132.46 | F |

Junction Network

| Driving side | Lighting | Road surface | In London | Network delay (s) | Network LOS |
|--------------|----------------|----------------|-----------|-------------------|-------------|
| Left | Normal/unknown | Normal/unknown | | 132.46 | F |

Arms

Arms

| Arm | Name | Description |
|-----|-----------------|-------------|
| A | Bucknell Road S | |
| B | Howes Lane | |
| C | Bucknell Road N | |

Mini Roundabout Geometry

| Arm | Approach road half-width (m) | Minimum approach road half-width (m) | Entry width (m) | Effective flare length (m) | Distance to next arm (m) | Entry corner kerb line distance (m) | Gradient over 50m (%) | Kerbed central island |
|-----|------------------------------|--------------------------------------|-----------------|----------------------------|--------------------------|-------------------------------------|-----------------------|-----------------------|
| A | 3.10 | 3.10 | 4.00 | 6.9 | 12.80 | 11.60 | 0.0 | |
| B | 3.00 | 3.00 | 3.90 | 30.0 | 7.18 | 4.60 | 0.0 | |
| C | 3.50 | 3.50 | 3.60 | 1.5 | 12.50 | 12.90 | 0.0 | |

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

| Arm | Final slope | Final intercept (PCU/hr) |
|-----|-------------|--------------------------|
| A | 0.622 | 1078 |
| B | 0.621 | 972 |
| C | 0.621 | 904 |

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D1 | BTM Base 2026 | AM | ONE HOUR | 07:45 | 09:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 470 | 100.000 |
| B | | ✓ | 539 | 100.000 |
| C | | ✓ | 915 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| From | To | | |
|------|-----|-----|-----|
| | A | B | C |
| A | 0 | 174 | 296 |
| B | 13 | 0 | 526 |
| C | 180 | 735 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| From | To | | |
|------|----|----|----|
| | A | B | C |
| A | 0 | 10 | 10 |
| B | 10 | 0 | 10 |
| C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|-----|---------|---------------|-----------------|---------|
| A | 0.82 | 33.19 | 4.5 | D |
| B | 0.77 | 22.05 | 3.5 | C |
| C | 1.13 | 248.48 | 68.1 | F |

Main Results for each time segment

07:45 - 08:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 354 | 543 | 740 | 0.478 | 350 | 1.0 | 10.044 | B |
| B | 406 | 220 | 836 | 0.486 | 402 | 1.0 | 9.047 | A |
| C | 689 | 10 | 898 | 0.767 | 676 | 3.3 | 16.914 | C |

08:00 - 08:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 423 | 645 | 677 | 0.624 | 419 | 1.8 | 15.204 | C |
| B | 485 | 264 | 808 | 0.599 | 482 | 1.6 | 12.056 | B |
| C | 823 | 12 | 897 | 0.917 | 803 | 8.3 | 35.901 | E |

08:15 - 08:30

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 517 | 709 | 636 | 0.813 | 508 | 4.1 | 28.893 | D |
| B | 593 | 320 | 774 | 0.767 | 587 | 3.3 | 20.438 | C |
| C | 1007 | 14 | 895 | 1.125 | 883 | 39.4 | 112.013 | F |

08:30 - 08:45

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 517 | 717 | 632 | 0.819 | 516 | 4.5 | 33.193 | D |
| B | 593 | 325 | 771 | 0.770 | 593 | 3.5 | 22.050 | C |
| C | 1007 | 14 | 895 | 1.125 | 893 | 68.1 | 227.823 | F |

08:45 - 09:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 423 | 709 | 637 | 0.663 | 431 | 2.3 | 20.012 | C |
| B | 485 | 272 | 804 | 0.603 | 492 | 1.7 | 12.964 | B |
| C | 823 | 12 | 897 | 0.917 | 882 | 53.1 | 248.483 | F |

09:00 - 09:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 354 | 706 | 639 | 0.554 | 357 | 1.4 | 14.242 | B |
| B | 406 | 225 | 833 | 0.487 | 408 | 1.1 | 9.392 | A |
| C | 689 | 10 | 898 | 0.767 | 879 | 5.7 | 128.057 | F |

BTM Base 2026, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|-----------------|-----------------------|-----------|--------------------|--------------|
| 1 | untitled | Mini-roundabout | | A, B, C | 351.31 | F |

Junction Network

| Driving side | Lighting | Road surface | In London | Network delay (s) | Network LOS |
|--------------|----------------|----------------|-----------|-------------------|-------------|
| Left | Normal/unknown | Normal/unknown | | 351.31 | F |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D2 | BTM Base 2026 | PM | ONE HOUR | 16:45 | 18:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 504 | 100.000 |
| B | | ✓ | 764 | 100.000 |
| C | | ✓ | 1036 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| | | To | | |
|------|---|-----|-----|-----|
| | | A | B | C |
| From | A | 0 | 178 | 326 |
| | B | 13 | 0 | 751 |
| | C | 390 | 646 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| | | To | | |
|------|---|----|----|----|
| | | A | B | C |
| From | A | 0 | 10 | 10 |
| | B | 10 | 0 | 10 |
| | C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|-----|---------|---------------|-----------------|---------|
| A | 0.76 | 22.31 | 3.3 | C |
| B | 1.12 | 221.62 | 55.5 | F |
| C | 1.27 | 607.00 | 153.8 | F |

Main Results for each time segment

16:45 - 17:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 379 | 472 | 785 | 0.484 | 375 | 1.0 | 9.588 | A |
| B | 575 | 243 | 822 | 0.700 | 565 | 2.4 | 14.950 | B |
| C | 780 | 10 | 898 | 0.868 | 756 | 5.9 | 24.902 | C |

17:00 - 17:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 453 | 541 | 742 | 0.611 | 450 | 1.7 | 13.479 | B |
| B | 687 | 291 | 791 | 0.868 | 673 | 5.8 | 30.473 | D |
| C | 931 | 11 | 897 | 1.038 | 867 | 21.9 | 72.622 | F |

17:15 - 17:30

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 555 | 558 | 731 | 0.759 | 549 | 3.2 | 21.041 | C |
| B | 841 | 355 | 752 | 1.119 | 737 | 31.8 | 108.385 | F |
| C | 1141 | 13 | 896 | 1.273 | 894 | 83.5 | 223.996 | F |

17:30 - 17:45

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 555 | 559 | 730 | 0.760 | 554 | 3.3 | 22.305 | C |
| B | 841 | 359 | 750 | 1.122 | 747 | 55.5 | 221.624 | F |
| C | 1141 | 13 | 896 | 1.273 | 896 | 144.8 | 467.069 | F |

17:45 - 18:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 453 | 558 | 731 | 0.620 | 459 | 1.9 | 14.861 | B |
| B | 687 | 297 | 788 | 0.872 | 773 | 34.0 | 210.666 | F |
| C | 931 | 13 | 896 | 1.040 | 895 | 153.8 | 607.004 | F |

18:00 - 18:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 379 | 555 | 733 | 0.518 | 382 | 1.2 | 11.383 | B |
| B | 575 | 247 | 819 | 0.702 | 700 | 2.9 | 57.892 | F |
| C | 780 | 12 | 897 | 0.870 | 890 | 126.3 | 567.040 | F |

BTM 2026 + Proposed Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|-----------------|-----------------------|-----------|--------------------|--------------|
| 1 | untitled | Mini-roundabout | | A, B, C | 290.56 | F |

Junction Network

| Driving side | Lighting | Road surface | In London | Network delay (s) | Network LOS |
|--------------|----------------|----------------|-----------|-------------------|-------------|
| Left | Normal/unknown | Normal/unknown | | 290.56 | F |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------------------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D3 | BTM 2026 + Proposed Development | AM | ONE HOUR | 07:45 | 09:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 470 | 100.000 |
| B | | ✓ | 577 | 100.000 |
| C | | ✓ | 1020 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| | | To | | |
|------|---|-----|-----|-----|
| | | A | B | C |
| From | A | 0 | 174 | 296 |
| | B | 13 | 0 | 564 |
| | C | 180 | 840 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| | | To | | |
|------|---|----|----|----|
| | | A | B | C |
| From | A | 0 | 10 | 10 |
| | B | 10 | 0 | 10 |
| | C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|-----|---------|---------------|-----------------|---------|
| A | 0.84 | 36.90 | 5.0 | E |
| B | 0.82 | 28.30 | 4.7 | D |
| C | 1.25 | 555.80 | 139.4 | F |

Main Results for each time segment

07:45 - 08:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 354 | 615 | 696 | 0.509 | 349 | 1.1 | 11.302 | B |
| B | 434 | 220 | 836 | 0.520 | 430 | 1.2 | 9.648 | A |
| C | 768 | 10 | 898 | 0.855 | 746 | 5.4 | 23.532 | C |

08:00 - 08:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 423 | 709 | 637 | 0.664 | 419 | 2.1 | 17.871 | C |
| B | 519 | 264 | 809 | 0.642 | 516 | 1.9 | 13.387 | B |
| C | 917 | 12 | 897 | 1.022 | 861 | 19.3 | 66.235 | F |

08:15 - 08:30

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 517 | 735 | 621 | 0.834 | 507 | 4.6 | 32.349 | D |
| B | 635 | 320 | 774 | 0.821 | 625 | 4.4 | 25.089 | D |
| C | 1123 | 14 | 895 | 1.254 | 893 | 76.9 | 206.105 | F |

08:30 - 08:45

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 517 | 737 | 619 | 0.835 | 516 | 5.0 | 36.897 | E |
| B | 635 | 325 | 771 | 0.824 | 634 | 4.7 | 28.302 | D |
| C | 1123 | 14 | 895 | 1.255 | 895 | 134.0 | 432.546 | F |

08:45 - 09:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 423 | 737 | 619 | 0.682 | 432 | 2.5 | 22.180 | C |
| B | 519 | 272 | 803 | 0.646 | 529 | 2.1 | 14.967 | B |
| C | 917 | 12 | 897 | 1.023 | 895 | 139.4 | 555.804 | F |

09:00 - 09:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 354 | 734 | 621 | 0.569 | 358 | 1.5 | 15.245 | C |
| B | 434 | 225 | 832 | 0.522 | 438 | 1.2 | 10.123 | B |
| C | 768 | 10 | 898 | 0.855 | 891 | 108.7 | 502.184 | F |

BTM 2026 + Proposed Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|-----------------|-----------------------|-----------|--------------------|--------------|
| 1 | untitled | Mini-roundabout | | A, B, C | 510.35 | F |

Junction Network

| Driving side | Lighting | Road surface | In London | Network delay (s) | Network LOS |
|--------------|----------------|----------------|-----------|-------------------|-------------|
| Left | Normal/unknown | Normal/unknown | | 510.35 | F |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------------------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D4 | BTM 2026 + Proposed Development | PM | ONE HOUR | 16:45 | 18:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 504 | 100.000 |
| B | | ✓ | 842 | 100.000 |
| C | | ✓ | 1088 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| | | To | | |
|------|---|-----|-----|-----|
| | | A | B | C |
| From | A | 0 | 178 | 326 |
| | B | 13 | 0 | 829 |
| | C | 390 | 698 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| | | To | | |
|------|---|----|----|----|
| | | A | B | C |
| From | A | 0 | 10 | 10 |
| | B | 10 | 0 | 10 |
| | C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|-----|---------|---------------|-----------------|---------|
| A | 0.77 | 23.66 | 3.5 | C |
| B | 1.24 | 446.13 | 100.2 | F |
| C | 1.34 | 785.51 | 203.5 | F |

Main Results for each time segment

16:45 - 17:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 379 | 505 | 764 | 0.497 | 375 | 1.1 | 10.091 | B |
| B | 634 | 243 | 822 | 0.771 | 620 | 3.4 | 18.601 | C |
| C | 819 | 10 | 898 | 0.912 | 788 | 7.8 | 30.302 | D |

17:00 - 17:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 453 | 565 | 726 | 0.624 | 450 | 1.8 | 14.194 | B |
| B | 757 | 291 | 791 | 0.956 | 728 | 10.7 | 47.848 | E |
| C | 978 | 11 | 897 | 1.090 | 881 | 32.2 | 97.026 | F |

17:15 - 17:30

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 555 | 575 | 720 | 0.770 | 549 | 3.3 | 22.220 | C |
| B | 927 | 355 | 752 | 1.233 | 747 | 55.7 | 174.827 | F |
| C | 1198 | 12 | 897 | 1.336 | 896 | 107.7 | 291.518 | F |

17:30 - 17:45

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 555 | 575 | 720 | 0.771 | 554 | 3.5 | 23.660 | C |
| B | 927 | 359 | 750 | 1.237 | 749 | 100.2 | 379.985 | F |
| C | 1198 | 12 | 897 | 1.336 | 897 | 183.0 | 591.283 | F |

17:45 - 18:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 453 | 575 | 720 | 0.629 | 459 | 1.9 | 15.521 | C |
| B | 757 | 297 | 788 | 0.961 | 779 | 94.6 | 446.132 | F |
| C | 978 | 12 | 897 | 1.091 | 896 | 203.5 | 782.898 | F |

18:00 - 18:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 379 | 572 | 722 | 0.525 | 382 | 1.2 | 11.745 | B |
| B | 634 | 247 | 819 | 0.774 | 809 | 50.7 | 325.820 | F |
| C | 819 | 12 | 896 | 0.914 | 891 | 185.4 | 785.508 | F |

ATTACHMENT C

EXISTING PRIORITY JUNCTION MODELLING (CALIBRATED)

| |
|--|
| Junctions 10 |
| PICADY 10 - Priority Intersection Module |
| Version: 10.0.3.1598 © Copyright TRL Software Limited, 2021 |
| For sales and distribution information, program advice and maintenance, contact TRL Software: +44 (0)1344 379777 software@trl.co.uk trlsoftware.com |
| The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution |

Filename: 2022.05.19 - NW BICESTER - HOWES LANE (Existing CALIBRATED).j10
Path: P:\Firethorn Trust_4600\1100 - NW Bicester\Analysis\Modelling\Picady\BTM 2026 FLOWS
Report generation date: 31/05/2022 09:43:52

- »BTM Base 2026, AM
- »BTM Base 2026, PM
- »BTM 2026 + Proposed Dev, AM
- »BTM 2026 + Proposed Dev, PM
- »OBS 2022, AM
- »OBS 2022, PM

Summary of junction performance

| | AM | | | | | | PM | | | | | |
|--------------------------------|--------|-------------|-----------|------|-----|--------------------|--------|-------------|-----------|------|-----|--------------------|
| | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) |
| BTM Base 2026 | | | | | | | | | | | | |
| Stream B-C | | 7.8 | 51.93 | 0.90 | F | | | 114.1 | 611.79 | 1.30 | F | |
| Stream B-A | D1 | 0.1 | 35.93 | 0.12 | E | 191.29 | D2 | 0.1 | 30.94 | 0.10 | D | 281.18 |
| Stream C-AB | | 86.8 | 413.00 | 1.21 | F | | | 53.0 | 181.20 | 1.08 | F | |
| BTM 2026 + Proposed Dev | | | | | | | | | | | | |
| Stream B-C | | 30.6 | 218.37 | 1.12 | F | | | 197.4 | 1020.25 | 1.46 | F | |
| Stream B-A | D3 | 1.7 | 528.78 | 0.97 | F | 442.86 | D4 | 0.2 | 47.21 | 0.15 | E | 505.16 |
| Stream C-AB | | 174.0 | 831.88 | 1.38 | F | | | 89.9 | 346.38 | 1.17 | F | |
| OBS 2022 | | | | | | | | | | | | |
| Stream B-C | | 4.7 | 31.68 | 0.82 | D | | | 4.2 | 27.49 | 0.80 | D | |
| Stream B-A | D5 | 0.2 | 27.72 | 0.18 | D | 151.71 | D6 | 0.1 | 13.37 | 0.09 | B | 19.38 |
| Stream C-AB | | 67.5 | 287.35 | 1.14 | F | | | 4.0 | 21.13 | 0.76 | C | |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

| | |
|-------------|------------|
| Title | (untitled) |
| Location | |
| Site number | |
| Date | 02/11/2021 |
| Version | |
| Status | (new file) |
| Identifier | |
| Client | |
| Jobnumber | |
| Enumerator | VTP\CRicci |
| Description | |

Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|---------------------|-------------------|---------------------|
| m | kph | PCU | PCU | perHour | s | -Min | perMin |

Analysis Options

| Calculate Queue Percentiles | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|-----------------------------|-----------------------------|---------------|-----------------------------|-----------------------|
| | | 0.85 | 36.00 | 20.00 |

Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|-------------------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D1 | BTM Base 2026 | AM | ONE HOUR | 07:45 | 09:15 | 15 |
| D2 | BTM Base 2026 | PM | ONE HOUR | 16:45 | 18:15 | 15 |
| D3 | BTM 2026 + Proposed Dev | AM | ONE HOUR | 07:45 | 09:15 | 15 |
| D4 | BTM 2026 + Proposed Dev | PM | ONE HOUR | 16:45 | 18:15 | 15 |
| D5 | OBS 2022 | AM | ONE HOUR | 07:45 | 09:15 | 15 |
| D6 | OBS 2022 | PM | ONE HOUR | 16:45 | 18:15 | 15 |

Analysis Set Details

| ID | Network flow scaling factor (%) |
|----|---------------------------------|
| At | 100.000 |

BTM Base 2026, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 191.29 | F |

Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left | Normal/unknown | 191.29 | F |

Arms

Arms

| Arm | Name | Description | Arm type |
|-----|----------|-------------|----------|
| A | untitled | | Major |
| B | untitled | | Minor |
| C | untitled | | Major |

Major Arm Geometry

| Arm | Width of carriageway (m) | Has kerbed central reserve | Has right-turn storage | Visibility for right turn (m) | Blocks? | Blocking queue (PCU) |
|-----|--------------------------|----------------------------|------------------------|-------------------------------|---------|----------------------|
| C | 6.40 | | | 250.0 | ✓ | 1.00 |

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

| Arm | Minor arm type | Lane Width (Left) (m) | Lane Width (Right) (m) | Visibility to left (m) | Visibility to right (m) |
|-----|----------------|-----------------------|------------------------|------------------------|-------------------------|
| B | Two lanes | 3.00 | 2.80 | 41 | 250 |

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

| Stream | Intercept (PCU/hr) | Slope for A-B | Slope for A-C | Slope for C-A | Slope for C-B |
|--------|--------------------|---------------|---------------|---------------|---------------|
| B-A | 602 | 0.108 | 0.272 | 0.171 | 0.389 |
| B-C | 781 | 0.118 | 0.297 | - | - |
| C-B | 719 | 0.274 | 0.274 | - | - |

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D1 | BTM Base 2026 | AM | ONE HOUR | 07:45 | 09:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 470 | 100.000 |
| B | | ✓ | 539 | 100.000 |
| C | | ✓ | 787 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| From | To | | |
|------|-----|-----|-----|
| | A | B | C |
| A | 0 | 174 | 296 |
| B | 13 | 0 | 526 |
| C | 155 | 632 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| From | To | | |
|------|----|----|----|
| | A | B | C |
| A | 0 | 10 | 10 |
| B | 10 | 0 | 10 |
| C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------|---------|---------------|-----------------|---------|
| B-C | 0.90 | 51.93 | 7.8 | F |
| B-A | 0.12 | 35.93 | 0.1 | E |
| C-AB | 1.21 | 413.00 | 86.8 | F |
| C-A | | | | |
| A-B | | | | |
| A-C | | | | |

Main Results for each time segment

07:45 - 08:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 396 | 694 | 0.570 | 390 | 1.4 | 12.804 | B |
| B-A | 10 | 322 | 0.030 | 10 | 0.0 | 12.667 | B |
| C-AB | 546 | 713 | 0.765 | 531 | 3.7 | 20.670 | C |
| C-A | 47 | | | 47 | | | |
| A-B | 131 | | | 131 | | | |
| A-C | 223 | | | 223 | | | |

08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 473 | 676 | 0.699 | 469 | 2.4 | 18.745 | C |
| B-A | 12 | 263 | 0.045 | 12 | 0.1 | 15.779 | C |
| C-AB | 692 | 735 | 0.942 | 665 | 10.6 | 47.865 | E |
| C-A | 15 | | | 15 | | | |
| AB | 156 | | | 156 | | | |
| AC | 266 | | | 266 | | | |

08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 579 | 648 | 0.893 | 563 | 6.5 | 40.052 | E |
| B-A | 14 | 178 | 0.080 | 14 | 0.1 | 24.167 | C |
| C-AB | 867 | 719 | 1.206 | 711 | 49.5 | 166.152 | F |
| C-A | 0 | | | 0 | | | |
| AB | 192 | | | 192 | | | |
| AC | 326 | | | 326 | | | |

08:30 - 08:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 579 | 642 | 0.902 | 574 | 7.8 | 51.931 | F |
| B-A | 14 | 124 | 0.115 | 14 | 0.1 | 35.933 | E |
| C-AB | 867 | 719 | 1.206 | 717 | 86.8 | 350.932 | F |
| C-A | 0 | | | 0 | | | |
| AB | 192 | | | 192 | | | |
| AC | 326 | | | 326 | | | |

08:45 - 09:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 473 | 670 | 0.706 | 493 | 2.8 | 24.428 | C |
| B-A | 12 | 148 | 0.079 | 12 | 0.1 | 29.207 | D |
| C-AB | 692 | 735 | 0.942 | 736 | 75.9 | 412.998 | F |
| C-A | 15 | | | 15 | | | |
| AB | 156 | | | 156 | | | |
| AC | 266 | | | 266 | | | |

09:00 - 09:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 396 | 691 | 0.573 | 401 | 1.5 | 13.884 | B |
| B-A | 10 | 216 | 0.045 | 10 | 0.1 | 19.250 | C |
| C-AB | 546 | 713 | 0.765 | 728 | 30.4 | 291.532 | F |
| C-A | 47 | | | 47 | | | |
| AB | 131 | | | 131 | | | |
| AC | 223 | | | 223 | | | |

BTM Base 2026, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 281.18 | F |

Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left | Normal/unknown | 281.18 | F |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D2 | BTM Base 2026 | PM | ONE HOUR | 16:45 | 18:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 504 | 100.000 |
| B | | ✓ | 764 | 100.000 |
| C | | ✓ | 891 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| | | To | | |
|------|---|-----|-----|-----|
| | | A | B | C |
| From | A | 0 | 178 | 326 |
| | B | 13 | 0 | 751 |
| | C | 335 | 556 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| | | To | | |
|------|---|----|----|----|
| | | A | B | C |
| From | A | 0 | 10 | 10 |
| | B | 10 | 0 | 10 |
| | C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------|---------|---------------|-----------------|---------|
| B-C | 1.30 | 611.79 | 114.1 | F |
| B-A | 0.10 | 30.94 | 0.1 | D |
| C-AB | 1.08 | 181.20 | 53.0 | F |
| C-A | | | | |
| AB | | | | |
| AC | | | | |

Main Results for each time segment

16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 565 | 687 | 0.823 | 548 | 4.3 | 25.951 | D |
| B-A | 10 | 315 | 0.031 | 10 | 0.0 | 12.975 | B |
| C-AB | 540 | 793 | 0.681 | 528 | 2.8 | 14.660 | B |
| C-A | 131 | | | 131 | | | |
| AB | 134 | | | 134 | | | |
| AC | 245 | | | 245 | | | |

17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 675 | 667 | 1.011 | 633 | 15.0 | 71.899 | F |
| B-A | 12 | 255 | 0.046 | 12 | 0.1 | 16.260 | C |
| C-AB | 716 | 852 | 0.840 | 700 | 6.7 | 25.798 | D |
| C-A | 85 | | | 85 | | | |
| AB | 160 | | | 160 | | | |
| AC | 293 | | | 293 | | | |

17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 827 | 638 | 1.296 | 635 | 62.9 | 236.148 | F |
| B-A | 14 | 173 | 0.083 | 14 | 0.1 | 24.872 | C |
| C-AB | 981 | 908 | 1.080 | 878 | 32.4 | 88.850 | F |
| C-A | 0 | | | 0 | | | |
| AB | 196 | | | 196 | | | |
| AC | 359 | | | 359 | | | |

17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 827 | 635 | 1.303 | 634 | 111.0 | 496.768 | F |
| B-A | 14 | 142 | 0.101 | 14 | 0.1 | 30.938 | D |
| C-AB | 981 | 908 | 1.080 | 899 | 53.0 | 181.202 | F |
| C-A | 0 | | | 0 | | | |
| AB | 196 | | | 196 | | | |
| AC | 359 | | | 359 | | | |

17:45 - 18:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 675 | 665 | 1.016 | 663 | 114.1 | 611.794 | F |
| B-A | 12 | 194 | 0.060 | 12 | 0.1 | 21.790 | C |
| C-AB | 716 | 852 | 0.840 | 869 | 14.7 | 169.715 | F |
| C-A | 85 | | | 85 | | | |
| AB | 160 | | | 160 | | | |
| AC | 293 | | | 293 | | | |

18:00 - 18:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 565 | 687 | 0.823 | 680 | 85.4 | 529.301 | F |
| B-A | 10 | 296 | 0.033 | 10 | 0.0 | 13.862 | B |
| C-AB | 540 | 793 | 0.681 | 585 | 3.3 | 23.510 | C |
| C-A | 131 | | | 131 | | | |
| AB | 134 | | | 134 | | | |
| AC | 245 | | | 245 | | | |

BTM 2026 + Proposed Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 442.86 | F |

Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left | Normal/unknown | 442.86 | F |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|-------------------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D3 | BTM 2026 + Proposed Dev | AM | ONE HOUR | 07:45 | 09:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 470 | 100.000 |
| B | | ✓ | 577 | 100.000 |
| C | | ✓ | 878 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| | | To | | |
|------|---|-----|-----|-----|
| | | A | B | C |
| From | A | 0 | 174 | 296 |
| | B | 13 | 0 | 564 |
| | C | 155 | 723 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| | | To | | |
|------|---|----|----|----|
| | | A | B | C |
| From | A | 0 | 10 | 10 |
| | B | 10 | 0 | 10 |
| | C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------|---------|---------------|-----------------|---------|
| B-C | 1.12 | 218.37 | 30.6 | F |
| B-A | 0.97 | 528.78 | 1.7 | F |
| C-AB | 1.38 | 831.88 | 174.0 | F |
| C-A | | | | |
| AB | | | | |
| AC | | | | |

Main Results for each time segment

07:45 - 08:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 425 | 694 | 0.612 | 418 | 1.7 | 14.039 | B |
| B-A | 10 | 295 | 0.033 | 10 | 0.0 | 13.846 | B |
| C-AB | 635 | 725 | 0.875 | 608 | 6.6 | 30.325 | D |
| C-A | 26 | | | 26 | | | |
| AB | 131 | | | 131 | | | |
| AC | 223 | | | 223 | | | |

08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 507 | 675 | 0.751 | 502 | 3.0 | 22.139 | C |
| B-A | 12 | 227 | 0.052 | 12 | 0.1 | 18.418 | C |
| C-AB | 789 | 732 | 1.078 | 711 | 26.3 | 98.185 | F |
| C-A | 0 | | | 0 | | | |
| AB | 156 | | | 156 | | | |
| AC | 266 | | | 266 | | | |

08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 621 | 641 | 0.968 | 590 | 10.7 | 57.429 | F |
| B-A | 14 | 117 | 0.123 | 14 | 0.1 | 38.374 | E |
| C-AB | 967 | 701 | 1.379 | 699 | 93.1 | 319.402 | F |
| C-A | 0 | | | 0 | | | |
| AB | 192 | | | 192 | | | |
| AC | 326 | | | 326 | | | |

08:30 - 08:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 621 | 555 | 1.119 | 546 | 29.3 | 152.988 | F |
| B-A | 14 | 23 | 0.620 | 11 | 1.0 | 290.027 | F |
| C-AB | 967 | 701 | 1.379 | 701 | 159.7 | 646.715 | F |
| C-A | 0 | | | 0 | | | |
| AB | 192 | | | 192 | | | |
| AC | 326 | | | 326 | | | |

08:45 - 09:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 507 | 513 | 0.989 | 502 | 30.6 | 218.373 | F |
| B-A | 12 | 12 | 0.971 | 9 | 1.7 | 528.778 | F |
| C-AB | 789 | 732 | 1.078 | 732 | 174.0 | 831.878 | F |
| C-A | 0 | | | 0 | | | |
| A-B | 156 | | | 156 | | | |
| A-C | 266 | | | 266 | | | |

09:00 - 09:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 425 | 643 | 0.661 | 538 | 2.4 | 66.624 | F |
| B-A | 10 | 51 | 0.190 | 16 | 0.3 | 121.113 | F |
| C-AB | 635 | 725 | 0.875 | 729 | 150.5 | 816.101 | F |
| C-A | 26 | | | 26 | | | |
| A-B | 131 | | | 131 | | | |
| A-C | 223 | | | 223 | | | |

BTM 2026 + Proposed Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 505.16 | F |

Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left | Normal/unknown | 505.16 | F |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|-------------------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D4 | BTM 2026 + Proposed Dev | PM | ONE HOUR | 16:45 | 18:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 504 | 100.000 |
| B | | ✓ | 847 | 100.000 |
| C | | ✓ | 938 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| | | To | | |
|------|---|-----|-----|-----|
| | | A | B | C |
| From | A | 0 | 178 | 326 |
| | B | 13 | 0 | 834 |
| | C | 335 | 603 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| | | To | | |
|------|---|----|----|----|
| | | A | B | C |
| From | A | 0 | 10 | 10 |
| | B | 10 | 0 | 10 |
| | C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------|---------|---------------|-----------------|---------|
| B-C | 1.46 | 1020.25 | 197.4 | F |
| B-A | 0.15 | 47.21 | 0.2 | E |
| C-AB | 1.17 | 346.38 | 89.9 | F |
| C-A | | | | |
| AB | | | | |
| AC | | | | |

Main Results for each time segment

16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 628 | 687 | 0.914 | 598 | 7.4 | 37.070 | E |
| B-A | 10 | 301 | 0.033 | 10 | 0.0 | 13.586 | B |
| C-AB | 595 | 806 | 0.738 | 581 | 3.7 | 17.015 | C |
| C-A | 111 | | | 111 | | | |
| AB | 134 | | | 134 | | | |
| AC | 245 | | | 245 | | | |

17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 750 | 667 | 1.124 | 655 | 31.1 | 124.316 | F |
| B-A | 12 | 238 | 0.049 | 12 | 0.1 | 17.521 | C |
| C-AB | 794 | 872 | 0.911 | 768 | 10.3 | 36.264 | E |
| C-A | 49 | | | 49 | | | |
| AB | 160 | | | 160 | | | |
| AC | 293 | | | 293 | | | |

17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 918 | 636 | 1.445 | 635 | 101.9 | 391.345 | F |
| B-A | 14 | 148 | 0.096 | 14 | 0.1 | 29.422 | D |
| C-AB | 1033 | 882 | 1.171 | 868 | 51.4 | 138.331 | F |
| C-A | 0 | | | 0 | | | |
| AB | 196 | | | 196 | | | |
| AC | 359 | | | 359 | | | |

17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 918 | 627 | 1.465 | 627 | 174.8 | 785.074 | F |
| B-A | 14 | 98 | 0.147 | 14 | 0.2 | 47.212 | E |
| C-AB | 1033 | 882 | 1.171 | 879 | 89.9 | 298.996 | F |
| C-A | 0 | | | 0 | | | |
| AB | 196 | | | 196 | | | |
| AC | 359 | | | 359 | | | |

17:45 - 18:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 750 | 659 | 1.137 | 659 | 197.4 | 1020.251 | F |
| B-A | 12 | 131 | 0.089 | 12 | 0.1 | 33.451 | D |
| C-AB | 794 | 872 | 0.911 | 876 | 69.4 | 346.383 | F |
| C-A | 49 | | | 49 | | | |
| AB | 160 | | | 160 | | | |
| AC | 293 | | | 293 | | | |

18:00 - 18:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 628 | 684 | 0.918 | 680 | 184.3 | 1010.200 | F |
| B-A | 10 | 212 | 0.046 | 10 | 0.1 | 19.611 | C |
| C-AB | 595 | 806 | 0.738 | 844 | 7.2 | 207.540 | F |
| C-A | 111 | | | 111 | | | |
| AB | 134 | | | 134 | | | |
| AC | 245 | | | 245 | | | |

OBS 2022, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 151.71 | F |

Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left | Normal/unknown | 151.71 | F |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D5 | OBS 2022 | AM | ONE HOUR | 07:45 | 09:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 251 | 100.000 |
| B | | ✓ | 540 | 100.000 |
| C | | ✓ | 811 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| | | To | | |
|------|---|-----|-----|-----|
| | | A | B | C |
| From | A | 0 | 84 | 167 |
| | B | 29 | 0 | 511 |
| | C | 145 | 666 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| | | To | | |
|------|---|----|----|----|
| | | A | B | C |
| From | A | 0 | 10 | 10 |
| | B | 10 | 0 | 10 |
| | C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------|---------|---------------|-----------------|---------|
| B-C | 0.82 | 31.68 | 4.7 | D |
| B-A | 0.18 | 27.72 | 0.2 | D |
| C-AB | 1.14 | 287.35 | 67.5 | F |
| C-A | | | | |
| AB | | | | |
| AC | | | | |

Main Results for each time segment

07:45 - 08:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 385 | 725 | 0.531 | 380 | 1.2 | 11.325 | B |
| B-A | 22 | 347 | 0.063 | 22 | 0.1 | 12.147 | B |
| C-AB | 565 | 751 | 0.752 | 551 | 3.4 | 18.918 | C |
| C-A | 46 | | | 46 | | | |
| AB | 63 | | | 63 | | | |
| AC | 126 | | | 126 | | | |

08:00 - 08:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 459 | 711 | 0.646 | 457 | 1.9 | 15.360 | C |
| B-A | 26 | 293 | 0.089 | 26 | 0.1 | 14.830 | B |
| C-AB | 708 | 777 | 0.911 | 687 | 8.7 | 39.303 | E |
| C-A | 21 | | | 21 | | | |
| AB | 76 | | | 76 | | | |
| AC | 150 | | | 150 | | | |

08:15 - 08:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 563 | 689 | 0.816 | 553 | 4.2 | 27.438 | D |
| B-A | 32 | 217 | 0.147 | 32 | 0.2 | 21.318 | C |
| C-AB | 893 | 783 | 1.140 | 770 | 39.3 | 126.041 | F |
| C-A | 0 | | | 0 | | | |
| AB | 92 | | | 92 | | | |
| AC | 184 | | | 184 | | | |

08:30 - 08:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 563 | 682 | 0.825 | 561 | 4.7 | 31.676 | D |
| B-A | 32 | 174 | 0.183 | 32 | 0.2 | 27.722 | D |
| C-AB | 893 | 783 | 1.140 | 780 | 67.5 | 258.107 | F |
| C-A | 0 | | | 0 | | | |
| AB | 92 | | | 92 | | | |
| AC | 184 | | | 184 | | | |

08:45 - 09:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 459 | 704 | 0.653 | 469 | 2.2 | 17.563 | C |
| B-A | 26 | 203 | 0.128 | 26 | 0.2 | 22.430 | C |
| C-AB | 708 | 777 | 0.911 | 779 | 49.8 | 287.350 | F |
| C-A | 21 | | | 21 | | | |
| A-B | 76 | | | 76 | | | |
| A-C | 150 | | | 150 | | | |

09:00 - 09:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 385 | 721 | 0.533 | 388 | 1.3 | 12.006 | B |
| B-A | 22 | 276 | 0.079 | 22 | 0.1 | 15.587 | C |
| C-AB | 565 | 751 | 0.752 | 744 | 5.0 | 148.046 | F |
| C-A | 46 | | | 46 | | | |
| A-B | 63 | | | 63 | | | |
| A-C | 126 | | | 126 | | | |

OBS 2022, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Arm A Direction | Arm B Direction | Arm C Direction | Use circulating lanes | Junction Delay (s) | Junction LOS |
|----------|----------|---------------|-----------------|-----------------|-----------------|-----------------------|--------------------|--------------|
| 1 | untitled | T-Junction | Two-way | Two-way | Two-way | | 19.38 | C |

Junction Network

| Driving side | Lighting | Network delay (s) | Network LOS |
|--------------|----------------|-------------------|-------------|
| Left | Normal/unknown | 19.38 | C |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D6 | OBS 2022 | PM | ONE HOUR | 16:45 | 18:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 174 | 100.000 |
| B | | ✓ | 550 | 100.000 |
| C | | ✓ | 610 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| | | To | | |
|------|---|-----|-----|-----|
| | | A | B | C |
| From | A | 0 | 44 | 130 |
| | B | 28 | 0 | 522 |
| | C | 149 | 461 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| | | To | | |
|------|---|----|----|----|
| | | A | B | C |
| From | A | 0 | 10 | 10 |
| | B | 10 | 0 | 10 |
| | C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Stream | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|--------|---------|---------------|-----------------|---------|
| B-C | 0.80 | 27.49 | 4.2 | D |
| B-A | 0.09 | 13.37 | 0.1 | B |
| C-AB | 0.76 | 21.13 | 4.0 | C |
| C-A | | | | |
| AB | | | | |
| AC | | | | |

Main Results for each time segment

16:45 - 17:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 393 | 739 | 0.532 | 388 | 1.2 | 11.144 | B |
| B-A | 21 | 418 | 0.050 | 21 | 0.1 | 9.977 | A |
| C-AB | 378 | 744 | 0.508 | 373 | 1.2 | 10.579 | B |
| C-A | 81 | | | 81 | | | |
| AB | 33 | | | 33 | | | |
| AC | 98 | | | 98 | | | |

17:00 - 17:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 469 | 730 | 0.643 | 467 | 1.9 | 14.895 | B |
| B-A | 25 | 380 | 0.066 | 25 | 0.1 | 11.155 | B |
| C-AB | 467 | 762 | 0.613 | 464 | 1.9 | 13.256 | B |
| C-A | 81 | | | 81 | | | |
| AB | 40 | | | 40 | | | |
| AC | 117 | | | 117 | | | |

17:15 - 17:30

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 575 | 716 | 0.803 | 567 | 4.0 | 25.210 | D |
| B-A | 31 | 330 | 0.094 | 31 | 0.1 | 13.246 | B |
| C-AB | 605 | 794 | 0.762 | 598 | 3.8 | 19.769 | C |
| C-A | 66 | | | 66 | | | |
| AB | 48 | | | 48 | | | |
| AC | 143 | | | 143 | | | |

17:30 - 17:45

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 575 | 716 | 0.803 | 574 | 4.2 | 27.485 | D |
| B-A | 31 | 327 | 0.094 | 31 | 0.1 | 13.373 | B |
| C-AB | 605 | 794 | 0.762 | 604 | 4.0 | 21.127 | C |
| C-A | 66 | | | 66 | | | |
| AB | 48 | | | 48 | | | |
| AC | 143 | | | 143 | | | |

17:45 - 18:00

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 469 | 729 | 0.643 | 478 | 2.1 | 16.229 | C |
| B-A | 25 | 376 | 0.067 | 25 | 0.1 | 11.290 | B |
| C-AB | 467 | 762 | 0.613 | 475 | 2.1 | 14.229 | B |
| C-A | 81 | | | 81 | | | |
| AB | 40 | | | 40 | | | |
| AC | 117 | | | 117 | | | |

18:00 - 18:15

| Stream | Total Demand (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|--------|-----------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| B-C | 393 | 739 | 0.532 | 396 | 1.3 | 11.668 | B |
| B-A | 21 | 415 | 0.051 | 21 | 0.1 | 10.068 | B |
| C-AB | 378 | 744 | 0.508 | 381 | 1.3 | 11.041 | B |
| C-A | 81 | | | 81 | | | |
| AB | 33 | | | 33 | | | |
| AC | 98 | | | 98 | | | |

ATTACHMENT D

PROPOSED MINI-ROUNDBOUT JUNCTION MODELLING (CALIBRATED)

| |
|---|
| Junctions 10 |
| ARCADY 10 - Roundabout Module |
| Version: 10.0.3.1598 © Copyright TRL Software Limited, 2021 |
| For sales and distribution information, program advice and maintenance, contact TRL Software: +44 (0)1344 379777 software@trl.co.uk trlsoftware.com |
| The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution |

Filename: 2022.05.19 - NW BICESTER - HOWES LANE (Mini RbT Mitigation) - CALIBRATED 530 unit.j10
Path: P:\Firethorn Trust_4600\1100 - NW Bicester\Analysis\Modelling\Picady\BTM 2026 FLOWS
Report generation date: 23/05/2022 11:19:38

- »BTM Base 2026, AM
- »BTM Base 2026, PM
- »BTM 2026 + Proposed Development, AM
- »BTM 2026 + Proposed Development, PM

Summary of junction performance

| | AM | | | | | | PM | | | | | |
|--|--------|-------------|-----------|------|-----|--------------------|--------|-------------|-----------|------|-----|--------------------|
| | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) | Set ID | Queue (PCU) | Delay (s) | RFC | LOS | Junction Delay (s) |
| BTM Base 2026 | | | | | | | | | | | | |
| Arm A | D1 | 3.9 | 28.53 | 0.79 | D | 44.04 | D2 | 3.3 | 22.10 | 0.76 | C | 161.04 |
| Arm B | | 3.5 | 22.06 | 0.77 | C | | | 55.4 | 221.47 | 1.12 | F | |
| Arm C | | 15.7 | 68.34 | 0.97 | F | | | 54.7 | 187.83 | 1.09 | F | |
| BTM 2026 + Proposed Development | | | | | | | | | | | | |
| Arm A | D3 | 4.9 | 35.98 | 0.83 | E | 98.28 | D4 | 3.5 | 23.63 | 0.77 | C | 302.10 |
| Arm B | | 4.8 | 28.69 | 0.83 | D | | | 103.3 | 462.28 | 1.24 | F | |
| Arm C | | 51.0 | 177.08 | 1.09 | F | | | 80.4 | 307.10 | 1.15 | F | |

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

File summary

File Description

| | |
|--------------------|-------------|
| Title | (untitled) |
| Location | |
| Site number | |
| Date | 02/11/2021 |
| Version | |
| Status | (new file) |
| Identifier | |
| Client | |
| Jobnumber | |
| Enumerator | VTPI\CRicci |
| Description | |

Units

| Distance units | Speed units | Traffic units input | Traffic units results | Flow units | Average delay units | Total delay units | Rate of delay units |
|----------------|-------------|---------------------|-----------------------|------------|---------------------|-------------------|---------------------|
| m | kph | PCU | PCU | perHour | s | -Min | perMin |

Analysis Options

| Mini-roundabout model | Calculate Queue Percentiles | Calculate residual capacity | RFC Threshold | Average Delay threshold (s) | Queue threshold (PCU) |
|-----------------------|-----------------------------|-----------------------------|---------------|-----------------------------|-----------------------|
| JUNCTIONS 9 | | | 0.85 | 36.00 | 20.00 |

Demand Set Summary

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------------------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D1 | BTM Base 2026 | AM | ONE HOUR | 07:45 | 09:15 | 15 |
| D2 | BTM Base 2026 | PM | ONE HOUR | 16:45 | 18:15 | 15 |
| D3 | BTM 2026 + Proposed Development | AM | ONE HOUR | 07:45 | 09:15 | 15 |
| D4 | BTM 2026 + Proposed Development | PM | ONE HOUR | 16:45 | 18:15 | 15 |

Analysis Set Details

| ID | Network flow scaling factor (%) |
|----|---------------------------------|
| At | 100.000 |

BTM Base 2026, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|-----------------|-----------------------|-----------|--------------------|--------------|
| 1 | untitled | Mini-roundabout | | A, B, C | 44.04 | E |

Junction Network

| Driving side | Lighting | Road surface | In London | Network delay (s) | Network LOS |
|--------------|----------------|----------------|-----------|-------------------|-------------|
| Left | Normal/unknown | Normal/unknown | | 44.04 | E |

Arms

Arms

| Arm | Name | Description |
|-----|-----------------|-------------|
| A | Bucknell Road S | |
| B | Howes Lane | |
| C | Bucknell Road N | |

Mini Roundabout Geometry

| Arm | Approach road half-width (m) | Minimum approach road half-width (m) | Entry width (m) | Effective flare length (m) | Distance to next arm (m) | Entry corner kerb line distance (m) | Gradient over 50m (%) | Kerbed central island |
|-----|------------------------------|--------------------------------------|-----------------|----------------------------|--------------------------|-------------------------------------|-----------------------|-----------------------|
| A | 3.10 | 3.10 | 4.00 | 6.9 | 12.80 | 11.60 | 0.0 | |
| B | 3.00 | 3.00 | 3.90 | 30.0 | 7.18 | 4.60 | 0.0 | |
| C | 3.50 | 3.50 | 3.60 | 1.5 | 12.50 | 12.90 | 0.0 | |

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

| Arm | Final slope | Final intercept (PCU/hr) |
|-----|-------------|--------------------------|
| A | 0.622 | 1078 |
| B | 0.621 | 972 |
| C | 0.621 | 904 |

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D1 | BTM Base 2026 | AM | ONE HOUR | 07:45 | 09:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 470 | 100.000 |
| B | | ✓ | 539 | 100.000 |
| C | | ✓ | 787 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| From | To | | |
|------|-----|-----|-----|
| | A | B | C |
| A | 0 | 174 | 296 |
| B | 13 | 0 | 526 |
| C | 155 | 632 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| From | To | | |
|------|----|----|----|
| | A | B | C |
| A | 0 | 10 | 10 |
| B | 10 | 0 | 10 |
| C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|-----|---------|---------------|-----------------|---------|
| A | 0.79 | 28.53 | 3.9 | D |
| B | 0.77 | 22.06 | 3.5 | C |
| C | 0.97 | 68.34 | 15.7 | F |

Main Results for each time segment

07:45 - 08:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 354 | 469 | 786 | 0.450 | 350 | 0.9 | 9.016 | A |
| B | 406 | 221 | 835 | 0.486 | 402 | 1.0 | 9.050 | A |
| C | 592 | 10 | 898 | 0.660 | 584 | 2.0 | 12.324 | B |

08:00 - 08:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 423 | 563 | 728 | 0.580 | 420 | 1.5 | 12.770 | B |
| B | 485 | 265 | 808 | 0.600 | 482 | 1.6 | 12.066 | B |
| C | 707 | 12 | 897 | 0.789 | 701 | 3.8 | 19.505 | C |

08:15 - 08:30

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 517 | 669 | 662 | 0.782 | 509 | 3.5 | 24.713 | C |
| B | 593 | 321 | 773 | 0.768 | 587 | 3.3 | 20.485 | C |
| C | 867 | 14 | 895 | 0.968 | 833 | 12.2 | 47.208 | E |

08:30 - 08:45

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 517 | 685 | 652 | 0.794 | 516 | 3.9 | 28.532 | D |
| B | 593 | 325 | 771 | 0.770 | 593 | 3.5 | 22.060 | C |
| C | 867 | 14 | 895 | 0.968 | 853 | 15.7 | 68.345 | F |

08:45 - 09:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 423 | 604 | 702 | 0.602 | 431 | 1.7 | 15.036 | C |
| B | 485 | 272 | 804 | 0.603 | 492 | 1.7 | 12.961 | B |
| C | 707 | 12 | 897 | 0.789 | 752 | 4.6 | 32.851 | D |

09:00 - 09:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 354 | 483 | 777 | 0.455 | 357 | 0.9 | 9.493 | A |
| B | 406 | 225 | 833 | 0.487 | 408 | 1.1 | 9.391 | A |
| C | 592 | 10 | 898 | 0.660 | 602 | 2.2 | 13.778 | B |

BTM Base 2026, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|-----------------|-----------------------|-----------|--------------------|--------------|
| 1 | untitled | Mini-roundabout | | A, B, C | 161.04 | F |

Junction Network

| Driving side | Lighting | Road surface | In London | Network delay (s) | Network LOS |
|--------------|----------------|----------------|-----------|-------------------|-------------|
| Left | Normal/unknown | Normal/unknown | | 161.04 | F |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D2 | BTM Base 2026 | PM | ONE HOUR | 16:45 | 18:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 504 | 100.000 |
| B | | ✓ | 764 | 100.000 |
| C | | ✓ | 891 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| | | To | | |
|------|---|-----|-----|-----|
| | | A | B | C |
| From | A | 0 | 178 | 326 |
| | B | 13 | 0 | 751 |
| | C | 335 | 556 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| | | To | | |
|------|---|----|----|----|
| | | A | B | C |
| From | A | 0 | 10 | 10 |
| | B | 10 | 0 | 10 |
| | C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|-----|---------|---------------|-----------------|---------|
| A | 0.76 | 22.10 | 3.3 | C |
| B | 1.12 | 221.47 | 55.4 | F |
| C | 1.09 | 187.83 | 54.7 | F |

Main Results for each time segment

16:45 - 17:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 379 | 411 | 822 | 0.461 | 376 | 0.9 | 8.798 | A |
| B | 575 | 243 | 821 | 0.700 | 565 | 2.4 | 14.957 | B |
| C | 671 | 10 | 898 | 0.747 | 659 | 3.0 | 15.835 | C |

17:00 - 17:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 453 | 490 | 773 | 0.586 | 451 | 1.5 | 12.192 | B |
| B | 687 | 292 | 791 | 0.868 | 673 | 5.8 | 30.495 | D |
| C | 801 | 11 | 897 | 0.893 | 785 | 7.0 | 31.500 | D |

17:15 - 17:30

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 555 | 549 | 737 | 0.753 | 549 | 3.1 | 20.398 | C |
| B | 841 | 355 | 752 | 1.119 | 737 | 31.8 | 108.335 | F |
| C | 981 | 13 | 896 | 1.095 | 879 | 32.4 | 95.842 | F |

17:30 - 17:45

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 555 | 557 | 732 | 0.758 | 554 | 3.3 | 22.096 | C |
| B | 841 | 358 | 750 | 1.122 | 747 | 55.4 | 221.470 | F |
| C | 981 | 13 | 896 | 1.095 | 892 | 54.7 | 187.829 | F |

17:45 - 18:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 453 | 548 | 737 | 0.615 | 459 | 1.8 | 14.520 | B |
| B | 687 | 297 | 788 | 0.872 | 773 | 33.9 | 210.509 | F |
| C | 801 | 13 | 896 | 0.894 | 878 | 35.4 | 187.203 | F |

18:00 - 18:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 379 | 498 | 768 | 0.494 | 382 | 1.1 | 10.335 | B |
| B | 575 | 247 | 819 | 0.702 | 699 | 2.9 | 57.843 | F |
| C | 671 | 12 | 897 | 0.748 | 797 | 3.7 | 64.156 | F |

BTM 2026 + Proposed Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|-----------------|-----------------------|-----------|--------------------|--------------|
| 1 | untitled | Mini-roundabout | | A, B, C | 98.28 | F |

Junction Network

| Driving side | Lighting | Road surface | In London | Network delay (s) | Network LOS |
|--------------|----------------|----------------|-----------|-------------------|-------------|
| Left | Normal/unknown | Normal/unknown | | 98.28 | F |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------------------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D3 | BTM 2026 + Proposed Development | AM | ONE HOUR | 07:45 | 09:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 470 | 100.000 |
| B | | ✓ | 579 | 100.000 |
| C | | ✓ | 883 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| | | To | | |
|------|---|-----|-----|-----|
| | | A | B | C |
| From | A | 0 | 174 | 296 |
| | B | 13 | 0 | 566 |
| | C | 155 | 728 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| | | To | | |
|------|---|----|----|----|
| | | A | B | C |
| From | A | 0 | 10 | 10 |
| | B | 10 | 0 | 10 |
| | C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|-----|---------|---------------|-----------------|---------|
| A | 0.83 | 35.98 | 4.9 | E |
| B | 0.83 | 28.69 | 4.8 | D |
| C | 1.09 | 177.08 | 51.0 | F |

Main Results for each time segment

07:45 - 08:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 354 | 538 | 743 | 0.476 | 350 | 1.0 | 9.978 | A |
| B | 436 | 220 | 836 | 0.522 | 431 | 1.2 | 9.686 | A |
| C | 665 | 10 | 898 | 0.740 | 653 | 2.9 | 15.505 | C |

08:00 - 08:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 423 | 642 | 678 | 0.623 | 419 | 1.7 | 15.116 | C |
| B | 521 | 264 | 808 | 0.644 | 518 | 1.9 | 13.479 | B |
| C | 794 | 12 | 897 | 0.885 | 779 | 6.6 | 30.225 | D |

08:15 - 08:30

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 517 | 723 | 628 | 0.824 | 507 | 4.3 | 30.369 | D |
| B | 637 | 319 | 774 | 0.824 | 627 | 4.4 | 25.374 | D |
| C | 972 | 14 | 895 | 1.086 | 877 | 30.5 | 91.503 | F |

08:30 - 08:45

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 517 | 734 | 621 | 0.833 | 515 | 4.9 | 35.983 | E |
| B | 637 | 325 | 771 | 0.827 | 636 | 4.8 | 28.688 | D |
| C | 972 | 14 | 895 | 1.086 | 890 | 51.0 | 177.076 | F |

08:45 - 09:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 423 | 724 | 628 | 0.673 | 432 | 2.4 | 21.176 | C |
| B | 521 | 272 | 803 | 0.648 | 531 | 2.1 | 15.094 | C |
| C | 794 | 12 | 897 | 0.885 | 878 | 30.1 | 169.431 | F |

09:00 - 09:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 354 | 636 | 682 | 0.519 | 359 | 1.2 | 12.398 | B |
| B | 436 | 226 | 832 | 0.524 | 439 | 1.2 | 10.170 | B |
| C | 665 | 10 | 898 | 0.740 | 771 | 3.5 | 48.763 | E |

BTM 2026 + Proposed Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

| Junction | Name | Junction type | Use circulating lanes | Arm order | Junction Delay (s) | Junction LOS |
|----------|----------|-----------------|-----------------------|-----------|--------------------|--------------|
| 1 | untitled | Mini-roundabout | | A, B, C | 302.10 | F |

Junction Network

| Driving side | Lighting | Road surface | In London | Network delay (s) | Network LOS |
|--------------|----------------|----------------|-----------|-------------------|-------------|
| Left | Normal/unknown | Normal/unknown | | 302.10 | F |

Traffic Demand

Demand Set Details

| ID | Scenario name | Time Period name | Traffic profile type | Start time (HH:mm) | Finish time (HH:mm) | Time segment length (min) |
|----|---------------------------------|------------------|----------------------|--------------------|---------------------|---------------------------|
| D4 | BTM 2026 + Proposed Development | PM | ONE HOUR | 16:45 | 18:15 | 15 |

| Vehicle mix source | PCU Factor for a HV (PCU) |
|--------------------|---------------------------|
| HV Percentages | 2.00 |

Demand overview (Traffic)

| Arm | Linked arm | Use O-D data | Average Demand (PCU/hr) | Scaling Factor (%) |
|-----|------------|--------------|-------------------------|--------------------|
| A | | ✓ | 504 | 100.000 |
| B | | ✓ | 847 | 100.000 |
| C | | ✓ | 938 | 100.000 |

Origin-Destination Data

Demand (PCU/hr)

| | | To | | |
|------|---|-----|-----|-----|
| | | A | B | C |
| From | A | 0 | 178 | 326 |
| | B | 13 | 0 | 834 |
| | C | 335 | 603 | 0 |

Vehicle Mix

Heavy Vehicle Percentages

| | | To | | |
|------|---|----|----|----|
| | | A | B | C |
| From | A | 0 | 10 | 10 |
| | B | 10 | 0 | 10 |
| | C | 10 | 10 | 0 |

Results

Results Summary for whole modelled period

| Arm | Max RFC | Max Delay (s) | Max Queue (PCU) | Max LOS |
|-----|---------|---------------|-----------------|---------|
| A | 0.77 | 23.63 | 3.5 | C |
| B | 1.24 | 462.28 | 103.3 | F |
| C | 1.15 | 307.10 | 80.4 | F |

Main Results for each time segment

16:45 - 17:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 379 | 445 | 801 | 0.473 | 376 | 1.0 | 9.218 | A |
| B | 638 | 243 | 822 | 0.776 | 624 | 3.5 | 18.899 | C |
| C | 706 | 10 | 898 | 0.786 | 691 | 3.7 | 18.066 | C |

17:00 - 17:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 453 | 526 | 751 | 0.604 | 450 | 1.6 | 13.080 | B |
| B | 761 | 291 | 791 | 0.962 | 731 | 11.2 | 49.365 | E |
| C | 843 | 11 | 897 | 0.940 | 818 | 9.9 | 40.827 | E |

17:15 - 17:30

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 555 | 571 | 723 | 0.768 | 548 | 3.3 | 21.855 | C |
| B | 933 | 355 | 752 | 1.240 | 748 | 57.4 | 179.900 | F |
| C | 1033 | 11 | 897 | 1.151 | 888 | 46.1 | 127.764 | F |

17:30 - 17:45

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 555 | 575 | 720 | 0.771 | 554 | 3.5 | 23.634 | C |
| B | 933 | 358 | 750 | 1.244 | 749 | 103.3 | 391.083 | F |
| C | 1033 | 11 | 897 | 1.151 | 895 | 80.4 | 264.922 | F |

17:45 - 18:00

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 453 | 569 | 724 | 0.626 | 459 | 1.9 | 15.295 | C |
| B | 761 | 297 | 788 | 0.967 | 780 | 98.8 | 462.275 | F |
| C | 843 | 12 | 897 | 0.940 | 885 | 70.1 | 307.098 | F |

18:00 - 18:15

| Arm | Total Demand (PCU/hr) | Circulating flow (PCU/hr) | Capacity (PCU/hr) | RFC | Throughput (PCU/hr) | End queue (PCU) | Delay (s) | Unsignalised level of service |
|-----|-----------------------|---------------------------|-------------------|-------|---------------------|-----------------|-----------|-------------------------------|
| A | 379 | 567 | 725 | 0.523 | 382 | 1.2 | 11.639 | B |
| B | 638 | 247 | 819 | 0.779 | 810 | 55.7 | 345.705 | F |
| C | 706 | 12 | 896 | 0.788 | 882 | 26.0 | 200.501 | F |

