

Technical Note

Project: Land at Toton West, Broxtowe

Subject: Review of Transport Submissions

Client:	Broxtowe Borough Council		
Project No:	10471	Version:	B
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I Introduction

I.1 Overview

- 1.1.1 This technical note provides a review of the transport submissions prepared in support of an outline planning application for up to 420 dwellings at Toton West, Broxtowe under planning application reference 25/00371/OUT.
- 1.1.2 The review has considered the following documents:
- Transport Assessment (TA), prepared by Mode Transport Planning, dated February 2026; and
 - Technical Note (TN), prepared by Mode Transport, dated April 2026.
- 1.1.3 PJA raised a number of queries to Mode as part of the assessment. In response, Mode provided a technical note containing additional sensitivity tests, this is provided for reference in **Appendix A**.
- 1.1.4 In addition to the submitted reports, the applicant has provided supporting background material, including spreadsheet calculations and junction modelling files, to enable a detailed review of the transport assessment work. The applicant has also provided a number of clarifications in response to queries raised during the review process.

I.2 Purpose and Limitations

- 1.2.1 The report has been prepared as a desktop assessment. No site visit has ben undertaken.
- 1.2.2 The purpose of this report is to provide an independent third-party recommendation for Broxtowe Borough Council (BBC).

1.3 Structure of Review

1.3.1 This review has considered each of the main transport topic headings. The analysis uses the following colour coding:

- **Green** – Acceptable / no further action
- **Amber** – Area where further or more detailed analysis would be required in order to reach a fully justified conclusion. On balance these areas are considered acceptable but may be raised by the Local Highway Authority or National Highways.
- **Red** – Area where there is a significant departure from good practice which materially effects the findings of the assessment. Material consideration in assessment of other aspects.

2 Baseline Transport Conditions

2.1.1 Section 4 of the TA provides analysis of existing transport conditions.

2.2 Collision Data Analysis

2.2.1 Section 4.3 of the TA provides assessment of collision data.

2.2.2 Personal Injury Collision (PIC) data was obtained for a five-year period. The report notes that two serious pedestrian collisions have occurred on B6003 Stapleford Lane, both to the south of the site near the junctions with Darley Avenue and Wellbeck Gardens.

2.2.3 The report goes on to note that additional pedestrian crossing points will be provided at the site access junction, providing an alternative location for pedestrians to cross.

Note 1 – Collision Data: Green. There is evidence of collisions involving pedestrians to the south of the site, but the site access will provide a controlled pedestrian crossing point on the main desire line for pedestrians from the site.

2.3 Local Facilities

2.3.1 Table 4.2 provides a comprehensive list of local amenities and their distances from the site, albeit a large number of those facilities are located outside of distances pedestrians are likely to walk.

Primary School

The closest primary school is Bisham Drive Junior School, around 1.3km (16-minute walk) from the centre of the site. This is only 800m from the edge of the site, and the distance may be

reduced using the pedestrian and cycle link shown in the south-western corner of the masterplan (if provided).

Overall, some parents may choose to drive this journey however it is within an acceptable walking distance.

Secondary School

- 2.3.2 The closest secondary school is George Spencer Academy, around 1km north of the centre of the site. Secondary age pupils are typically able to travel to school independently, and at this distance the majority would choose to do so.

Local Shops and Facilities

- 2.3.3 The closest convenience store is Woodstock Convenience Store, not listed in the TA, at around 650m from the edge of the site (further from the centre). There is a Tesco Extra around 1.5km from the centre of the site.
- 2.3.4 Local retail facilities within an easily accessible walking distance (typically 800m) are limited. Overall however there are local facilities that can be accessed on foot, and the provision of these services is considered to be acceptable. As noted below, the tram service offers high frequency services to other local destinations.

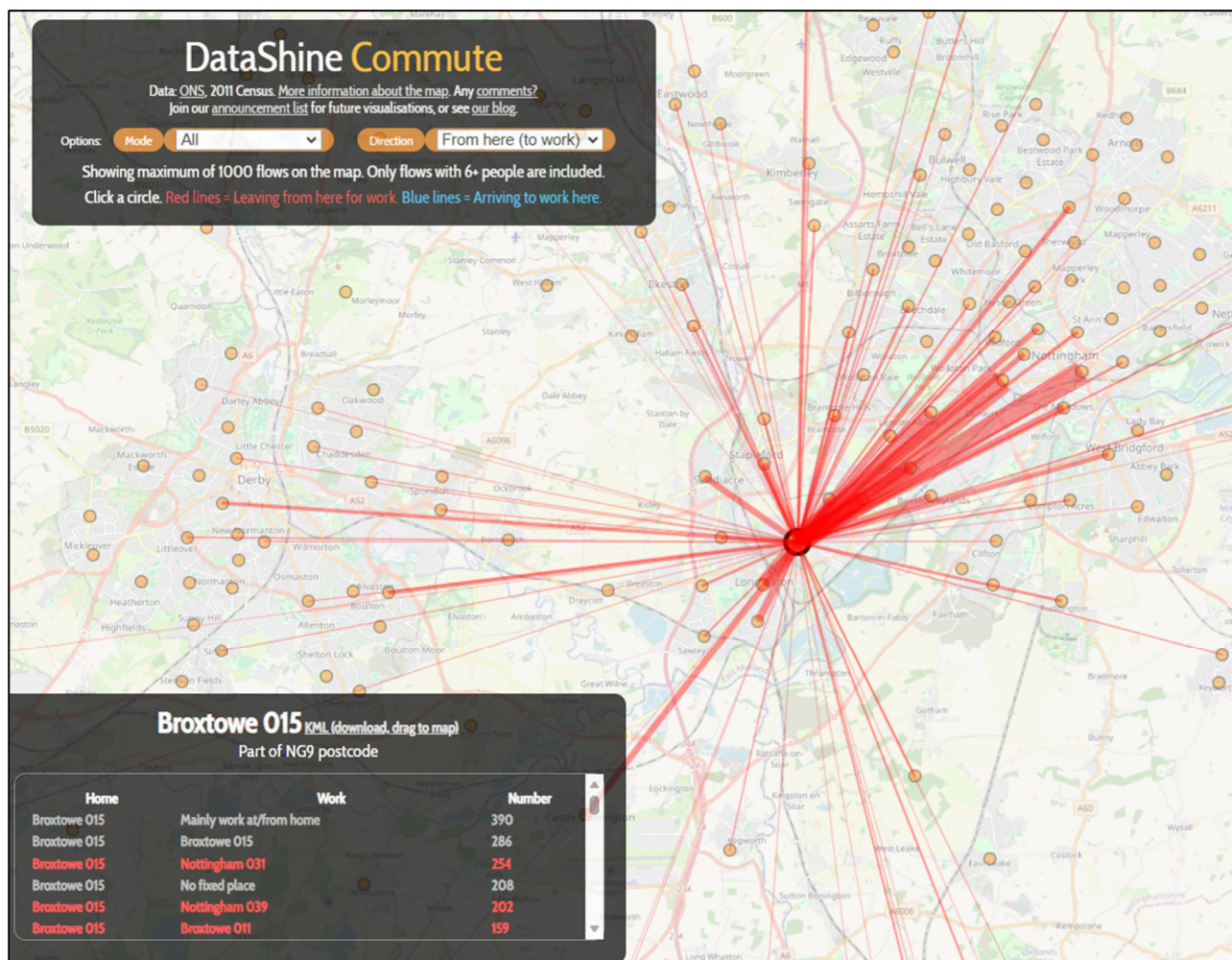
Note 2 – Local Facilities: Green. The site has acceptable accessibility to local facilities including primary school and retail. The site has very good accessibility to secondary education.

2.4 Public Transport

- 2.4.1 Section 4.5 of the TA describes public transport facilities.
- 2.4.2 Bus services are infrequent for an urban location, with the 510 bus route between Stapleford and Beeston being only once per hour, supplemented by the 536 five times per day.
- 2.4.3 Likewise the closest train service (Attenborough), at over 3km, is not within an acceptable walking distance of the site.
- 2.4.4 However, the site sits almost immediately opposite Toton Lane Park and Ride, on the Nottingham Express Transit (NET) tram network. This provides a service every 10 minutes into Nottingham city centre, via other destinations including Beeston centre, the University of Nottingham campus and the Queen's Medical Centre.

2.4.5 A high-level Census data analysis from publicly available data (Figure 1) indicates that a high proportion of residents in this area commute to destinations served by the tram network.

Figure 1: High Level Census Data Analysis – Source DataShine Commute



2.4.6 The price of a daily tram ticket is £5.80 and takes 31 minutes, making it highly attractive compared to travel by car.

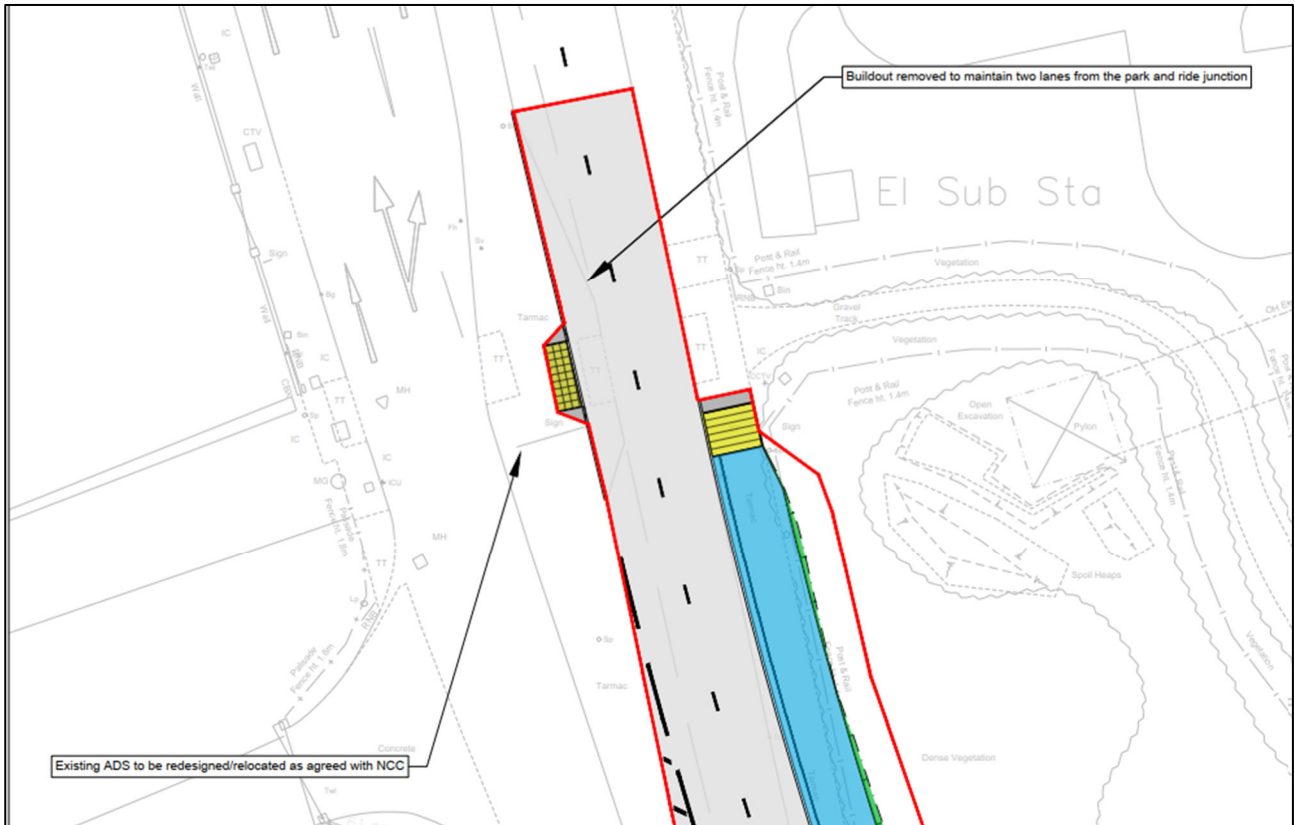
Note 3: Public Transport – Green. The site is highly accessible by public transport, with the tram offering a very attractive alternative for a high proportion of commuting journeys. This in turn can encourage modal shift.

3 Development Proposals

3.1 Access and Walk / Cycle Improvements

- 3.1.1 A separate access drawing has been provided by Mode Transport Planning, which is understood to supersede the drawings appended to the TA (Ref 01001 and 01002 P05).
- 3.1.2 The drawings show a four-arm signalised roundabout from B6003 Stapleford Lane. It is understood the eastern arm of the junction will serve a future development site, with the western arm serving the proposed development.
- 3.1.3 The relevant design standard for this type of junction are Design Manua for Roads and Bridge (DMRB) CD 123 '*Geometric Design of at-grade priority and signal controlled junctions*'. This is supplemented by Traffic Signs Manual (TSM) Chapter 6 '*Traffic Control*' which provides additional advice for signal controlled junctions where the speed limit is 40mph or below.
- 3.1.4 Within DMRB, the word 'shall' identifies a requirement of the standards, unless a departure or permitted relaxation is agreed. The word 'should' identifies good practice, but can be departed from with justification.
- 3.1.5 The following is noted from the drawings:
- The design includes an 'all-red' pedestrian crossing, meaning when called all traffic will stop. Its capacity will therefore be sensitive to pedestrian crossing demands;
 - To the south of the junction, two lanes merge into one over a short distance of less than 50m. DMRB CD 123 advises this distance 'should' be 100m. TSM Chapter 6 also advises that the reduction in the number of lanes should take place over a distance of at least 100m. This means that the offside traffic lane may be under-utilised and this should be considered in the modelling.
 - The design includes a segregated cycle route on the development access arm, but a shared use route on Stapleford Lane. LTN 1/20 advises that shared cycle routes should be avoided except in limited circumstances. In this case it appears that the highway boundary may restrict the ability to provide a segregated cycle lane, but this should be confirmed.
- 3.1.6 At the northern end of the design, there is an existing uncontrolled pedestrian crossing. Stapleford Lane is proposed to be widened in this location, meaning pedestrians are required to cross two lanes rather than one.

Figure 2: Amendments to Existing Pedestrian Crossing



- | | |
|-------|---|
| 3.1.7 | Increasing the number of lanes to be crossed will make the crossing more difficult for pedestrians to use. However, this must be balanced against the new signalised crossing that will be provided at the site access. |
| 3.1.8 | No Road Safety Audit has been undertaken, this is not a mandatory requirement for a planning application and will be required for S278 technical approval. |
| 3.1.9 | The comments on the access provided by the Local Highway Authority (LHA) are noted, as is the Mode response, it is considered that residual issues can be addressed through detailed design. |

Note 4: Site Access Amber

The following limitations are noted for the site access design:

- There is no justification provided to the shared use path on Stapleford Lane with regard to physical constraints and the recommendations of LTN 1/20. Best practice dictates providing segregated walk/cycle routes where possible, although the physical constraints in this location may prevent this;

- The southbound merge distance is below the recommendations of DMRB CD 123, although this is a 'should' rather than 'shall' recommendation;
- The pedestrian crossing arrangement gives priority to minimising delay for non-motorised users, although the capacity will be sensitive for how often it is used;
- There is no Stage 1 Road Safety Audit, which is good practice but not a requirement.

Overall, the design can be considered acceptable if it is restricted by physical constraints. This should be confirmed by the applicant. However, if it is not then the merge length should be increased and the pedestrian / cycle infrastructure should be improved.

3.2 Public Rights of Way

- 3.2.1 The TA refers to Public Rights of Way (PRoW) which abut or pass through the site. The parameter plan shows 'pedestrian and cycle connections' to the south-west corner as being '*indicative, to be delivered where feasible and where landowner agreement can be secured*'.
- 3.2.2 The Mode technical note refers to a condition to secure this connection. This connection provides access to parkland and walking routes and also enables a shorter walking route to Bispham Drive Junior School and the Woodstock Convenience Store.
- 3.2.3 In the north-east corner, a PRoW passes outside the site boundary to Stapleford Lane. There is reference to improvements to this PRoW.

Note 5: Public Rights of Way – Amber. The parameter plan and reports refer to access onto, and improvements to, PRoW, but this is subject to further agreement. The applicant should resolve how this will be dealt with and the details of planning obligation or condition to undertake these works should be included in any future planning permission.

4 Travel Demand

4.1 Vehicle Trip Generation

- 4.1.1 Vehicle trip rates are used from the East Midlands Gateway Model (EMGM). The trip rates provided are broadly in line with trip rates that would be expected from the TRICS database, and are considered reasonable.

4.1.2 The EMGM trip rate is a common trip rate applied to all residential development in the model area. As highlighted above, the site is highly accessible by public transport, when compared to other parts of the model area. As such, a lower trip rate may be expected.

4.1.3 This has not been allowed for and is therefore a robust assessment.

Note 6: Vehicle Trip Generation – Green Despite being highly accessible by public transport, there is no allowance made for this in the assessment, making it robust.

4.2 Multi-modal Trip Generation

4.2.1 The TA provides an estimate of multi-modal trip generation using data from the 2011 Census. This estimates that the tram has a 0.1% mode share. Table 6.3 of the TA predicts that zero residents would use the tram. The 2011 Census was completed before the Toton Lane tram stop opened in 2015.

4.2.2 In the present day, the tram provides potential for a high proportion of trips from the site.

4.2.3 This is of particular relevance because the Toton Lane tram stop is accessed via the crossing at the new site access junction, and the capacity of the access is dependent on how often the crossing is called.

Note 7: Multi-modal Trip Generation – Amber. The TA overlooks that a high proportion of travel would be via the adjacent tram stop. Pedestrian demand to use the tram will affect how frequency the site access pedestrian crossing is called. However as described below, the applicant has since provided a sensitivity test which increases how often the pedestrian crossing is called, which addresses this matter.

4.3 Trip Distribution and Assignment

4.3.1 The distribution of trips is based on data from the 2011 Census for the area which contains the site. Whilst this is a commonly used approach, it does have the following limitations:

- It is based on journeys to work by car, meaning the analysis is limited to trips to work rather than for other purposes such as education;
- The data is 15 years old, and in particular pre-dates the opening of the Toton Lane tram.

4.3.2 It is therefore possible that travel patterns will differ from those assumed by the Census data.

- 4.3.3 Alternative data sources such as mobile network data are now readily available and can provide a more accurate assessment.
- 4.3.4 With that noted, the key junctions are north of the site with the A52 and M1 Junction 25. The Census data indicates that 74% of trips would use the A52 Bardillis roundabout and 31% of trips would use M1 Junction 25. A mobile network data analysis would be likely to indicate a more localised trip making pattern reflecting other journey types.
- 4.3.5 As noted earlier, an element of mode shift would be expected, reducing vehicle trips towards the city centre.

Note 8: Trip Distribution and Assignment – Green. 2011 Census data is dated and may not reflect current trip making patterns. However, on balance given the otherwise robust nature of the assessment, and given the scale of the development, this is considered acceptable.

5 Modelling Results

5.1 Approach to Cumulative Assessment

Initial Assessment

- 5.1.1 The approach to cumulative assessment is noted and has been discussed with the applicant.
- 5.1.2 As reference, the Planning Practice Guidance (PPG) on Travel Plans, Transport Assessments and Statements, provides the terms of reference:

“It is important to give appropriate consideration to the cumulative impacts arising from other committed development (ie development that is consented or allocated where there is a reasonable degree of certainty will proceed within the next 3 years). At the decision-taking stage this may require the developer to carry out an assessment of the impact of those adopted Local Plan allocations which have the potential to impact on the same sections of transport network as well as other relevant local sites benefitting from as yet unimplemented planning approval.”
- 5.1.3 The TA does not include consideration of the Toton East or Toton North planning applications (it is assumed the reader is familiar with these applications).
- 5.1.4 The Toton North application is undetermined and is not part of an adopted local plan. It is therefore reasonable that it should not be considered.

- 5.1.5 The Toton East application is part of an adopted Local Plan and is subject to a live planning application, the expectation is that this site should be assessed with regard to cumulative impacts.
- 5.1.6 However, the application (Ref 25/00255/FUL) is for 155 dwellings. The TA submitted with the application indicates the site would generate 74 trips in the AM peak and 84 trips in the PM peak, which would then dissipate across the highway network.
- 5.1.7 In the context of existing traffic flows, it can be reasonably concluded that the cumulative impact on the wider highway network would not be substantially different to that already assessed.
- 5.1.8 The exception to this is at the site access junction. The development proposals comprise a four-arm traffic signals, with the eastern access providing access to Toton East. It is understood that Toton East would provide a link road through to Toton North.
- 5.1.9 This application will fix the means of access to Toton East (and to Toton North) and it should be ensured that the junction will provide sufficient capacity.
- 5.1.10 Whilst modelling from the EMGM is awaited, there should be sufficient information available to undertake a sensitivity test and ensure that the junction will provide capacity to accommodate future plans and not prejudice the wider plans.
- 5.1.11 The TA includes a sensitivity assessment of the wider development at Toton West (Reserved Matters application for 282 dwellings), this is noted.

Additional Information Provided

- 5.1.12 Following the initial review, Mode has provided a sensitivity test including the wider Toton development at the site access.

Note 9: Cumulative Assessment – Green. Although not included in the TA, Mode has provided a separate technical note (Appendix A) which includes a cumulative assessment at the site access. The approach to cumulative assessments at the other junctions is acceptable in consideration of use of TEMPRO and the planning practice guidance.

5.2 Modelling Data

- 5.2.1 The TA tests the capacity of a number of key junctions surrounding the site. The selection of these junctions is based on a review of the extent of increases in traffic. Beyond these junctions, changes in traffic would be minimal and this approach is acceptable.

- 5.2.2 The assessment was based on traffic surveys in November 2025, outside of school holidays. This is acceptable.
- 5.2.3 The assessment is based on future years of 2028 and 2041, with traffic growth derived from TEMPRO.
- 5.2.4 The growth rates in the TA were corrected in the TN, these factors have been replicated by PJA and are accurate.

Note 10: Modelling Data – Green. The modelling uses data collected in an acceptable time period, and uses TEMPRO factors for the local area that have been verified.

5.3 Modelling Methodology

- 5.3.1 The junctions in the scope of assessment are signalised junctions or signalised roundabouts and have been tested using LinSig, which is the industry standard software.
- 5.3.2 The software does not, by default, account for blocking back from downstream junctions and so care should be taken that the junction operates ‘independently’ of other junctions. Some junctions can also be sensitive to how often pedestrian crossings are used.
- 5.3.3 The modelling process involves inputting known data such as base traffic flows, geometries and signal specifications. The signal timings can be ‘optimised’ to provide the optimum capacity.
- 5.3.4 Base models should demonstrate that they represent observed conditions to a sufficiently high level of accuracy. This is important as the next stage of the process is to assess how this will change in future years and with the development.
- 5.3.5 Typical methods which can assist with base model validation include but are not limited to:
 - Site visits or observations of video footage;
 - Survey analysis of signal timings, junction blocking or demand dependency;
 - Queue length surveys.
- 5.3.6 The TA does not include consideration of validation. Although requested, the only justification provided by the applicant is that the DoS is less than 100% on all arms, and therefore that this represents the surveyed traffic passing through the junction. This does not in itself mean that the model is validated, because there may be queueing unable to pass through the junction at the end of the modelled period that is not included.

Note 11: Modelling Methodology – Amber. The TA does not provide any evidence to demonstrate that the model represents observed conditions. This does not mean the results are incorrect but reduces confidence in the analysis presented. The results must therefore be considered with a high degree of caution. Notwithstanding, on a case-by-case basis, reasoned judgements can still be made with regard to the proportionate impact of the development and any proposed mitigation.

5.4 Stapleford Lane / Site Access Junction

Initial Assessment

5.4.1 PJA has been provided with the model files by Mode. The following is noted:

- The model uses a ‘double’ signal cycle with the crossing being called every other cycle. The capacity is very sensitive to how often the crossing is called. As noted earlier, the TA has not considered the potential usage of the tram, which will result in higher levels of use of the crossing. This should be considered in more detail as it is fundamental to the suitability of the site access.
- There is no traffic using the Toton East site access. This should be addressed as identified above.
- The junction includes a short merge distance to the south. However the traffic assignment in the model indicates the nearside and offside lanes would be used equally. Studies¹ have shown that traffic flow in the nearside lane is normally 73.5% of the total flow. This would apply to the two lane approaches in both directions.

5.4.2 The junction with the Toton Lane Park and Ride is less than 300m to the north. It should be ensured that with these adjustments, the queue does not reach that junction. It is also important that the eastern arm has sufficient capacity for its future purpose to include a link road.

Additional Information Provided

The applicant has provided a further technical note which includes the following amendments:

- Includes the remainder of the Toton West and North applications;
- Runs the pedestrian crossing every cycle.

¹ [Merging Traffic at Signalled Junctions - Lane Choice and Driver Behaviour.pdf](#)

Figure 3: Extract - Mode Sensitivity Test

2041 Base + Sensitivity + Development + Remainder of Toton Allocation (Peds Every Cycle)

	AM Peak Period (08:00-09:00)			PM Peak Period (17:00-18:00)		
	DoS (%)	MMQ (PCU)	Delay / PCU (s)	DoS (%)	MMQ (PCU)	Delay / PCU (s)
2041 Base + Sensitivity + Development + Toton E+N (Peds Every Cycle)						
Toton West Site Access	89.4%	7.5	110.5	35.7%	1.6	68.5
B6003 Stapleford Lane S	69.8%	13.9	40.6	66.9%	14.9	37.3
B6003 Stapleford Lane N	89.3%	21.6	57.7	90.7%	25.6	59.9
Toton East Site Access	60.4%	3.3	72.3	19.3%	0.9	63.2
Junction PRC	0.7% (110s Cycle Time)			-0.8% (116s Cycle Time)		

- 5.4.3 The results indicate that in this scenario, the junction would operate at a borderline capacity level. The Degree of Saturation (DoS) on Stapleford Lane north would be at around 90% in both peak hours. Where the DoS is between 90 – 100%, the queue would clear some cycles but not others. Above 100%, the arm or lane is at capacity and longer queues will form.
- 5.4.4 A queue of 21.6 PCUs is forecast in the AM peak, and 25.6 PCUs in the PM peak. This equates to a queue of around 160m which is well within the distance to the upstream junction with the Toton Lane Park and Ride.
- 5.4.5 The model assignment assumes an unrestricted exit to the south, and that traffic will be split equally between the two southbound lanes. As previously noted, traffic tends to favour the nearside lane. Consequentially, queues may be longer than forecast but this is difficult to predict.
- 5.4.6 Overall however the junction provides a straight-over pedestrian crossing, as opposed to a staggered crossing which minimises delay to vehicles but is less convenient for pedestrians. This puts pedestrians and cyclists at the top of the user hierarchy and minimises delay at the expense of vehicles.
- 5.4.7 The assessment is also robust as the trip rates do not allow for any mode shift.

Note 12 – Site Access Junction Modelling – Green. In the sensitivity test the junction is close to capacity, and may overestimate capacity of the northern arm. However, the design minimises delay for pedestrians at the expense of general traffic, and so this is the correct approach in consideration of overall transport planning best practice. The assessment is also robust in that trip generation may be overestimated, and takes account of Toton East and North which do not yet benefit from planning permission.

5.5 JI M1 Junction 25

- 5.5.1 The 2025 base results indicate that the junction is operating close to capacity in the AM and PM peaks. As previously noted, it is unknown whether this is an accurate representation of existing traffic conditions.
- 5.5.2 The results indicate that the capacity of the junction would worsen in the 2028 and 2041 scenarios, and that the development would worsen this further, albeit by a small amount.
- 5.5.3 It should be noted however that the relative impact of the development would be low. The additional traffic arising from the development would be around 1% of the baseline traffic flow. This takes no account of potential mode shift which would reduce the overall trip generation.

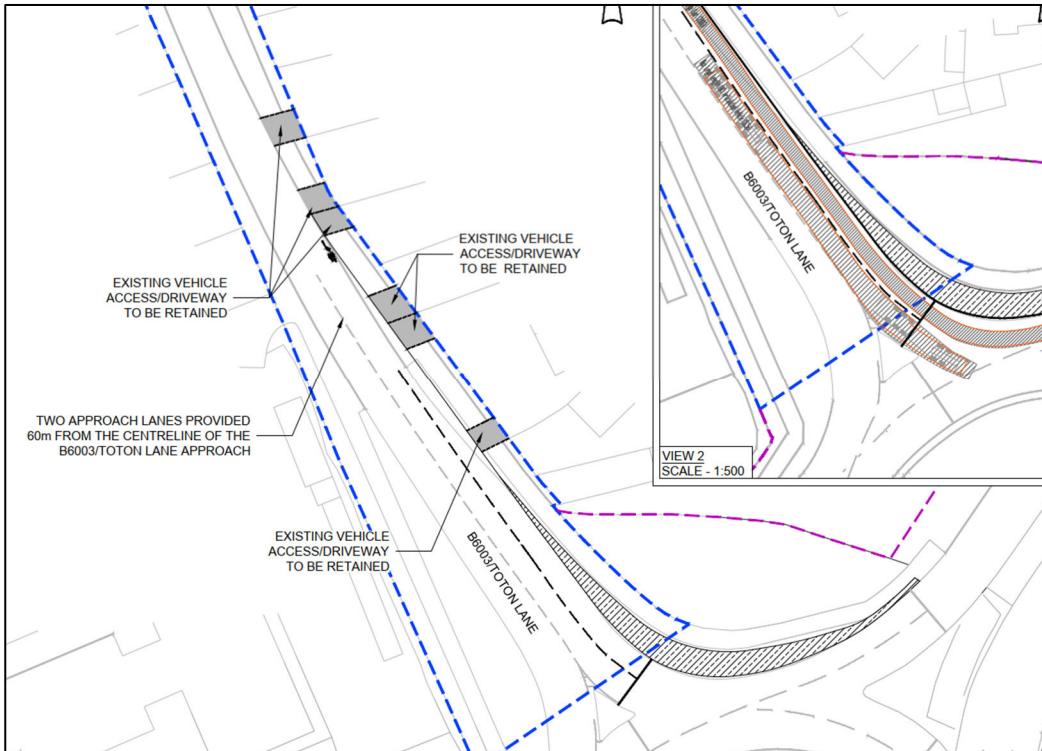
Note 13 M1 J25 Amber: Despite the overall concerns as to the validity of the base model, the bar for refusal is high. Para 116 of the NPPF requires that development should only be prevented on highway capacity grounds where the residual cumulative impact would be 'severe'.

Based on the proportional impact and robustness of the trip generation, the conclusion can reasonably be reached that the impact of the development would not be 'severe'.

5.6 J2 Bardillis Signalised Roundabout

- 5.6.1 The 2025 base results again indicate that the junction is operating close to capacity, and that this would be worsened by the development. As noted, it is unknown whether this accurately represents existing traffic conditions.
- 5.6.2 However, the developer is proposing to deliver mitigation at the junction. The key test is therefore whether the mitigation is sufficient to offset the impact of the development.
- 5.6.3 The mitigation proposed (Figure 4) widens the B6003 Toton Lane North arm of the junction.

Figure 4: Extract - Proposed Mitigation Scheme



- 5.6.4 The widening narrows a shared footway/cycleway/verge to provide additional carriageway space. As the design is based on OS mapping, and with no scale bar on the drawing, it is difficult to tell what the remaining minimum width will be. A typical minimum width alongside a 40mph road would be 3m plus a 0.5m buffer.
- 5.6.5 Existing driveway access will be retained, although the footway crossover width will be reduced, which may increase the gradient of the footway. There are numerous items of street furniture that would need to be relocated. This will be a matter for the developer to resolve during detailed design.
- 5.6.6 Overall the effect of the scheme will be to increase the throughput of the nearside lane, which in turn allows more green time to be given to the circulatory carriageway and improves the overall efficiency of the junction, to a small extent.
- 5.6.7 An alternative scheme is proposed for the event that the 'sensitivity' site comes forward, which would provide a further widening within the circulatory diameter.

Note 14 Bardillis Roundabout. Amber. As noted there are concerns as to validity of the modelling. However when considered in the round:

- The traffic generated by the development is likely to be overestimated due to the genuine potential for mode shift;
- Although the junction is forecast to be at capacity, the impact of the development is relatively minor;
- A mitigation scheme is proposed which would materially improve the efficiency of the roundabout;
- The threshold for refusal is 'severe' which, taking account the above can be reasonably judged not to be the case.

It is noted that two mitigation schemes are shown and there should be a clear mechanism agreed for what the development should deliver.

5.7 J3 Bramcote Signalised Roundabout

- 5.7.1 The previous concerns relating to model validation should be noted. However, the modelling indicates that the junction would operate within capacity. The development would only result in a small proportional increase in traffic, which again may reduce due to modal shift.

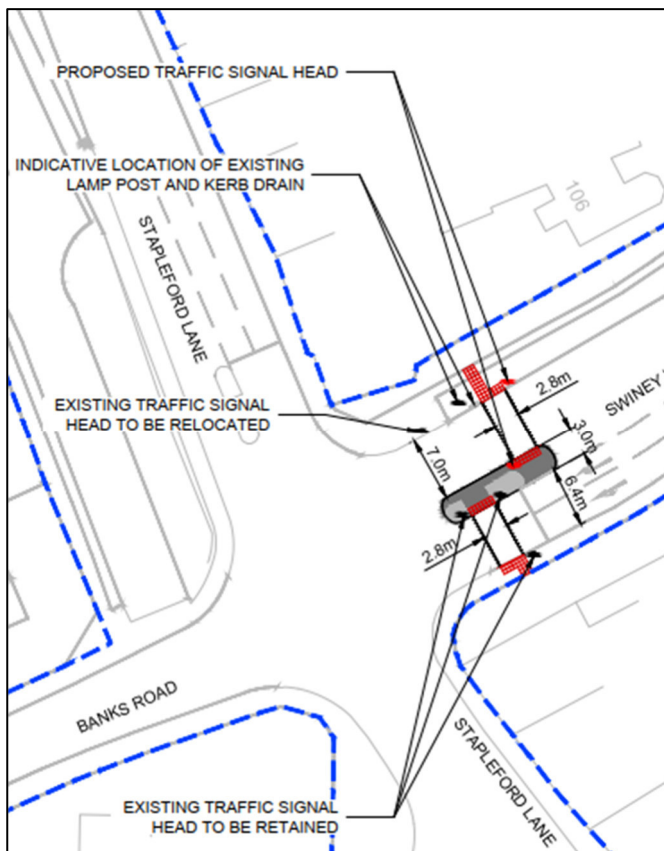
Note 15: Bramcote Signalised Roundabout. **Green.** The impact of the development can be reasonably concluded as being less than 'severe'.

5.8 J4 B6003 / Swiney Way

- 5.8.1 This junction is a four-arm signalised junction c800m south of the site. The junction features 'all-red' pedestrian crossings across all arms of the junction.
- 5.8.2 The capacity of the junction is highly sensitive to how often the pedestrian crossing is called, and the cycle time. The model makes the assumption that the junction has a 90 second cycle time and the crossing is called every other cycle. The base model indicates that the junction is approaching capacity in the AM peak hour (max DoS above 90%) and is at capacity in the PM peak hour (DoS over 100%).
- 5.8.3 This is forecast to worsen in the future years both with and without the development, and given the overall delay (dependent on future year scenario) the applicant proposes a mitigation scheme.

- 5.8.4 In the existing layout the eastern (Swiney Way) crossing is long at around 17 metres. This results in a long 'intergreen' period after the pedestrian crossing is called (17 seconds), to allow pedestrians to finish crossing the road before traffic is released.
- 5.8.5 The mitigation scheme proposes to provide a staggered pedestrian crossing, so that pedestrians cross in two stages.

Figure 5: Extract - Mitigation Scheme



- 5.8.6 The overall effect of this change is that the intergreen period following the pedestrian crossing can be reduced from 17 seconds to 10 seconds. There is a smaller disbenefit as part of the crossing runs in the traffic stage and requires a longer intergreen by two seconds.
- 5.8.7 The overall effect is that when the pedestrian crossing is used, five seconds additional traffic can be given to vehicle traffic.
- 5.8.8 As noted, the capacity is sensitive to how often the crossing is called which has not been recorded. However, if the crossing is called more frequently, then the relative benefit of the scheme would increase.

- 5.8.9 The results indicate the scheme would provide a capacity improvement at the junction, and again there is no allowance for mode shift.

Note 16 - B6003 / Swiney Way Amber As previously noted there is no model validation information provided. However a mitigation scheme has been presented which would offset the impact of the development, and the benefits provided would increase if the crossing is called more frequently.

6 Conclusions

- 6.1.1 On balance, the submitted Transport Assessment, Technical Note and supporting information provide a sufficient basis on which to conclude that the proposed development would not result in an unacceptable impact on highway safety or a severe residual cumulative impact on the highway network.
- 6.1.2 The review has identified shortcomings in the submitted assessment, most notably the absence of model validation evidence for the LinSig models. This means that the capacity results should be treated with caution. However, the development benefits from strong public transport accessibility, particularly to the NET tram at Toton Lane Park and Ride, and the vehicle trip generation assessment is considered robust because it does not rely on any modal shift reduction. This is not a 'vision based' assessment, which if undertaken would reduce the impact on the capacity of the highway network.
- 6.1.3 The proposed site access is acceptable in principle, subject to detailed design, Road Safety Audit and resolution of the identified pedestrian and cycle design matters. The applicant's additional sensitivity testing addresses the key concern regarding pedestrian crossing demand associated with tram use and confirms that the access junction would operate close to, but within, acceptable capacity limits.
- 6.1.4 The impacts at M1 Junction 25, Bardills Roundabout, Bramcote Roundabout and B6003 / Swiney Way should be considered in the context of the NPPF severe impact test. While some junctions are forecast to operate close to or at capacity, the proportional impact of the development is limited, and mitigation is proposed. The residual cumulative impact is therefore unlikely to be severe.
- 6.1.5 It is recommended that Broxtowe Borough Council should not object on transport grounds, subject to securing the agreed access works, PRoW connections and improvements, off-site mitigation schemes, detailed design approval, Stage 1 Road Safety Audit, and appropriate Travel Plan obligations.

Appendix A Mode Supplementary Technical Note

Additional Information Requested for Toton West TA Review

Comment 1

The PPG is pretty clear on cumulative assessments. It refers to giving appropriate consideration to the cumulative impacts of other committed development, including development that is consented or allocated where there is a reasonable degree of certainty that it will proceed within the next three years.

On that basis, my current interpretation is that Toton East should be included in the assessment, as it forms part of an adopted Local Plan allocation and is supported by a planning application. Toton North could more reasonably be excluded at this stage, as it is not an adopted allocation and does not benefit from planning permission.

Toton East comprises 155 dwellings. Given the scale of trip generation, there is a reasonable argument that this traffic is already allowed for within TEMPro at the off-site junctions, and that its impact would diminish further away from the site access. I am therefore broadly comfortable with this approach for the wider off-site junction assessment.

As noted above, background traffic growth in the current modelling methodology presented as part of the TA is predicated on the use of TEMPro; which has been used to calculate background traffic increases expected over the current Local Plan period, using local level data to create a suitable forecast of the impact of planned growth in the area - including for example the wider elements of the allocation.

This approach is used regularly for other similar sites of this scale and nature, and mode are not aware of a legal requirement which states that an assessment of the transport impacts of this site cannot be undertaken using this methodology, and must instead be based upon the outputs of the EMGM; a model which as noted within the Transport Assessment and subsequent post-application TN response, is not readily available in terms of its ability to assess the impact of the proposed development.

Furthermore, as requested by NCC and NH the applicant has committed to (and is already engaged in) the completion of further modelling using the EMGM to consider the cumulative assessment of the Toton sites, however at the time of writing the information presented within the TA provides an accurate consideration of the existing conditions on the local highway network, prior to these sites being delivered. Whilst the information presented within the TA does not prejudice the delivery of the other Toton sites, this application is intended to allow Toton West to crucially be assessed on its own merits and impact.

Nonetheless, in this regard, it is also noted that a wider cumulative assessment of the impacts of the allocation (and other committed sites in the locality) has been undertaken as part of the previous work prepared in relation to the emerging local plan. In particular, the Strategic Transport Assessment prepared by Arup (July 2025), building upon the SYSTRA modelling work (June 2025), assesses the cumulative impacts of the Greater Nottingham Strategic Plan growth strategy, including the full Toton and Chetwynd Barracks allocations. The work identifies the transport impacts arising from planned growth and sets out a comprehensive package of mitigation measures, including the Toton Access Road / Link Road and other strategic transport interventions required to support delivery of the allocation.

Furthermore, the Memorandum of Understanding (MoU) agreed between the Plan-making authorities and National Highways in April 2026 explicitly references the modelling work undertaken by Arup and Systra and acknowledges that Toton and Chetwynd Barracks forms part of the strategic growth locations assessed through that process. The MoU also identifies Toton as one of the limited number of strategic sites having a material influence on specific parts of the Strategic Road Network and recommends that delivery is supported through appropriate masterplanning, phasing and mitigation measures.

Neither the modelling work nor the MoU conclude that the impacts are incapable of being mitigated. Rather, they identify the infrastructure and transport interventions required to facilitate delivery of the growth strategy. Indeed, the Toton Access Road is specifically identified as a safeguarded strategic intervention within the evidence base. Against this background, it is considered that sufficient evidence has been prepared to date to understand the cumulative impacts of the proposed development, alongside the wider allocation and other committed sites in the locality.

As detailed within the suite of documents submitted as part of the application, whilst the three Toton sites are linked in terms of their allocated status, it is the intention that the allocation at Toton West be occupied in advance of the other two sites. The TA therefore considers development at Toton West on its own merits, independently of the wider Toton development plans, using an industry standard approach of using trip rates (obtained from the EMGM) and trip distribution (based upon Census Journey to Work data) to understand the likely assignment of development traffic onto the local highway network.

The TA (and accompanying post-application TN003) concludes that the proposed development is sustainably located, can provide safe and suitable access and subject to the implementation of necessary mitigation will not result in any severe residual impact on the operation of the highway network, and therefore wholly aligns with the NPPF and as such should be considered acceptable in terms of transport and highways.

Whilst the information presented within the TA does not prejudice the delivery of the other Toton sites, this application is intended to allow Toton West to crucially be assessed on its own merits and impact. Further detailed evidence will be submitted as part of the additional live applications for Toton East and Toton North, to demonstrate the appropriate mitigation packages required, building upon previous work set out within the Strategic Transport Assessment for the Greater Nottingham Strategic Plan growth strategy.

Comment 2

It should be demonstrated however that the site access arrangements will not prejudice delivery of Toton East (and reasonably Toton North too). The current site access modelling does not appear to include traffic using the eastern arm of the junction. It should be relatively straightforward to estimate likely traffic from Toton East, and potentially Toton North, and test whether the proposed junction would remain suitable.

The required access arrangements for Toton West comprise of a new three-arm junction with Stapleford Lane, to the site's eastern frontage. Nonetheless, it is the intention that once the adjacent applications for Toton East and North have been determined, an additional arm will be provided at the junction, on the opposite side of Stapleford Lane to provide access to these sites. Owing to previous discussions with NCC on this matter, the access has been designed as a four-arm junction from the outset, in order to minimise disruption on the highway network. This matter is outlined in NCC's response to the Toton West application (03/06/2026), which states the following:

The access points for these sites are located opposite each other but should be constructed as a single junction rather than being changed at a later date to minimise disruption on the network, and help share construction costs.

As outlined above, mode (on behalf of Bloor) are already engaged in the completion of further modelling using the EMGM to consider the cumulative assessment of the Toton sites. As part of this consideration will be made of the impacts on the local network associated with committed development sites, in addition to the dynamic rerouting of background traffic. This will include a detailed consideration of the impacts on the proposed site access junction, and any required improvements to the junction (over and above the current arrangement) will be secured and delivered through the Toton East and North applications.

Nonetheless, in line with the comments above, a sensitivity test has been undertaken which considers the remainder of the Toton allocation as included in Policy 3.2 of the Broxtowe Part 2 Local Plan (2019), namely 255 additional dwellings; comprised of 155 dwellings at Toton East and 100 dwellings at Toton North (on the allocated part of the site south of the tram line).

Vehicular trip rates and distribution profiles for the additional 255 dwellings have been based upon the information submitted as part of the Toton West TA. Taking this into account, an additional sensitivity test has been undertaken using LinSig, with the results summarised below. The junction capacity assessment results indicate that the junction will continue to operate satisfactorily with additional reserve capacity during the 2041 horizon year assessment scenario.

2041 Base + Sensitivity + Development + Remainder of Toton Allocation

	AM Peak Period (08:00-09:00)			PM Peak Period (17:00-18:00)		
	DoS (%)	MMQ (PCU)	Delay / PCU (s)	DoS (%)	MMQ (PCU)	Delay / PCU (s)
2041 Base + Sensitivity + Development + Toton E+N						
Toton West Site Access	73.2%	4.9	63	27.7%	1.3	50.2
B6003 Stapleford Lane S	58.8%	10.8	27.3	73.5	15.3	38.7
B6003 Stapleford Lane N	73.1%	14.8	32.6	80.5%	23.2	38.3
Toton East Site Access	49.4%	2.6	53.9	14.9%	0.7	47
Junction PRC	23% (180s Cycle Time)			11.8% (180s Cycle Time)		

Comment 3

The site access modelling is also sensitive to pedestrian staging. The LinSig model assumes an all-red pedestrian stage, called every other cycle, but there does not appear to be a clear justification for that assumption. Section 6 of the TA forecasts only 20 and 17 walking trips from the development in the peak hours, which appears low for a 420-dwelling scheme in this location. A TRICS multi-modal assessment would likely show a higher pedestrian trip rate.

Similarly, the assessment assumes a 0% tram mode share because it relies on 2011 Census data, which predates the tram opening. Given the site's proximity to Toton Lane tram stop and the wider accessibility benefits it provides, a higher tram mode share would be expected. This could increase pedestrian/cycle movements across the access junction and therefore affect how frequently the pedestrian stage is called.

In line with this request, an additional sensitivity test has been undertaken which considers the additional traffic associated with the remainder of the Toton Allocation, in addition to pedestrian stages every cycle. The results of the additional junction capacity assessment are summarised below, and indicate junction will continue to operate satisfactorily at its practical level of capacity during the 2041 horizon year assessment scenario.

2041 Base + Sensitivity + Development + Remainder of Toton Allocation (Peds Every Cycle)

	AM Peak Period (08:00-09:00)			PM Peak Period (17:00-18:00)		
	DoS (%)	MMQ (PCU)	Delay / PCU (s)	DoS (%)	MMQ (PCU)	Delay / PCU (s)
2041 Base + Sensitivity + Development + Toton E+N (Peds Every Cycle)						
Toton West Site Access	89.4%	7.5	110.5	35.7%	1.6	68.5
B6003 Stapleford Lane S	69.8%	13.9	40.6	66.9%	14.9	37.3
B6003 Stapleford Lane N	89.3%	21.6	57.7	90.7%	25.6	59.9
Toton East Site Access	60.4%	3.3	72.3	19.3%	0.9	63.2
Junction PRC	0.7% (110s Cycle Time)			-0.8% (116s Cycle Time)		

The 2011 Census data has been consulted as it is still considered a more representative dataset given the 2021 Census was undertaken during travel restrictions associated with the Covid 19 pandemic. In this regard, the comments around the mode share of tram users are noted, and acknowledged in paragraph 6.3.6 of the TA, which states that

It should be noted that 2011 census data does not account for any site generated trips using the local tram network, as the Toton Lane tram stop became operational in August 2015. As such, a far greater

modal share of trips will be likely to use the NET network, given the proximity to the proposals and the high level of peak period tram frequency into Nottingham City Centre (6 per hour).

In this regard, whilst it is noted that a far greater modal share of trips will be likely to use the NET network, equally it should also be recognised that this would likely result in a reduction in the number of private vehicle trips through the junction. In this regard, it should be noted that all junction capacity assessments have been based on 100% of the development generated traffic and do not take into account any measures to reduce private car use, which are promoted as part of the accompanying RTP, therefore the actual realised impacts of the development at these junctions could be lower.

It should also be noted that a limitation of the LinSig assessments presented above are that these model runs cannot take into account the effect of MOVA (Microprocessor Optimised Vehicle Actuation), which is to be implemented at the site access junction. MOVA creates an adaptive traffic signal control system that uses embedded detectors and microcomputers to dynamically adjust green times in order to ensure signal timings stages are more responsive to real time traffic flow, which improves junction efficiency.

TRL/Department for Transport research indicates that through the implementation of a MOVA system, the efficiency and operation of signalised junctions can be improved, and that up to an average 13% delay reduction may be achievable. However, the effects of these optimisation improvements cannot be simulated within the LINSIG model. In this regard, the junction will have capability to run more efficiently than is demonstrated in the following modelling results and the junction could therefore operate with a greater level of capacity than summarised below.

Comment 4

There is also a lane utilisation issue at the site access. The proposed layout includes two-lane approaches in the northbound and southbound directions. The southbound approach has a short two-lane merge; DMRB guidance refers to a desirable merge length of 100m, whereas the drawing appears to show approximately 50m. The model appears to assume equal use of the nearside and offside lanes, but the available evidence suggests that lane use is often weighted more heavily towards the nearside lane. This should be tested, particularly given the short merge length.[1] Merging Traffic at Signalised Junctions - Lane Choice and Driver Behaviour.pdf

The above comment refers to a 2015 research paper presented at the JCT symposium, and specifically a methodology of applying a specific calculation based upon site observations to increase PCU use of the nearside line.

Whilst the paper presents a logical argument and some supporting evidence suggesting motorists tend to use the nearside lane more, this is based upon several assumptions and won't necessarily hold true across all cycles or scenarios. The general principle of the research paper is acknowledged, however it should be considered that deriving a formula from this approach is subjective, notably given that this cannot be based upon observations of current traffic movements given the junction is not yet constructed. This is referenced as a specific limitation of the study – with the following stated:

The capacity can only be modelled with reasonable accuracy if the proportional division of flow between the two lanes is accurately reflected.

In light of the above, it is noted that any further analysis is likely to be somewhat ambiguous and the standard methodology of assuming equal lane usage has therefore been followed in line with the LinSig user guide. The document referred to is a research paper, and does not constitute adopted policy or best practice guidance, therefore no further assessment is considered necessary in relation to this point.

