

Keepmoat Homes

**Proposed Residential Development
Keresforth Road, Dodworth
Supplementary Transport Assessment 2**

November 2022

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Client Commission			
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LTP PROJECT TEAM

As part of our commitment to quality the following team of transport professionals was assembled specifically for the delivery of this project. Relevant qualifications are shown and CVs are available upon request to demonstrate our experience and credentials.

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PROPOSED RESIDENTIAL DEVELOPMENT

KERESFORTH ROAD, DODWORTH

SUPPLEMENTARY TRANSPORT ASSESSMENT 2

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I. INTRODUCTION

I.1 Background

- 1.1.1 Local Transport Projects Ltd (LTP) has been commissioned to produce a second Supplementary Transport Assessment (STA2) in support of an outline planning application (all matters reserved expect for access) for a proposed residential development at a site located to the north of Keresforth Road in Dodworth, Barnsley.
- 1.1.2 The local planning and highway authority for the site is Barnsley Metropolitan Borough Council (BMBC). Due to the site's proximity to the M1, which forms part of the Strategic Road Network (SRN), National Highways (NH) are also a key consultee in relation to the proposals.
- 1.1.3 This STA2 follows on from, and should be read in conjunction with the Transport Assessment (TA) (LTP, 2022a), Travel Plan (TP) (LTP, 2022b) and Supplementary Transport Assessment (STA) (LTP, 2022c) that have been produced in support of the outline planning application for the development (ref: 2022/0016), which is seeking consent for *"[r]esidential development of up to 215 dwellings and associated works (Outline application with all matters reserved apart from means of access)"*.
- 1.1.4 This STA2 report has been prepared in accordance with the following key documents where appropriate:
 - National Planning Policy Framework (MHCLG, 2021);
 - Planning Practice Guidance (MHCLG, 2014);
 - The Strategic Road Network and the Delivery of Sustainable Development (DfT, 2013); and
 - Guidance on Transport Assessment (DfT, 2007).

2. CONSULTATION FEEDBACK

2.1 Introduction

- 2.1.1 BMBC Highways (ref: Wayne Lake) has provided an initial response in relation to the outline planning application, and NH (ref: Cat Campbell) have provided additional comments following the submission of the first STA report (LTP, 2022c) containing detailed assessment of the development's impact on the SRN. The feedback received from both consultees has been reproduced below, with a reference to where each comment has been addressed within this STA also provided.

2.2 BMBC Highways Response

- 1) *"The proposed vehicular access arrangement was the subject of detailed comments at pre-application stage and my concerns regarding the proximity of the proposed Woodland court junction to Keresforth Road were voiced. A minimum distance requirement of 20 metres was essential to ensure there is sufficient separation distance between the nearside carriageway edge of Keresforth Road and Woodland Court to ensure stationary / manoeuvring vehicles on the access road at this locale would not inhibit vehicles from entering the access road without restricting the free flow of traffic along Keresforth Road. However, the design as presented shows the separation distance as approximately 16.5m and as such this is not acceptable.*

See Section 3.2

- 2) *I acknowledge the use of Manual for Streets standards as a basis for the requisite visibility splays and can confirm that based on the observed 85th percentile speeds of 33.4mph eastbound and 34.2mph westbound the splay requirements are 2.4m x 52m to the left and 2.4m x 50m to the right. These are shown on plan ref LTP 4283/P2/01.05 Rev G appended to the Transport Assessment. In terms of access road gradient, the TA refers to a small section of road being at a gradient of 9%, however I must reiterate previous comments made at the pre-application stage that gradients above 1:12 (8%) are not acceptable and the design will therefore need to reflect this.*

See Section 3.3

- 3) *The access plan shows a 3m wide shared footway / cycleway on the western side of the main spine road with 2m footway on the eastern side terminating at Wood End Court. Again, I reiterate comments made at pre-application stage that this is not acceptable and a 2m wide contiguous footway is required along the length of the main spine road. The 3m shared footway / cycleway is to be designed to LTN 1/20 cycle infrastructure design standards and detail is required in this regard in respect of geometric parameters, junction detail and transition between footway and the shared use footway / cycleway proposal.*

See Section 3.4

- 4) *In terms of the swept path analysis appended to the TA, the document relies upon survey data undertaken in August 2021 to demonstrate that the average peak hour two-way traffic flow is less than 500 VPH thereby not requiring the design vehicle to maintain lane discipline when undertaking the left in left out manoeuvre. However and whilst the survey data is accepted for speed reading purposes, the survey was undertaken whilst significant highway works were being carried out at the A6144 / A628 / Pogmoor Road junction and as such traffic flow conditions would not have been representative of the transport conditions being analysed. This is validated by the fact that the 2016 traffic flows referred to elsewhere in the document indicate an average peak hour two-way flow of 693 vehicles. Therefore, the design is unacceptable from this perspective and swept path results must demonstrate that the design vehicle can undertake the left in left out manoeuvre without encroachment into the opposing lane whilst maintaining a min 0.5m offset from the nearside kerb line.*

See Section 3.5

- 5) *Notwithstanding the above, the issue regarding the site and quantum of development being served by a single access was raised as part of the pre-application enquiry although this has not been addressed as part of the application. It is considered that a single access at this locale to serve 215 dwellings is unsatisfactory. At least two points of vehicle access/ egress would be required to maximise accessibility, connectivity, integration and efficient operation in an emergency situation. Local Plan Policy T4 States that “New development will be expected to be designed and built to provide all transport users within and surrounding the development with safe, secure and convenient access and movement”. Furthermore, Policy GD1 requires that “adequate access and internal road layouts are provided to allow the complete development of the entire site for residential purposes, and to provide appropriate vehicular and pedestrian links throughout the site and into adjacent areas”. Indeed this is expanded upon within the design of housing development SPD which requires that as far as possible, new streets should be connected at both ends to form a through street and that proposals should allow for the future expansion of the movement network to enable future phases of the development to be fully integrated.*

See Section 3.6

- 6) *Whilst the outline nature of the application is acknowledged, the use of subjective text such as it is expected that parking standards at the site will be provided in accordance with BMBC’s parking standards is not appropriate. For clarity the standards set out in the Councils Parking SPD will be a material consideration when assessing any future applications.*

See Section 3.7

- 7) Section 1.2.1 of the Transport Statement specifies that the report is written in accordance with a scope which includes an assessment of the sustainable transport infrastructure (pedestrian/ cycle and public transport) local to the site. However, this section identifies a range of destinations are accessible from the site by walking and cycling (using walking and cycling isochrones) and that public transport is within walking distance of the site. This is based on measured distances from the site and whilst Section 4.2 (pedestrian provision) concludes that the existing and proposed pedestrian infrastructure within the site appears to be generally sufficient to facilitate the movements of mobility and visually impaired people, no assessment has been undertaken to demonstrate the suitability (with possible mitigation) of pedestrian routes within the isochrone. Similarly, whilst NCN route 62 has been identified as an accessible destination via Gilroyd Lane, no further detail has been provided in respect of existing or proposed infrastructure between the site and NCN 62 or infrastructure within the 8Km isochrone shown in Figure 7. With regards public transport walk distances from the centre and northern section of the site is beyond the maximum distance of 400m from a bus stop referred to in section 4.4.1. What is proposed to overcome this? Furthermore no detail has been presented as to the suitability of the existing infrastructure to accommodate public transport users and their walk routes from the site to bus stops. The site assessment is demonstrate the suitability of the highway and transport network to accommodate the increased level of trips by sustainable modes.

See Section 4

- 8) The study area for the road casualty appraisal covers a 2.4km section of the B6099 between and including Dodworth Green Road / Barnsley Road / Station road junction to the west and the A6133 Broadway junction to the east. However on what basis as the study area been defined? The study area is to be defined by the extent of junctions requiring operational analysis and critical locations on the road network with poor accident records. This is to determine if the proposed development will exacerbate existing problems or, if proposed, whether highway mitigation works or traffic management measures will help to alleviate the problems. Furthermore, the analysis contained within the TA is based on the use of high level data. This is unsatisfactory and requires a full assessment of personal injury collision records to identify any discernible patterns in collision data that may be attributable to the highway environment, or where there are common causation factors.

See Section 5

- 9) Under road safety impact the TA at section 5.6.2 states that “If the proposed site access junction and internal roads are designed with due consideration to road safety, with appropriate highway design features incorporated into the detailed design, then the proposals should not have a detrimental road safety impact on the local transport network and should not adversely affect the safety of other road users.” Again this is a subjective statement in that it reads “should not have a detrimental impact on road safety”. I will reiterate comments provided at the pre-application stage in that Road Safety Audits shall be carried out in accordance with DMRB GG119. As such a Stage 1/2 Road Safety Audit is required with the brief to be agreed by BMBC prior to the audit taking place.

Refer to Road Safety Audit (LTP, 2022d)

- 10) The trip generation predictions indicate that for 220 dwellings, 122 two way trips would be generated in both the AM and PM peak periods. I can confirm that the trip generation and distribution results are acceptable for assessment purposes. However the projected mode split is taken from the TRICS survey data (and incorporated into the Travel Plan – see comments below). Before these can be agreed, I require a comparison with the 2011 census data for the Barnsley 019 MSOA to ensure comparability with local trip mode splits.

See Section 6.2

- 11) However, current adopted supplementary planning documentation provides the underlying thresholds of assessment. This includes any development generating 30 or more two-way vehicles movements in any hour and/or any development generating 100 or more two-way vehicle movements per day. Where there are no firm threshold figures within current TAG guidance for practitioners and appraisers, current policy conforms to the now withdrawn Department for Transport document Guidance on Transport Assessment. This is not purely used to determine the need for a transport assessment but should also be considered as the appropriate metric for determining network impact and therefore the need for individual junction assessment with the TA submission. As such, all junctions on the local highway network that experience 30 or more two way trips as a result of the development do require operational assessment to be undertaken.

See Section 7

- 12) The assessment undertaken for the site access utilises baseline traffic data from 2016. This is not acceptable. It is clear that over the intervening period, there have been many changes in planning policy and network operation and as such the use of factored up 6 year old survey data as a basis for network modelling is unsatisfactory. Up to date survey data is to be sourced and counts are to include queue length data to facilitate validation of the discrete junction models. Furthermore, and to reiterate comments provided at pre-application stage relating to cumulative impact and DfT guidance.

See Section 6.3

- 13) A list of committed developments was provided to the applicants transport consultants on 28th February 2022 to enable a cumulative assessment to be undertaken, however there is no inclusion of these committed development sites within the assessment. In order to fully assess the cumulative impact on the local highway network, committed developments are required to be included in the TA to inform the requisite operational assessments.

See Section 6.4

- 14) Comments relating to the TP:

- Sections 3.1.1 – 3.3.4 – Please see comments above in relation to site assessment
- Section 5.2.2 – Targets need to be a percentage reduction not based on TRICS mode split data (See comments above).
- Section 6.3.3 – Whilst it is acknowledged that BMBC are a key stakeholder, the costs of producing material to be contained within the WTP are to be borne by the developer.
- Table 3 – “Consider establishing a ‘walking bus’ to facilitate supervised trips to the local primary school on foot, subject to demand”. – How will the level of demand be assessed and what will be the basis / trigger for establishing a walking bus?
- Table 4 – “Investigate the possibility of establishing a Bicycle User Group (BUG) or working group equivalent and implement if there is sufficient interest. This could tie into existing local cycle groups”. – How and what level of interest will trigger the implementation of the BUG?
- Table 6 – “Investigate the possibility of setting up a car sharing database for residents at the site, subject to demand” - How will the level of demand be assessed and what will be the basis / trigger for establishing a residents car sharing database?
- General – The Travel Plan needs to be cross referenced to the Transport Assessment and reflect any changes / identification of off-site improvements relating to sustainable mode of travel.”

See updated Travel Plan (LTP, 2022b).

2.3 National Highways Comments

- 1) “JSJV cannot conclude that the traffic generated by the proposed development will not result in a material and detrimental impact on the operation of M1(J37) when considered in isolation or cumulatively with committed development proposals.

See Section 7.8 and 7.9

- 2) JSJV would recommend that LTP confirm that flows for the Whinby Road roundabout capacity assessment are represented in PCU and that the modelling of the junction accurately reflects lane usage.

See Section 7.7

- 3) JSJV would note that having reviewed applications for neighbouring applications, there are discrepancies between modelling results. Other capacity assessments have shown the junction to be operating with a high DoS in future scenarios. JSJV would suggest that LTP clarify the committed development flows that have been included, in particular if the impact of the link road for 'Land to the South-East of Higham Common Road, Barnsley [MU1 – Residential]' [planning reference: 2021/1090] has been included. JSJV is aware that this has significant impact on the assignment of trips in the area.

See Section 6.4 and 7.8

- 4) JSJV would note that merge / diverge analysis has been provided in the form of flow values in the Supplementary TA, however, the suitability or otherwise of the merge / diverge layouts has not been assessed for the baseline or future scenarios. Merge / diverge assessments that reference the DMRB are required for the complete assessment of junction operation.

See Section 7.9

- 5) JSJV note that a CTMP will need to be prepared and anticipate that it will be subject to and be delivered via condition, National Highways should be sent a copy of the CTMP for review.

This is a consideration for the wider development team/to be produced as a separate document, and therefore has not been addressed within this report.

- 6) JSJV would suggest that further information be provided with regards to the proposed boundary treatment between the M1 and the application site."

This is a consideration for the wider development team, and therefore has not been addressed within this report.

3. ACCESS JUNCTION DESIGN

3.1 Introduction

- 3.1.1 The proposals involve the development of the site to accommodate 215 dwellings, with access to be taken via a new simple priority T-junction connecting with Keresforth Road, as shown on the preliminary access design drawing attached as Appendix 1 (ref: LTP/4283/P3/01.01 Rev H).
- 3.1.2 A number of comments have been raised by BMBC Highways in relation to the design of the access. The following section outlines the key items raised by BMBC Highways in relation to the design and how these comments have been addressed as part of the revised access design.

3.2 Junction Spacing

- 3.2.1 BMBC Highways has requested that a minimum distance of 20m should be provided between Keresforth Road and Wood End Court. As shown on the updated preliminary access design drawing attached as Appendix 1, the spacing between the edge of the Keresforth Road carriageway and centreline of Wood End Court is 20m. It is therefore considered that the latest design attached as Appendix 1 addresses this comment relating to junction spacing.

3.3 Access Road Gradient

- 3.3.1 The previous preliminary design ensured that the gradient for the majority of the access road was in accordance with the desirable gradient of 1 in 20 (5%) outlined in the 'South Yorkshire Residential Design Guide' (TSY, 2011). In order to get back to near the existing ground level there was a small section where the gradient was 9%, although this is within the maximum permissible gradient of 1 in 10 (10%) outlined in the Residential Design Guide:
- 3.3.2 *"In steep terrain, carriageway gradients of up to 10% (1 in 10) may be permissible, at the direction of the highway authority."*
- 3.3.3 However, BMBC Highways has stated that road gradients above 1:12 (8%) are not acceptable, and therefore the design of the access road needed to reflect this. The updated access design shows a maximum gradient of 7.3%, with a copy of the longitudinal section drawings attached as Appendix 2. It is therefore considered that the latest design addresses the comment from BMBC Highways relating to the gradient of the access road.

3.4 Pedestrian & Cycle Access Arrangements

- 3.4.1 Previously, a 3m wide shared foot/cycleway on the western side of the site access road was proposed, which would connect with the existing footway provision on the northern side of Keresforth Road. A 2m wide footway is expected to be provided on at least one side of the carriageway on all roads within the site, with shared surfaces to be provided on some connecting culs-de-sac.

- 3.4.2 BMBC Highways has requested that a 2m footway on the eastern side of the access road is required and that the 3m wide shared foot/cycleway will need to be designed to LTN 1/20 cycle infrastructure design standards and further detail would be required in this regard in respect of the proposed geometric parameters, junction detail and transition between the footway and shared use foot/cycleway.
- 3.4.3 As shown on the updated preliminary access design drawing attached as Appendix 1, a 3m wide footway is to be provided on the western side of the site access road, and a footway measuring between 1.7m and 2m is to be provided on the eastern side of the access road. Cyclists accessing the proposed development would be expected to be on-road which is in accordance with 'Manual for Streets' (DfT, 2007) guidance which states that 'cyclists should generally be accommodated on the carriageway.' The 3m wide footway also provides an alternative access route to the development site for emergency vehicles should the main carriageway be blocked.

3.5 Swept Path Analysis

- 3.5.1 Traffic flows were captured as part of new baseline traffic surveys undertaken in September 2022, with the weekday AM and PM peak hour two-way traffic flows on Keresforth Road exceeding 500 vehicles. Therefore, the average peak hour two-way traffic flow on Keresforth Road exceeds the 500 vehicles per hour threshold stated within the 'South Yorkshire Residential Design Guide' (TSY, 2011) which would trigger the requirement for the design vehicle to 'turn without crossing into the opposing lane on the major arm'. Therefore, updated vehicle tracking utilising a refuse vehicle (vehicle previously agreed with BMBC Highways) was undertaken on the latest access design which demonstrates that a refuse vehicle can undertake the required turning movements without encroachment into the opposing lane on Keresforth Road, as shown in Appendix 3. It is therefore considered that the latest design addresses the comment from BMBC Highways relating to the swept path analysis drawings.

3.6 Number of Access Points

- 3.6.1 As previously highlighted, the development comprises up to 215 dwellings to be served via a single point of access connecting with Keresforth Road.
- 3.6.2 BMBC Highways has requested that at least two points of vehicle access/egress would be required at the site to maximise accessibility, connectivity, integration and efficient operation in an emergency situation. BMBC Highways have referenced a number of policies within local guidance documents relating to access, as highlighted below:

Barnsley Local Plan (BMBC, 2019a)

- Policy T4 states that "new development will be expected to be designed and built to provide all transport users within and surrounding the development with safe, secure and convenient access and movement."

- Policy GD1 states that *“adequate access and internal road layouts are provided to allow the complete development of the entire site for residential purposes, and to provide appropriate vehicular and pedestrian links throughout the site and into adjacent areas.”*

Barnsley Designing of Housing Development SPD (BMBC, 2019b)

- This document states that *“as far as possible, new streets should be connected at both ends to form a through street. Proposals should allow for the future expansion of the movement network to enable future phases of development to be fully integrated.”*

- 3.6.3 It should be noted that the development accords with the quoted policies as none of the above provide a specific threshold relating to the number of dwellings that can be served from a single point of access.

Existing Local Precedent (Lundhill Road, Wombwell):

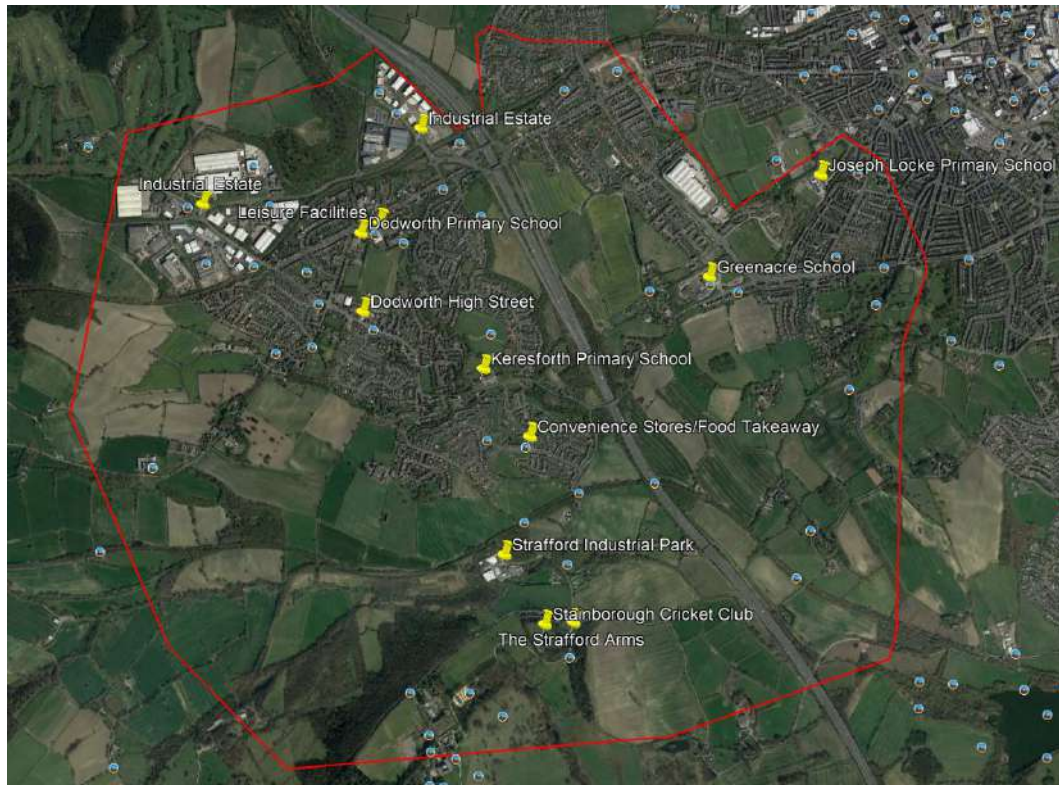
- 3.6.4 A planning application was submitted in January 2019 and approved in April 2020 for the *‘demolition of existing bungalow and the development of 235 no. dwellings with formation of new access, car parking, landscaping and public open space (amended plans and description)’* at 58 Lundhill Road, Wombwell.
- 3.6.5 A TA (AECOM, 2020) was produced in support of the development, which included details regarding the trip generation and access arrangements for the site. The site will be accessed via a new priority T-junction connecting with Lundhill Road using space vacated by dwelling #58. The TA (AECOM, 2020) also outlines that a new priority T-junction with Gypsy Lane will be provided, however the junction has been designed to effectively prohibit the use of Gypsy Lane by traffic associated with the development site and the future school phase, including physical measures such as build-outs and an island to discourage right turns out of and left turns into Gypsy Lane. These measures were included as BMBC Highways would not support the formal stopping up of Gypsy Lane. Inclusion of these design measures will help to ensure that the use of Gypsy Lane is not intensified following the development of the new site.
- 3.6.6 The TA (AECOM, 2020) highlights that the Lundhill Road site could be expected to generate up to 129 two-way vehicle trips during the AM peak hour (07:30-08:30) and PM peak hour (17:00-18:00) respectively. The future school phase could be expected to generate up to 182 two-way vehicle trips during the AM peak hour (08:00-09:00) and 118 during the school PM peak hour (15:00-16:00). The TA (AECOM, 2020) indicates that the residential and school development could be expected to generate up to 367 two-way vehicle trips during the AM peak hour (07:30-08:30) and 295 during the PM peak hour (17:00-18:00).
- 3.6.7 Given the design features of the Gypsy Road access, all vehicles travelling to/from the development site are expected to do so via the new access connecting with Lundhill Road therefore utilising a single point of access.

- 3.6.8 As outlined in Section 6.1, the proposed development could be expected to generate up to 122 two-way vehicle trips during the AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00) respectively. These figures are significantly below those expected to be generated by the Lundhill Road site, which are expected to utilise a single point of access. Furthermore, alternative access for emergency vehicles for the proposed development site is provided via the 3m wide footway on the western side of the access road which can be utilised should the main carriageway be blocked.
- 3.6.9 Based on the above, it is therefore considered that a single access point is suitable to serve the likely trip generation associated with the proposed development, particularly as the Lundhill Road site has the potential to generate significantly higher vehicle trips from a single point of access.

3.7 Parking Provision

- 3.7.1 Due to the outline nature of the application, the exact dwelling types are yet to be determined, although parking will be provided in accordance with BMBC parking standards.

Figure 2: Likely Major Local Pedestrian Trip Attractors



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- 4.1.4 The walking routes between the site and the trip attractors have been interrogated, as outlined Table 1 below (with amber highlighting areas where mitigation is proposed, and green highlighting areas where mitigation is not proposed):

Table 1: Pedestrian Routes to Key Trip Attractors

Trip Attractor	Route*	Pedestrian Provision	Mitigation
Keresforth Primary School	Route A: Keresforth Road (≈180m)	Route A: A footway is provided on the northern side of Keresforth Road within the vicinity of the site, with a typical width of approximately 1.5m-2.0m, with small pinchpoints in some locations due to street lighting columns/street furniture. There is not a need for pedestrians from the site to cross Keresforth Road.	There is an apparent limited availability of public highway land to widen this footway or relocate street furniture. It also does not appear to be viable to narrow the carriageway in order to widen the footway, in terms of proportionality/cost-efficiency or the residual carriageway width. However, there is no existing tactile paving across the Water Royd Drive junction, therefore it is proposed to install tactile paving at the existing dropped kerb crossing.
Dodworth High Street	Route A & B: Keresforth Road – High Street (≈800m)	See Route A above. Route B: West of Route A, there are continuous footways on both sides of Keresforth Road/High Street, with a similar width to the Route A footway (≈1.5m-2.0m). There is not a need for pedestrians from the site to cross Keresforth Road or High Street	As with Route A, it is considered that footway widening is not viable on Route B. However, there is no existing tactile paving across the Rose Hill Drive junction, therefore it is proposed to install tactile paving at the existing dropped kerb crossing.

Trip Attractor	Route*	Pedestrian Provision	Mitigation
		enroute to the local centre, with an existing zebra crossing in the centre.	
Dodworth St John The Baptist CofE Primary School	Route A, B & C: Keresforth Road – High Street – Barnsley Road (≈1.3km)	See Routes A and B above. Route C: West of Route B, there are footways on both sides of High Street, and Barnsley Road to the north of the High Street junction, with a similar width to the Route A/B footways (≈1.5m-2.0m). There is not a need for pedestrians from the site to cross Keresforth Road, High Street or Barnsley Road.	As with Routes A and B, it is considered that footway widening is not viable on Route C. However, there is no existing tactile paving across the Co-op Food access junction, therefore it is proposed to install tactile paving at the existing dropped kerb crossing (subject to confirmation that the works can be achieved within the extents of the public highway).
Leisure Facilities on Barnsley Road	Route A, B, C & D: Keresforth Road – High Street – Barnsley Road – B6449 (≈1.5km)	See Routes A, B and C above. Route D: North of Route C, there is a continuous footway on the eastern side of Barnsley Road, with a similar width to the Route A/B/C footways (≈1.5m-2.0m), which connects with a wider footway (≈2.5m) on the southern side of the B6449 (to the east of the Mitchelson Avenue junction).	As with Routes A, B and C, it is considered that footway widening is not viable on the Barnsley Road section of Route D, and is not required on the B6449 section of Route D.
Fall Bank Industrial Estate	Route A, B, C & E: Keresforth Road – High Street – Station Road (≈1.6km)	See Routes A, B, and the High Street section of C above. Route E: West of Route C, there is a zebra crossing across the B6449 at the Station Road junction, with footways on both sides of Station Road east of Mitchelson Avenue, with a variable width (≈1.0m-2.0m). There is a reasonably wide footway on the southern side of Station Road west of Mitchelson Avenue.	As with Routes A, B and C, it is considered that footway widening is not viable on Route E. However, there is no existing tactile paving across Station Road at the Mitchelson Avenue junction, therefore it is proposed to install tactile paving at the existing dropped kerb crossing.
Capitol Park Industrial Estate	Route A & F: Keresforth Road – Water Royd Drive – Low Pasture Close – Wareham Grove – South Road – Whinby Road – Capitol Close (≈1.7km)	See Route A above. Route F: North of Route A, there is a continuous footway route through the residential estate with an approximately 1.8m-2.0m width throughout. This includes a short circa 50m long off-road footpath through the open space between Low Pasture Close and Wareham Grove which has a width in excess of 2.0m and street lighting. These connect with footways on South Road that are particularly wide (over 2.5-3.0m), with a dropped kerb crossing onto Barnsley Road. There are continuous footways on both sides of Whinby Road, with crossing at roundabouts accommodated by kerbed central islands (which have tactile paving).	The footways along Route E are considered to be suitably wide. There are a number of side junctions that have existing dropped kerb crossings but no tactile paving on Water Royd Drive and Wareham Grove along Route E. However, it is not considered to be necessary to provide tactile paving at all these locations in the context that the route only serves one key trip attractor for residents of the site, therefore with only a small number of pedestrian trips on this route associated with the proposed development. Similarly, it is not considered to be necessary to provide a dropped kerb crossing between Barnsley Road and Whinby Road.

Trip Attractor	Route*	Pedestrian Provision	Mitigation
Green Lane Convenience Stores/Food Takeaway	Route A & G: Keresforth Road – Green Lane – Saville Road (≈500m)	See Route A above. Route G: There is currently no crossing point to access Green Lane on the southern side of Keresforth Road, although the footway on the southern side is relatively wide (over circa 2.0m). There are continuous footways on both sides of Green Lane to the Saville Road shops, with a reasonable width (≈1.8m-2.0m).	It is proposed to provide a dropped kerb crossing on Keresforth Road near the Green Lane/Water Royd Drive junctions. There is no existing tactile paving at several locations on Green Lane, at both Locke Road junctions, and at the Green Lane/Saville Road junction, therefore it is proposed to install tactile paving at the existing dropped kerb crossings at these three locations.
Stafford Industrial Park	Route H & I: Keresforth Road – Gilroyd Lane (≈1km)	Route H: There is a footway on the northern side of Keresforth Road to the east of the proposed site access of a reasonable width (≈1.5m-2.0m), although there is currently no crossing point to access Gilroyd Lane on the southern side of Keresforth Road. Route I: There is a continuous footway on the western of Gilroyd Lane to the industrial estate access, albeit with a narrow width in places (≈1.0m).	The footway along Route H is considered to be suitably wide, although it is proposed to provide a dropped kerb crossing on Keresforth Road near the Gilroyd Lane junction. The footway on Gilroyd Lane is relatively narrow, although it is not considered to be necessary to provide widening (or tactile paving at side junctions) in the context that the route only serves a few smaller trip attractors for residents of the site, therefore with only a small number of pedestrian trips on this route associated with the proposed development.
Stainborough Cricket Club/The Stafford Arms	Route H, I & J: Keresforth Road – Gilroyd Lane – Park Drive (≈1.4km)	See Routes H and I above. Route J: Similar to Route I on Gilroyd Lane to the south of Stafford Industrial Park, albeit with a dropped kerb/tactile paving crossing across Lowe Lane/Round Green Lane. There is a footway on the eastern side of Park Drive (≈1m width) within the vicinity of the Lowe Lane/Round Green crossroads, although there is no crossing point.	As with Route I, the footways on Gilroyd Lane and Park Drive are relatively narrow, although it is not considered to be necessary to provide widening (or crossing points) in the context that the route only serves a few smaller trip attractors for residents of the site, therefore with only a small number of pedestrian trips on this route associated with the proposed development.
Greenacre School	Route H & K: Keresforth Road – Keresforth Hill Road (≈1.1km)	See Route H above. Route K: East of the Gilroyd Lane junction, there is a continuous footway on the northern side of Keresforth Road and Keresforth Hill Road up to the school accesses, although the width is narrow in places (typically ≈1.0m-2.0m).	There is an apparent limited availability of public highway land to widen this footway or relocate street furniture. It also does not appear to be viable to narrow the carriageway in order to widen the footway, in terms of proportionality/cost-efficiency or the residual carriageway width. However, there is no existing tactile paving across the Dark Lane/Keresforth Hill Road junction, therefore it is proposed to install tactile paving at the existing dropped kerb crossing.
Joseph Locke Primary School	Route H, K & L: Keresforth Road – Keresforth Hill Road	See Routes H and K above. Route L: East of the Greenacre School access, there is a footway on the northern side of a reasonable width (≈1.5m-2.0m), with	The footways along Route L are considered to be suitably wide, although there is no existing tactile paving across the Greenacre School access on Keresforth Hill Road, therefore it is

Trip Attractor	Route*	Pedestrian Provision	Mitigation
	– A6133 – Raley Street (≈1.8km)	signalised crossing facilities at the A6133 junction. There is a footway on the northern side of the A6133, and on the western side of Raley Street, both of which have a reasonable width (≈1.5m-2.0m).	proposed to install tactile paving at the existing dropped kerb crossing.

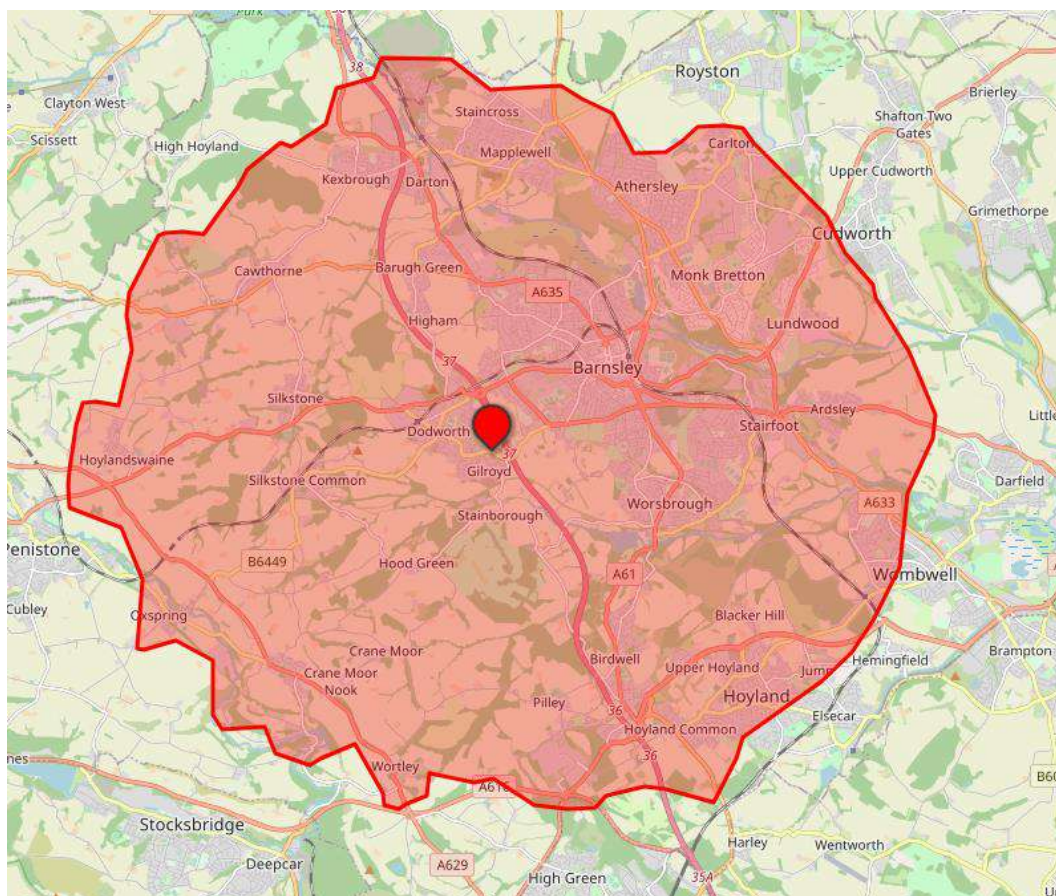
*The most likely pedestrian route has been assessed, although there may be viable alternatives.

- 4.1.5 As seen in Table 1, footways of a reasonable width are provided along routes between the site and key trip attractors. However, in order to enhance these key routes, particularly for mobility impaired pedestrians, it is proposed to install improved crossing facilities at several locations, the detailed design of which is subject to further discussions with BMBC Highways as part of the post-planning stage.

4.2 Cycle Provision

- 4.2.1 The TA (LTP, 2022a) and TP (LTP, 2022b) produced in support of the proposed development includes information on cycle provision within the vicinity of the site. BMBC Highways have requested additional detail be provided in relation to the cycle provision. The 8km cycling isochrone presented within the TA (LTP, 2022a) and TP (LTP, 2022b) has been reproduced in Figure 3 below.

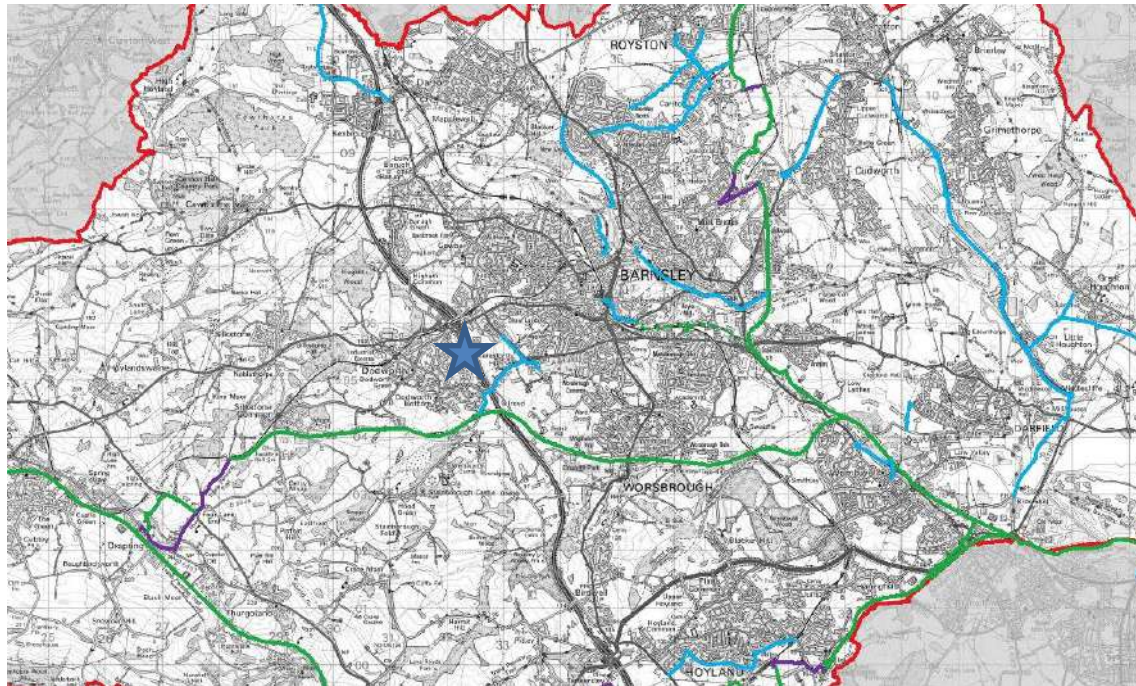
Figure 3: 8km Cycle Isochrone



Source: ORS, 2021

- 4.2.2 Figure 4 below is an extract of the Barnsley cycle map (BMBC, 2022), which shows the cycle facilities within the 8km cycle isochrone. Existing cycle routes are shown in blue, off-road facilities in green, and on-road facilities in purple. The location of the proposed development site is shown approximately by the blue star.

Figure 4: Cycle Facilities



Source: BMBC, 2022

- 4.2.3 Figure 4 indicates that there are a number of on and off-road cycle facilities within an 8km ride of the proposed development site.
- 4.2.4 As highlighted within the TA (LTP, 2022a) and TP (LTP, 2022b), National Cycle Network (NCN) Route 62, which also forms part of the Trans Pennine Trail, is accessible via Gilroyd Lane, approximately 700m to the south of the site. Cyclists travelling between Keresforth Road and NCN Route 62 are expected to travel on-road along Keresforth Road and Gilroyd Lane. This is in accordance with Manual for Streets (MfS, 2007) which states that ‘cyclists should generally be accommodated on the carriageway.’
- 4.2.5 Based on the 2011 Census travel to work modal split data (see Section 6.2), there would be circa 1 daily cycle journey associated with the proposed development and therefore based on the likely demand from the development, it is considered that the existing cycling provision within Barnsley is suitable for residents of the proposed development, with no mitigation required.

4.3 Public Transport Provision

- 4.3.1 As outlined within the TA (LTP, 2022a) and TP (LTP, 2022b) produced in support of the proposed development, the nearest bus stops to the proposed development site are located on Keresforth Road, approximately 120m west of the proposed site access junction (westbound), and approximately 180m east (eastbound). There are also stops in both directions on Keresforth Hill Road approximately 320m to the east of the site. It is acknowledged that the bus stops may be slightly in excess of a 400m walk of the northern extents of the site, however residents within the existing residential development to the west of the site also have a walk in excess of 400m to access local bus stops.
- 4.3.2 Those residents travelling between the site and the local bus stops will be able to do so using the internal pedestrian infrastructure and the existing footways along Keresforth Road and Keresforth Hill Road. It is not considered necessary to provide additional/internal bus stops as a result of the proposed development, given the proximity of existing services to the majority of the site users.

5. DETAILED COLLISION ANALYSIS

5.1 Introduction

- 5.1.1 Personal Injury Collision (PIC) data was analysed within the TA (LTP, 2022a) submitted in support of the outline planning application. The study area covered an approximately 2.4km section of the B6099 between the Dodworth Green Road/Barnsley Road (B6449)/Station Road priority junction to the west, and the Broadway (A6133)/Keresforth Hill Road signalised junction to the east.
- 5.1.2 NH subsequently requested further analysis of the collisions at the M1 J37 junction (Dodworth Roundabout), with this detail included within the STA (LTP, 2022c).
- 5.1.3 The response from BMBC Highways requested that the collision study area is extended to cover the extents of the proposed study junctions that require formal capacity assessment (see Section 6). Therefore, this section of the report provides detailed analysis of the collisions at the study junctions, the connecting roads, including Dodworth Roundabout. The data for the most recent available extended five-year and 11-month study period (01/01/2016 to 01/12/2021) was obtained from the BMBC Traffic Team. The study area extents and the locations of the collisions are indicated on the plans attached as Appendix 4.

5.2 Collision History

- 5.2.1 A total of 76 collisions occurred across the study period. Table 2 below outlines the collision history of the study area.

Table 2: Collision History

Year	2016	2017	2018	2019	2020	2021 (up to 01/12/2021)	Total
Fatal	-	-	-	-	-	-	0
Serious	1	6	6	4	3	3	23
Slight	11	12	8	8	5	9	53
Total	12	18	14	12	8	12	76

- 5.2.2 The collision records show that the number of PICs per year has remained relatively consistent throughout the study period, albeit with a slight peak in collisions during 2017 whereby 18 collisions occurred. There were 23 Killed or Seriously Injured (KSI) collisions during the study period, resulting in a severity ratio of 30.3%.

5.3 Collision Conditions

- 5.3.1 Table 3 below summarises the collisions by road surface, weather and lighting conditions:

Table 3: Collision Conditions

Road Surface	Collisions	%
Dry	55	72.4%
Wet/Damp	20	26.3%
Snow	1	1.3%
Weather	Collisions	%
Fine	62	81.6%
Rain	10	13.2%
Snow	1	1.3%
Unknown/Other	3	3.9%
Lighting	Collisions	%
Daylight	61	80.3%
Dark	15	19.7%

5.3.2 As illustrated in Table 3, the majority of the collisions occurred without any adverse road surface, weather or lighting conditions.

5.4 Collision Times

5.4.1 Table 4 below summarises the collisions by the time of year:

Table 4: Collisions by Time of Year

Time of Year	Collisions	%
Winter (Dec-Feb)	12	15.8%
Spring (Mar-May)	23	30.3%
Summer (Jun-Aug)	22	28.9%
Autumn (Sep-Nov)	19	25%

5.4.2 Table 4 shows that nearly a third of the collisions occurred during the spring months (30.3%).

5.4.3 Table 5 below summarises the collisions by day of week and also the time of day:

Table 5: Collisions by Day & Time

Day	Morning (06:00- 11:00)	Lunch (11:00- 14:00)	Afternoon (14:00- 19:00)	Evening (19:00- 01:00)	Night (01:00- 06:00)	Total	%
Monday	3	2	4	1	-	10	13.2%
Tuesday	3	2	6	2	-	13	17.1%
Wednesday	-	4	2	4	1	11	14.5%
Thursday	-	4	7	2	-	13	17.1%
Friday	2	2	6	3	-	13	17.1%
Saturday	2	2	4	2	1	11	14.5%
Sunday	2	3	-	-	-	5	6.6%
Total	12	19	29	14	2	76	
%	15.8%	25.0%	38.2%	18.4%	2.6%		

- 5.4.4 Table 5 demonstrates that over a third of the collisions occurred during the afternoon period (38.2%), with fewest collisions during the night time period (2.6%). The collisions were relatively spread across the week, albeit with a dip in collisions on a Sunday (6.6%).

5.5 Casualties

- 5.5.1 A total of 109 casualties occurred as a result of the 76 recorded injury collisions during the study period. Table 6 below provides a breakdown of the casualties according to the mode of travel and age group.

Table 6: Casualty Road User Groups

Road User Group	Age (years)							Total	%
	0 to 15	16 to 20	21 to 25	26 to 45	46 to 65	66+	Unknown		
Car Driver	-	6	7	19	16	10	-	58	53.2%
Car Passenger	3	6	4	1	4	4	1	23	21.1%
PTW	-	2	2	1	4	-	-	9	8.3%
Pedestrian	4	1	1	2	2	3	-	13	11.9%
Bus Passenger	-	-	-	-	-	1	2	3	2.8%
Goods Vehicle Occupant	-	-	2	1	-	-	-	3	2.8%
Total	7	15	16	24	26	18	3	109	
%	6.4%	13.8%	14.7%	22%	23.9%	16.5%	2.8%		

- 5.5.2 Table 6 shows that almost three-quarters of the casualties (74.3%) were car occupants. Nearly a quarter of the casualties were aged between 46 and 65 years (23.9%).

5.6 Local Highway Network Collision Clusters

- 5.6.1 For the purposes of this assessment, any location/junction with five or more collisions occurring during the extended five-year and 11-month study period has been identified. The STATS19 information and police officer descriptions/judgements for the identified study junctions have been analysed and are summarised below:

- **A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road Signalised Junction (9 collisions):**
 - One collision was recorded as slight in nature and involved two vehicles. The contributory/causation factor was recorded as poor turn or manoeuvre.
 - One collision was recorded as slight in nature and involved two vehicles. The contributory/causation factor was recorded as junction overshoot.
 - One collision was recorded as serious in nature and involved one vehicle and one pedestrian. The contributory/causation factor was recorded as careless/reckless/in a hurry.
 - One collision was recorded as slight in nature and involved two vehicles. The contributory/causation factor was recorded as failing to look properly.
 - One collision was recorded as serious in nature and involved one vehicle and one pedestrian. The contributory/causation factor were recorded as careless/reckless/in a hurry, failing to look properly, and failing to judge vehicles path or speed.

- One collision was recorded as slight in nature and involved one vehicle and one pedestrian. The contributory/causation factor were recorded as failing to look properly, careless/reckless/in a hurry, and failing to judge vehicles path or speed.
 - One collision was recorded as slight in nature and involved two vehicles. The contributory/causation factor were recorded as failing to judge other persons path or speed, and nervous/uncertain/panic.
 - One collision was recorded as slight in nature and involved three vehicles. The contributory/causation factor was recorded as careless/reckless/in a hurry.
 - One collision was recorded as slight in nature and involved three vehicles. The contributory/causation factor was recorded as disobeying automatic traffic signal.
 - To conclude, two of the collisions were serious in nature, and seven were slight in nature, with a mix of contributory/causation factors. Six of the collisions occurred on the A6133 western arm, three of those were vehicles travelling straight ahead, one involved a vehicle turning right to the southern arm, one involved a vehicle turning left onto Beech Street and one occurred with a vehicle travelling westbound on the A6133 and a vehicle turning left out of Beech Street and the sixth collision involved a vehicle travelling westbound along the A6133.
 - Two occurred on the southern arm of the A61, and one occurred on the northern A61 arm of the junction.
 - Based on the above detailed analysis, it is concluded that no existing collision clusters are present at this junction, and none are expected to be created as a result of the development proposals.
- ***Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road Signalised Junction (7 collisions):***
 - One collision was slight in nature and involved three vehicles. The contributory/causation factor was recorded as failing to look properly, and careless/reckless/in a hurry.
 - One collision was slight in nature and involved two vehicles. The collision involved a vehicle rear shunting another vehicle, although no contributory/causation factor was recorded.
 - One collision was slight in nature and involved three vehicles. The contributory/causation factor was recorded as failing to look properly.
 - One collision was slight in nature and involved two vehicles. The contributory/causation factor was recorded as failing to look properly.
 - One collision was slight in nature and involved three vehicles. The contributory/causation factors were recorded as failing to look properly and poor turn/manoeuvre.
 - One collision was recorded as slight in nature and involved three vehicles. The contributory/causation factor were recorded as disobeying the give way or stop signs or markings, failing to look properly, and careless/reckless/in a hurry.
 - One collision was recorded as slight in nature and involved three vehicles. The contributory/causation factor was recorded as careless/reckless/in a hurry.

- To conclude, the seven collisions which occurred at this junction were all slight in nature, with failing to look properly and careless/reckless/in a hurry the predominant contributory/causation factor. Three of the collisions occurred on the westbound carriageway of the A6133, two of the collisions occurred on the eastbound A6133 approach to the junction, one occurred in the central section of the junction used by Keresforth Hall Road straight ahead and right-turners, and one occurred in the central section of the junction used by Racecommon Road straight ahead and right-turners. Of the three collisions which occurred on the eastbound A6133 approach to the junction, two of these involved a vehicle travelling west to south colliding with a vehicle travelling east to west. The other collision involved one vehicle travelling east to west and the other travelling west to south.
 - Based on the above detailed analysis, it is concluded that no existing collision clusters are present at this junction, and none are expected to be created as a result of the development proposals.
- **A6133 Park Road/Duke Street/Warren Quarry Lane Staggered Crossroads (5 collisions):**
 - One collision was recorded as serious in nature and involved one vehicle and one pedestrian. The contributory/causation factor was recorded as careless/reckless/in a hurry.
 - One collision was recorded as slight in nature and involved two vehicles. No contributory/causation factor was recorded.
 - One collision was recorded as slight in nature and involved two vehicles. The contributory/causation factor was recorded as the dazzling sun.
 - One collision was recorded as slight in nature and involved two vehicles. The contributory/causation factor was recorded as failing to look properly.
 - One collision was recorded as serious in nature and involved two vehicles. The contributory/causation factor were recorded as exceeding speed limit, aggressive driving, and failing to look properly.
 - To conclude, two of the collisions that occurred at this junction were serious in nature, and three were slight in nature, with a mix of contributory/causation factors. Three of the collisions occurred on the A6133 were turning movements, one occurred on the A6133 to the east of the junction, and one occurred on the A6133 to the west of the junction. Of the three collisions on the A6133 which involved turning collisions, all three involved at least one vehicle travelling east to west, with one colliding with a vehicle travelling north to south, and one colliding with a vehicle travelling north to west.
 - Based on the above detailed analysis, it is concluded that no existing collision clusters are present at this junction, and none are expected to be created as a result of the development proposals.

5.7 Summary

- 5.7.1 Analysis of the study collisions, which considers vehicle types, casualties, weather conditions and road surface, has not revealed any pertinent collision trends at the local study junctions that would be expected to be exacerbated by the additional vehicle movements associated with the proposed development requiring mitigation. The relevant test is that 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”* (MHCLG, 2021). Therefore, it is considered that there are no existing road safety issues pertinent to the development of the site.

6. TRAFFIC IMPACT

6.1 Development Trip Generation

- 6.1.1 NH consider the trip rates and associated traffic generation presented within the TA (LTP, 2022a) to be acceptable, with the response extracted below:

"We would consider LTP's vehicle trip rates and generation results to be acceptable;"

- 6.1.2 BMBC Highways also consider the trip rates and subsequent trip distribution to be acceptable, with the response extracted below:

"I can confirm that the trip generation and distribution results are acceptable for assessment purposes."

- 6.1.3 The trip generation projections from the TA (LTP, 2022a) have been extracted in Table 7 below for ease of reference.

Table 7: Projected Vehicle Trip Generation

	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Residential Development (03-A)						
Vehicle Trip Rates (per dwelling)	0.138	0.418	0.556	0.401	0.154	0.555
Proposed Vehicle Trips (220 dwellings)	30	92	122	88	34	122

- 6.1.4 The trip generation projections indicate that the proposed development could be expected to generate up to 122 two-way vehicle trip movements during each of the respective AM (08:00-09:00) and PM (17:00-18:00) peak hours.

6.2 Modal Split

- 6.2.1 The TA (LTP, 2022a) projects the modal split of the proposed development, based on comparable sites within the industry-standard TRICS database. The projected modal split presented within the TA (LTP, 2022a) has been extracted in Table 8 for ease of reference.

Table 8: Projected Modal Split (TRICS)

Person Trips	Modal Split
Vehicle Drivers	55.8%
Vehicle Passengers	35.4%
Vehicle Occupants	91.2%
Pedestrians	5.4%
Cyclists	1.2%
Public Transport Users	2.2%
TOTAL	100%

6.2.2 BMBC Highways has requested the following:

“I can confirm that the projected trip generation and distribution results are acceptable for assessment purposes. However the projected modal split is taken from the TRICS survey data (and incorporated into the Travel Plan – see comments below). Before these can be agreed, I require a comparison with the 2011 census data for the Barnsley 019 MSOA to ensure comparability with local trip mode splits.”

6.2.3 Therefore, in order to address BMBC Highways comments, the projected modal split of the site has been based on the local travel patterns from the 2011 National Census travel to work data (ONS, 2014) rather than the multi-modal information from the TRICS sites. The site modal split has been predicted based upon travel patterns of those living in the Middle-Layer Super Output Area (MSOA) ‘Barnsley 019’ within which the site is located, as shown within Table 9.

Table 9: Projected Modal Split (2011 Census)

Model of Travel	Modal Split
Vehicle Drivers	76.2%
Taxi	0.4%
Powered Two-Wheeler	0.9%
Vehicle Trips	77.4%
Car Passengers	7.0%
Pedestrians	7.6%
Cyclists	0.4%
Public Transport Users	7.0%
Other	0.6%
TOTAL	100%

6.2.4 The modal split outlined in Table 9 indicates that over three quarters of people that live within the local ‘Barnsley 019’ MSOA travel to work by a vehicle trip generating mode.

6.2.5 To ensure a worst-case assessment, it is proposed to utilise the modal split projections associated with the 2011 Census to set the initial targets within the TP (LTP, 2022b).

6.3 Baseline Traffic Flows & Peak Hours

6.3.1 In order to establish the baseline traffic situation at local junctions, where the development is expected to generate 30 or more additional two-way vehicle trips, 12-hour (07:00-19:00) fully classified turning count surveys were undertaken by a specialist survey company on a neutral weekday during school term-time (Wednesday 14th September 2022). The study junctions are outlined below:

- J1 – Wood End Court/B6099 Keresforth Road priority junction;
- J2 – A6133 Keresforth Hill Road/B6099 Keresforth Hill Road signalised junction;
- J3 – Racecommon Road/Keresforth Hill Road/Keresforth Hall Road signalised junction;

- J4 – Barnsley Road/High Street/Dodworth Green Road/Station Road priority crossroads;
- J5 – B6449 Barnsley Road/Mitchelson Avenue priority junction;
- J6 – Castle View/Budgens car park access/B6449 Barnsley Road mini roundabout;
- J7 – A628 Whinby Road/B6449/access road roundabout;
- J8 – A628 Dodworth Road/M1/Whinby Road interchange (Dodworth Roundabout);
- J9 – Keresforth Hill Road/Gilroyd Lane/Keresforth Road priority junction;
- J10 – A61 Sheffield Road/Cemetery Road/Park Road signalised junction.

6.3.2 In order to establish the AM and PM peak hours, the total volume of traffic at the surveyed junctions has been analysed, with the results disaggregated to 15-minute accuracy in accordance with standard industry-practice. The results of the surveys indicate that the AM peak hour is 07:45-08:45 and the PM peak hour is 16:30-17:30.

6.3.3 It should be noted that the peak hours identified for development traffic generation and the baseline traffic flows are slightly offset, and therefore the assessments within this STA2 represent a robust 'worst-case' scenario by applying the worst-case development peak hour traffic (AM 08:00-09:00 and PM 17:00-18:00) against the worst-case network peak hour traffic.

6.3.4 The recorded 2022 baseline traffic flows at the junctions during the peak hours are illustrated in the network diagrams included as Appendix 5.

6.4 Committed Development

6.4.1 NH and BMBC Highways previously requested the consideration of a number of committed developments, which were included as part of the assessments presented within the STA (LTP, 2022c). The same committed developments have been considered within this report and subsequent assessments, with a summary of each development provided below:

- **Capitol Park Extension (approximately 2km to the north of the application site):**
 - A hybrid planning application (ref: 2019/0286) was submitted in March 2019 and subsequently approved in September 2019 for 'an extension to Capitol Park comprising a) development of 2no warehouses (floorspace of 9,755m² and 7,804m²) for general industrial and storage and distribution purposes (use classes B2 and B8) with provision of ancillary office accommodation - Outline with all matters reserved apart from means of access; and b) full application for provision of associated earthworks, demolition of existing bungalow and formation of access (Amended Plans)'. The application was supported by a TA (FC, 2019a) and Framework TP (FC, 2019b).
 - In order to ensure a robust worst-case assessment, the traffic flows associated with the development have been explicitly considered as committed development within the traffic projections of this STA2, based on the approved projections in the TA supporting the application (FC, 2019a).

- **Residential Development, Former Mount Vernon Hospital [70 dwellings] (approximately 3.7km to the east of the application site):**
 - A full planning application (ref: 2019/0577) was submitted in August 2020 and subsequently approved in April 2021 for the '*Demolition of vacant former hospital buildings and residential development of 70 no dwellings and associated works (Amended Plans)*'. The application was supported by a TA (OIHS, 2017).
 - The traffic assignment projections provided in the TA (OIHS, 2017) only consider the site access junction associated with this development and do not extend as far as the proposed study area, therefore this development has not been explicitly accounted for in the traffic projections but instead has been considered through traffic growthing (which already accounts for development growth in the local area), which given the small impact on the study junctions (small enough to not require assessment as part of the application) is considered to be appropriate.
- **Residential Development, Land off Barugh Green Road [140 dwellings] (approximately 5km to the north of the application site):**
 - A full planning application (ref: 2020/0977) was submitted in August 2020 and is awaiting determination for the '*Residential development of 140 dwellings with associated landscaping, infrastructure and open space*'. The application is supported by a TA (SA, 2020a) and TP (SA, 2020b).
 - The traffic assignment projections provided in the TA (SA, 2020a) only consider the site access junction and the A637/A635/Whaley Road roundabout and do not extend as far as the proposed study area, therefore this development has not been explicitly accounted for in the traffic projections but instead has been considered through traffic growthing (which already accounts for development growth in the local area), which given the small impact on the study junctions (small enough to not require assessment as part of the application) is considered to be appropriate.
 - As the scheme is not yet consented, it could be argued that the development does not represent a committed development, with reference to Planning Practice Guidance (MHCLG, 2014), which suggests consideration of development "*that is consented or allocated where there is a reasonable degree of certainty will proceed within the next 3 years*".
- **Residential Development, Land off Mount Vernon Road [42 dwellings] (approximately 3.7km to the east of the application site):**
 - A full planning application (ref: 2021/0142) was submitted in January 2021 and subsequently approved in September 2021 for a '*Residential development of 42no. dwellings and associated works including provision of on site open space*'. The application was supported by a Transport Statement (TS) (SCP, 2021).
 - No traffic assignment projections were provided in the TS (SCP, 2021) with the development generating fewer than 30 two-way peak hour vehicle trips, therefore this development has not been explicitly accounted for in the traffic projections but instead has been considered through traffic growthing.

- **Land to the South-East of Higham Common Road, Barnsley [MU1 – Employment] (approximately 2.8km to the north of the application site):**
 - A hybrid planning application (ref: 2021/1089) was submitted in August 2021 and is awaiting determination for *‘employment development comprising:- a) Full planning permission for: earthworks to create development platforms; strategic drainage ponds and associated drainage infrastructure; and location of strategic landscaping and ecological areas. b) Outline planning permission seeking approval over means of access and landscaping for employment use development (use classes E/B2/B8) and associated infrastructure works’*. The application is supported by a TA (FC, 2021a), Framework Residential TP (FC, 2021b) and Framework Workplace TP (FC, 2021c). The TA (FC, 2022) was subsequently updated in March 2022 to address a number of comments raised by BMBC Highways and NH.
 - In order to ensure a robust worst-case assessment, the traffic flows associated with the development have been formally considered as committed development within the traffic projections of this STA2, based on the projections in the TA supporting the application (FC, 2022).
- **Land to the South-East of Higham Common Road, Barnsley [MU1 – Residential] (approximately 2.8km to the north of the application site):**
 - A hybrid planning application (ref: 2021/1090) was submitted in August 2021 and is awaiting determination for *‘residential development for 1,760 dwellings comprising: a) Full planning permission for: earthworks to create development platforms; strategic drainage ponds and associated drainage infrastructure; construction of a new link road; location of strategic landscaping and ecological areas; demolition of existing buildings; works to Hermit Lane; and erection of Phase 1 residential development comprising 229 dwellings b) Outline planning permission for: Residential development comprising 1,531 dwellings; new primary school; small shops and community facilities; and associated infrastructure works’*. The application is supported by a TA (FC, 2021a), Framework Residential TP (FC, 2021b) and Framework Workplace TP (FC, 2021c) and updated TA (FC, 2022) that have also been submitted as part of the hybrid planning application (ref: 2021/1089).
 - However, in order to ensure a robust worst-case assessment, the traffic flows associated with the development have been formally considered as committed development within the traffic projections of this STA2, based on the projections in the TA supporting the application (FC, 2022).

- In relation to the assessments carried out within the STA (LTP, 2022c), NH have stated “...the development flows for ‘Land to the South-East of Higham Common Road, Barnsley (MU1-Residential)’ (planning reference: 2021/1090) have been included as committed development. JSJV would, however, note that this development includes a link road which, as a consequence, impacts the assignment of trips in the area. The reassignment of trips due to the link road should be considered for future scenarios.”. The total development flows for the MU1 site (employment and residential) have been extracted from the TA (FC, 2022) which considers the reassignment of trips as a result of the link road and therefore this has been assessed as part of this STA2.
- **Proposed Secondary School, Land off Keresforth Close, Barnsley (approximately 1.3km to the north-east of the application site):**
 - A full planning application (ref: 2021/1631) was submitted in December 2021 and is awaiting determination for the ‘Erection of a new secondary school with associated sports block, sports pitches, hard and soft landscaping, access, parking and drainage’. A TA (MTP, 2021a) and TP (MTP, 2021b) were submitted in support of the application.
 - As the scheme is not yet consented, it could be argued that the development does not represent a committed development, with reference to Planning Practice Guidance (MHCLG, 2014).
 - However, in order to ensure a robust worst-case assessment, the traffic flows associated with the development have been formally considered as committed development within the traffic projections of this STA, with suitable assumptions applied based on existing turning proportions at the study junctions.
- **Land off Smithywood Lane and Calver Close, Gilroyd, Barnsley [198 dwellings] (approximately 1km to the south of the application site):**
 - A full planning application (ref: 2021/1642) was submitted in December 2021 and is awaiting determination for a ‘Residential development of 198 dwellings and associated works’. The application is supported by a TA (OIHS, 2021a) and TP (OIHS, 2021b).
 - As the scheme is not yet consented, it could be argued that the development does not represent a committed development, with reference to Planning Practice Guidance (MHCLG, 2014).
 - However, in order to ensure a robust worst-case assessment, the traffic flows associated with the development have been formally considered as committed development within the traffic projections of this STA, with suitable assumptions applied based on existing turning proportions at the study junctions.

6.5 Assessment Scenarios

6.5.1 NH has stated the following in response to the STA (LTP, 2022c):

“...LTP has only considered the operation of the junction in 2032; we would refer the consultant to ‘The Strategic Road Network Planning for the Future’, para 101 which states that:

Assessments should be carried out for:

- The development and construction phase; and
- The opening year, assuming full build out and occupation; and
- Either a date ten years after the date of registration of the associated planning application or the end of the Local Plan period (whichever is the greater)."

6.5.2 'The Strategic Road Network Planning for the Future' (NH, 2015) was withdrawn in July 2021. Therefore, the most pertinent document highlighting assessment years is 'The Strategic Road Network and the Delivery of Sustainable Development DfT Circular 02/2013' (DfT, 2013). The pertinent section of this guidance is reproduced below for ease of reference:

"The overall forecast demand should be compared to the ability of the existing network to accommodate traffic over a period up to ten years after the date of registration of a planning application or the end of the relevant Local Plan whichever is the greater. This is known as the review period.

Where the overall forecast demand at the time of opening of the development can be accommodated by the existing infrastructure, further capacity mitigation will not be sought."

6.5.3 The proposals have therefore been tested against the following weekday AM and PM peak hour traffic flow scenarios:

- **2022 Base** – Existing traffic flows recorded during the September 2022 traffic surveys;
- **2027 Do Nothing** – '2022 Base' traffic flows, growthed to 2027, with the addition of committed developments;
- **2027 Opening Year** – '2027 Do Nothing' with the addition of traffic associated with the proposed development.
- **2033 Do Nothing** – '2022 Base' traffic flows, growthed to 2033, with the addition of committed developments (SRN junction only).
- **2033 Future Year** – '2033 Do Nothing' with the addition of traffic associated with the proposed development (SRN junction only).

6.5.4 The network traffic flows in 2027 (opening year assuming development complete and fully occupied) and 2033 (end of Barnsley Local Plan period) have been predicted using the DfT's 'National Transport Model' (NTM). The regional growth factor obtained from the NTM has been adjusted to reflect local circumstances using the TEMPro software, see Appendix 6.

6.6 Trip Distribution & Assignment

- 6.6.1 NH consider the trip distribution and assignment presented within the TA (LTP, 2022a) to be acceptable, with the full response extracted below:

“We would suggest that, given the similarities between the LTP gravity model approach, and the JSJV (consultants on behalf of NH) GraHAM run, the distribution and assignment derived from the gravity model is appropriate for use in the Transport Assessment.”

- 6.6.2 Furthermore, BMBC Highways also considers the trip distribution to be acceptable, with the response extracted below:

“I can confirm that the trip generation and distribution results are acceptable for assessment purposes.”

- 6.6.3 The defined zones utilised within the gravity model calculations are reproduced in Figure 5.

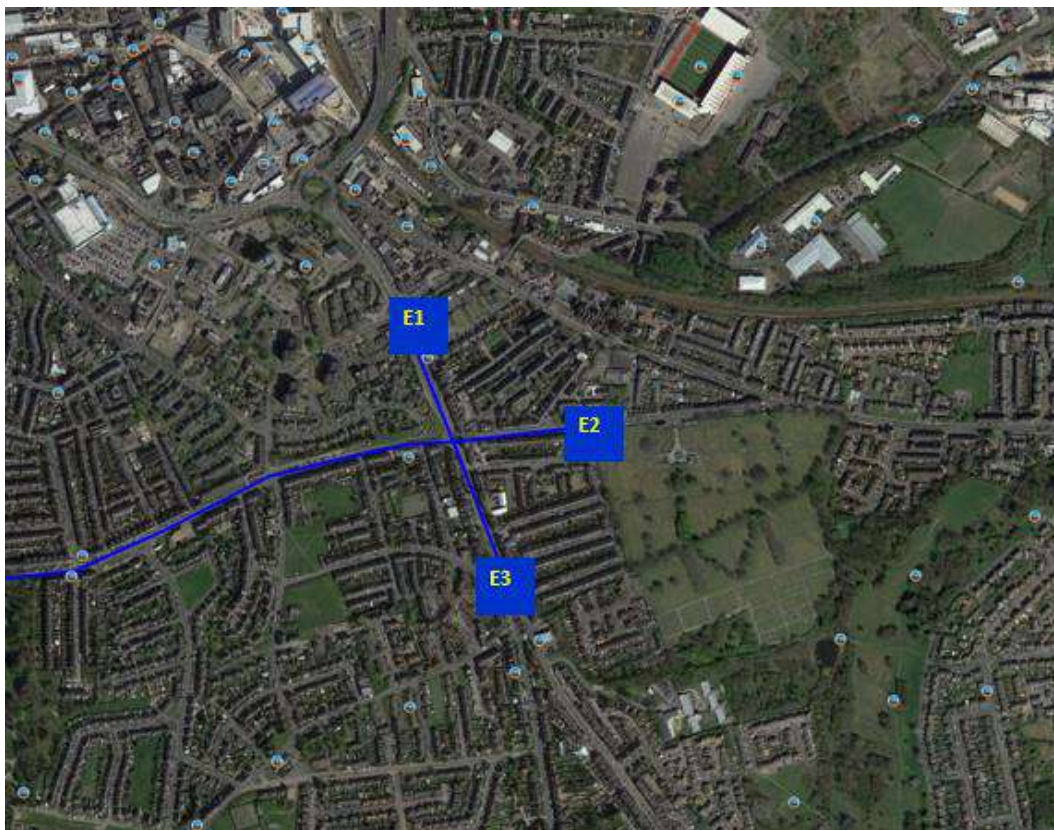
Figure 5: Gravity Model Zones



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- 6.6.4 Additional assessments have been undertaken to extend Zone E to the east to facilitate the understanding of the expected trip distribution at the A61 Sheffield Road/Cemetery Road/Park Road signalised junction. The extended Zone E is shown below in Figure 6.

Figure 6: Extended Gravity Model Zone E



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6.6.5 The gravity model results presented within the TA (LTP, 2022a) are summarised in Table 10, with the addition of the wider Zone E assessments.

Table 10: Gravity Model Results

Zone	Route	Distribution Split
A	M1 (North)	15.8%
B	M1 (South)	14.6%
C	Pogmoor Road	9.5%
D	Racecommon Road	12.6%
E1	A61 Sheffield Road (North)	12.0%
E2	A6133 (East)	12.2%
E3	A61 Sheffield Road (South)	1.5%
Zone E Subtotal		25.7%
F	Gilroyd Lane	5.6%
G	Dodworth Green Road	0.6%
H	A628 (West)	12.3%
I	Higham Lane	3.4%
TOTAL		100%

6.6.6 Table 10 indicates that there would be an approximate split of 53.3% of trips to/from the east (zones C, D, E and F) and 46.7% to/from the west (zones A, B, G, H and I) at the proposed site access junction with Keresforth Road.

6.7 Impact on Local Junctions & Strategic Road Network

6.7.1 The predicted increase in traffic across the local highway network and SRN as result of each development scenario is summarised in Table 11.

Table 11: Projected Traffic Impact at Local/SRN Junctions

Junction	2022 Base	2027 Do Nothing	2027 Opening Year	Development Impact	
AM PEAK (07:45-08:45)					
J1: Wood End Court/B6099 Keresforth Road	785	814	936	+122	+15%
J2: A6133 Keresforth Hill Road/B6099 Keresforth Hill Road	1827	2224	2282	+58	+3%
J3: Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road	1874	2207	2246	+39	+2%
J4: Barnsley Road/High Street/Dodworth Green Road/Station Road	1078	1211	1268	+57	+5%
J5: B6449 Barnsley Road/Mitchelson Avenue	663	761	798	+37	+5%
J6: Budgens Car Park Access/B6449 Barnsley Road/B6449	774	814	851	+37	+5%
J7: A628 Whinby Road/B6449/Access Road	2372	2936	2973	+37	+1%
J9: Keresforth Hill Road/Gilroyd Lane/Keresforth Road	969	1032	1097	+65	+6%
J10: A61 Sheffield Road/Cemetery Road/Park Road	1756	1970	2001	+31	+2%
PM PEAK (16:30-17:30)					
J1: Wood End Court/B6099 Keresforth Road	856	886	1008	+122	+14%
J2: A6133 Keresforth Hill Road/B6099 Keresforth Hill Road	1890	2296	2354	+58	+3%
J3: Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road	2039	2376	2423	+39	+2%
J4: Barnsley Road/High Street/Dodworth Green Road/Station Road	1501	1644	1701	+57	+3%
J5: B6449 Barnsley Road/Mitchelson Avenue	1103	1213	1250	+37	+3%
J6: Budgens Car Park Access/B6449 Barnsley Road/B6449	1217	1272	1309	+37	+3%
J7: A628 Whinby Road/B6449/Access Road	2706	3339	3376	+37	+1%
J9: Keresforth Hill Road/Gilroyd Lane/Keresforth Road	1137	1205	1270	+65	+5%
J10: A61 Sheffield Road/Cemetery Road/Park Road	2142	2368	2399	+31	+1%
Junction	2022 Base	2033 Do Nothing	2033 Future Year	Development Impact	
AM PEAK (07:45-08:45)					
J8: Dodworth Roundabout (M1 J37)	4130	5057	5094	+37	+1%
PM PEAK (16:30-17:30)					
J8: Dodworth Roundabout (M1 J37)	4478	5491	5528	+37	+1%

6.7.2 The traffic projections summarised in Table 11 indicate that the development of the site is generally expected to result in a relatively low proportionate increase (less than 7%) in the '2027 Opening Year' scenario compared to the '2027 Do Nothing' scenario, apart from the Wood End Court/B6099 Keresforth Road (site access junction) during both peak periods.

- 6.7.3 The impact of the proposed residential development on the SRN is summarised in Table 12.

Table 12: Predicted Traffic Impact on SRN

Peak	Route	Development Impact
AM PEAK (07:45-08:45)	M1 Northbound on-slip	+15
	M1 Southbound on-slip	+13
	M1 Northbound off-slip	+4
	M1 Southbound off-slip	+5
PM PEAK (16:30-17:30)	M1 Northbound on-slip	+5
	M1 Southbound on-slip	+5
	M1 Northbound off-slip	+13
	M1 Southbound off-slip	+14

- 6.7.4 Table 12 indicates that the proposed development is expected to have a relatively small impact on the SRN.

7. JUNCTION CAPACITY ASSESSMENTS

7.1 J1 Capacity Assessment

- 7.1.1 In order to assess the ability of the proposed access junction to accommodate the traffic associated with the proposed development, a junction capacity assessment has been undertaken using Junctions 9 modelling software (PICADY module), which is a software package produced by Transport Research Laboratory (TRL) that provides an industry-standard methodology for assessing capacity, queuing and delay at priority junctions (PICADY) and roundabouts (ARCADY).
- 7.1.2 The input parameters used to create the Junctions 9 model have been taken from the preliminary access design drawing (see Appendix 1). The results are summarised in Table 13 and the complete modelling output is included as Appendix 7.

Table 13: J1 Capacity Assessment

Traffic Stream	2027 Opening Year	
	Max. RFC	Max. End Q
AM Peak (07:45-08:45)		
Access Road (B-AC)	24%	0.3
Keresforth Road (C-AB)	5%	0.1
OVERALL	24%	0.3
PM Peak (16:30-17:30)		
Access Road (B-AC)	9%	0.1
Keresforth Road (C-AB)	15%	0.4
OVERALL	15%	0.4

- 7.1.3 The capacity assessment results shown in Table 13 indicate that the proposed site access junction on Keresforth Road would be expected to operate well within capacity in 2027 during both peak periods with the development fully occupied. The modelling results indicate that the maximum RFC (Ratio of Flow to Capacity) during the peak hours is likely to be 24% (AM peak) with the full residential development in place, which is significantly below the typical threshold of 85% capacity.

7.2 J2 Capacity Assessment

- 7.2.1 In order to assess the ability of the A6133/B6099 Keresforth Hill Road signalised junction to accommodate traffic associated with the proposed development, a junction capacity assessment has been undertaken using LinSig v3 modelling software. An aerial image of the A6133/B6099 Keresforth Hill Road signalised junction can be seen in Figure 7.

Figure 7: J2 Aerial Imagery



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- 7.2.2 The input parameters used to create the LinSig v3 model have been taken from the junction model produced as part of the TA (MTP, 2021a) which has been submitted in support of the committed school development at Keresforth Close (ref: 2021/1631).
- 7.2.3 The base junction model has been calibrated against the observed cycle times and staging during the peak hours. A total of three stages are currently in operation at the junction during the AM and PM peak hours. The existing traffic signal operation associated with the signalised junction was observed from the video footage captured as part of the baseline traffic surveys, with details of the staging for each assessment period provided in Table 14.

Table 14: J2 Existing Staging

Stage	Stage Appearances per Hour	
	AM Peak	PM Peak
Stage 1 – A6133	60	60
Stage 2 – Keresforth Hill Road	60	60
Stage 3 – Pedestrian Stages	22 (assumed 1 in 2 cycles)	13 (assumed 1 in 3 cycles)
TOTAL CYCLES	60	60

- 7.2.4 A measured cycle time of 60 seconds in the peak hours has been utilised.

- 7.2.5 The captured queue data has been utilised to validate the base LinSig v3 model, with the base model aligned to the peak hour queuing results across all arms. It is therefore considered that the LinSig v3 model provides a good representation and quantification of the on-site conditions at the time of the traffic surveys. The results are summarised in Table 15 and the complete modelling output is included as Appendix 8.

Table 15: J2 Capacity Assessment

Approach	2022 Base		2027 Do Nothing		2027 Opening Year		Development Impact	
	Max. DoS	MMQ	Max. DoS	MMQ	Max. DoS	MMQ	Max. DoS	MMQ
AM Peak (07:45-08:45)								
A6133 (E)	71.0%	7.3	78.9%	8.9	83.1%	9.5	+4.2%	+0.6
B6099 Keresforth Hill Road	72.2%	8.2	81.8%	10.1	87.8%	12.4	+6.0%	+2.3
A6133 (W)	51.8%	2.6	76.7%	8.6	84.7%	9.0	+8.0%	+0.4
PRC	+24.7%		+10.0%		+2.5%		-7.5%	
PM Peak (16:30-17:30)								
A6133 (E)	61.1%	5.9	61.2%	6.4	60.9%	6.8	-0.3%	+0.4
B6099 Keresforth Hill Road	58.9%	6.4	72.8%	8.4	78.4%	9.4	+5.6%	+1.0
A6133 (W)	49.9%	3.9	70.2%	5.0	74.8%	5.0	+4.6%	-
PRC	+47.3%		+23.6%		+14.8%		-8.8%	

- 7.2.6 The results of the capacity assessment indicate that the A6133/B6099 Keresforth Hill Road signalised junction would be expected to operate with a Degree of Saturation (DoS) of under the target 90% level across all arms during the 2027 assessment period with the development in place, therefore with a positive Practical Reserve Capacity (PRC) during this period.
- 7.2.7 It is therefore considered that the proposed development will not have a severe impact on the operation of the existing A6133/B6099 Keresforth Hill Road signalised junction layout. There is likely scope to provide additional capacity by optimising the signal timings in the future as the committed/proposed developments come forward.
- 7.2.8 As a local junction that is managed by BMBC Highways (i.e. not part of the SRN managed by NH), guidance indicates that an assessment year of +5 years should be referenced, therefore the results for 2027 when the residential development is expected to be fully built out and occupied are pertinent.

7.3 J3 Capacity Assessment

- 7.3.1 In order to assess the ability of the Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road signalised junction to accommodate the traffic associated with the proposed development, a junction capacity assessment has been undertaken using LinSig v3 modelling software. An aerial image of the Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road signalised junction can be seen in Figure 8.

Figure 8: J3 Aerial Imagery



Source Imagery: Copyright Google Earth Pro (License Key-JCPMR5M58LXF2GE)

- 7.3.2 The input parameters used to create the LinSig model have been taken from the junction model produced as part of the TA (MTP, 2021a) which was submitted in support of the committed school development at Keresforth Close (ref: 2021/1631).
- 7.3.3 The base junction model has been calibrated against the observed cycle times and staging during the peak hours. A total of three stages are currently in operation at the junction during the AM and PM peak hours. The existing traffic signal operation associated with the signalised junction was observed from the video footage captured as part of the baseline traffic surveys, with details of the staging for each assessment period provided in Table 16.

Table 16: J3 Existing Staging

Stage	Stage Appearances per Hour	
	AM Peak	PM Peak
Stage 1 – A6133	40	36
Stage 2 – Racecommon Road	40	36
Stage 3 – Keresforth Hall Road	40	36
TOTAL CYCLES	40	36

- 7.3.4 A measured cycle time of 90 seconds in the AM peak and 100 seconds in the PM peak have been utilised.
- 7.3.5 The captured queue data has been utilised to validate the base LinSig v3 model, with the base model aligned to the peak hour queuing results across all arms. It is therefore considered that the LinSig v3 model provides a good representation and quantification of the on-site conditions at the time of the traffic surveys.

7.3.6 The results are summarised in Table 17 and the complete modelling output is included as Appendix 9.

Table 17: J3 Capacity Assessment

Approach	2022 Base		2027 Do Nothing		2027 Opening Year		Development Impact	
	Max. DoS	MMQ	Max. DoS	MMQ	Max. DoS	MMQ	Max. DoS	MMQ
AM Peak (07:45-08:45)								
A6133 (E)	39.0%	4.8	62.5%	6.2	62.5%	6.1	-	-0.1
Keresforth Hall Road	82.4%	9.5	96.1%	14.4	101.8%	18.8	+5.7%	+4.4
A6133 (W)	86.7%	18.1	99.1%	32.1	101.0%	37.5	+1.9%	+5.4
Racecommon Road	83.7%	8.7	96.7%	13.9	98.0%	14.8	+1.3%	0.9
PRC	+3.8%		-10.1%		-13.1%		-3.0%	
PM Peak (16:30-17:30)								
A6133 (E)	32.1%	4.3	34.0%	5.4	43.1%	5.7	+9.1	+0.3
Keresforth Hall Road	83.1%	7.9	101.4%	14.5	101.4%	14.5	-	-
A6133 (W)	87.2%	20.2	101.3%	40.9	102.9%	45.9	+1.6%	+5.0
Racecommon Road	87.6%	14.5	100.2%	24.1	102.5%	27.9	+2.3%	+3.8
PRC	+2.8%		-12.6%		-14.3%		-1.7%	

7.3.7 The capacity assessment results shown in Table 17 indicate that the Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road signalised junction would be expected to operate with negative levels of reserve capacity during the future year, without the proposed development. However, the impact of the development on the operation of the junction is expected to be relatively minimal with a maximum reduction in PRC of 3.0% (AM peak) and 1.7% (PM peak).

7.3.8 It is therefore considered that the proposed development will not have a severe impact on the operation of the existing signalised junction layout. There is likely scope to provide additional capacity by optimising the signal timings in the future as the committed/proposed developments come forward.

7.3.9 As a local junction that is managed by BMBC Highways (i.e. not part of the SRN managed by NH), guidance indicates that an assessment year of +5 years should be referenced, therefore the results for 2027 when the residential development is expected to be fully built out and occupied are pertinent.

7.4 J4 Capacity Assessment

7.4.1 In order to assess the ability of the Barnsley Road/High Street/Dodworth Green Road/Station Road priority crossroads to accommodate the traffic associated with the proposed development, a junction capacity assessment has been undertaken using Junctions 9 modelling software (PICADY module). An aerial image of the junction can be seen in Figure 9.

Figure 9: J4 Aerial Imagery



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7.4.2 The input parameters used to create the Junctions 9 model have been based on the junction model produced as part of the TA (OIHS, 2021a) which was submitted in support of the committed residential development (ref: 2021/1642), however several geometric inputs have been revised when creating the model to better reflect the junction geometry. The results are summarised in Table 18 and the complete modelling output is included as Appendix 10.

Table 18: J4 Capacity Assessment

Traffic Stream	2022 Base		2027 Do Nothing		2027 Opening Year		Development Impact	
	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q
AM Peak (07:45-08:45)								
Station Road	30%	0.4	33%	0.5	34%	0.5	+1%	-
Dodworth Green Road	26%	0.4	27%	0.5	27%	0.5	-	-
High Street (Left-Turn)	51%	1.1	66%	1.9	75%	2.8	+9%	+0.9
High Street (Ahead and Right-Turn)	58%	1.3	73%	2.5	80%	3.5	+7%	+1.0
Barnsley Road	3%	0.0	4%	0.1	4%	0.1	-	-
OVERALL	58%	1.3	73%	2.5	80%	3.5	+7%	+1.0
PM Peak (16:30-17:30)								
Station Road	54%	1.2	62%	1.6	67%	2.0	+5%	+0.4
Dodworth Green Road	19%	0.3	20%	0.3	20%	0.3	-	-
High Street (Left-Turn)	65%	1.8	77%	3.1	82%	3.9	+5%	+0.7

Traffic Stream	2022 Base		2027 Do Nothing		2027 Opening Year		Development Impact	
	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q
High Street (Ahead and Right-Turn)	52%	1.0	63%	1.6	67%	1.9	+4%	+0.3
Barnsley Road	8%	0.1	9%	0.2	9%	0.2	-	-
OVERALL	65%	1.8	77%	3.1	82%	3.9	+5%	+0.7

7.4.3 The capacity assessment results shown in Table 18 indicate that the Barnsley Road/High Street/Dodworth Green Road/Station Road priority crossroads would be expected to operate within capacity during all scenarios. The modelling results indicate that the maximum RFC during the peak hours is likely to be 82% (PM peak) with the full residential development in place below the typical threshold of 85% capacity.

7.4.4 It is therefore considered that the proposed development will not have a severe impact on the operation of the existing Barnsley Road/High Street/Dodworth Green Road/Station Road priority crossroads.

7.4.5 As a local junction that is managed by BMBC Highways (i.e. not part of the SRN managed by NH), guidance indicates that an assessment year of +5 years should be referenced, therefore the results for 2027 when the residential development is expected to be fully built out and occupied are pertinent.

7.5 J5 Capacity Assessment

7.5.1 In order to assess the ability of the B6449 Barnsley Road/Mitchelson Avenue priority T-junction to accommodate the traffic associated with the proposed development, a junction capacity assessment has been undertaken using Junctions 9 modelling software (PICADY module). An aerial image of the B6449 Barnsley Road/Mitchelson Avenue priority T-junction can be seen in Figure 10.

Figure 10: J5 Aerial Imagery



Source Imagery: Copyright Google Earth Pro (License Key-JCPMR5M58LXF2GE)

- 7.5.2 The input parameters used to create the Junctions 9 model have been based on the junction model produced as part of the TA (OIHS, 2021a) which was submitted in support of the committed residential development (ref: 2021/1642), however several geometric inputs have been revised when creating the model to better reflect the junction geometry.
- 7.5.3 The results are summarised in Table 19 and the complete modelling output is included as Appendix 11.

Table 19: J5 Capacity Assessment

Traffic Stream	2022 Base		2027 Do Nothing		2027 Opening Year		Development Impact	
	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q
AM Peak (07:45-08:45)								
Barnsley Road (S) (Left-Turn)	2%	0.0	2%	0.0	3%	0.0	+1%	-
Barnsley Road (S) (Right-Turn)	54%	1.2	68%	2.0	73%	2.7	+5%	+0.7
Mitchelson Avenue	5%	0.1	5%	0.1	5%	0.1	-	-
OVERALL	54%	1.2	68%	2.0	73%	2.7	+5%	+0.7
PM Peak (16:30-17:30)								
Barnsley Road (S) (Left-Turn)	1%	0.0	1%	0.0	1%	0.0	-	-
Barnsley Road (S) (Right-Turn)	42%	0.7	50%	1.0	52%	1.1	+2%	+0.1
Mitchelson Avenue	10%	0.1	11%	0.1	12%	0.1	+1%	-
OVERALL	42%	0.7	50%	1.0	52%	1.1	+2%	+0.1

- 7.5.4 The capacity assessment results shown in Table 19 indicate that the B6449 Barnsley Road/Mitchelson Avenue priority T-junction would be expected to operate within capacity across all scenarios in both peak periods. The modelling results indicate that the maximum RFC during the peak hours is likely to be 73% (AM peak), which is below the typical target level of 85%.
- 7.5.5 It is therefore considered that the proposed development will not have a severe impact on the operation of the existing B6449 Barnsley Road/Mitchelson Avenue priority T-junction.
- 7.5.6 As a local junction that is managed by BMBC Highways (i.e. not part of the SRN managed by NH), guidance indicates that an assessment year of +5 years should be referenced, therefore the results for 2027 when the residential development is expected to be fully built out and occupied are pertinent.

7.6 J6 Capacity Assessment

- 7.6.1 In order to assess the ability of the Barnsley Road/B6449/Budgens car park mini-roundabout to accommodate the traffic associated with the proposed development, a junction capacity assessment has been undertaken using Junctions 9 modelling software (ARCADY module). An aerial image of the Barnsley Road/B6449/Budgens car park mini-roundabout can be seen in Figure 11.

Figure 11: J6 Aerial Imagery



Source Imagery: Copyright Google Earth Pro (License Key-JCPMR5M58LXF2GE)

7.6.2 The input parameters used to create the Junctions 9 model have been taken from scaled aerial imagery. The results are summarised in Table 20 and the complete modelling output is included as Appendix 12.

Table 20: J6 Capacity Assessment

Traffic Stream	2022 Base		2027 Do Nothing		2027 Opening Year		Development Impact	
	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q
AM Peak (07:45-08:45)								
Barnsley Road (E)	14%	0.2	15%	0.2	15%	0.2	-	-
Car Park Access	1%	0.0	1%	0.0	1%	0.0	-	-
Barnsley Road (W)	69%	2.2	73%	2.7	78%	3.4	+5%	+0.7
B6449	23%	0.3	24%	0.3	26%	0.3	+2%	-
OVERALL	69%	2.2	73%	2.7	78%	3.4	+5%	+0.7
PM Peak (16:30-17:30)								
Barnsley Road (E)	19%	0.2	21%	0.3	22%	0.3	+1%	-
Car Park Access	2%	0.0	2%	0.0	2%	0.0	-	-
Barnsley Road (W)	43%	0.8	45%	0.9	47%	0.9	+2%	-
B6449	80%	4.0	84%	5.0	86%	6.0	+2%	+1.0
OVERALL	80%	4.0	84%	5.0	86%	6.0	+2%	+1.0

- 7.6.3 The capacity assessment results shown in Table 20 indicate that the Barnsley Road/B6449/Budgens car park mini-roundabout would be expected to operate within 100% capacity across all scenarios in both peak periods. The modelling results indicate that the maximum RFC during the peak hours is likely to be 86% (PM peak), which is slightly above the typical target level of 85%, although below the 100% level of full capacity.
- 7.6.4 It is therefore considered that the proposed development will not have a severe impact on the operation of the existing Barnsley Road/B6449/Budgens car park access mini-roundabout.
- 7.6.5 As a local junction that is managed by BMBC Highways (i.e. not part of the SRN managed by NH), guidance indicates that an assessment year of +5 years should be referenced, therefore the results for 2027 when the residential development is expected to be fully built out and occupied are pertinent.

7.7 J7 Capacity Assessment

- 7.7.1 In order to assess the ability of the A628 Whinby Road/B6449/access road roundabout to accommodate the traffic associated with the proposed development, a junction capacity assessment has been undertaken using Junctions 9 modelling software (ARCADY module). An aerial image of the A628 Whinby Road/B6449/access road roundabout can be seen in Figure 12.

Figure 12: J7 Aerial Imagery



Source Imagery: Copyright Google Earth Pro (License Key-JCPMR5M58LXF2GE)

- 7.7.2 The input parameters used to create the Junctions 9 model have been based on the junction model produced as part of the TA (FC, 2022) which was submitted in support of the MU1 committed development (ref: 2021/1089 and 2021/1090). A number of input geometries have been updated when creating the model to better reflect the junction geometry.
- 7.7.3 The results are summarised in Table 21 and the complete modelling output is included as Appendix 13.

Table 21: J7 Capacity Assessment

Traffic Stream	2022 Base		2027 Do Nothing		2027 Opening Year		Development Impact	
	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q
AM Peak (07:45-08:45)								
Whinby Road (N)	43%	0.8	60%	1.6	61%	1.6	+1%	-
Whinby Road (E)	46%	0.9	57%	1.4	57%	1.4	-	-
B6449	61%	1.6	81%	4.1	83%	5.4	+2%	+1.3
Access Road	-	-	-	-	-	-	-	-
OVERALL	61%	1.6	81%	4.1	86%	5.4	+2%	+1.3
PM Peak (16:30-17:30)								
Whinby Road (N)	41%	0.7	55%	1.3	56%	1.3	+1%	-
Whinby Road (E)	72%	2.7	87%	6.8	88%	7.5	+1%	+0.7
B6449	35%	0.6	52%	1.1	54%	1.2	+2%	+0.1
Access Road	-	-	-	-	-	-	-	-
OVERALL	72%	2.7	87%	6.8	88%	7.5	+1%	+0.7

- 7.7.4 The capacity assessment results shown in Table 21 indicate that the A628 Whinby Road/B6449 roundabout would be expected to operate within 100% capacity across all scenarios in both peak periods. The modelling results indicate that the maximum RFC during the peak hours is likely to be 88% (PM peak), which is slightly above the typical target level of 85%, although below the 100% level of full capacity. The impact of the development on the operation of the roundabout is minimal with a maximum RFC increase of 2% in the AM peak hour.
- 7.7.5 It is therefore considered that the proposed development will not have a severe impact on the operation of the existing A628 Whinby Road/B6449 roundabout.
- 7.7.6 As a local junction that is managed by BMBC Highways (i.e. not part of the SRN managed by NH), guidance indicates that an assessment year of +5 years should be referenced, therefore the results for 2027 when the residential development is expected to be fully built out and occupied are pertinent.

7.8 J8 Capacity Assessment

- 7.8.1 In order to assess the ability of Dodworth Roundabout to accommodate traffic associated with the proposed development, a junction capacity assessment has been undertaken using LinSig v3 modelling software. An aerial image of Dodworth Roundabout can be seen in Figure 13.

Figure 13: J8 Aerial Imagery



Source Imagery: Copyright Google Earth Pro (License Key-JCPMR5M58LXF2GE)

7.8.2 The LinSig model that was created for the STA (LTP, 2022c) has been used within this report. The results are summarised in Table 22 and the complete modelling output is included as Appendix 14.

Table 22: J8 Capacity Assessment

Approach	2022 Base		2023 Do Nothing		2023 Future Year		Development Impact	
	Max. DoS	MMQ	Max. DoS	MMQ	Max. DoS	MMQ	Max. DoS	MMQ
AM Peak (07:45-08:45)								
A628 Dodworth Road	55.6%	7.3	62.5%	9.4	62.5%	9.4	-	-
M1 J37 Northbound Off-Slip	64.1%	8.2	72.9%	10.1	72.9%	10.1	-	-
A628 Whinby Road	55.9%	5.9	69.1%	8.7	73.9%	9.9	+4.8%	+1.2
M1 J37 Southbound Off-Slip	64.9%	6.6	72.0%	7.7	71.3%	7.6	-0.7%	-0.1
PRC	+38.2%		+19.8%		+20.4%		+0.6%	
PM Peak (16:30-17:30)								
A628 Dodworth Road	49.4%	8.5	62.6%	12.1	62.6%	12.1	-	-
M1 J37 Northbound Off-Slip	73.9%	9.4	89.2%	15.3	90.8%	16.1	+1.6%	+0.8
A628 Whinby Road	50.1%	4.5	66.3%	7.7	71.7%	7.5	+5.4%	-0.2
M1 J37 Southbound Off-Slip	80.4%	12.0	89.4%	15.9	89.4%	15.9	-	-
PRC	+12.0%		+0.7%		-0.9%		-1.6%	

- 7.8.3 The results of the capacity assessment indicate that Dodworth Roundabout would be expected to operate within capacity during the AM peak hour during the future year scenarios, with positive levels of PRC with the proposed development in place. The assessment indicates that Dodworth Roundabout would operate with negative levels of PRC during the PM peak hour.
- 7.8.4 The impact of the proposed development on the operation of the roundabout is minimal with a reduction in the worst-case PRC of 1.6% and less than 1 PCU increase in queue.
- 7.8.5 It is therefore considered that the proposed development will not have a severe impact on the operation of the existing Dodworth Roundabout.

7.9 J9 Capacity Assessment

- 7.9.1 In order to assess the ability of the Keresforth Hill Road/Gilroyd Lane/Keresforth Road priority T-junction to accommodate traffic associated with the proposed development, a junction capacity assessment has been undertaken using Junctions 9 modelling software (PICADY module). An aerial image of the Keresforth Hill Road/Gilroyd Lane/Keresforth Road priority T-junction can be seen in Figure 14.

Figure 14: J9 Aerial Imagery



Source Imagery: Copyright Google Earth Pro (License Key-JCPMR5M58LXF2GE)

- 7.9.2 The input parameters used to create the Junctions 9 model have been taken from scaled aerial imagery. The results are summarised in Table 23 and the complete modelling output is included as Appendix 15.

Table 23: J9 Capacity Assessment

Traffic Stream	2022 Base		2027 Do Nothing		2027 Opening Year		Development Impact	
	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q	Max. RFC	Max. End Q
AM Peak (07:45-08:45)								
Gilroyd Lane (Left-Turn)	10%	0.1	11%	0.1	11%	0.1	-	-
Gilroyd Lane (Right-Turn)	27%	0.4	29%	0.4	29%	0.4	-	-
Keresforth Road	18%	0.4	20%	0.5	22%	0.6	+2%	+0.1
OVERALL	27%	0.4	29%	0.5	29%	0.6	-	+0.1
PM Peak (16:30-17:30)								
Gilroyd Lane (Left-Turn)	16%	0.2	17%	0.2	18%	0.2	+1%	-
Gilroyd Lane (Right-Turn)	27%	0.4	31%	0.5	33%	0.5	+2%	-
Keresforth Road	43%	0.8	54%	1.7	57%	1.9	+3%	+0.2
OVERALL	43%	0.8	54%	1.7	57%	1.9	+3%	+0.2

7.9.3 The capacity assessment results shown in Table 23 indicate that the Keresforth Hill Road/Gilroyd Lane/Keresforth Road priority T-junction would be expected to operate well within capacity across all scenarios in both peak periods. The modelling results indicate that the maximum RFC during the peak hours is likely to be 57% (PM peak), which is well below the 85% typical threshold. The impact of the proposed development is expected to be minimal, with a maximum RFC increase of 3%.

7.9.4 It is therefore considered that the proposed development will not have a severe impact on the operation of the existing Keresforth Hill Road/Gilroyd Lane/Keresforth Road priority T-junction.

7.9.5 As a local junction that is managed by BMBC Highways (i.e. not part of the SRN managed by NH), guidance indicates that an assessment year of +5 years should be referenced, therefore the results for 2027 when the residential development is expected to be fully built out and occupied are pertinent.

7.10 J10 Capacity Assessment

7.10.1 In order to assess the ability of the A61 Sheffield Road/Cemetery Road/Park Road signalised crossroads, a junction capacity assessment has been undertaken using LinSig v3 modelling software. An aerial image of the A61 Sheffield Road/Cemetery Road/Park Road signalised crossroads can be seen in Figure 15.

Figure 15: J10 Aerial Imagery



Source Imagery: Copyright Google Earth Pro (License Key-JCPMR5M58LXF2GE)

- 7.10.2 The input parameters used to create the LinSig model have been based on the junction model produced as part of the TA (MTP, 2021a) which was submitted in support of the committed school development at Keresforth Close (ref: 2021/1631).
- 7.10.3 The base junction model has been validated against the observed cycle times and staging during the peak hours. A total of six stages are currently in operation at the junction during the AM and PM peak hours, which are demand dependent. The existing traffic signal operation associated with the signalised junction was observed from the video footage captured as part of the baseline traffic surveys, with details of the staging for each assessment period provided in Table 24.

Table 24: J10 Existing Signal Staging

Stage	Stage Appearances per Hour	
	AM Peak	PM Peak
Stage 1 – Park Road	32	32
Stage 2 – Park Road, A61 (N)	12	12
Stage 3 – A61 (N), A61 (S)	32	32
Stage 4 – Cemetery Road	32	32
Stage 5 – Park Road, A61 (N)	24	19
Stage 6 – Park Road, A61 (N)	7	11
TOTAL CYCLES	32	32

- 7.10.4 A measured cycle time of 112 seconds in the peak hours has been utilised. However, in order to reflect the variation in staging called in both peak hours, the modelling has assumed the following staging for each peak hour:

- AM Peak – Stages called: 1,4,3,2,5,6,1,4,3,2,5,1,4,3,5,1,4,3 (Overall cycle time of 448 seconds to reflect demand dependent staging i.e. 112 seconds x 4)
- PM Peak – Stages called: 1,4,3,2,5,6,1,4,3,2,5,6,1,4,3,1,4,3 (Overall cycle time of 448 seconds to reflect demand dependent staging i.e. 112 seconds x 4)

7.10.5 The captured queue data has been utilised to validate the base LinSig v3 model, with the base model aligned to the peak hour queuing results across all arms. It is therefore considered that the LinSig v3 model provides a good representation and quantification of the on-site conditions at the time of the traffic surveys.

7.10.6 The results are summarised in Table 25 and the complete modelling output is included as Appendix 16.

Table 25: J10 Capacity Results

Approach	2022 Base		2027 Do Nothing		2027 Opening Year		Development Impact	
	Max. DoS	MMQ	Max. DoS	MMQ	Max. DoS	MMQ	Max. DoS	MMQ
AM Peak								
Cemetery Road	62.0%	6.6	75.0%	9.2	77.2%	9.9	+2.2%	+0.7
A61 Sheffield Road (S)	62.5%	12.1	75.7%	14.9	77.4%	15.5	+1.7%	+0.6
Park Road	62.6%	7.0	76.0%	9.2	76.9%	9.6	+0.9%	+0.4
A61 Sheffield Road (N)	61.8%	12.1	71.2%	14.4	72.6%	15.0	+1.4%	+0.6
PRC	+43.8%		+18.4%		+16.3%		-2.1%	
PM Peak								
Cemetery Road	74.4%	9.0	97.2%	15.5	98.1%	16.9	+0.9%	+1.4
A61 Sheffield Road (S)	51.2%	10.6	61.1%	13.4	62.0%	14.0	+0.9%	+0.6
Park Road	84.9%	13.6	97.7%	24.0	99.0%	25.9	+1.3%	+1.9
A61 Sheffield Road (N)	85.3%	19.6	98.6%	34.9	99.7%	38.8	+1.1%	+3.9
PRC	+5.5%		-9.5%		-10.8		-1.3%	

7.10.7 The results of the capacity assessment indicate that the A61 Sheffield Road/Cemetery Road/Park Road signalised crossroads would be expected to operate within capacity during the AM peak hour in the future year scenarios, with positive levels of PRC with the proposed development in place. The assessment indicates that the junction would operate with negative levels of capacity during the PM peak hour without the development coming forward. The proposed development is only expected to reduce the PRC by 1.5%, which is not considered to be significant, with 31 additional two-way vehicle trips expected to utilise the junction.

7.10.8 As a local junction that is managed by BMBC Highways (i.e. not part of the SRN managed by NH), guidance indicates that an assessment year of +5 years should be referenced, therefore the results for 2027 when the residential development is expected to be fully built out and occupied are pertinent.

7.11 M1 Dodworth Roundabout Merge/Diverge Analysis

7.11.1 In order to assess the impact of the development on the slip roads to/from the M1 at Dodworth Roundabout (J8), analysis of the merge and diverge capacity of the M1 northbound/southbound on/off-slip roads has been undertaken utilising slip road traffic flow data collected on Wednesday 14th September 2022 and mainline traffic flow data from WebTRIS data (<https://webtris.highwaysengland.co.uk/>) for local count points on the M1, based on the annual average weekday peak hour flows between 12 August 2021 and 11th August 2022 and also future traffic projections. This analysis has been undertaken based on the trunk road highway design requirements of the 'Design Manual for Roads and Bridges' (DMRB), specifically 'CD 122 Geometric Design of Grade Separated Junctions' (NH, 2022) and Figures 3.12a and 3.26a. The results of the merge/diverge analysis are summarised within Table 26 below:

Table 26: M1 Dodworth Roundabout Merge/Diverge Analysis

Merge							
Direction	Scenario	Mainline Flow (vph)	Merge Flow (vph)	Required DMRB Layout	Mainline Flow (vph)	Merge Flow (vph)	Required DMRB Layout
AM Peak				PM Peak			
Northbound On-Slip	2022 Base	2,827	723	Layout A	3,177	522	Layout D
	2033 Do Nothing	3,083	919	Layout D	3,467	660	Layout D
	2033 Future Year	3,083	934	Layout D	3,467	665	Layout D
Southbound On-Slip	2022 Base	2,986	955	Layout D	3,406	672	Layout D
	2033 Do Nothing	3,257	1,229	Layout D	3,717	870	Layout A
	2033 Future Year	3,257	1,242	Layout D	3,717	875	Layout A
Diverge							
Direction	Scenario	Mainline Flow (vph)	Diverge Flow (vph)	Required DMRB Layout	Mainline Flow (vph)	Diverge Flow (vph)	Required DMRB Layout
AM Peak				PM Peak			
Northbound Off-Slip	2022 Base	2,827	1,018	Layout C	3,177	1,066	Layout C
	2033 Do Nothing	3,083	1,267	Layout C	3,467	1,346	Layout C
	2033 Future Year	3,083	1,271	Layout C	3,467	1,359	Layout D
Southbound Off-Slip	2022 Base	2,986	630	Layout A	3,402	1,318	Layout C
	2033 Do Nothing	3,257	785	Layout C	3,712	1,561	Layout B
	2033 Future Year	3,257	790	Layout C	3,712	1,575	Layout B

7.11.2 Table 26 demonstrates that merge layouts A (two mainline lanes with taper merge) or D (lane gain, 2 to 3 lanes) would be required based on the mainline and merge flows at the northbound and southbound on-slip roads in all scenarios. Layout A is provided at both slip roads with three mainline lanes, therefore the layout is compliant with or exceeds the DMRB capacity requirements (NH, 2022) for all assessed scenarios.

- 7.11.3 Table 26 demonstrates that diverge layouts A, C or D with two mainline lanes, layout B with three mainline lanes would be required based on the mainline and diverge flows at the northbound and southbound off-slip roads in all scenarios. Layout B is provided at both slip roads with three mainline lanes and is therefore compliant with DMRB capacity requirements (NH, 2022) for all assessed scenarios.
- 7.11.4 It is therefore considered that the proposed development would not have a significant impact on the M1 on and off slip roads at Dodworth Roundabout (Junction 37), with no change in merge or diverge layouts required as a result of the development proposals.

7.12 Traffic Impact Summary

- 7.12.1 Based on the capacity assessments detailed in this STA2, it is considered that the development will not have a severe impact on the operation of the local highway network or SRN. Therefore, as the traffic impact of the residential development is not expected to be severe, the proposals are considered to be in accordance with the 'National Planning Policy Framework', which states that *"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"* (MHCLG, 2021).

8. CONCLUSIONS

- 8.1.1 This second Supplementary Transport Assessment (STA2) has been produced in support of an outline planning application (all matters reserved except for access) for a proposed residential development at a site located to the north of Keresforth Road in Dodworth, Barnsley.
- 8.1.2 The local planning and highway authority for the site is Barnsley Metropolitan Borough Council (BMBC). Due to the site's proximity to the M1, which forms part of the Strategic Road Network (SRN), National Highways (NH) are also a key consultee in relation to the proposals.
- 8.1.3 This STA2 follows on from, and should be read in conjunction with the Transport Assessment (TA) (LTP, 2022a), Travel Plan (TP) (LTP, 2022b) and Supplementary Transport Assessment (STA) (LTP, 2022c) that have been produced in support of the outline planning application for the development (ref: 2022/0016), which is seeking consent for *"[r]esidential development of up to 215 dwellings and associated works (Outline application with all matters reserved apart from means of access)"*. This STA has been produced to present the additional information and assessments requested by BMBC Highways and NH.
- 8.1.4 Following comments from BMBC Highways, the access junction design has been updated to address items such as junction spacing, gradient and swept path analysis.
- 8.1.5 As requested by BMBC, an appraisal of the existing pedestrian and cycle routes has been undertaken and identifies some areas where some local improvements could be provided such as the introduction of tactile paving at certain locations.
- 8.1.6 As requested by BMBC, collision analysis has been undertaken at all local study junctions. Analysis of the study collisions, which considers vehicle types, casualties, weather conditions and road surface, has not revealed any pertinent collision trends at the local study junctions that would be expected to be exacerbated by the additional vehicle movements associated with the proposed development requiring mitigation. The relevant test is that 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"* (MHCLG, 2021). Therefore, it is considered that there are no existing road safety issues pertinent to the development of the site.
- 8.1.7 In order to assess the impact of the proposed development at the local study junctions, junction capacity assessments at 10 local study junctions have been undertaken. The junction capacity assessments undertaken as part of this report demonstrate that the development would not have a severe impact on the operation of the local highway network or SRN.

- 8.1.8 Based on the assessments of this STA2, it is considered that the proposed development would not be expected to have a severe impact on the operation of the local highway network or SRN. The relevant test is that 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”* (MHCLG, 2021). The projections of this STA indicate that the development will not have a severe transport impact, therefore the development is in accordance with the *‘National Planning Policy Framework’* (MHCLG, 2021).
- 8.1.9 It is concluded from the assessments within this STA2 that the proposed development would not be expected to have a severe impact in terms of road safety, sustainable travel and traffic impact on the operation of the local highway network or SRN.

9. REFERENCES

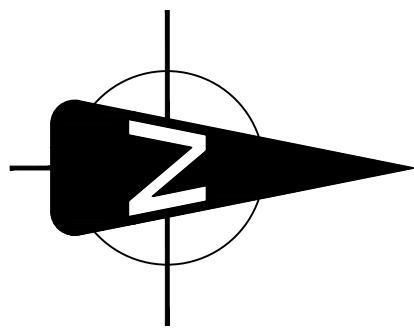
- AECOM, 2020. Former Wombwell School Site. Transport Assessment. 4th February 2020.
- BMBC (Barnsley Metropolitan Borough Council), 2019a. Barnsley Local Plan.
- BMBC, 2019b. Supplementary Planning Document. Design of Housing Development. Adopted May 2019.
- BMBC, 2019c. Barnsley Local Plan – Policies Map. [online: <https://www.barnsley.gov.uk/barnsley-maps/local-plan/>].
- BMBC, 2019d. Sustainable Travel Supplementary Planning Document. Adopted November 2019.
- DfT (Department for Transport), 2019. Transport Analysis Guidance (TAG) Unit M4 - Forecasting and Uncertainty (May 2019).
- DfT, 2013. The Strategic Road Network and Delivery of Sustainable Development.
- DfT, 2007. Guidance on Transport Assessment.
- FC (Fore Consulting Ltd), 2022. Proposed MU1 Residential and Employment Site, Barnsley. Transport Assessment. 22 March 2021. Version 2.0.
- FC, 2021a. Proposed MU1 Residential and Employment Site, Barnsley. Transport Assessment. 7th July 2021.
- FC, 2021b. Proposed MU1 Site, Barnsley. Framework Residential Travel Plan. 7th July 2021.
- FC, 2021c. Proposed MU1 Site, Barnsley. Framework Workplace Travel Plan. 7th July 2021.
- FC, 2019a. Proposed Extension to Capitol Park, Barnsley. Transport Assessment. February 2019.
- FC, 2019b. Proposed Extension to Capitol Park, Barnsley. Framework Travel Plan. January 2019.
- LTP (Local Transport Projects Ltd), 2022a. Proposed Residential Development, Keresforth Road, Dodworth - Transport Assessment.
- LTP, 2022b. Proposed Residential Development, Keresforth Road, Dodworth - Travel Plan.
- LTP, 2022c. Proposed Residential Development, Keresforth Road, Dodworth – Supplementary Transport Assessment.
- MHCLG (Ministry of Housing, Communities & Local Government), 2021. National Planning Policy Framework.
- MHCLG, 2014. Planning Practice Guidance – Travel Plans, Transport Assessments and Statements in Decision-Taking (ID: 42-06/03/2014) [online: <http://planningguidance.planningportal.gov.uk>].
- MTP (Milestone Transport Planning), 2021a. Trinity Academy, Barnsley. Transport Assessment. November 2021.
- MTP, 2021b. Trinity Academy, Barnsley. Travel Plan. November 2021.
- NH (National Highways), 2022. CD 122 - Geometric design of grade separated junctions. Version: 1.1.1.
- OIHS (Optima Intelligent Highways Solutions Ltd), 2021a. Calver Close, Dodworth. Proposed Residential Development. Transport Assessment. November 2021 (Planning Issue).
- OIHS, 2021b. Calver Close, Dodworth. Proposed Residential Development. Residential Travel Plan. November 2021 (Planning Issue).
- OIHS, 2017. Mount Vernon Hospital. Proposed Residential Development. Transport Assessment. October 2017 (Rev 1).

SA (Sanderson Associates Ltd), 2020a. Proposed Residential Development. A635 Barugh Green Road, Barugh Green, Barnsley. Transport Assessment.

SA, 2020b. Proposed Residential Development. A635 Barugh Green Road, Barugh Green, Barnsley. Travel Plan.

SCP, 2021. Proposed Residential Development, Mount Vernon Road, Worsbrough. Transport Statement. November 2020.

Appendix I – Preliminary Access Design



KEY:

Potential carriageway

Potential kerb line

Potential footway

Assumed development boundary

Land Registry Boundaries

Existing tree to be retained

Root Protection Area

Indicative Structural Retaining Feature (to be designed by others)

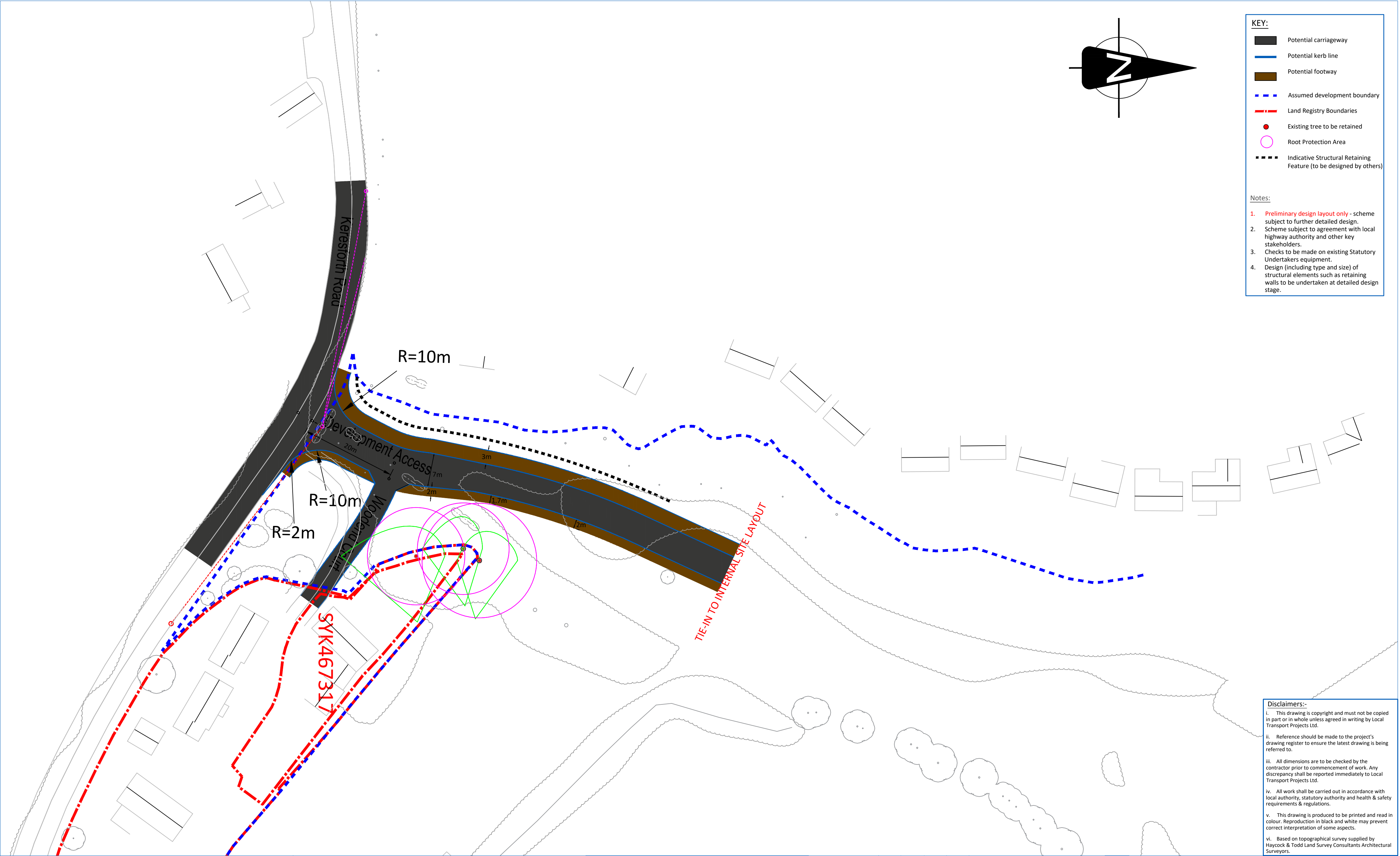
Notes:

1. Preliminary design layout only - scheme subject to further detailed design.

2. Scheme subject to agreement with local highway authority and other key stakeholders.

3. Checks to be made on existing Statutory Undertakers equipment.

4. Design (including type and size) of structural elements such as retaining walls to be undertaken at detailed design stage.



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vi. Based on topographical survey supplied by Haycock & Todd Land Survey Consultants Architectural Surveyors.

Client	Keepmoat Homes	Title	Potential Residential Access Road Preliminary Design Layout	Drawing number						Rev.	Date	By	Chk	Description				
					Project	Job	Drawing	Sheet	Revision	E	03.05.22	SL	MR	Development access moved west to avoid existing tree				
				LTP	/	4283	/	P3	/	01	.	01		H	Access Road reduced to 6.0m beyond the Wood End Court Access to accommodate visibility splay			
Project	Proposed Residential Development, Keresforth Road, Dodworth	Status	PRELIMINARY	Drawn			Date			G	05.05.22	MH	MR	Indicative retaining feature added				
				SP			15.09.22			H	22.09.22	SP	MR	Development access moved to allow 20m from Woodend Court to the junction of Keresforth Road Taper added to Keresforth Road				
				Scale			Checked			Approved								
			1 : 500			MR			TK									
														© Local Transport Projects		10mm		A2



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European Road Safety Charter



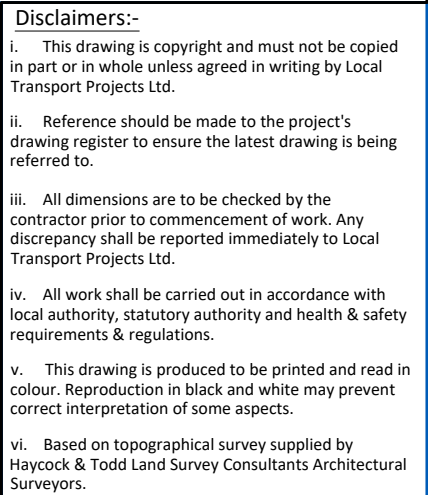
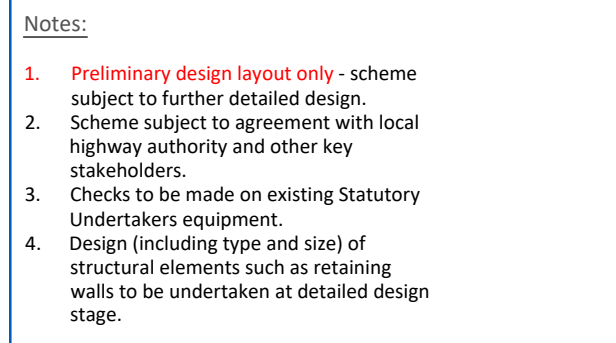
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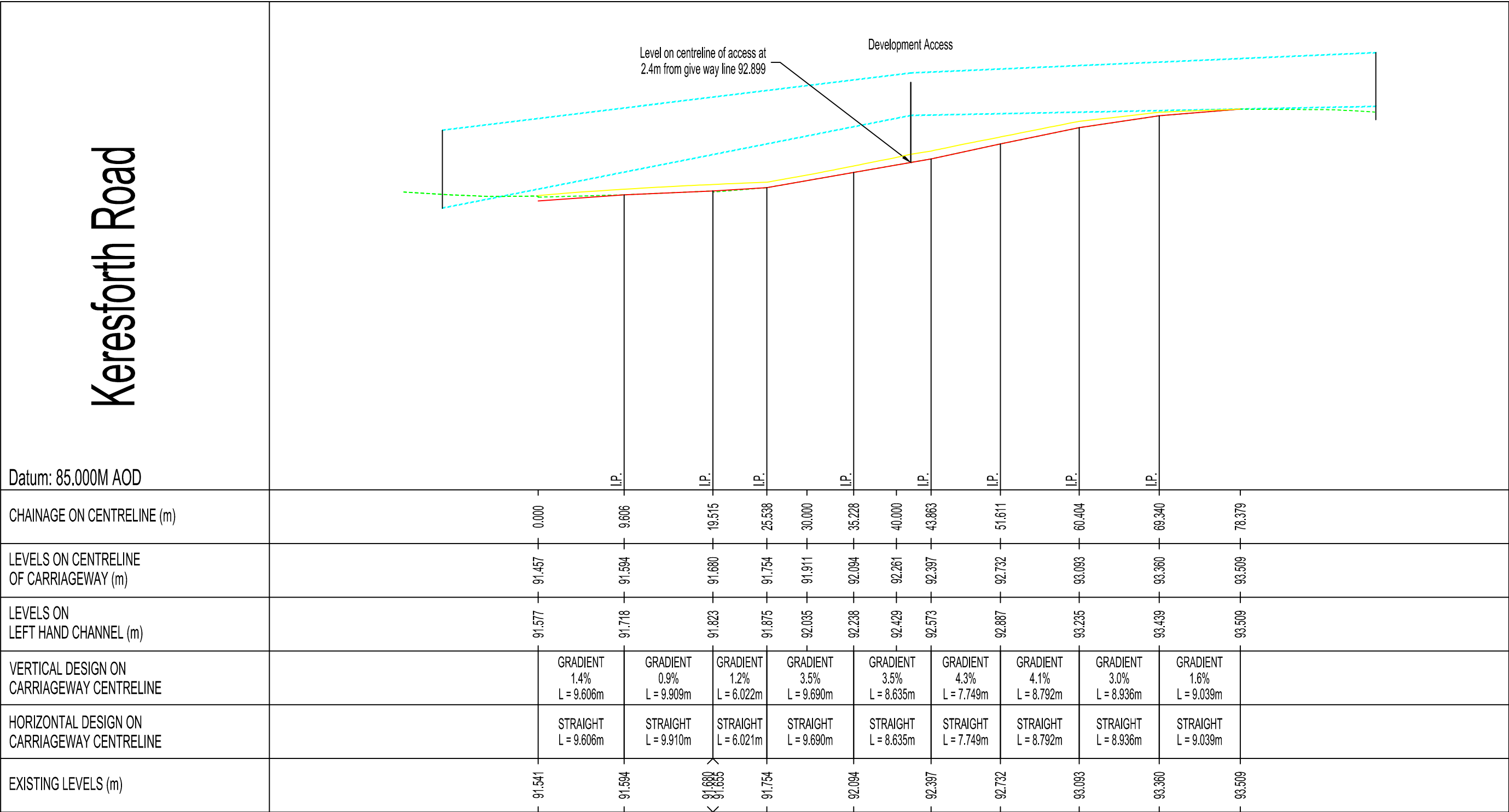
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Registered No. 5295328



Client	Keepmoat Homes	Title	Potential Residential Access Road Preliminary Design Layout Visibility Splays	Drawing number						Rev.	Date	By	Chk	Description	 traffic engineering and transport planning INSTITUTE OF HIGHWAY ENGINEERS 25 000 LIVES TO SAVE European Road Safety Charter HAS Accredited Contractor since 2007 Armstrong House, The Flemingate Centre, Beverley, East Riding of Yorkshire. HU17 0NW. ☎ 01482 679 911 info@ltp.co.uk 🌐 www.local-transport-projects.co.uk Registered No. 5295328
				Project	Job	Drawing	Sheet	Revision	E	03 05 22	SL	MR	Development access moved west to avoid existing tree.		
				LTP	/ 4283	/ P2	/ 01	.05	H	F	04 05 22	MH	MR	Access Road reduced to 6.0m beyond the Woodend Court Access to accommodate visibility splay.	
Project	Proposed Residential Development, Keresforth Road, Dodworth	Status	PRELIMINARY	Drawn		Date		G	05 05 22	MH	MR	Indicative retaining feature added.			
				CW		13 09 21		H	22 09 22	SP	MR	Woodend Court moved to accommodate required 20m from Keresforth Road.			
				Scale		Checked		Approved		© Local Transport Projects		10mm		A2	
				1 : 500		MR		TK							

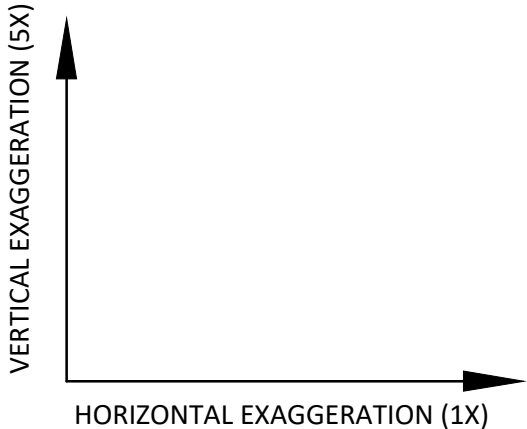
Appendix 2 – Access Gradient Drawing

Keresforth Road



Series 100 - Longitudinal Sections

- Proposed Centreline Levels
- Existing Centreline Levels
- Vertical Visibility Envelope



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- Based on topographical survey supplied by Haycock & Todd Land Survey Consultants Architectural Surveyors.

Client	Keepmoat Homes	Title	Potential Residential Access Road		Drawing number						Rev.	Date	By	Chk	Description		
			Preliminary Design Layout		Project	Job	Drawing	Sheet	Revision	A	14 10 21	CW	MR	Vertical visibility envelope amended to measures speeds for Keresforth Road.			
			Longitudinal Section Keresforth Road		LTP /	4283 /	P2 /	01	02	B	B	22 09 22	SP	MR	Long section revised to suit new road alignment.		
					Drawn	CW			Date	13 09 21							
Project	Proposed Residential Development, Keresforth Road, Dodworth	Status	PRELIMINARY		Scale	1 : 500			Checked	MR		Approved	TK		© Local Transport Projects	10mm	A2

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Development Access

Datum: 91.000M AOD

Level on centreline of Woodend Court at 2.4m from give way line 93.727

Cutting slope or retaining structures to run along back of visibility splay to avoid compromising visibility

CHAINAGE ON CENTRELINE (m)	LEVELS ON CENTRELINE OF CARRIAGEWAY (m)	LEVELS ON LEFT HAND CHANNEL (m)	LEVELS ON RIGHT HAND CHANNEL (m)	VERTICAL DESIGN ON CARRIAGEWAY CENTRELINE	HORIZONTAL DESIGN ON CARRIAGEWAY CENTRELINE	EXISTING LEVELS (m)	PROPOSED CHAINAGE (m)	PROPOSED LEVELS (m)
0.000	92.318				L = 2.65m	92.317	0.000	92.318
3.379	92.500				L = 2.10m	92.344	3.379	92.500
10.000	92.831	92.730	92.765	GRADIENT 5.0% L = 10.018m	L = 1.65m	92.919		
13.397	93.001	92.913	92.913		L = 1.20m	92.815		
18.603	93.250	93.163	93.163	G = 4.8%	L = 1.74m	92.815		
31.103	93.888	93.803	93.801	SAG CURVE K = 19.942 L = 25.000		93.055		
40.000	94.390	94.315	94.315			93.035		
43.603	94.605	94.530	94.530			92.873		
50.000	94.992	94.917	94.917	GRADIENT 6.0% (1 in 17) LENGTH = 16.464m		92.670		
60.067	95.600	95.525	95.525			92.880		
70.000	96.225	96.150	96.150	SAG CURVE K = 19.940 L = 25.000		93.776		
72.567	96.395	96.320	96.320			93.276		
80.000	96.905	96.830	96.830			93.505		
85.067	97.288	97.193	97.193			93.506		
90.000	97.628	97.553	97.553	GRADIENT 7.3% L = 11.345m		93.847		
96.413	98.096	98.021	98.021			94.184		

Proposed Centreline Levels

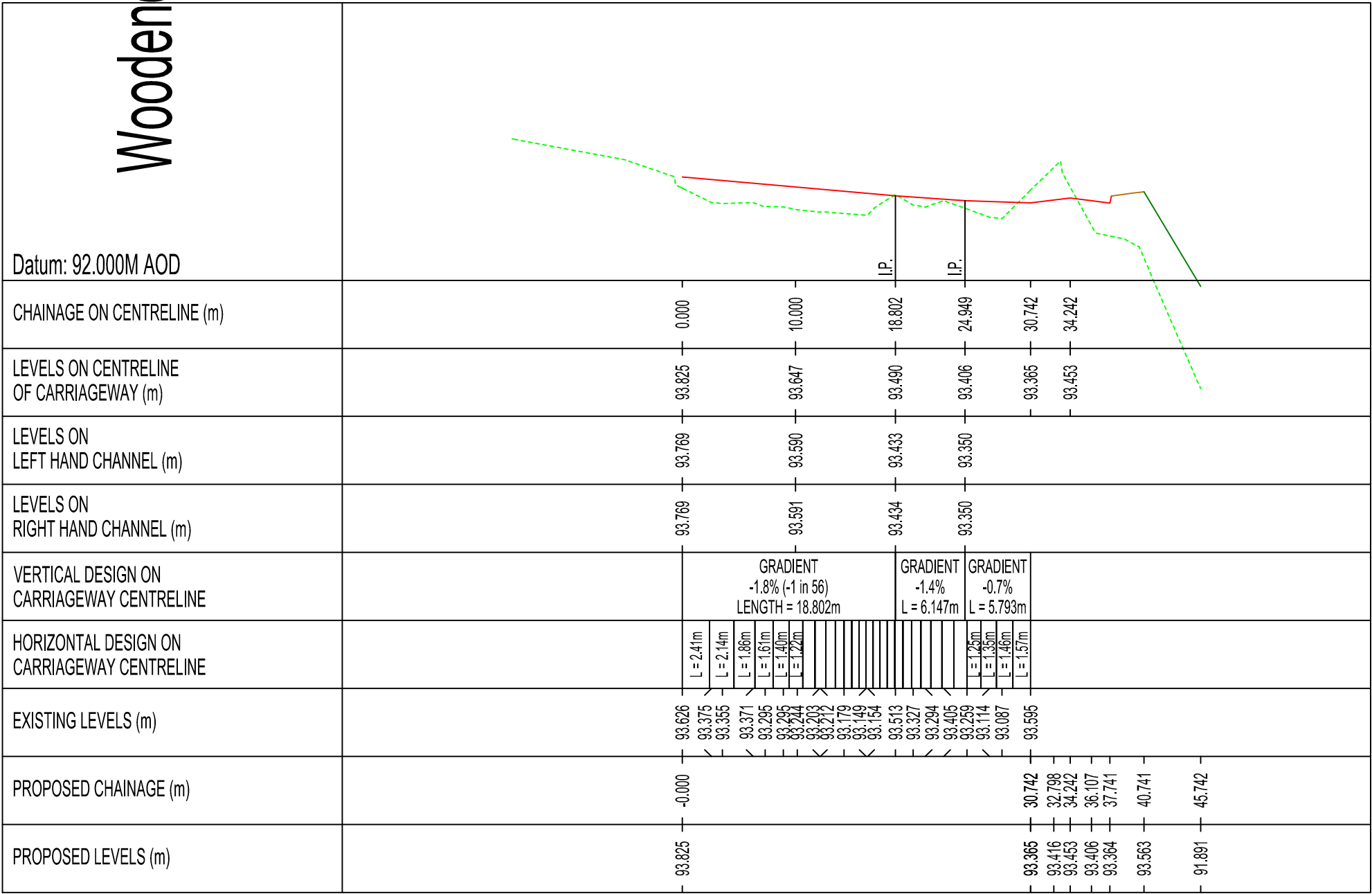
Existing Centreline Levels

Vertical Visibility Envelope

Keepmoat Homes	Title	Potential Residential Access Road Longitudinal Section Development Access	Drawing number						Rev.	Date	By	Chk	Description		
				Project	Job	Drawing	Sheet	Revision	A	22 09 21	CW	MR	Long section for development amended to reflect new alignment.		
			LTP	/ 4283	/ P2	/ 01	. 03	C	B	14 10 21	cw	MR	Long section for development access amended in line with Council Officers comments.		
Proposed Residential Development, Keresforth Road, Dodworth	Status	PRELIMINARY	Drawn			Date			C	22 09 22	SP	MR	Long section for development access amended to reflect new alignment.		
			CW			13 09 21									
			Scale			Checked			Approved						
			1 : 500			MR			TK			© Local Transport Projects 			A2

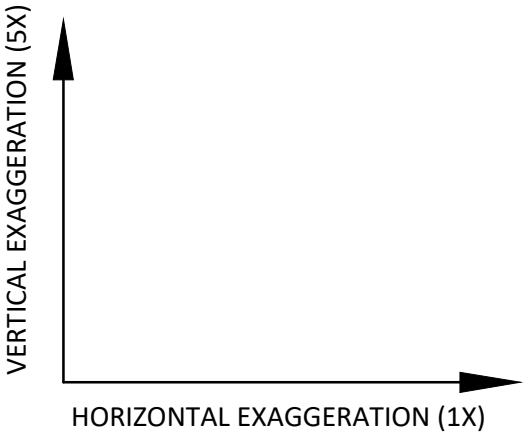
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Woodend Court



Series 100 - Longitudinal Sections

- Proposed Centreline Levels
- Existing Centreline Levels
- Vertical Visibility Envelope



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 - This drawing is produced to be printed and read in colour. Reproduction in black and white may prevent correct interpretation of some aspects.
 - Based on topographical survey supplied by Haycock & Todd Land Survey Consultants Architectural Surveyors.

Client	Keepmoat Homes	Title	Potential Residential Access Road Longitudinal Section Woodend Court		Drawing number						Rev.	Date	By	Chk	Description	 traffic engineering and transport planning INSTITUTE OF HIGHWAY ENGINEERS Armstrong House, The Flemington Centre, Beverley, East Riding of Yorkshire. HU17 0NW.  01482 679 911  info@ltp.co.uk  www.local-transport-projects.co.uk Registered No. 5295328
						Project	Job	Drawing	Sheet	Revision	A	22 09 21	CW	MR	Long section for amended to reflect new alignment of development access.	
					LTP /	4283	/ P2	/ 01	.04	C	B	14 10 21	cw	MR	Long section amended to reflect new vertical alignment of development access.	
					C	22 09 22	SP	MR	Long section amended to reflect new alignment of development access.							
Project	Proposed Residential Development, Keresforth Road, Dodworth	Status	PRELIMINARY		Drawn			Date								
					CW			13 09 21								
					Scale			Checked		Approved						
					1 : 500			MR		TK						
					© Local Transport Projects								10mm	A2		

Appendix 3 – Swept Path Analysis

SPA Key:-

	Outer Wheel Track
	Vehicle Swept Path
	Vehicle Centreline and Direction

Notes:-

1. Preliminary design layout only - scheme subject to further detailed design.
2. Scheme subject to agreement with local highway authority and other key stakeholders.
3. Checks to be made on existing Statutory Undertakers equipment.
4. Simulated speed - not more than 5mph.
5. Actual vehicle dimensions and track may vary.

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- v. This drawing is produced to be printed and read in colour. Reproduction in black and white may prevent correct interpretation of some aspects.
- vi. Based on topographical survey supplied by Haycock & Todd Land Survey Consultants Architectural Surveyors.

F	13 10 22	SP	MR	Right out out of the development onto Keresforth added.
E	22 09 22	SP	MR	Swept paths amended to reflect new layout of residential access.
D	03 05 22	SL	MR	Swept paths amended to reflect new layout of residential access.

Rev.	Date	By	Chk	Description

Client

Keepmoat Homes

Project

Proposed Residential
Development, Keresforth Road,
Dodsworth

Title

Potential Residential Access Road
Preliminary Design Layout
Swept Path Analysis
Refuse Vehicle - Sheet 1 of 2

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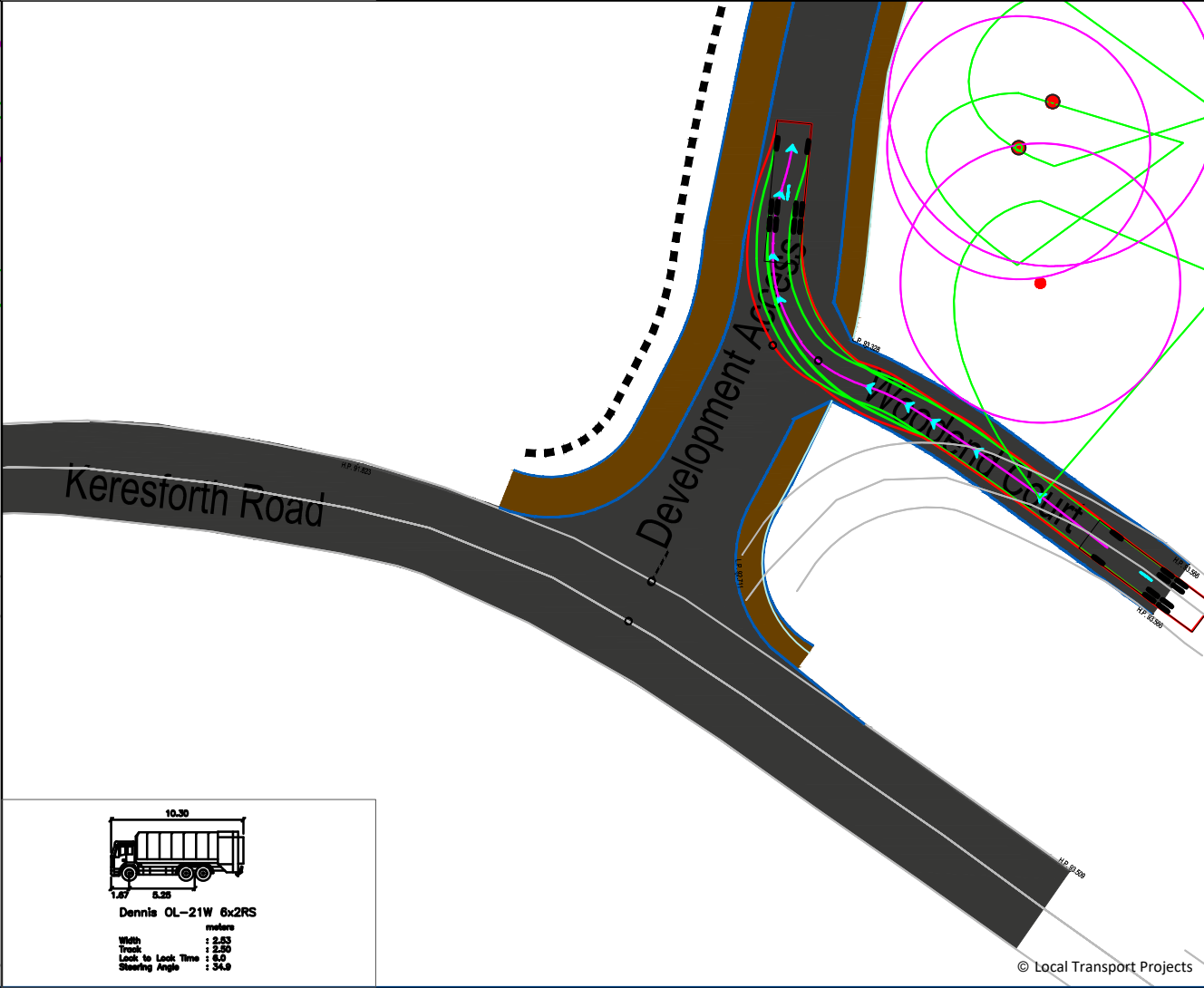
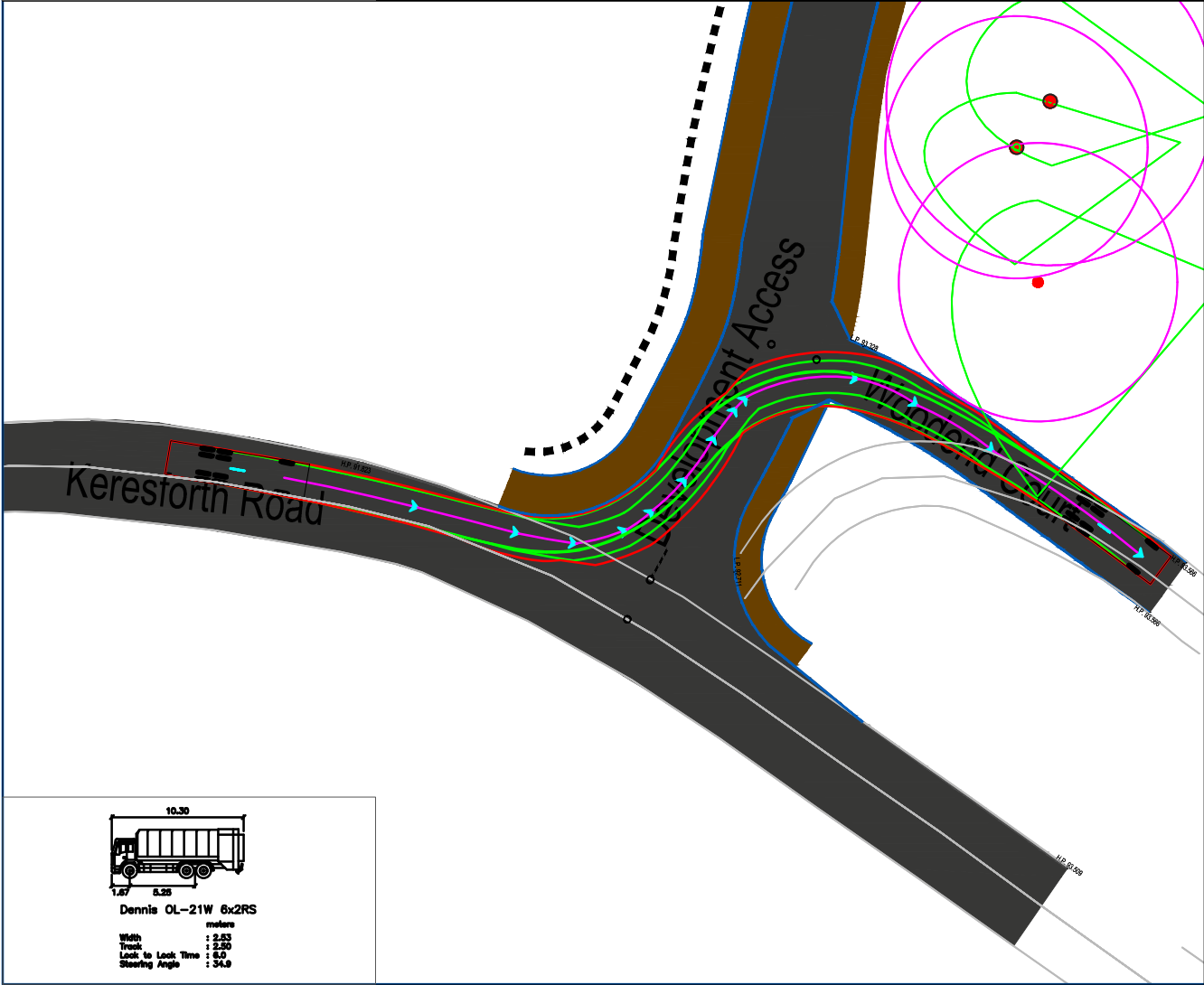
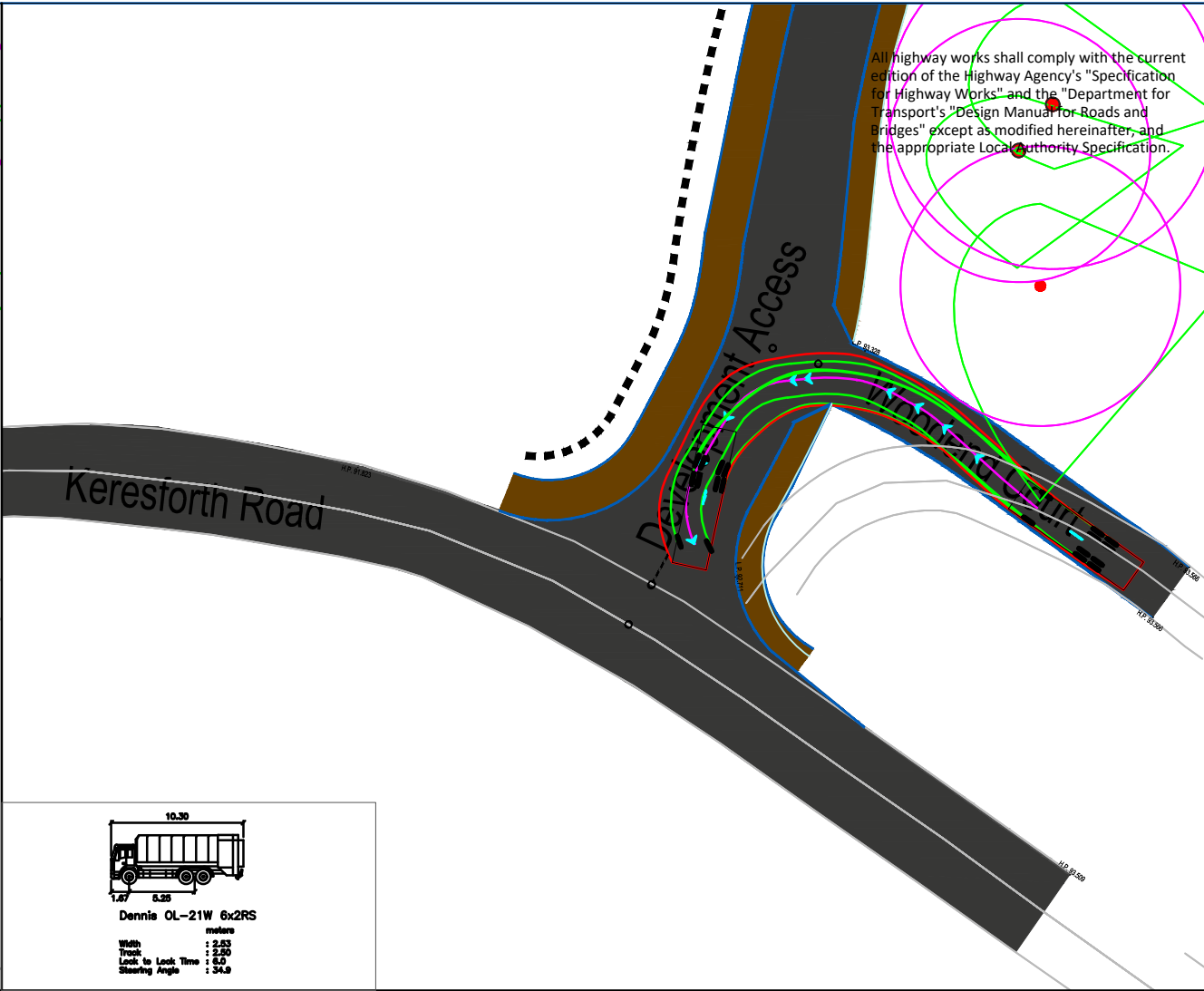
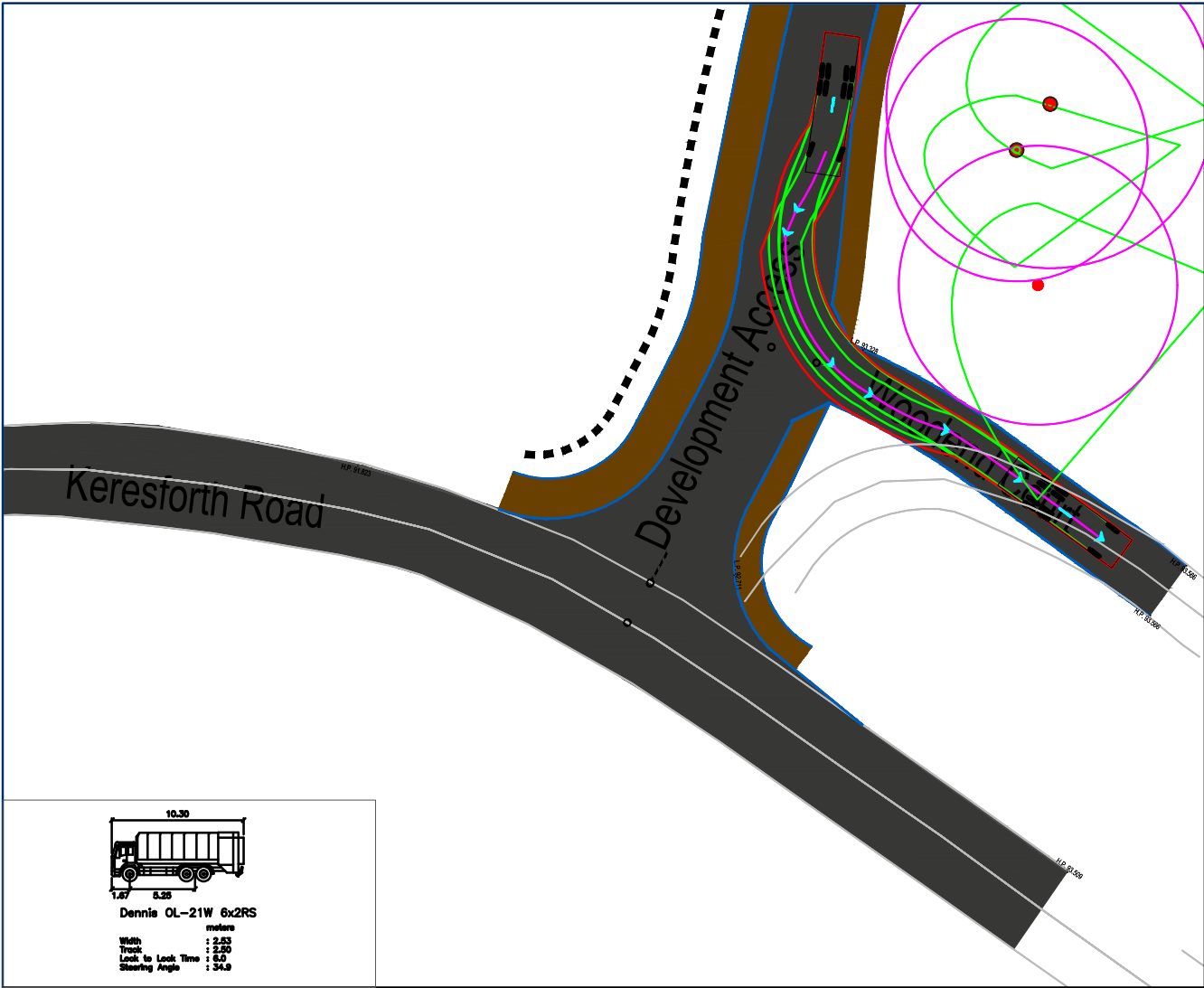
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Drawn	CW	Date	14 09 21
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Status		Approved	TK

PRELIMINARY

Drawing number

Project	Job	Drawing	Sheet	Revision
LTP/4283/	P2/	01	06	F



10mm

A3

SPA Key:-

	Outer Wheel Track
	Vehicle Swept Path
	Vehicle Centreline and Direction

Notes:-

1. Preliminary design layout only - scheme subject to further detailed design.

2. Scheme subject to agreement with local highway authority and other key stakeholders.

3. Checks to be made on existing Statutory Undertakers equipment.

4. Simulated speed - not more than 5mph.

5. Actual vehicle dimensions and track may vary.

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v. This drawing is produced to be printed and read in colour. Reproduction in black and white may prevent correct interpretation of some aspects.

vi. Based on topographical survey supplied by Haycock & Todd Land Survey Consultants Architectural Surveyors.

E	22 09 22	SP	MR	Swept paths amended to reflect new layout of residential access.
D	03 05 22	SL	MR	Swept paths amended to reflect new layout of residential access.
C	28 04 22	SL	MR	Swept paths amended to reflect new layout of residential access.

Rev.	Date	By	Chk	Description
Client				
Keepmoat Homes				
Project				
Proposed Residential Development, Keresforth Road, Dodsworth				
Title				
Potential Residential Access Road Preliminary Design Layout Swept Path Analysis Refuse Vehicle - Sheet 2 of 2				

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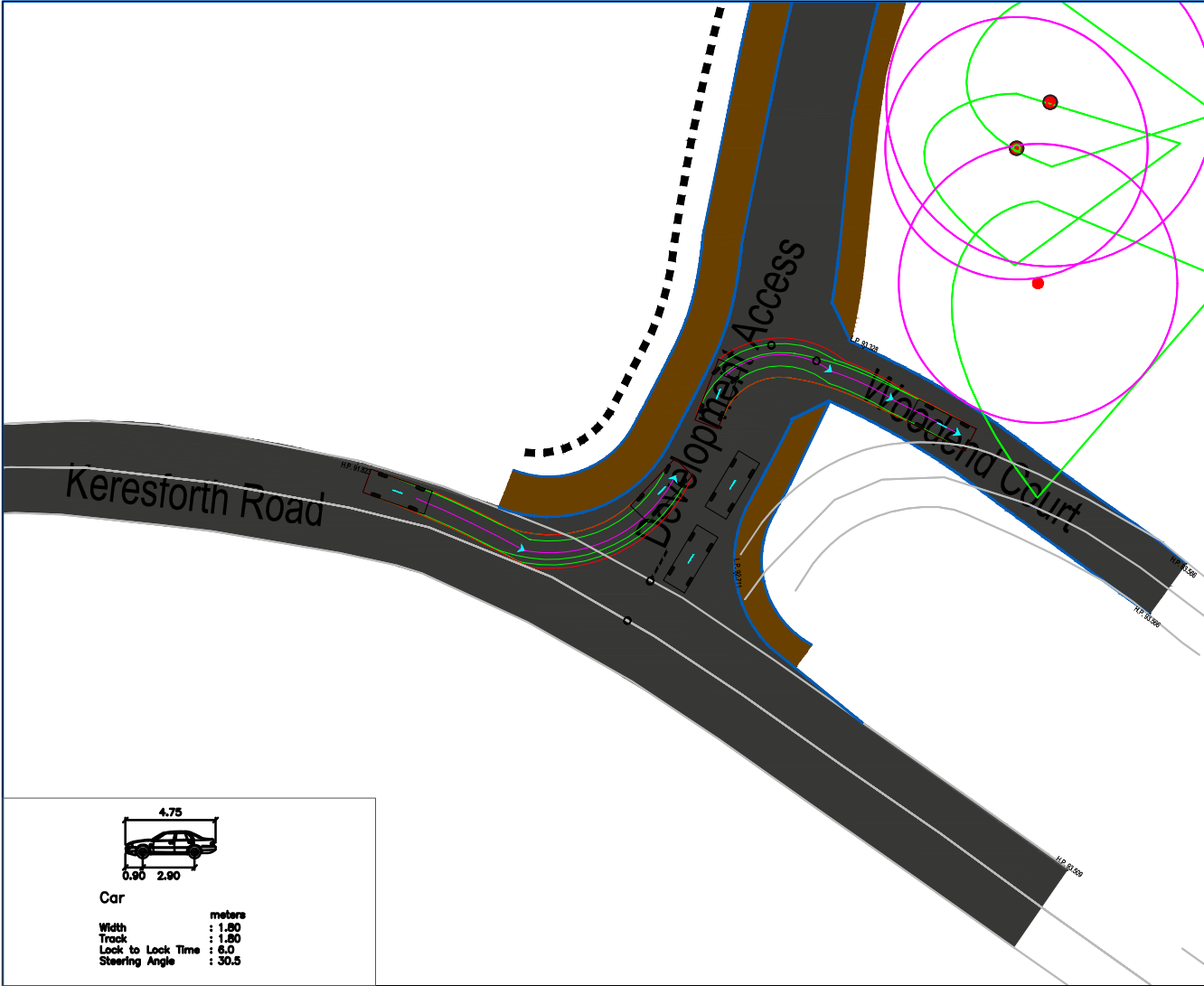
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Drawn	CW	Date	14 09 21
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Status	Approved TK		
PRELIMINARY			
Drawing number			
Project	Job	Drawing	Sheet
LTP/4283/	P2 /	01	07

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E



All highway works shall comply with the current edition of the Highway Agency's "Specification for Highway Works" and the "Department for Transport's "Design Manual for Roads and Bridges" except as modified hereinafter, and the appropriate Local Authority Specification.

SPA Key:-

	Outer Wheel Track
	Vehicle Swept Path
	Vehicle Centreline and Direction

Notes:-

1. Preliminary design layout only - scheme subject to further detailed design.
2. Scheme subject to agreement with local highway authority and other key stakeholders.
3. Checks to be made on existing Statutory Undertakers equipment.
4. Simulated speed - not more than 5mph.
5. Actual vehicle dimensions and track may vary.

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- v. This drawing is produced to be printed and read in colour. Reproduction in black and white may prevent correct interpretation of some aspects.
- vi. Based on topographical survey supplied by Haycock & Todd Land Survey Consultants Architectural Surveyors.

C	22 09 22	SP	MR	Swept paths amended to reflect new layout of residential access.
B	03 05 22	SL	MR	Swept paths amended to reflect new layout of residential access.
A	28 04 22	SL	MR	Swept paths amended to reflect new layout of residential access.

Rev.	Date	By	Chk	Description

Client

Keepmoat Homes

Project

Proposed Residential Development, Keresforth Road, Dodsworth

Title

Potential Residential Access Road Preliminary Design Layout Swept Path Analysis Cars to Woodend Court



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Scale	1 : 500	Checked	MR
		Approved	TK

Status

PRELIMINARY

Drawing number				
Project	Job	Drawing	Sheet	Revision
LTP/4283/	P2 /	01	.08	C

Appendix 4 – Collision Plot



19899364

17215002

19808022

19869761

17189122

20970048

19891419

17155721

211046824

16115257

17184729

1687347

211069600

20979467

16102140

19820713

211029930

18332474









139.9m
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18346597



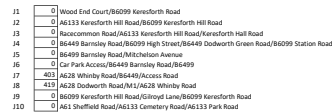
Appendix 5 – Network Diagrams

Vehicles
HCVs
HCVs (%)
PCUs

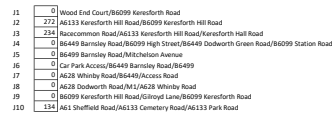
Vehicles - in the absence of total vehicle numbers, PCU figures have been used

PCUs

PCUs



PCUs

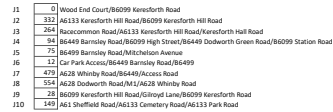


HLV2 (54)

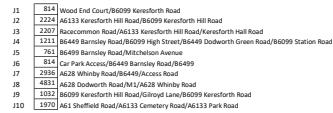


HOW? NO





1. **Introduction**

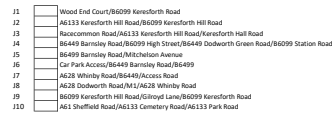


AM Peak Hour (07:45-08:45)

HCV%

PCUs

Departures



AM Peak Hour (07:45-08:45)

HCV%

PCUs

Departures



2027 Operating Year

B64 Park Road (37'45.56-45.1)

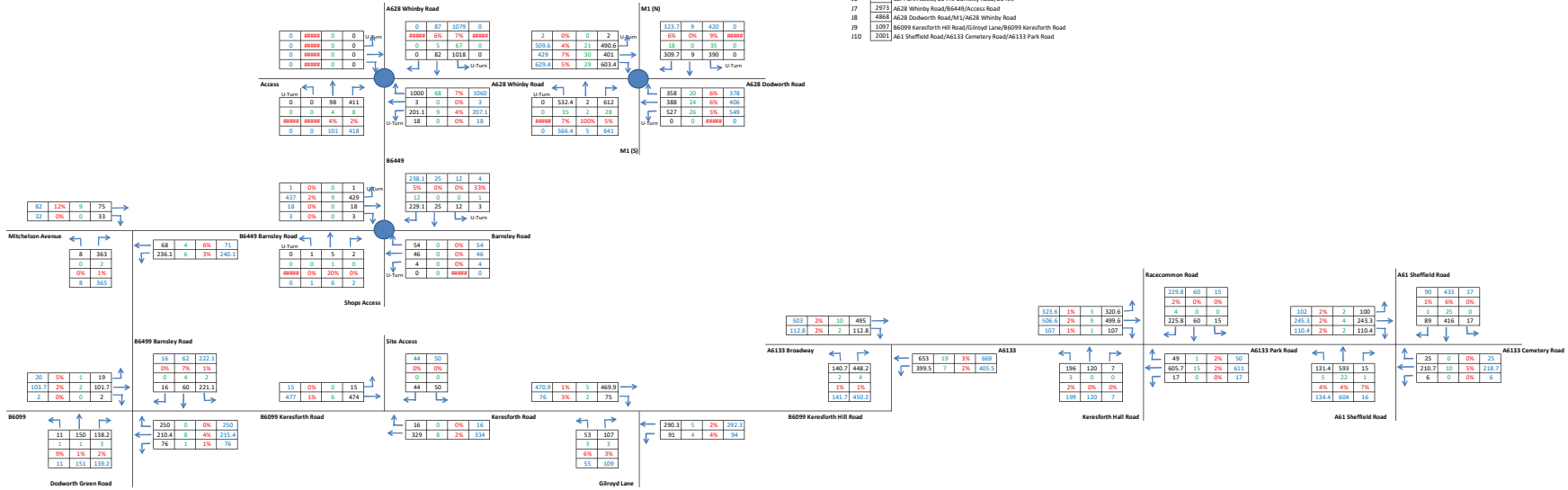
Vehicles

HCVs

HCVs (%)

PCUs

- 11 936 Wood End Court/B6099 Keresforth Road
12 2282 A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
13 2246 Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hill Road
14 1260 B6449 Barnsley Road/B6099 High Street/B6449 Dodsworth Green Road/B6099 Station Road
15 798.1 B6499 Barnsley Road/Mitchelson Avenue
16 851.1 Car Park Access/B6449 Barnsley Road/B6499
17 2972 A628 Whinley Road/B6449 Access Road
18 4868 A628 Dodsworth Road/M1/A628 Whinley Road
19 1097 B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
110 2003 A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road



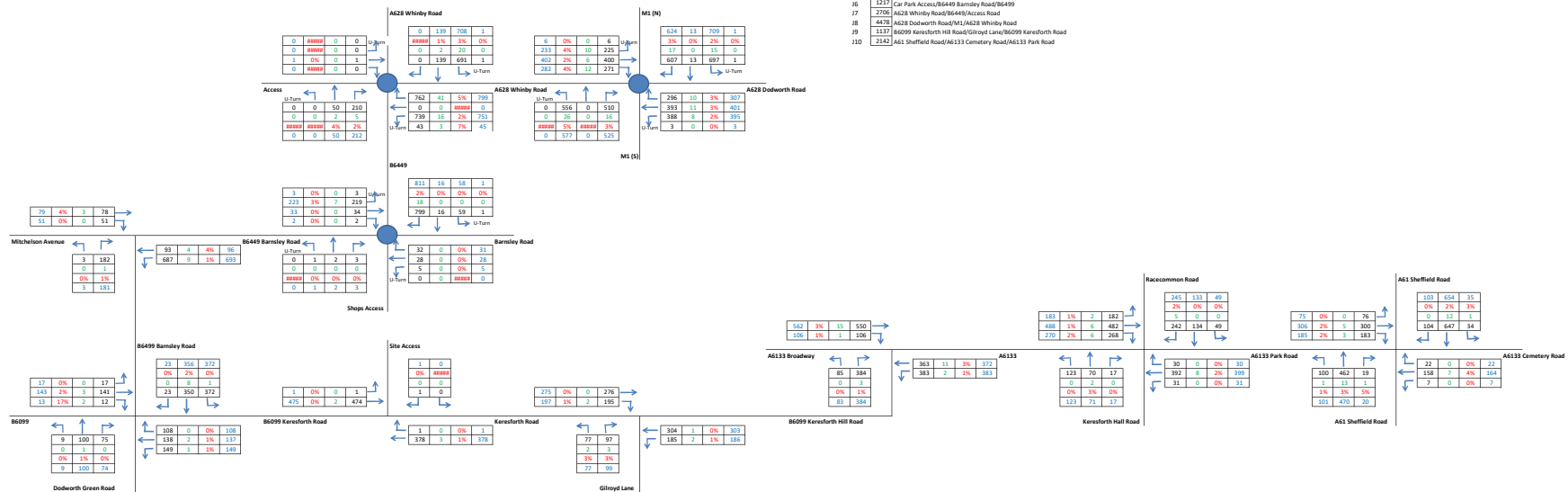
PM Peak Hour (16:30-17:30)

Vehicles

HCVs

HCVs (B9)

PCUs



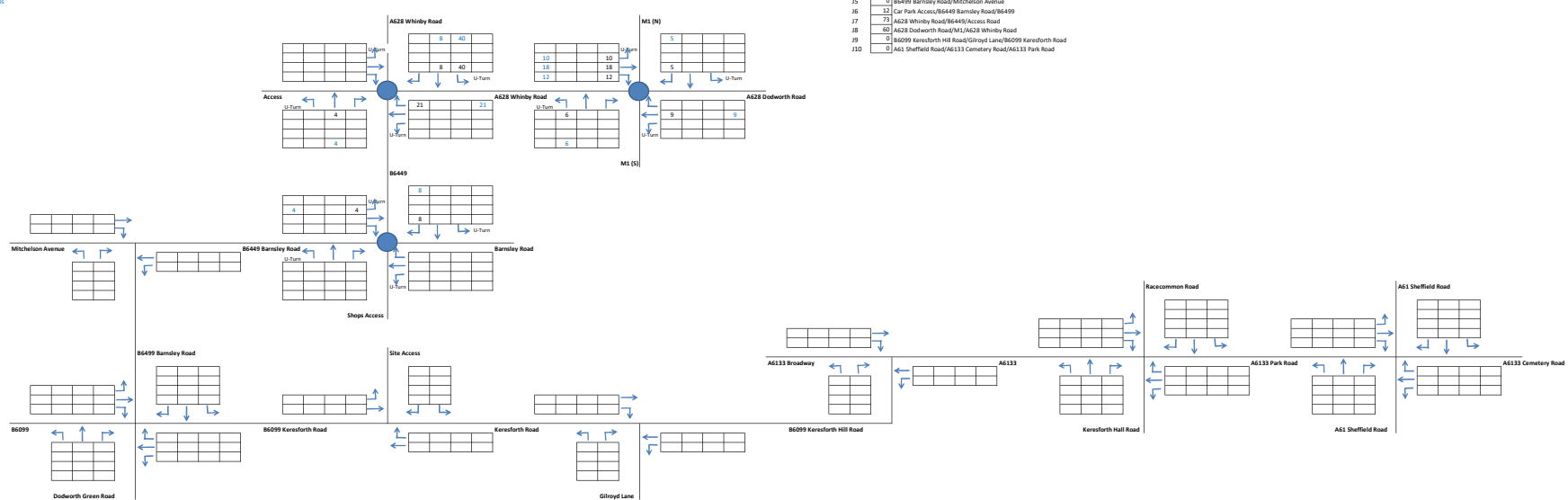
Committed Development - Capitol Park Extension (Ref: 2019/0286)

PM Peak Hour (16:30-17:30)

Vehicles - 11

HCVs

HCVs (39)



Committed Development - Land to the South-East of Higham Common Road, Barnsley (M1 - Residential & Employment) (Ref: 2021/2090 & 2021/1089)

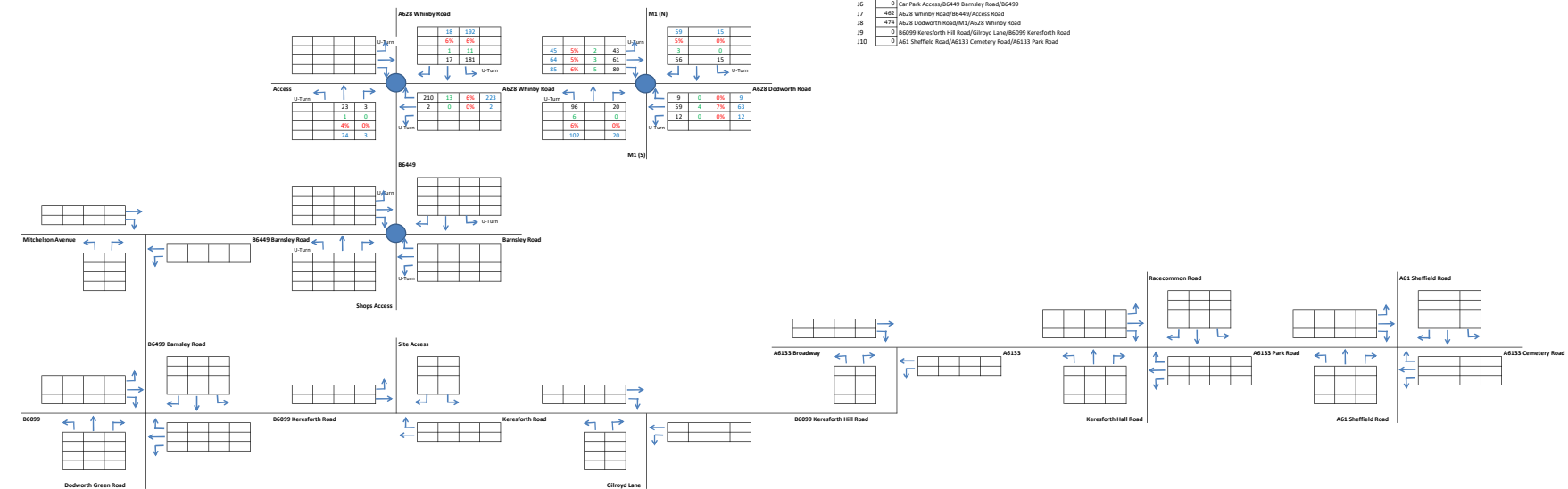
PM Peak Hour (16:30-17:30)

Vehicles - total vehicles have been calculated assuming HOVs form 2 vehicles

HCV

HCV (%)

PCU



J1	Wood End Court/B6099 Keresforth Road
J2	A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
J3	Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road
J4	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
J5	B6499 Barnsley Road/Mitchelson Avenue
J6	Car Park Access/B6449 Barnsley Road/B6499
J7	A628 Whinley Road/B6449 Access Road
J8	A628 Dodworth Road/M1/A628 Whinley Road
J9	B6099 Keresforth Hill Road/Gillroyd Lane/B6099 Keresforth Road
J10	A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

Committed Development - Proposed Secondary School, Land off Keresforth Close (Ref: 2021/1431) PUPIL TRIPS ONLY

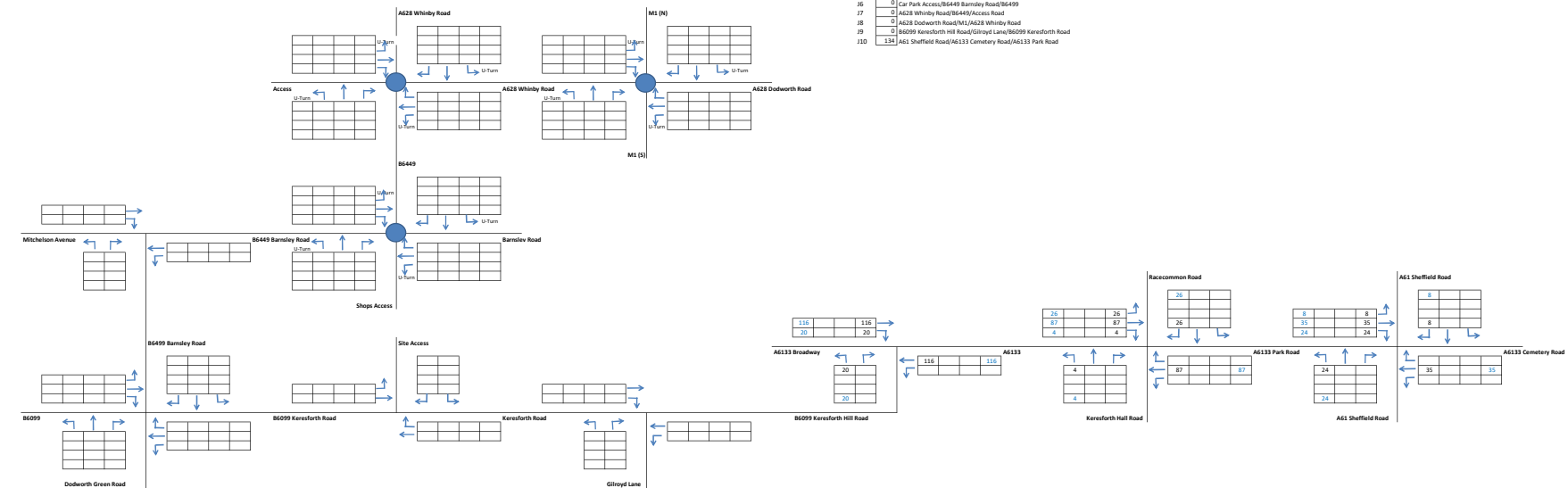
PM Peak Hour (16:30-17:30)

Vehicles - in the absence of total vehicle numbers, PCU figures have been used

HCV

HCV (%)

PCU



J1	Wood End Court/B6099 Keresforth Road
J2	A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
J3	Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road
J4	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
J5	B6499 Barnsley Road/Mitchelson Avenue
J6	Car Park Access/B6449 Barnsley Road/B6499
J7	A628 Whinley Road/B6449 Access Road
J8	A628 Dodworth Road/M1/A628 Whinley Road
J9	B6099 Keresforth Hill Road/Gillroyd Lane/B6099 Keresforth Road
J10	A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

Committed Development - Proposed Secondary School, Land off Keresforth Close (Ref: 2021/1631) STAFF TRIPS ONLY

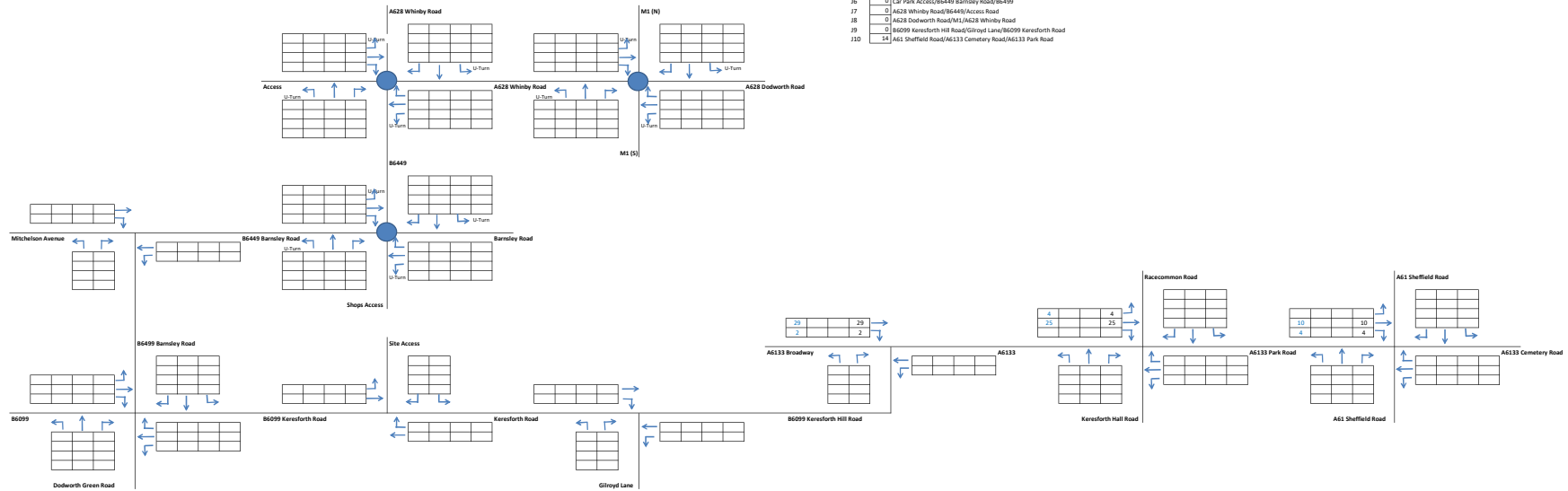
PM Peak Hour (16:30-17:30)

Vehicles - in the absence of total vehicle numbers, PCU figures have been used

HCV

HCV (N)

PCU



- 11 Wood End Court/B6099 Keresforth Road
- 12 A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
- 13 Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hill Road
- 14 B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
- 15 B6499 Barnsley Road/Mitchelson Avenue
- 16 Car Park Access/B6449 Barnsley Road/B6499
- 17 A628 Whinley Road/B6449 Access Road
- 18 A628 Dodworth Road/M1/A628 Whinley Road
- 19 B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
- 110 A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

Committed Development - Land off Smithywood Lane and Calver Close, Gilroyd (Ref: 2021/1642)

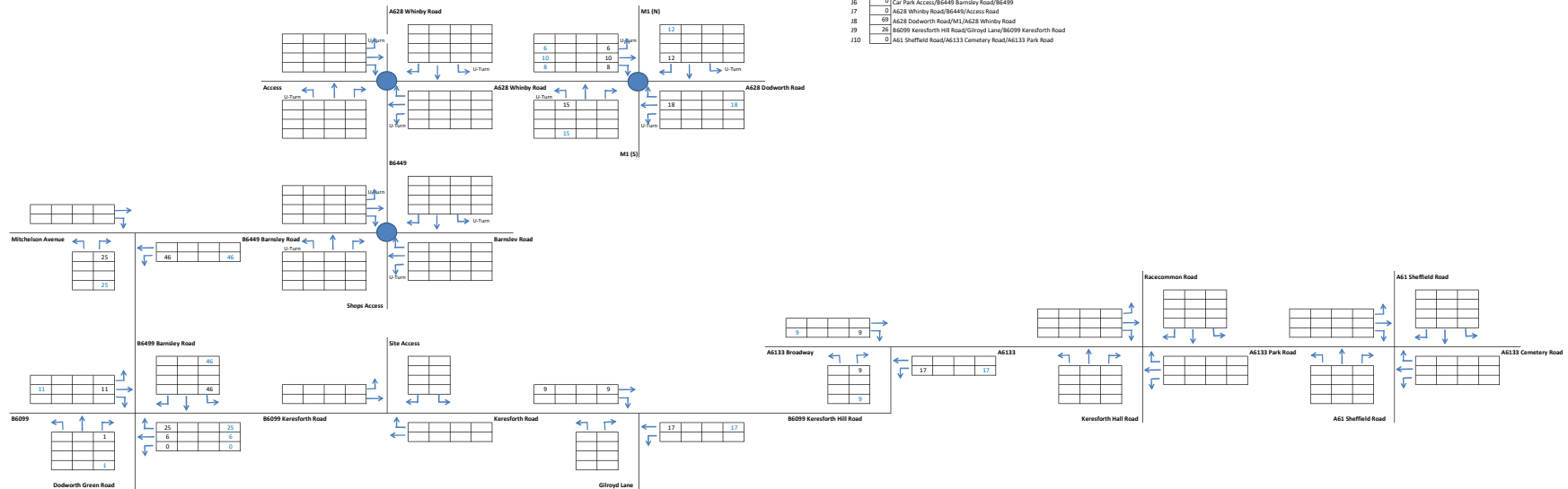
PM Peak Hour (16:30-17:30)

Vehicles - in the absence of total vehicle numbers, PCU figures have been used

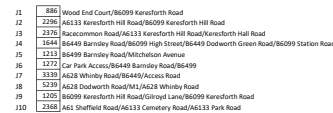
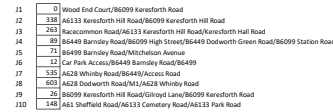
HCV

HCV (N)

PCU



- 11 Wood End Court/B6099 Keresforth Road
- 12 A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
- 13 Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hill Road
- 14 B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
- 15 B6499 Barnsley Road/Mitchelson Avenue
- 16 Car Park Access/B6449 Barnsley Road/B6499
- 17 A628 Whinley Road/B6449 Access Road
- 18 A628 Dodworth Road/M1/A628 Whinley Road
- 19 B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
- 110 A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road



2022 Base

PM Peak Hour (16:30-17:30)

Vehicles

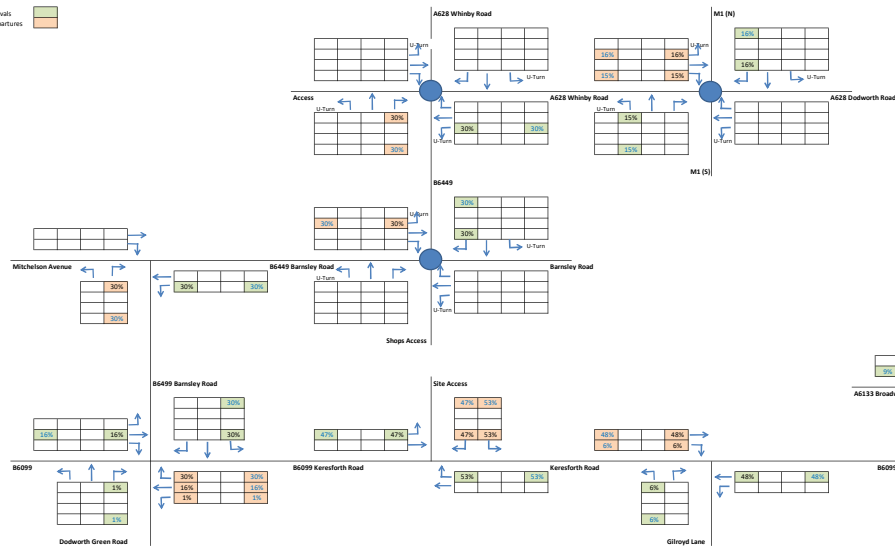
HCVs (%)

HCVs (%)

PCUs

Arrivals

Departures



- J1 Wood End Court/B6099 Keresforth Road
- J2 A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
- J3 Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road
- J4 B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
- J5 B6499 Barnsley Road/Mitchelson Avenue
- J6 Car Park Access/B6449 Barnsley Road/B6499
- J7 A628 Whinley Road/B6449 Access Road
- J8 A628 Dodworth Road/M1/A628 Whinley Road
- J9 B6099 Keresforth Hill Road/Gillroyd Lane/B6099 Keresforth Road
- J10 A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

Development Trips

PM Peak Hour (16:30-17:30)

Vehicles

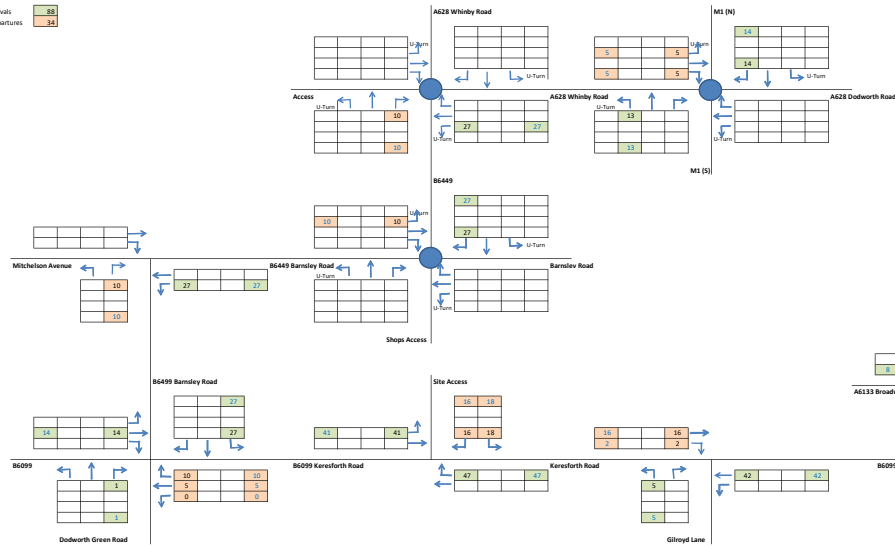
HCVs (%)

HCVs (%)

PCUs

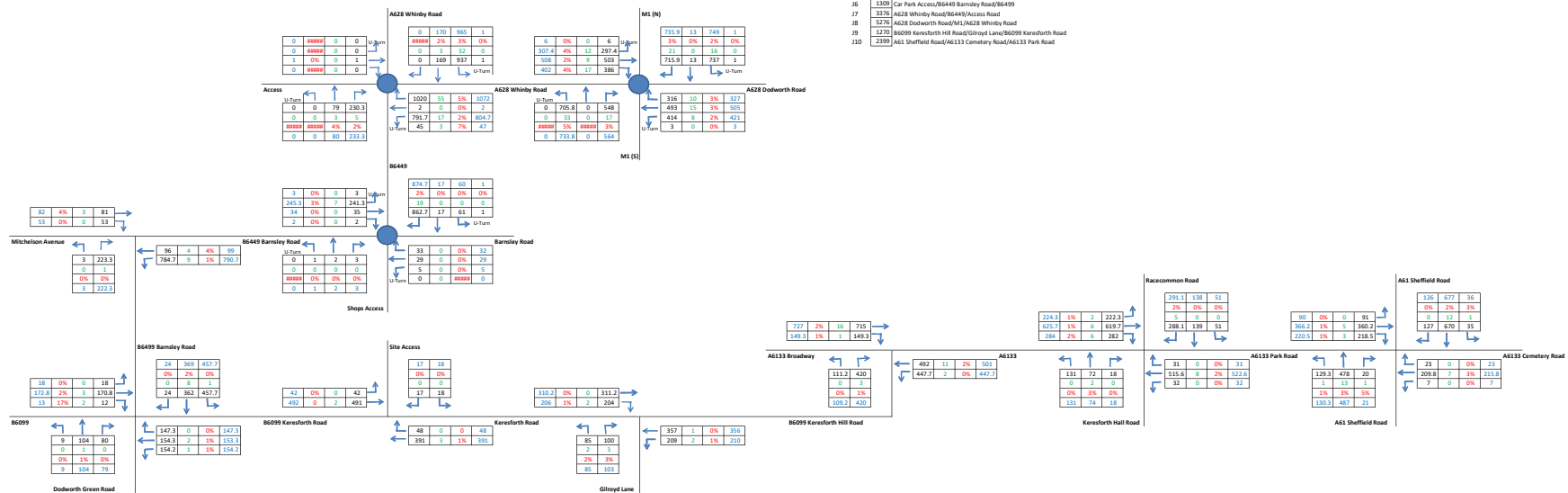
Arrivals

Departures



- J1 122 Wood End Court/B6099 Keresforth Road
- J2 58 A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
- J3 47 Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road
- J4 57 B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
- J5 57 B6499 Barnsley Road/Mitchelson Avenue
- J6 57 Car Park Access/B6449 Barnsley Road/B6499
- J7 57 A628 Whinley Road/B6449 Access Road
- J8 57 A628 Dodworth Road/M1/A628 Whinley Road
- J9 53 B6099 Keresforth Hill Road/Gillroyd Lane/B6099 Keresforth Road
- J10 31 A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

PM Peak Hour (16:30-17:30)



Vehicles
HOVs
HOVs (50)
PCUs

AM Peak Hour (07:45-08:45)

HCVs (%)

Committed Development - Land to the South-East of Higham Common Road, Barnsley (M1 - Residential & Employment) (Ref: 2021/2090 & 2021/2089)

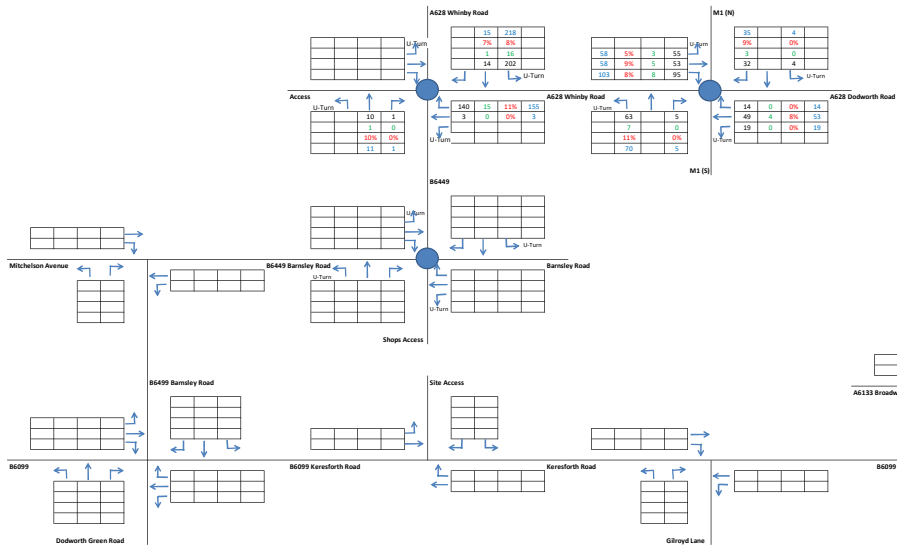
AM Peak Hour (07:45-09:45)

Vehicles - total vehicles have been calculated assuming HDVs form 2 vehicles

HDVs

HDVs (%)

PCUs



11	Woodend Court/B6099 Keresforth Road
12	A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
13	Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hill Road
14	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
15	B6499 Barnsley Road/Mitchelson Avenue
16	Car Park Access/B6449 Barnsley Road/B6499
17	A628 Whinley Road/B6449 Access Road
18	A628 Dodworth Road/M1/A628 Whinley Road
19	B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
110	A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

Committed Development - Proposed Secondary School, Land off Keresforth Close (Ref: 2021/1631) PUPIL TRIPS ONLY

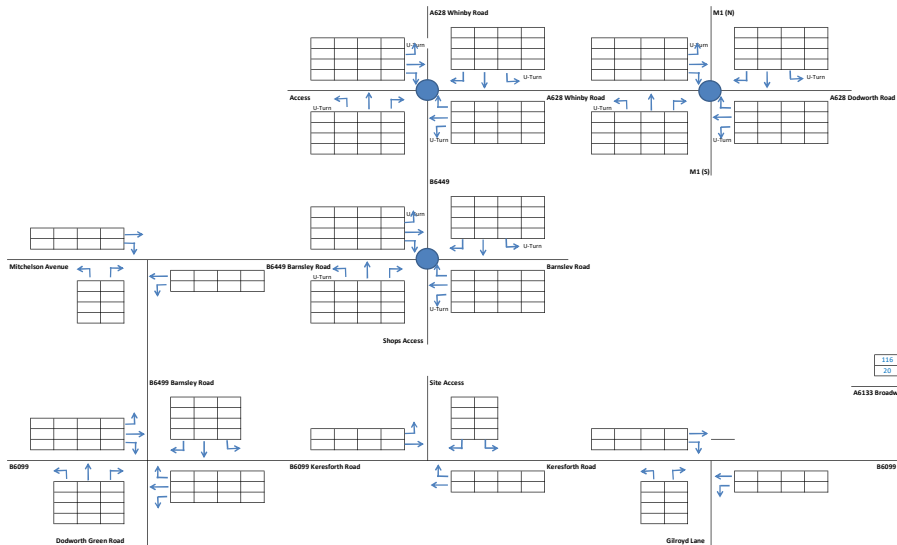
AM Peak Hour (07:45-09:45)

Vehicles - in the absence of total vehicle numbers, PCU figures have been used

HDVs

HDVs (%)

PCUs



11	Woodend Court/B6099 Keresforth Road
12	A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
13	Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hill Road
14	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
15	B6499 Barnsley Road/Mitchelson Avenue
16	Car Park Access/B6449 Barnsley Road/B6499
17	A628 Whinley Road/B6449 Access Road
18	A628 Dodworth Road/M1/A628 Whinley Road
19	B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
110	A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

Committed Development - Proposed Secondary School, Land off Keresforth Close (Ref: 2021/1631) STAFF TRIPS ONLY

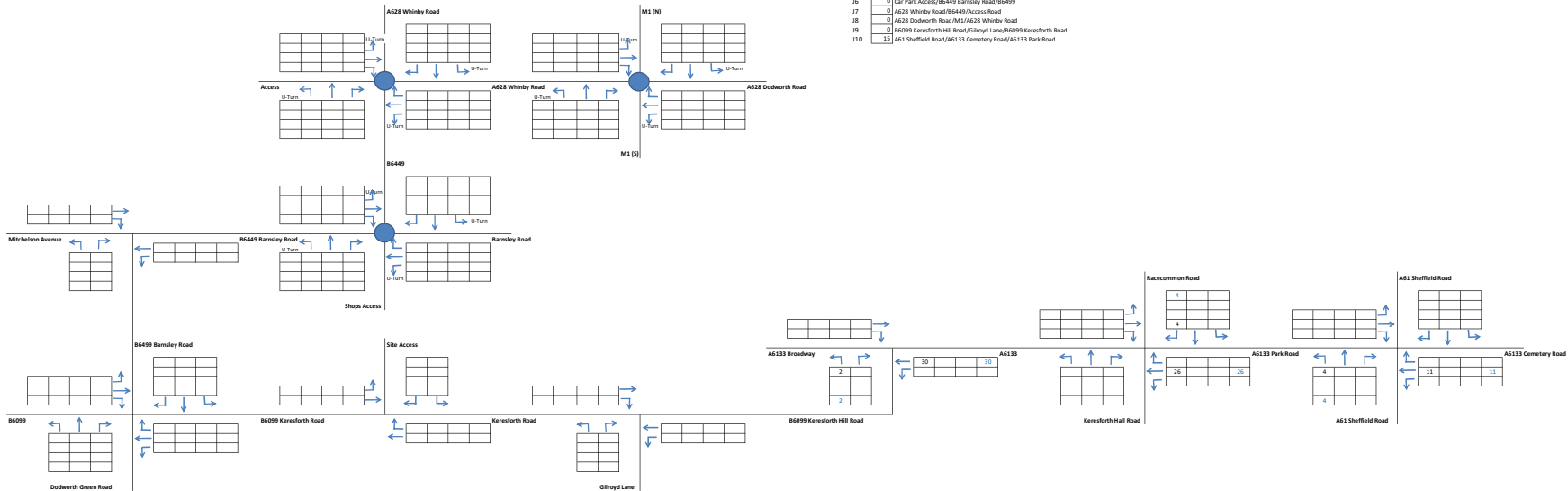
AM Peak Hour (07:45-08:45)

Vehicles - in the absence of total vehicle numbers, PCU figures have been used

HCUs

HCUs (N)

PCUs



11	0	Woodend Court/B6099 Keresforth Road
12	32	A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
13	30	Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hill Road
14	0	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
15	0	B6499 Barnsley Road/Mitchelson Avenue
16	0	Car Park Access/B6449 Barnsley Road/B6499
17	0	A628 Whinley Road/B6449 Access Road
18	0	A628 Dodworth Road/M1/A628 Whinley Road
19	0	B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
110	13	A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

Committed Development - Land off Smithywood Lane and Calver Close, Gilroyd (Ref: 2021/1642)

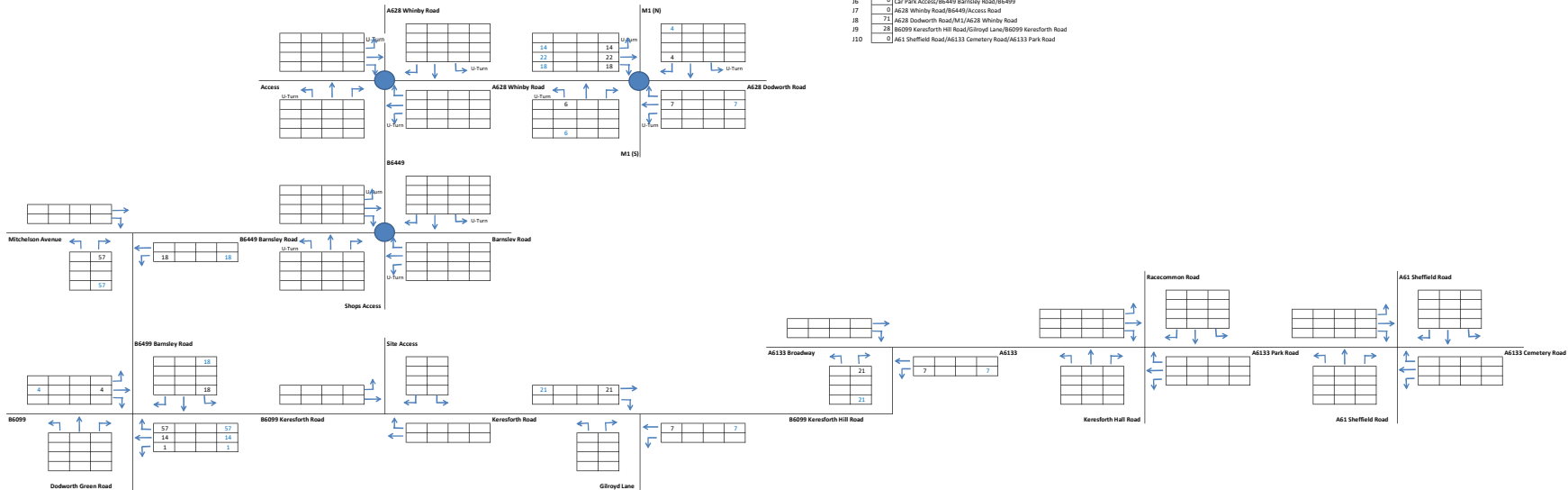
AM Peak Hour (07:45-08:45)

Vehicles - in the absence of total vehicle numbers, PCU figures have been used

HCUs

HCUs (N)

PCUs



11	0	Woodend Court/B6099 Keresforth Road
12	28	A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
13	0	Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hill Road
14	94	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
15	75	B6499 Barnsley Road/Mitchelson Avenue
16	0	Car Park Access/B6449 Barnsley Road/B6499
17	0	A628 Whinley Road/B6449 Access Road
18	71	A628 Dodworth Road/M1/A628 Whinley Road
19	23	B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
110	0	A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

Total Committed Development Trips

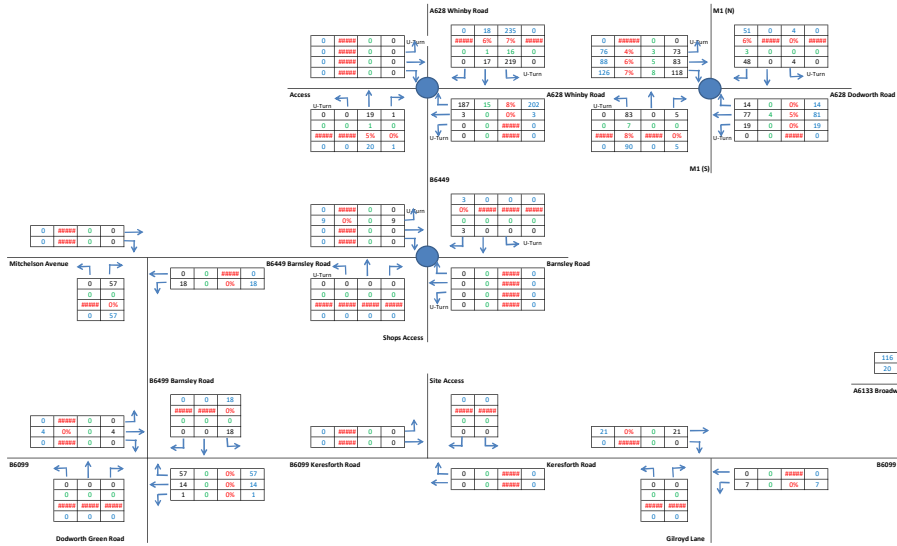
AM Peak Hour (07:45-08:45)

Vehicles

HCVs

HCVs (%)

PCUs



- 11 0 Woodend Court/B6099 Keresforth Road
- 12 332 A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
- 13 264 Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hill Road
- 14 76 B6449 Barnsley Road/B6099 High Street/B6449 Dodsworth Green Road/B6099 Station Road
- 15 75 B6499 Barnsley Road/Mitchelson Avenue
- 16 12 Car Park Access/B6449 Barnsley Road/B6499
- 17 473 A628 Whinley Road/B6449 Access Road
- 18 554 A628 Dodsworth Road/M1/A628 Whinley Road
- 19 23 B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
- 110 145 A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

2033 Do Nothing

AM Peak Hour (07:45-08:45)

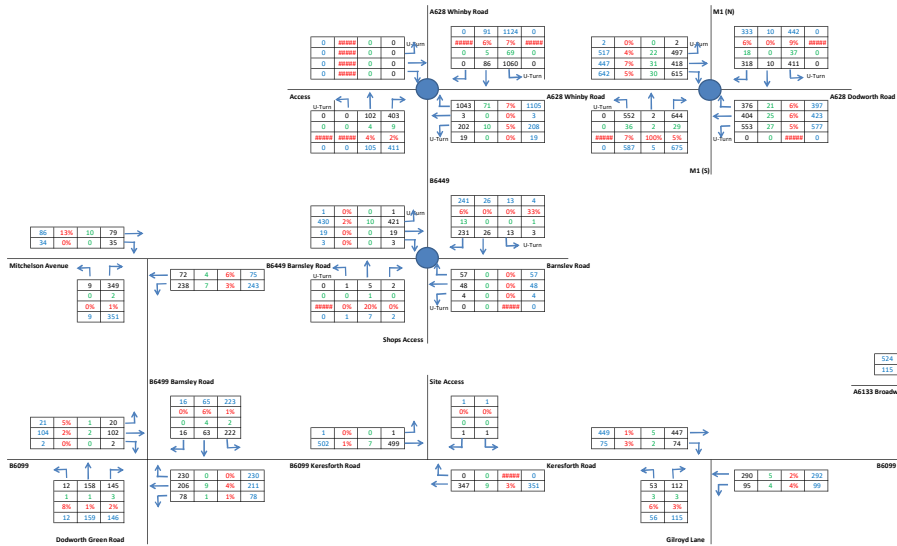
Vehicles

HCVs

HCVs (%)

PCUs

9.1% growth



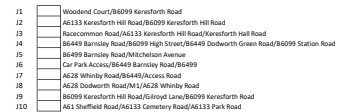
- 11 850 Woodend Court/B6099 Keresforth Road
- 12 2322 A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
- 13 2300 Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hill Road
- 14 1262 B6449 Barnsley Road/B6099 High Street/B6449 Dodsworth Green Road/B6099 Station Road
- 15 780 B6499 Barnsley Road/Mitchelson Avenue
- 16 850 Car Park Access/B6449 Barnsley Road/B6499
- 17 3062 A628 Whinley Road/B6449 Access Road
- 18 1057 A628 Dodsworth Road/M1/A628 Whinley Road
- 19 1082 B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
- 110 2062 A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

AM Peak Hour (07:45-08:45)

Vehicle:

HCVs (59)

Departures

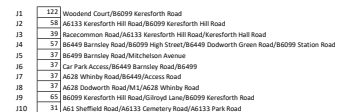


AM Peak Hour (07:45-08:45)

Version: 1.0.0

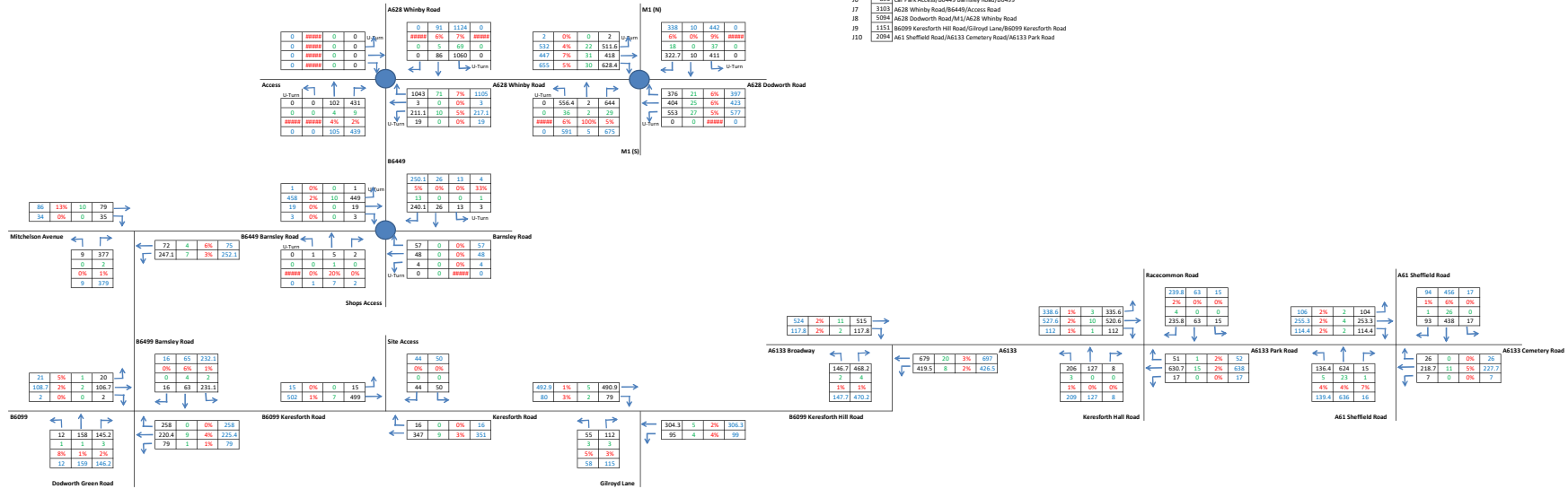
HCVs (34)

Departures



2033 Future Year
B&B Peak Hour (37:45:56:45)
Vehicles
HCVs
HCVs (LQ)
PCUs

- 11 972 Woodend Court/B6099 Keresforth Road
12 2382 A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
13 2342 Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hill Road
14 1324 B6449 Barnsley Road/B6099 High Street/B6449 Dodsworth Green Road/B6099 Station Road
15 835 B6499 Barnsley Road/Mitchelson Avenue
16 893 Car Park Access/B6449 Barnsley Road/B6499
17 1303 A628 Whinley Road/B6449 Access Road
18 5094 A628 Dodsworth Road/M1/A628 Whinley Road
19 1155 B6099 Keresforth Hill Road/Ghroyd Lane/B6099 Keresforth Road
110 2099 A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road



2022 Base

PM Peak Hour (16:30-17:30)

VEHICLES

HCV

HCV (%)

PCU

PCU (%)

PCU (%)

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11	Woodend Court/B6099 Keresforth Road
12	A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
13	Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hill Road
14	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
15	B6449 Barnsley Road/Mitchelson Avenue
16	Car Park Access/B6449 Barnsley Road/B6449
17	A628 Whinley Road/B6449 Access Road
18	A628 Dodworth Road/M1/A628 Whinley Road
19	B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
20	A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

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11	Woodend Court/B6099 Keresforth Road
12	A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
13	Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hill Road
14	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
15	B6449 Barnsley Road/Mitchelson Avenue
16	Car Park Access/B6449 Barnsley Road/B6449
17	A628 Whinley Road/B6449 Access Road
18	A628 Dodworth Road/M1/A628 Whinley Road
19	B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
20	A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

Comm/Inst Development - Carlot Park Extension (Ref: 2019/0286)

PM Peak Hour (16:30-17:30)

VEHICLES - in the absence of total vehicle numbers, PCU figures have been used

HCV

HCV (%)

PCU

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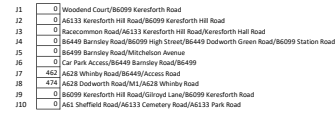
PCU (%)

PCU (%)

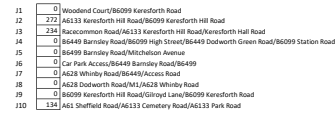
PCU (%)

</

PCUs



PCUs



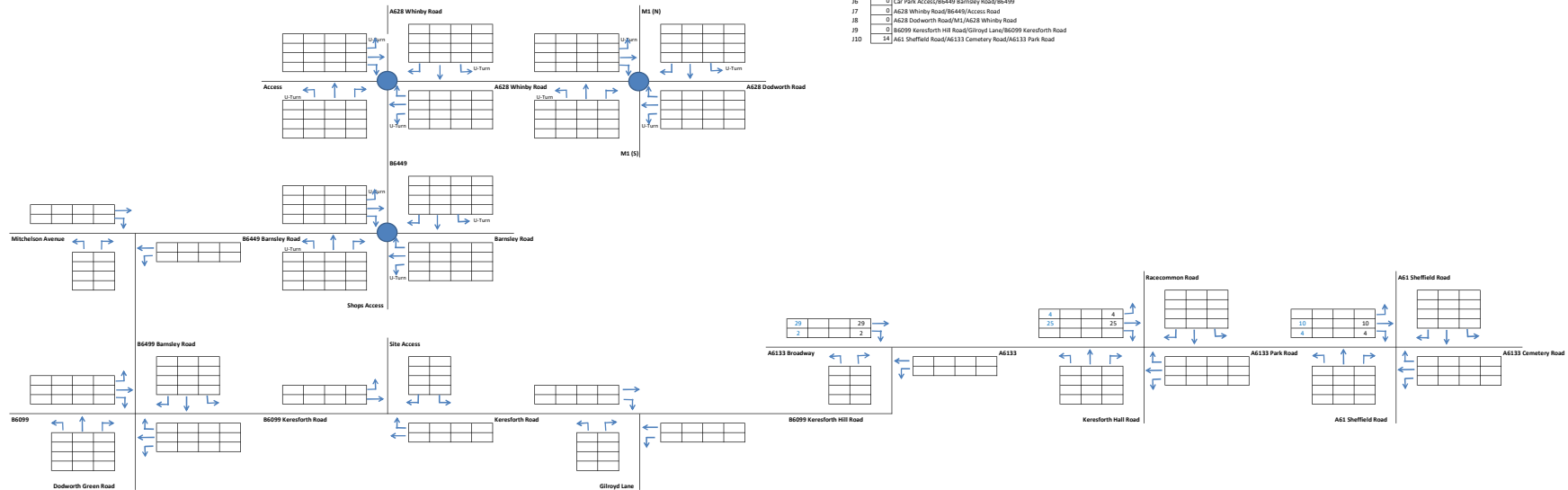
Committed Development - Proposed Secondary School, Land off Keresforth Close (Ref: 2021/1631) STAFF TRIPS ONLY

PM Peak Hour (16:30-17:30)

Vehicles - in the absence of total vehicle numbers, PCU figures have been used

HCV (N)

PCU (N)



J1	Woodend Court/B6099 Keresforth Road
J2	A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
J3	Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hill Road
J4	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
J5	B6499 Barnsley Road/Mitchelson Avenue
J6	Car Park Access/B6449 Barnsley Road/B6499
J7	A628 Whinley Road/B6449 Access Road
J8	A628 Dodworth Road/M1/A628 Whinley Road
J9	B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
J10	A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

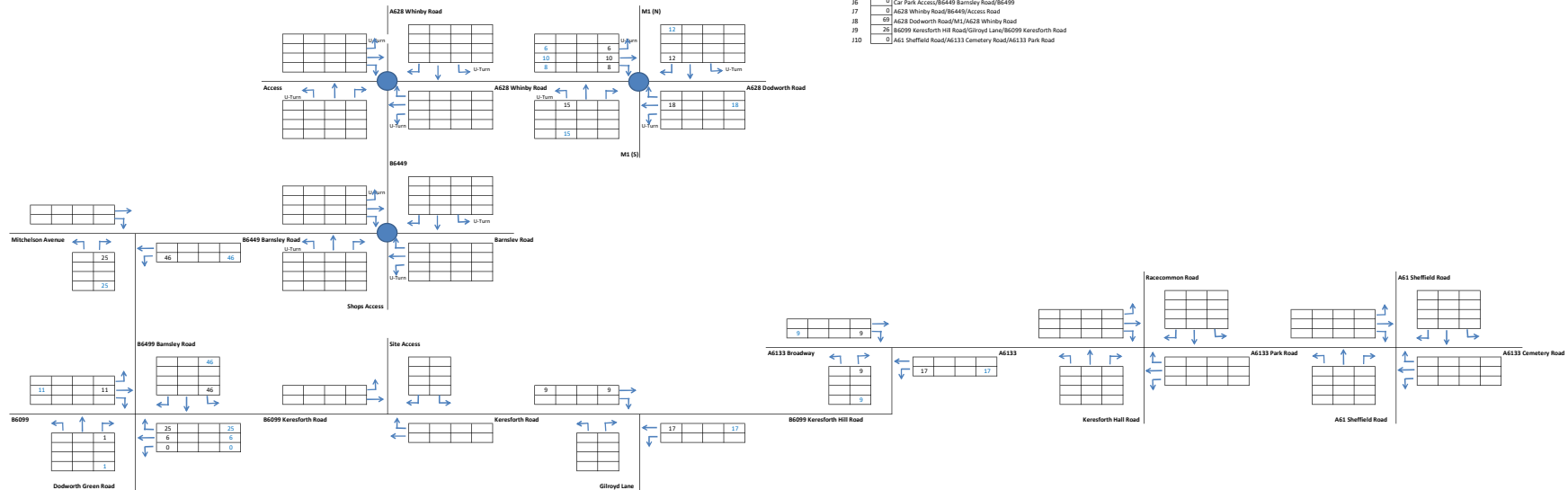
Committed Development - Land off Smithywood Lane and Calver Close, Gilroyd (Ref: 2021/1642)

PM Peak Hour (16:30-17:30)

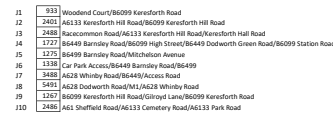
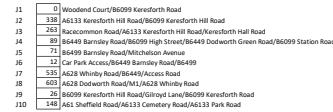
Vehicles - in the absence of total vehicle numbers, PCU figures have been used

HCV (N)

PCU (N)



J1	Woodend Court/B6099 Keresforth Road
J2	A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
J3	Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hill Road
J4	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
J5	B6499 Barnsley Road/Mitchelson Avenue
J6	Car Park Access/B6449 Barnsley Road/B6499
J7	A628 Whinley Road/B6449 Access Road
J8	A628 Dodworth Road/M1/A628 Whinley Road
J9	B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
J10	A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road



2022 Base

PM Peak Hour (16:30-17:30)

Vehicles

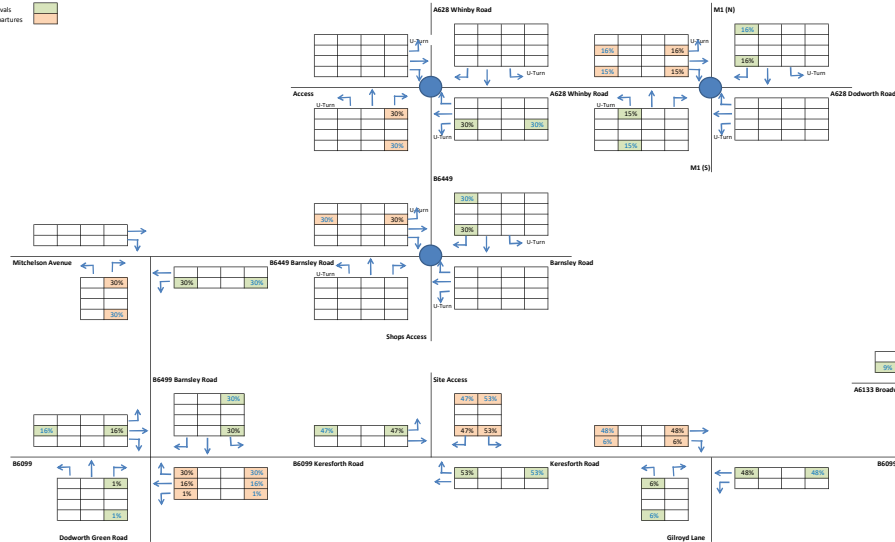
HCVs

HCVs (%)

PCUs

Arrivals

Departures



- J1 Woodend Court/B6099 Keresforth Road
- J2 A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
- J3 Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road
- J4 B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
- J5 B6499 Barnsley Road/Mitchelson Avenue
- J6 Car Park Access/B6449 Barnsley Road/B6499
- J7 A628 Whinley Road/B6449 Access Road
- J8 A628 Dodworth Road/M1/A628 Whinley Road
- J9 B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
- J10 A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

Development Trips

PM Peak Hour (16:30-17:30)

Vehicles

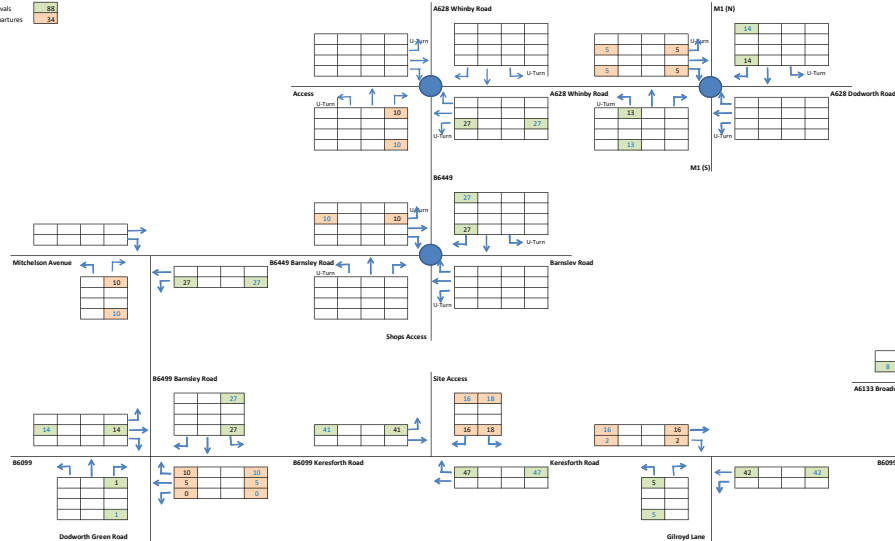
HCVs

HCVs (%)

PCUs

Arrivals

Departures



- J1 Woodend Court/B6099 Keresforth Road
- J2 A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
- J3 Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road
- J4 B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road
- J5 B6499 Barnsley Road/Mitchelson Avenue
- J6 Car Park Access/B6449 Barnsley Road/B6499
- J7 A628 Whinley Road/B6449 Access Road
- J8 A628 Dodworth Road/M1/A628 Whinley Road
- J9 B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road
- J10 A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road

Appendix 6 – TEMPPro Traffic Growth

Traffic Growth Forecasts

Base Year: 2022
Assessment Year: 2027
Period (years): 5
Area Type: N/A
Road Type: Motorway (worst-case)
Area Served: N/A
NTM Dataset: RTF 2018 Scenario 1 - Reference
Region Data Set Version: Yorkshire & Humber v7.2
Software Version: TEMPRO v7.2b
Area: Barnsley

Factor	Households (HH)	Jobs
Base Year Unadjusted	110800	93659
Forecast Year Unadjusted	114993	95001
Growth Unadjusted	4193	1342
Committed Developments	1958	3143
Do Nothing Adjusted	113035	93659
Proposed Development	220	
Do Something Adjusted	112815	93659

Scenario	Weekday AM Peak	Weekday PM Peak	Average Day
Unadjusted	1.0532	1.0532	1.0558
Unadjusted Growth Factor:	5.3%	5.3%	5.6%

Do Something	Weekday AM Peak	Weekday PM Peak	Average Day
Adjusted	1.0359	1.0357	1.0382
Adjusted Growth Factor:	3.6%	3.6%	3.8%

Land to the South-East of Higham Common Road, Barnsley (MU1 - Residential)
Land off Smithywood Lane and Calver Close, Gilroyd, Barnsley

Proposed Secondary School, Land off Keresforth Close
Capitol Park Extension
Land to the South-East of Higham Common Road, Barnsley (MU1 - Employment)

Dwellings
1760
198
1958
Jobs
90
193 based on parking spaces
2860 based on land area and job growth aspirations in the local plan
3143
50 hectares out of 306 hectares (17,500 jobs)

Traffic Growth Forecasts

Base Year:	2022
Assessment Year:	2033
Period (years):	11
Area Type:	N/A
Road Type:	Motorway (worst-case)
Area Served:	N/A
NTM Dataset:	RTF 2018 Scenario 1 - Reference
Region Data Set Version:	Yorkshire & Humber v7.2
Software Version:	TEMPRO v7.2b
Area:	Barnsley

Factor	Households (HH)	Jobs
Base Year Unadjusted	110800	93659
Forecast Year Unadjusted	119709	96519
Growth Unadjusted	8909	2860
Committed Developments	1958	3143
Do Nothing Adjusted	117751	93659
Proposed Development	220	
Do Something Adjusted	117531	93659

Scenario	Weekday AM Peak	Weekday PM Peak	Average Day
Unadjusted	1.1175	1.1175	1.1228
Unadjusted Growth Factor:	11.8%	11.8%	12.3%

Do Something	Weekday AM Peak	Weekday PM Peak	Average Day
Adjusted	1.0906	1.0912	1.0966
Adjusted Growth Factor:	9.1%	9.1%	9.7%

Land to the South-East of Higham Common Road, Barnsley (MU1 - Residential)
Land off Smithywood Lane and Calver Close, Gilroyd, Barnsley

Proposed Secondary School, Land off Keresforth Close
Capitol Park Extension
Land to the South-East of Higham Common Road, Barnsley (MU1 - Employment)

Dwellings
1760
198
1958
Jobs
90
193 based on parking spaces
2860 based on land area and job growth aspirations in the local plan
3143
50 hectares out of 306 hectares (17,500 jobs)

Appendix 7 – JI Modelling Results

Junctions 9				
PICADY 9 - Priority Intersection Module				
Version: 9.5.1.7462 © Copyright TRL Limited, 2019				
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Filename: Keresforth Road_Access Junction.j9

Path: \\192.168.4.5\Data1\Projects\4283 Bark Meadows Dodworth\Data\Modelling\Sept 22\J1

Report generation date: 10/14/2022 1:01:15 PM

»2027 Opening Year, AM

»2027 Opening Year, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2027 Opening Year										
Stream B-AC	D1	0.3	10.84	0.24	B	D2	0.1	9.72	0.09	A
Stream C-AB		0.1	5.35	0.05	A		0.4	5.48	0.15	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Keresforth Road, Dodworth
Location	Keresforth Road/Access Junction
Site number	J1
Date	11/10/2022
Version	
Status	
Identifier	
Client	Keepmoat Homes
Jobnumber	LTP/4283
Enumerator	LTPAC
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	2027 Opening Year	AM	ONE HOUR	07:30	09:00	15
D2	2027 Opening Year	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2027 Opening Year, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Access Road/Keresforth Road Junction	T-Junction	Two-way		1.25	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Keresforth Road (W)		Major
B	Access Road		Minor
C	Keresforth Road (E)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Keresforth Road (E)	7.10			45.0	✓	0.00

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 (m)	Visibility to left (m)	Visibility to right (m)
B - Access Road	One lane	3.50	43	43

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	538	0.093	0.236	0.148	0.337
B-C	684	0.100	0.252	-	-
C-B	600	0.221	0.221	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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	2027 Opening Year	AM	ONE HOUR	07:30	09:00	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 - Keresforth Road (W)		✓	492	100.000
B - Access Road		✓	94	100.000
C - Keresforth Road (E)		✓	350	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Keresforth Road (W)	B - Access Road	C - Keresforth Road (E)
From	A - Keresforth Road (W)	0	15	477
	B - Access Road	44	0	50
	C - Keresforth Road (E)	334	16	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Keresforth Road (W)	B - Access Road	C - Keresforth Road (E)
From	A - Keresforth Road (W)	0	0	1
	B - Access Road	0	0	0
	C - Keresforth Road (E)	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.24	10.84	0.3	B
C-AB	0.05	5.35	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	71	491	0.144	70	0.2	8.528	A
C-AB	19	697	0.027	19	0.0	5.344	A
C-A	245			245			
A-B	11			11			
A-C	359			359			

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-AC	85	468	0.181	84	0.2	9.382	A
C-AB	25	719	0.034	25	0.0	5.227	A
C-A	290			290			
A-B	13			13			
A-C	429			429			

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-AC	103	435	0.238	103	0.3	10.821	B
C-AB	35	750	0.046	35	0.1	5.079	A
C-A	351			351			
A-B	17			17			
A-C	525			525			

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-AC	103	435	0.238	103	0.3	10.845	B
C-AB	35	750	0.046	35	0.1	5.083	A
C-A	351			351			
A-B	17			17			
A-C	525			525			

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-AC	85	468	0.181	85	0.2	9.411	A
C-AB	25	719	0.035	25	0.0	5.239	A
C-A	290			290			
A-B	13			13			
A-C	429			429			

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-AC	71	491	0.144	71	0.2	8.579	A
C-AB	19	697	0.027	19	0.0	5.351	A
C-A	245			245			
A-B	11			11			
A-C	359			359			

2027 Opening Year, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Access Road/Keresforth Road Junction	T-Junction	Two-way		0.85	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2027 Opening Year	PM	ONE HOUR	16:15	17:45	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 - Keresforth Road (W)		✓	534	100.000
B - Access Road		✓	35	100.000
C - Keresforth Road (E)		✓	439	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Keresforth Road (W)	B - Access Road	C - Keresforth Road (E)
From	A - Keresforth Road (W)	0	42	492
	B - Access Road	17	0	18
	C - Keresforth Road (E)	391	48	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Keresforth Road (W)	B - Access Road	C - Keresforth Road (E)
From	A - Keresforth Road (W)	0	0	0
	B - Access Road	0	0	0
	C - Keresforth Road (E)	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.09	9.72	0.1	A
C-AB	0.15	5.48	0.4	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	473	0.056	26	0.1	8.054	A
C-AB	61	722	0.085	60	0.2	5.465	A
C-A	269			269			
A-B	32			32			
A-C	370			370			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	31	446	0.071	31	0.1	8.677	A
C-AB	82	749	0.109	81	0.2	5.419	A
C-A	313			313			
A-B	38			38			
A-C	442			442			

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-AC	39	409	0.094	38	0.1	9.716	A
C-AB	117	788	0.149	117	0.4	5.393	A
C-A	366			366			
A-B	46			46			
A-C	542			542			

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-AC	39	409	0.094	39	0.1	9.724	A
C-AB	117	789	0.149	117	0.4	5.403	A
C-A	366			366			
A-B	46			46			
A-C	542			542			

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-AC	31	446	0.071	32	0.1	8.685	A
C-AB	82	749	0.109	82	0.2	5.436	A
C-A	313			313			
A-B	38			38			
A-C	442			442			

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-AC	26	473	0.056	26	0.1	8.067	A
C-AB	61	722	0.085	62	0.2	5.483	A
C-A	269			269			
A-B	32			32			
A-C	370			370			

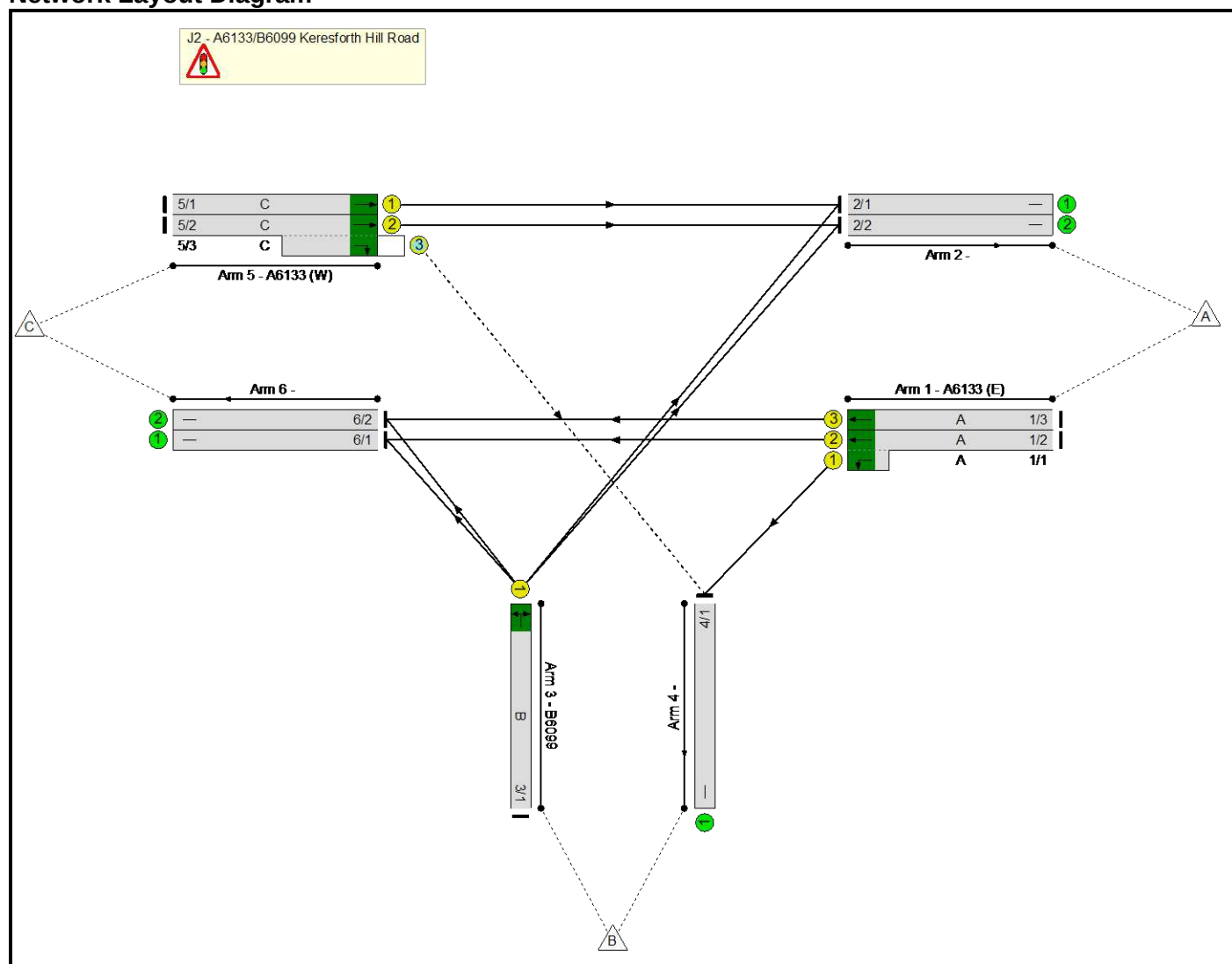
Appendix 8 – J2 Modelling Results

LTP LinSig Output

User and Project Details

Project:	4283 Bark Meadows Dodworth
Title:	Proposed Residential Development
Location:	Barnsley
Client:	Keepmoat Homes
Site Ref(s):	J2 - A6133 Keresforth Hill Road/B6099 Keresforth Hill Road
Additional detail:	
File name:	J2 - A6133 Keresforth Hill Road B6099 Keresforth Hill Road.lsg3x
Author:	AC
Company:	Local Transport Projects Ltd
Address:	

Network Layout Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		7	7
E	Pedestrian		7	7
F	Pedestrian		7	7

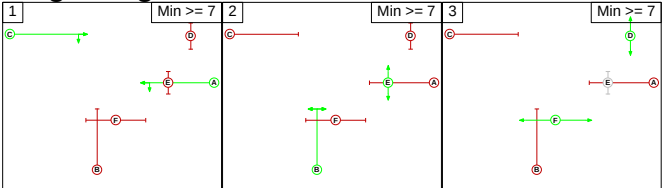
Phase Intergreens Matrix

Terminating Phase	Starting Phase						
		A	B	C	D	E	F
	A		5	-	-	5	7
	B	5		6	9	-	5
	C	-	5		8	-	8
	D	-	8	8		-	-
	E	11	-	-	-		-
	F	10	10	10	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A C
2	B E
3	D F

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

From Stage	To Stage		
	1	2	3
	1	5	8
	2	11	9

Give-Way Lane Input Data

Junction: J2 - A6133/B6099 Keresforth Hill Road											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
5/3 (A6133 (W))	4/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00
				1/2	1.09	All					
				1/3	1.09	All					

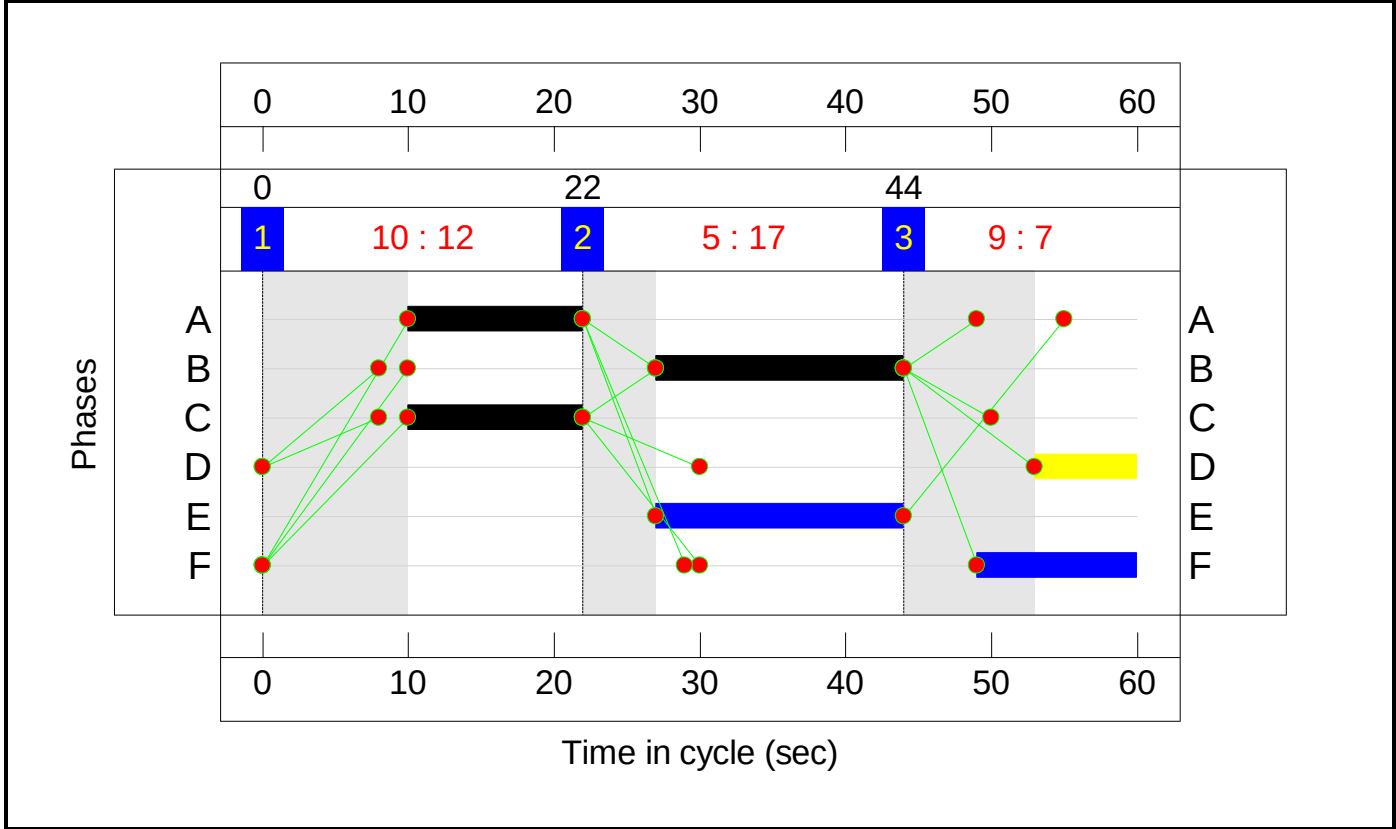
Lane Input Data

Junction: J2 - A6133/B6099 Keresforth Hill Road												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A6133 (E))	U	A	2	3	3.0	Geom	-	3.50	0.00	Y	Arm 4 Left	10.00
1/2 (A6133 (E))	U	A	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
1/3 (A6133 (E))	U	A	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
2/1	U		2	3	60.0	Inf	-	-	-	-	-	-
2/2	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (B6099)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 2 Right	14.00
											Arm 6 Left	10.00
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (A6133 (W))	U	C	2	3	60.0	Geom	-	3.60	0.00	Y	Arm 2 Ahead	Inf
5/2 (A6133 (W))	U	C	2	3	60.0	Geom	-	3.60	0.00	Y	Arm 2 Ahead	Inf
5/3 (A6133 (W))	O	C	2	3	7.0	Geom	-	3.60	0.00	Y	Arm 4 Right	15.00
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/2	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022 Base AM'	07:45	08:45	01:00	
2: '2022 Base PM'	16:30	17:30	01:00	
3: '2027 Do Nothing AM'	07:45	08:45	01:00	
4: '2027 Do Nothing PM'	16:30	17:30	01:00	
5: '2027 Opening Year'	07:45	08:45	01:00	
6: '2027 Opening Year'	16:30	17:30	01:00	

Scenario 1: '2022 Base AM' (FG1: '2022 Base AM', Plan 1: 'Network Control Plan 1')
Signal Timings Diagram



Traffic Flows, Desired
Desired Flow :

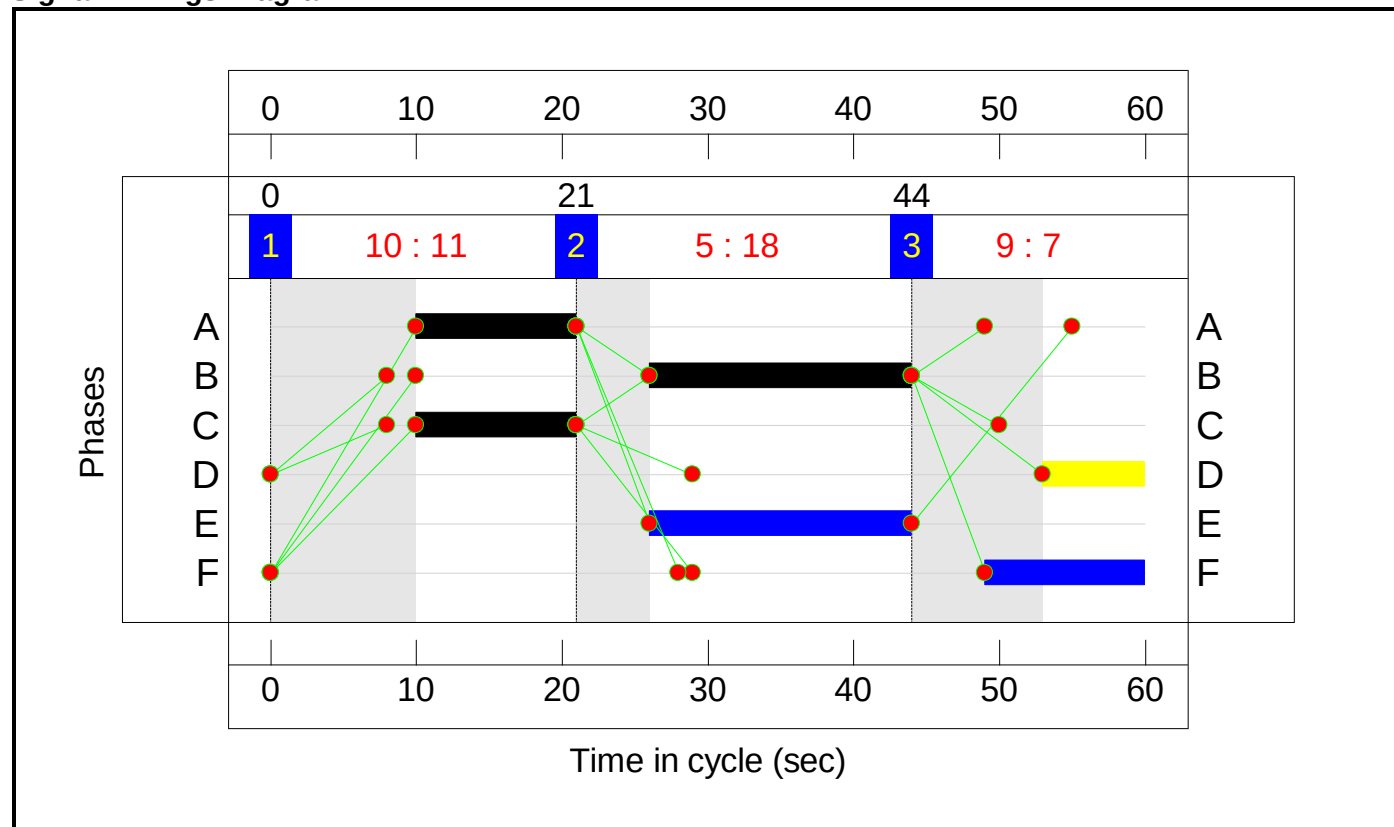
	Destination				
		A	B	C	Tot.
Origin	A	0	374	505	879
	B	380	0	107	487
	C	374	87	0	461
	Tot.	754	461	612	1827

Lane Saturation Flows

Junction: J2 - A6133/B6099 Keresforth Hill Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.50	0.00	Y	Arm 4 Left	10.00	100.0 %	1709	1709
1/2 (A6133 (E))	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
1/3 (A6133 (E))	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1 (B6099)	3.50	0.00	Y	Arm 2 Right Arm 6 Left	14.00 10.00	78.0 % 22.0 %	1760	1760
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.60	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1975	1975
5/2 (A6133 (W))	3.60	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1975	1975
5/3 (A6133 (W))	3.60	0.00	Y	Arm 4 Right	15.00	100.0 %	1795	1795
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2022 Base PM' (FG2: '2022 Base PM', Plan 1: 'Network Control Plan 1')

Signal Timings Diagram



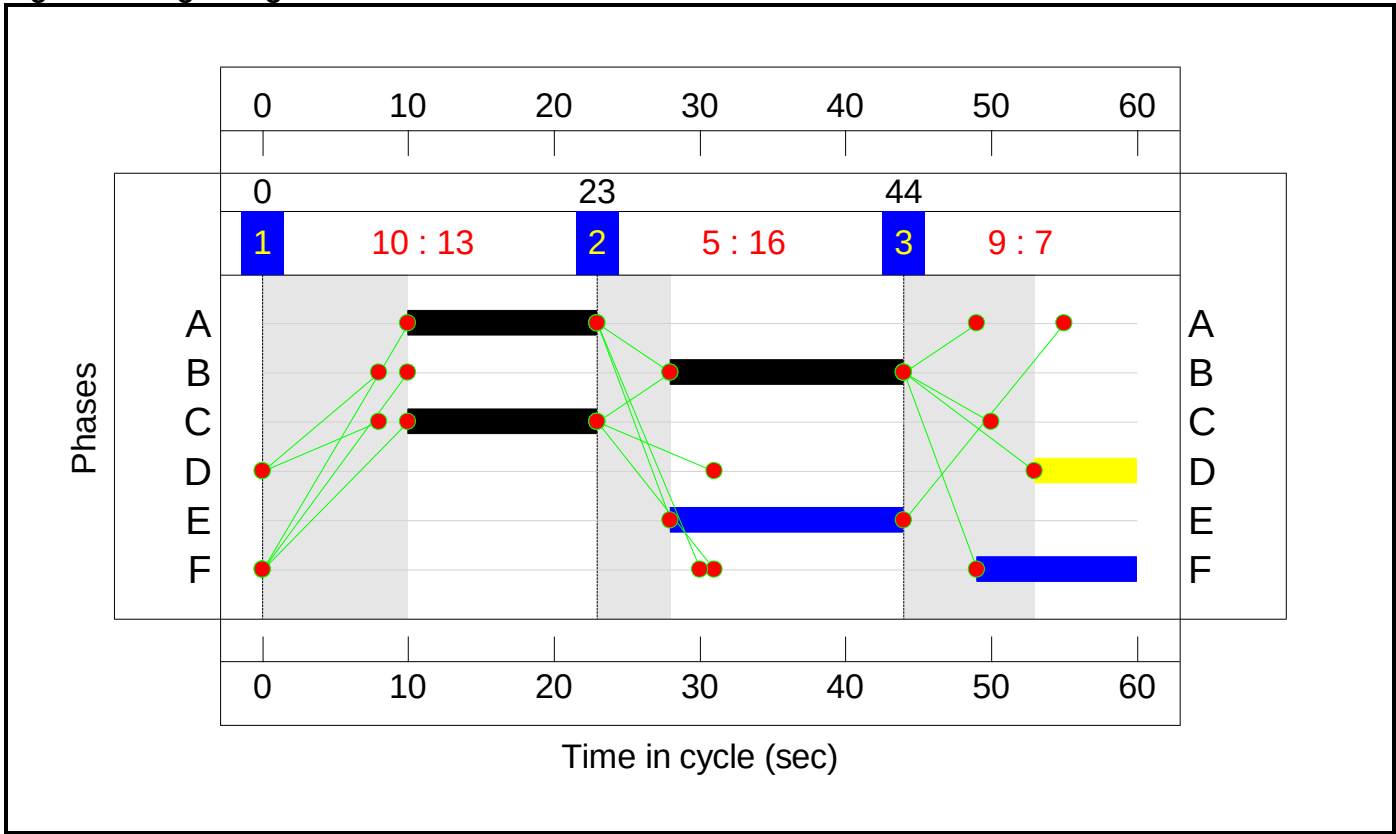
Desired Flow :

Lane Saturation Flows

Junction: J2 - A6133/B6099 Keresforth Hill Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.50	0.00	Y	Arm 4 Left	10.00	100.0 %	1709	1709
1/2 (A6133 (E))	3.50	0.00	Y	Arm 6 Ahead	Inf	0.0 %	1965	1965
1/3 (A6133 (E))	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1 (B6099)	3.50	0.00	Y	Arm 2 Right	14.00	82.2 %	1763	1763
				Arm 6 Left	10.00	17.8 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.60	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1975	1975
5/2 (A6133 (W))	3.60	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1975	1975
5/3 (A6133 (W))	3.60	0.00	Y	Arm 4 Right	15.00	100.0 %	1795	1795
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2027 Do Nothing AM' (FG3: '2027 Do Nothing AM', Plan 1: 'Network Control Plan 1')

Signal Timings Diagram



Traffic Flows, Desired

Desired Flow :

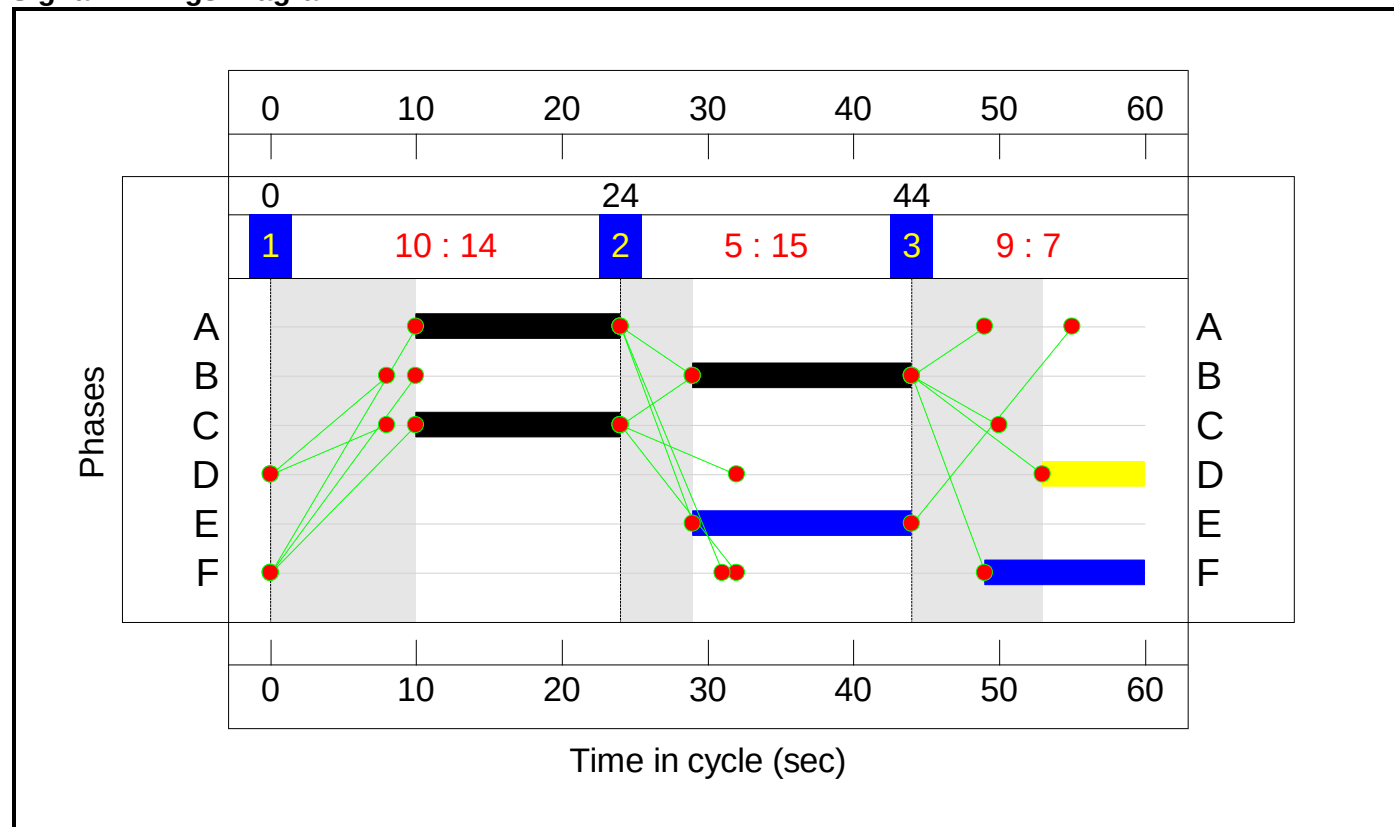
	Destination				
		A	B	C	Tot.
Origin	A	0	394	669	1063
	B	415	0	113	528
	C	503	110	0	613
	Tot.	918	504	782	2204

Lane Saturation Flows

Junction: J2 - A6133/B6099 Keresforth Hill Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.50	0.00	Y	Arm 4 Left	10.00	100.0 %	1709	1709
1/2 (A6133 (E))	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
1/3 (A6133 (E))	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1 (B6099)	3.50	0.00	Y	Arm 2 Right Arm 6 Left	14.00 10.00	78.6 % 21.4 %	1760	1760
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.60	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1975	1975
5/2 (A6133 (W))	3.60	0.00	Y	Arm 2 Ahead	Inf	0.0 %	1975	1975
5/3 (A6133 (W))	3.60	0.00	Y	Arm 4 Right	15.00	100.0 %	1795	1795
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2027 Do Nothing PM' (FG4: '2027 Do Nothing PM', Plan 1: 'Network Control Plan 1')

Signal Timings Diagram



Desired Flow :

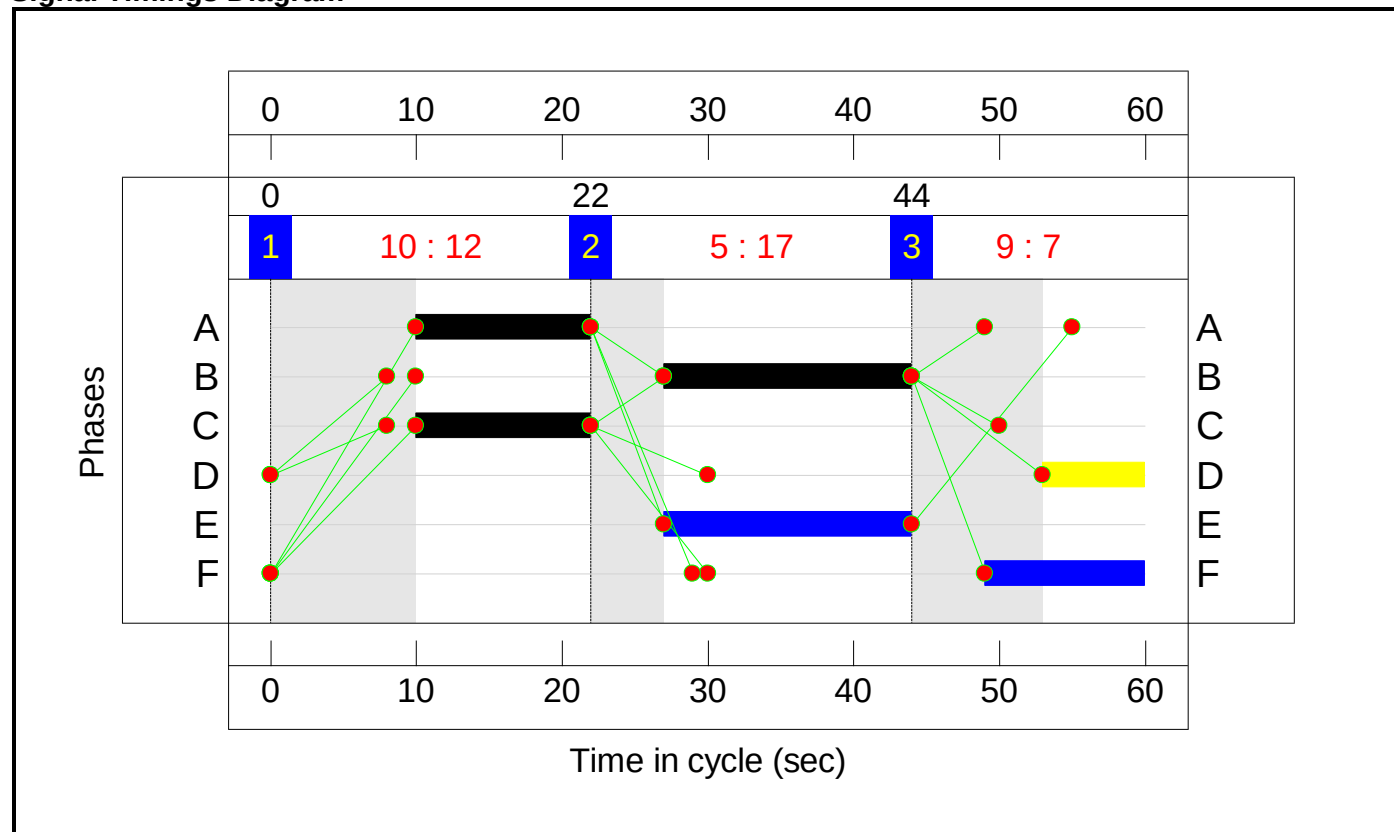
Desired Flow :

Lane Saturation Flows

Junction: J2 - A6133/B6099 Keresforth Hill Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.50	0.00	Y	Arm 4 Left	10.00	100.0 %	1709	1709
1/2 (A6133 (E))	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
1/3 (A6133 (E))	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1 (B6099)	3.50	0.00	Y	Arm 2 Right	14.00	79.3 %	1761	1761
				Arm 6 Left	10.00	20.7 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.60	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1975	1975
5/2 (A6133 (W))	3.60	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1975	1975
5/3 (A6133 (W))	3.60	0.00	Y	Arm 4 Right	15.00	100.0 %	1795	1795
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2027 Opening Year AM' (FG5: '2027 Opening Year', Plan 1: 'Network Control Plan 1')

Signal Timings Diagram



Traffic Flows, Desired

Desired Flow :

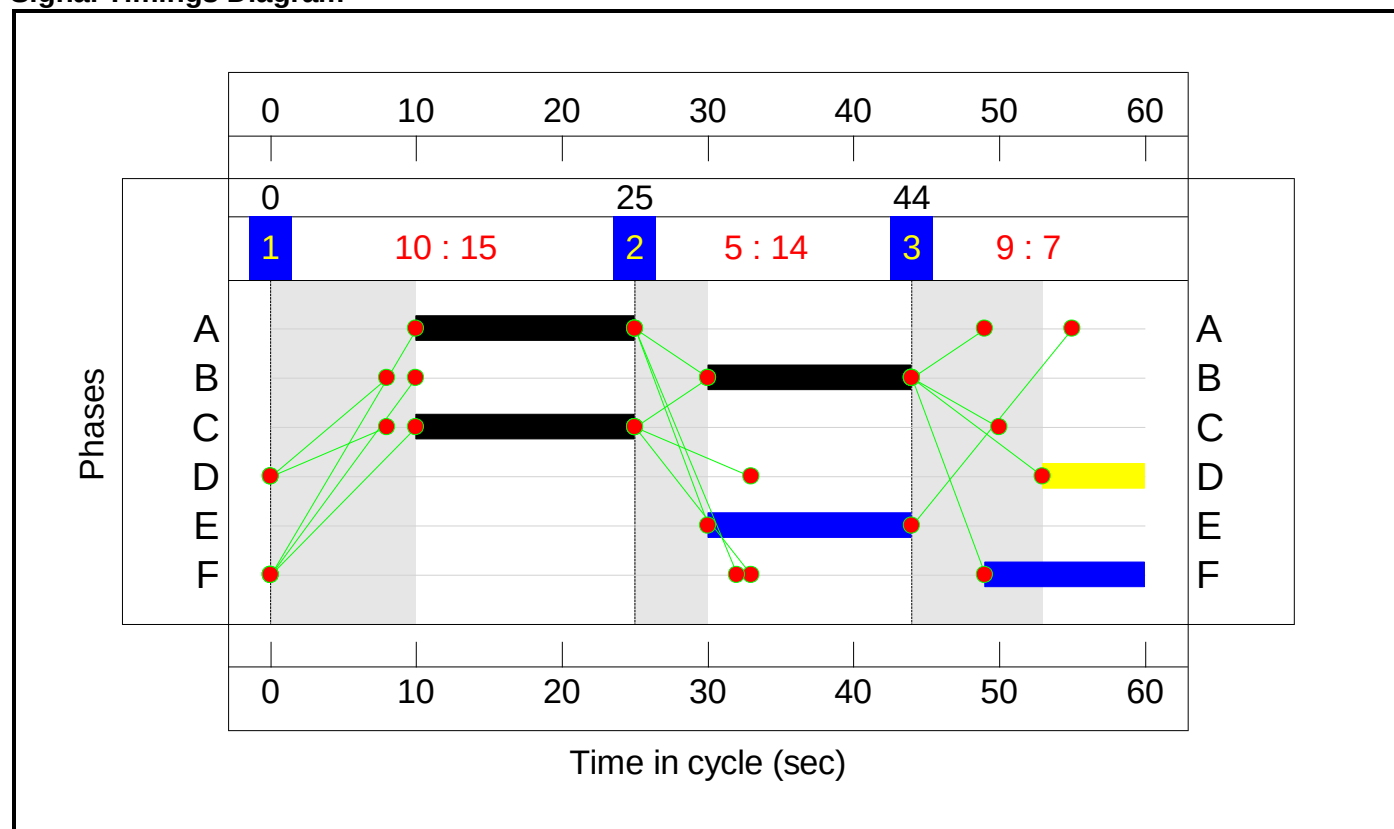
	Destination				
		A	B	C	Tot.
Origin	A	0	405	669	1074
	B	450	0	142	592
	C	503	113	0	616
	Tot.	953	518	811	2282

Lane Saturation Flows

Junction: J2 - A6133/B6099 Keresforth Hill Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.50	0.00	Y	Arm 4 Left	10.00	100.0 %	1709	1709
1/2 (A6133 (E))	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
1/3 (A6133 (E))	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1 (B6099)	3.50	0.00	Y	Arm 2 Right Arm 6 Left	14.00 10.00	76.0 % 24.0 %	1759	1759
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.60	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1975	1975
5/2 (A6133 (W))	3.60	0.00	Y	Arm 2 Ahead	Inf	0.0 %	1975	1975
5/3 (A6133 (W))	3.60	0.00	Y	Arm 4 Right	15.00	100.0 %	1795	1795
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2027 Opening Year PM' (FG6: '2027 Opening Year', Plan 1: 'Network Control Plan 1')

Signal Timings Diagram



Desired Flow :

Lane Saturation Flows

Junction: J2 - A6133/B6099 Keresforth Hill Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.50	0.00	Y	Arm 4 Left	10.00	100.0 %	1709	1709
1/2 (A6133 (E))	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
1/3 (A6133 (E))	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1 (B6099)	3.50	0.00	Y	Arm 2 Right	14.00	79.4 %	1761	1761
				Arm 6 Left	10.00	20.6 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.60	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1975	1975
5/2 (A6133 (W))	3.60	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1975	1975
5/3 (A6133 (W))	3.60	0.00	Y	Arm 4 Right	15.00	100.0 %	1795	1795
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2022 Base AM' (FG1: '2022 Base AM', Plan 1: 'Network Control Plan 1')

Scenario 2: '2022 Base PM' (FG2: '2022 Base PM', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Proposed Residential Development	-	-	-		-	-	-	-	-	-	61.1%	-	-	106	0	0	10.5	-	-
J2 - A6133/B6099 Keresforth Hill Road	-	-	-		-	-	-	-	-	-	61.1%	-	-	106	0	0	10.5	-	-
1/2+1/1	A6133 (E) Left Ahead	U	A		1	11	-	383	1965:1709	0+627	0.0 : 61.1%	383	383	-	-	-	2.4	22.9	5.9
1/3	A6133 (E) Ahead	U	A		1	11	-	372	1965	721	51.6%	372	372	-	-	-	2.1	20.0	5.3
3/1	B6099 Right Left	U	B		1	18	-	467	1763	793	58.9%	467	467	-	-	-	2.3	17.8	6.4
5/1	A6133 (W) Ahead	U	C		1	11	-	278	1975	724	38.4%	278	278	-	-	-	1.4	18.0	3.7
5/2+5/3	A6133 (W) Ahead Right	U+O	C		1	11	-	390	1975:1795	630+212	45.1 : 49.9%	390	390	106	0	0	2.3	20.8	3.9
C1 PRC for Signalled Lanes (%): 47.3 Total Delay for Signalled Lanes (pcuHr): 10.46 Cycle Time (s): 60 PRC Over All Lanes (%): 47.3 Total Delay Over All Lanes(pcuHr): 10.46																			

Scenario 3: '2027 Do Nothing AM' (FG3: '2027 Do Nothing AM', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Proposed Residential Development	-	-	-		-	-	-	-	-	-	81.8%	-	-	33	0	77	19.1	-	-
J2 - A6133/B6099 Keresforth Hill Road	-	-	-		-	-	-	-	-	-	81.8%	-	-	33	0	77	19.1	-	-
1/2+1/1	A6133 (E) Left Ahead	U	A		1	13	-	547	1965:1709	194+499	78.9 : 78.9%	547	547	-	-	-	4.3	28.4	8.6
1/3	A6133 (E) Ahead	U	A		1	13	-	516	1965	688	75.0%	516	516	-	-	-	3.9	27.5	8.9
3/1	B6099 Right Left	U	B		1	16	-	528	1760	645	81.8%	528	528	-	-	-	4.7	32.0	10.1
5/1	A6133 (W) Ahead	U	C		1	13	-	503	1975	691	72.8%	503	503	-	-	-	3.7	26.4	8.6
5/2+5/3	A6133 (W) Ahead Right	U+O	C		1	13	-	110	1975:1795	0+143	0.0 : 76.7%	110	110	33	0	77	2.4	79.4	2.8
C1 PRC for Signalised Lanes (%): 10.0 Total Delay for Signalised Lanes (pcuHr): 19.07 Cycle Time (s): 60 PRC Over All Lanes (%): 10.0 Total Delay Over All Lanes(pcuHr): 19.07																			

Scenario 4: '2027 Do Nothing PM' (FG4: '2027 Do Nothing PM', Plan 1: 'Network Control Plan 1')

[illegible]

Scenario 5: '2027 Opening Year AM' (FG5: '2027 Opening Year', Plan 1: 'Network Control Plan 1')

[illegible]

Scenario 6: '2027 Opening Year PM' (FG6: '2027 Opening Year', Plan 1: 'Network Control Plan 1')

[illegible]

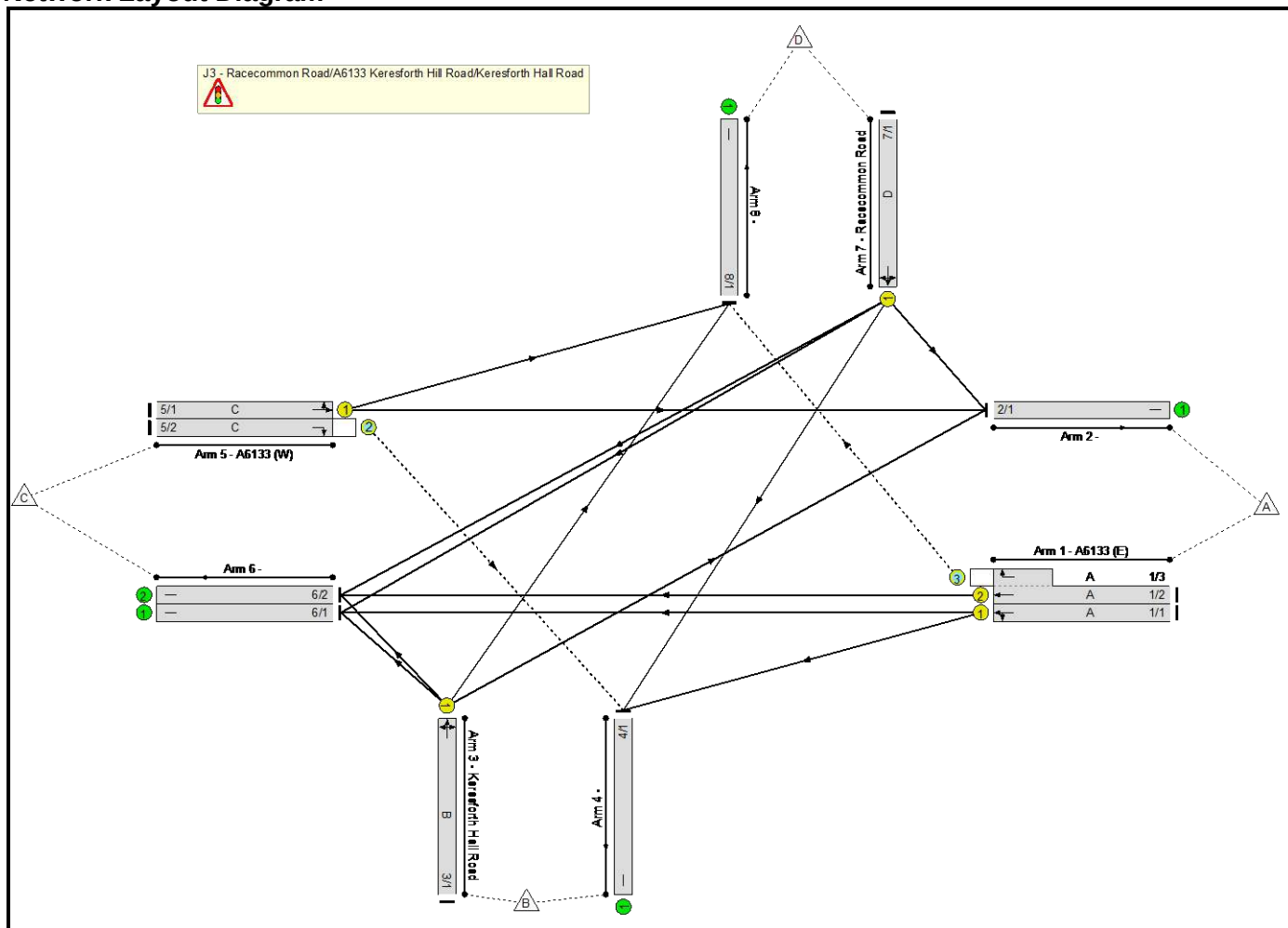
Appendix 9 – J3 Modelling Results

LTP LinSig Output

User and Project Details

Project:	4283 Bark Meadows Dodworth
Title:	Proposed Residential Development
Location:	Barnsley
Client:	Keepmoat Homes
Site Ref(s):	J3 - Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road
Additional detail:	
File name:	J3 - Racecommon Road_A6133 Keresforth Hill Road_Keresforth Hall Road.lsg3x
Author:	AC
Company:	Local Transport Projects Ltd
Address:	

Network Layout Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		7	7
F	Pedestrian		7	7

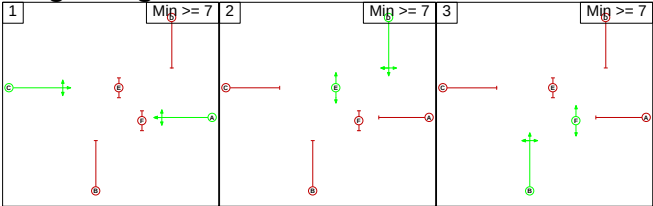
Phase Intergreens Matrix

Terminating Phase	Starting Phase						
		A	B	C	D	E	F
	A		8	-	5	-	7
	B	5		5	5	8	-
	C	-	5		8	6	-
	D	5	8	5		-	8
	E	-	6	6	-		-
	F	8	-	-	8	-	

Phases in Stage

Stage No.	Phases in Stage
1	A C
2	D E
3	B F

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

From Stage	To Stage		
	1	2	3
	1	8	8
	2	6	8
3	8	8	

Give-Way Lane Input Data

Junction: J3 - Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/3 (A6133 (E))	8/1 (Right)	1439	0	5/1	1.09	All	2.00	-	0.50	2	2.00
5/2 (A6133 (W))	4/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00
				1/2	1.09	All					

Lane Input Data

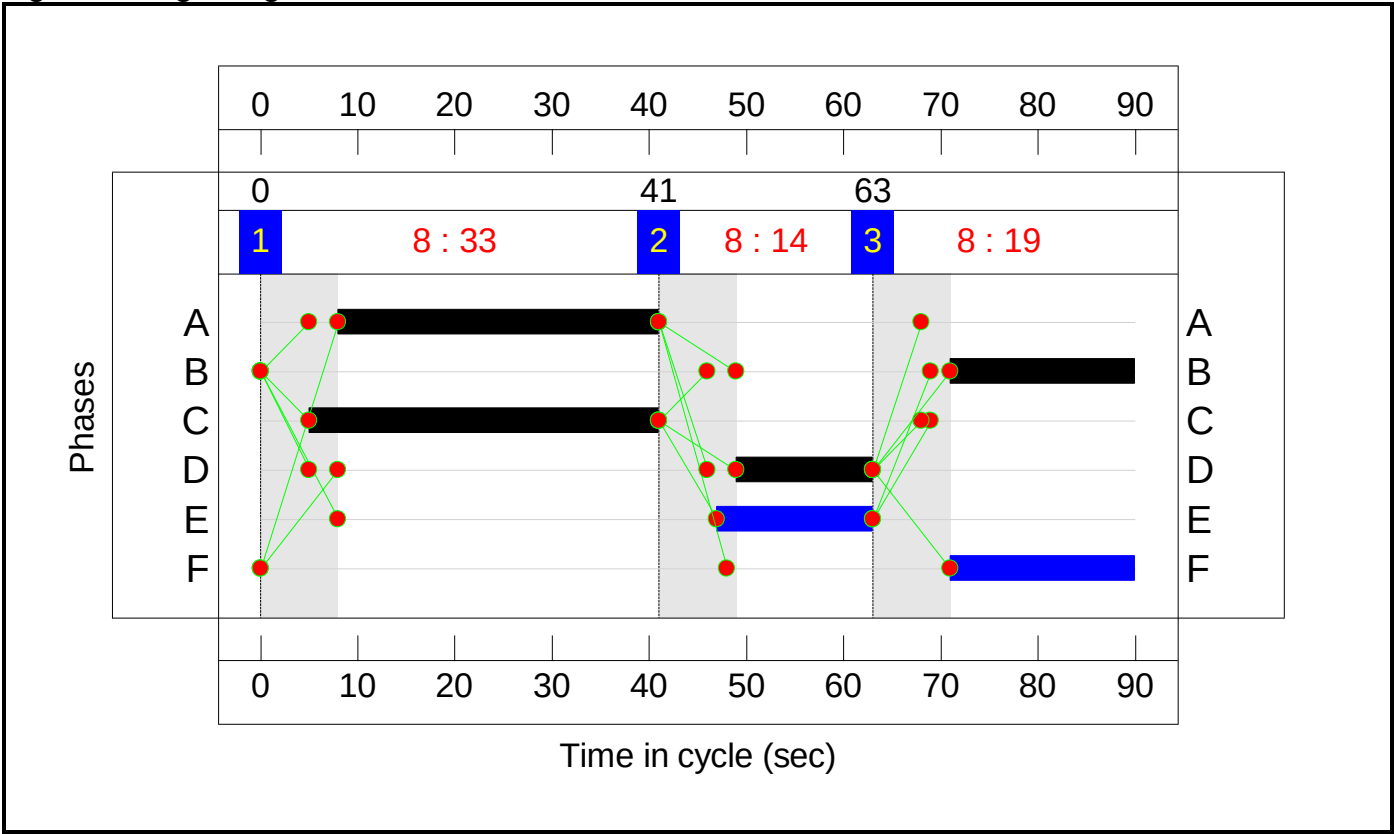
Junction: J3 - Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A6133 (E))	U	A	2	3	7.0	Geom	-	3.70	0.00	Y	Arm 4 Left	10.00
											Arm 6 Ahead	Inf
1/2 (A6133 (E))	U	A	2	3	60.0	Geom	-	3.30	0.00	Y	Arm 6 Ahead	Inf
1/3 (A6133 (E))	O	A	2	3	5.0	Geom	-	3.25	0.00	Y	Arm 8 Right	12.00
2/1	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Keresforth Hall Road)	U	B	2	3	60.0	Geom	-	2.80	0.00	Y	Arm 2 Right	12.00
											Arm 6 Left	8.00
											Arm 8 Ahead	Inf
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (A6133 (W))	U	C	2	3	60.0	Geom	-	3.20	0.00	Y	Arm 2 Ahead	Inf
											Arm 8 Left	13.00
5/2 (A6133 (W))	O	C	2	3	60.0	Geom	-	3.60	0.00	Y	Arm 4 Right	15.00
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/2	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (Racecommon Road)	U	D	2	3	60.0	Geom	-	3.60	0.00	Y	Arm 2 Left	12.00
											Arm 4 Ahead	Inf
											Arm 6 Right	22.00
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022 Base AM'	07:45	08:45	01:00	
2: '2022 Base PM'	16:30	17:30	01:00	
3: '2027 Do Nothing AM'	07:45	08:45	01:00	
4: '2027 Do Nothing PM'	16:30	17:30	01:00	
5: '2027 Opening Year AM'	07:45	08:45	01:00	
6: '2027 Opening Year AM'	16:30	17:30	01:00	

Scenario 1: '2022 Base AM' (FG1: '2022 Base AM', Plan 1: 'Network Control Plan 1')

Signal Timings Diagram



Traffic Flows, Desired

Desired Flow :

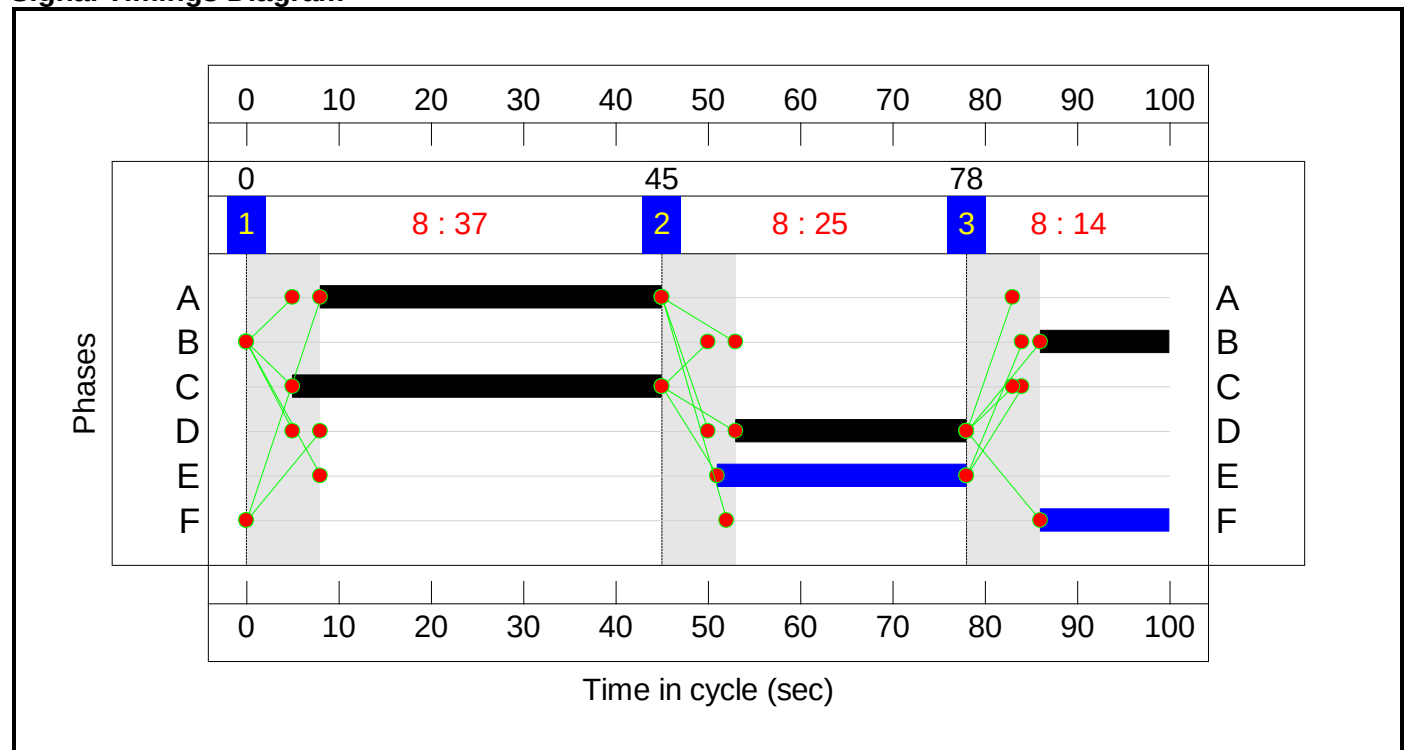
	Destination					
		A	B	C	D	Tot.
Origin	A	0	16	481	48	545
	B	7	0	188	116	311
	C	382	99	0	276	757
	D	14	58	189	0	261
	Tot.	403	173	858	440	1874

Lane Saturation Flows

Junction: J3 - Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.70	0.00	Y	Arm 4 Left	10.00	6.3 %	1966	1966
				Arm 6 Ahead	Inf	93.7 %		
1/2 (A6133 (E))	3.30	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1945	1945
1/3 (A6133 (E))	3.25	0.00	Y	Arm 8 Right	12.00	100.0 %	1724	1724
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (Keresforth Hall Road)	2.80	0.00	Y	Arm 2 Right	12.00	2.3 %	1698	1698
				Arm 6 Left	8.00	60.5 %		
				Arm 8 Ahead	Inf	37.3 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.20	0.00	Y	Arm 2 Ahead	Inf	58.1 %	1846	1846
				Arm 8 Left	13.00	41.9 %		
5/2 (A6133 (W))	3.60	0.00	Y	Arm 4 Right	15.00	100.0 %	1795	1795
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1 (Racecommon Road)	3.60	0.00	Y	Arm 2 Left	12.00	5.4 %	1870	1870
				Arm 4 Ahead	Inf	22.2 %		
				Arm 6 Right	22.00	72.4 %		
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2022 Base PM' (FG2: '2022 Base PM', Plan 1: 'Network Control Plan 1')

Signal Timings Diagram



Desired Flow :

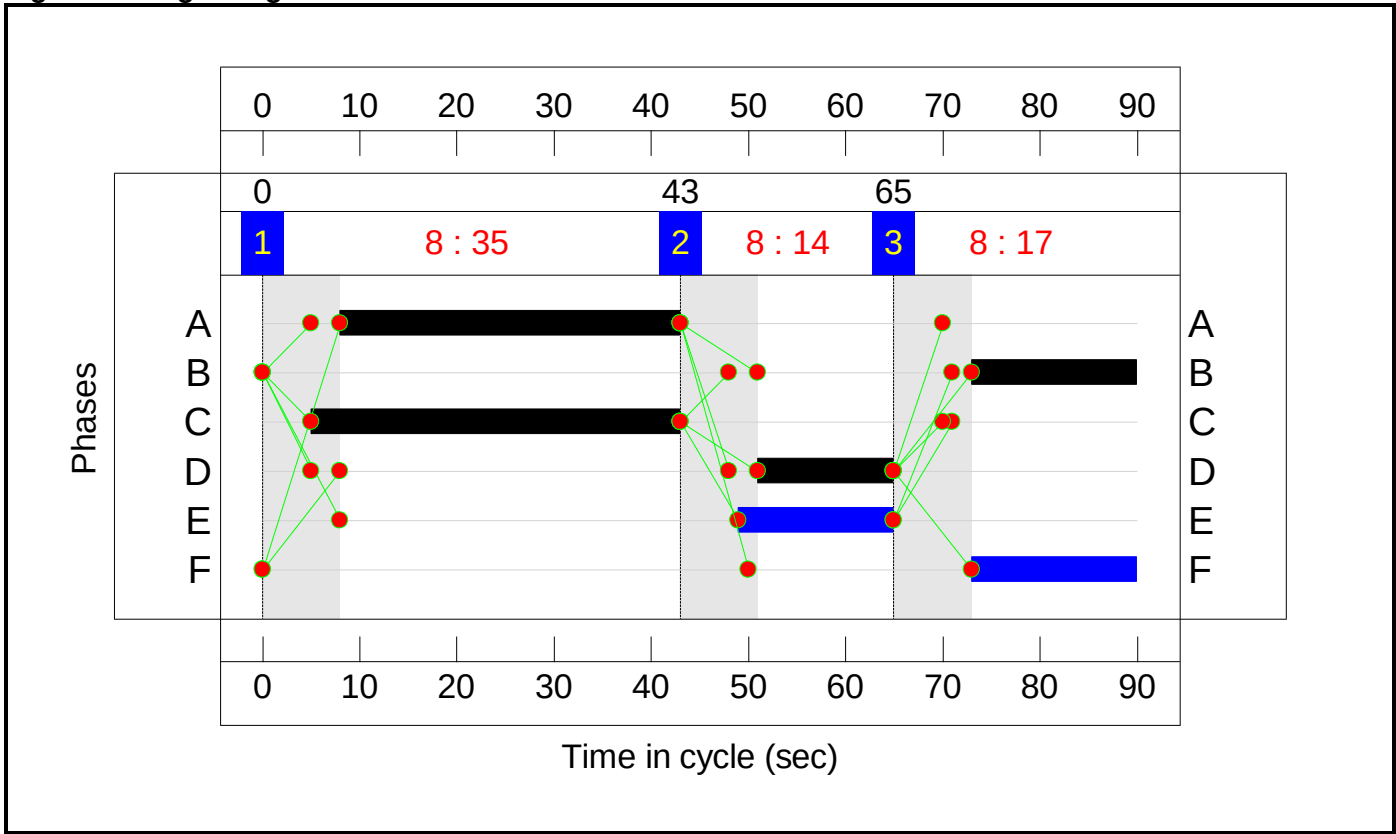
	Destination					
Origin		A	B	C	D	Tot.
	A	0	31	399	30	460
	B	17	0	123	71	211
	C	488	270	0	183	941
	D	49	133	245	0	427
	Tot.	554	434	767	284	2039

Lane Saturation Flows

Junction: J3 - Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.70	0.00	Y	Arm 4 Left	10.00	14.4 %	1943	1943
				Arm 6 Ahead	Inf	85.6 %		
1/2 (A6133 (E))	3.30	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1945	1945
1/3 (A6133 (E))	3.25	0.00	Y	Arm 8 Right	12.00	100.0 %	1724	1724
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (Keresforth Hall Road)	2.80	0.00	Y	Arm 2 Right	12.00	8.1 %	1693	1693
				Arm 6 Left	8.00	58.3 %		
				Arm 8 Ahead	Inf	33.6 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.20	0.00	Y	Arm 2 Ahead	Inf	72.7 %	1876	1876
				Arm 8 Left	13.00	27.3 %		
5/2 (A6133 (W))	3.60	0.00	Y	Arm 4 Right	15.00	100.0 %	1795	1795
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1 (Racecommon Road)	3.60	0.00	Y	Arm 2 Left	12.00	11.5 %	1875	1875
				Arm 4 Ahead	Inf	31.1 %		
				Arm 6 Right	22.00	57.4 %		
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2027 Do Nothing AM' (FG3: '2027 Do Nothing AM', Plan 1: 'Network Control Plan 1')

Signal Timings Diagram



Traffic Flows, Desired

Desired Flow :

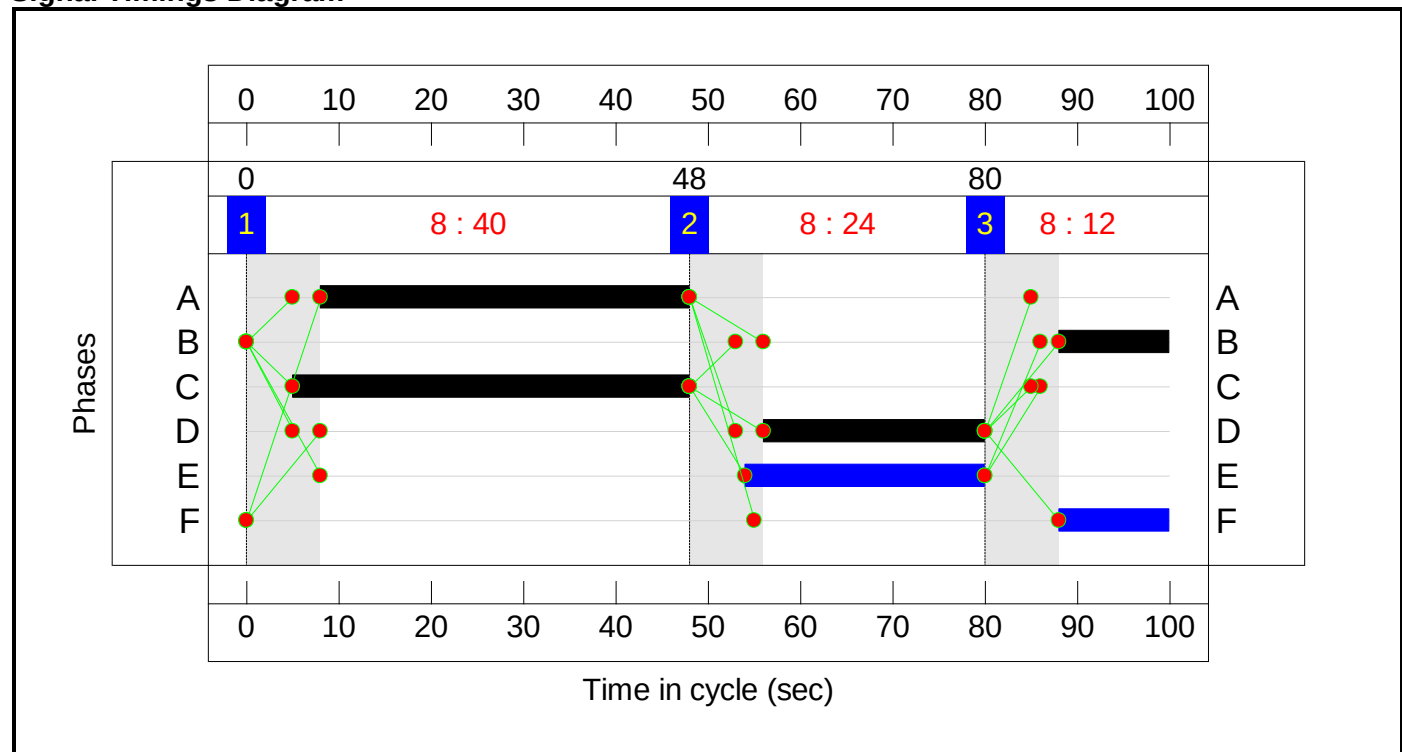
	Destination					
		A	B	C	D	Tot.
Origin	A	0	17	611	50	678
	B	7	0	199	120	326
	C	483	107	0	312	902
	D	15	60	226	0	301
	Tot.	505	184	1036	482	2207

Lane Saturation Flows

Junction: J3 - Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.70	0.00	Y	Arm 4 Left	10.00	5.2 %	1970	1970
				Arm 6 Ahead	Inf	94.8 %		
1/2 (A6133 (E))	3.30	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1945	1945
1/3 (A6133 (E))	3.25	0.00	Y	Arm 8 Right	12.00	100.0 %	1724	1724
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (Keresforth Hall Road)	2.80	0.00	Y	Arm 2 Right	12.00	2.1 %	1696	1696
				Arm 6 Left	8.00	61.0 %		
				Arm 8 Ahead	Inf	36.8 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.20	0.00	Y	Arm 2 Ahead	Inf	60.8 %	1851	1851
				Arm 8 Left	13.00	39.2 %		
5/2 (A6133 (W))	3.60	0.00	Y	Arm 4 Right	15.00	100.0 %	1795	1795
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1 (Racecommon Road)	3.60	0.00	Y	Arm 2 Left	12.00	5.0 %	1868	1868
				Arm 4 Ahead	Inf	19.9 %		
				Arm 6 Right	22.00	75.1 %		
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2027 Do Nothing PM' (FG4: '2027 Do Nothing PM', Plan 1: 'Network Control Plan 1')

Signal Timings Diagram



Desired Flow :

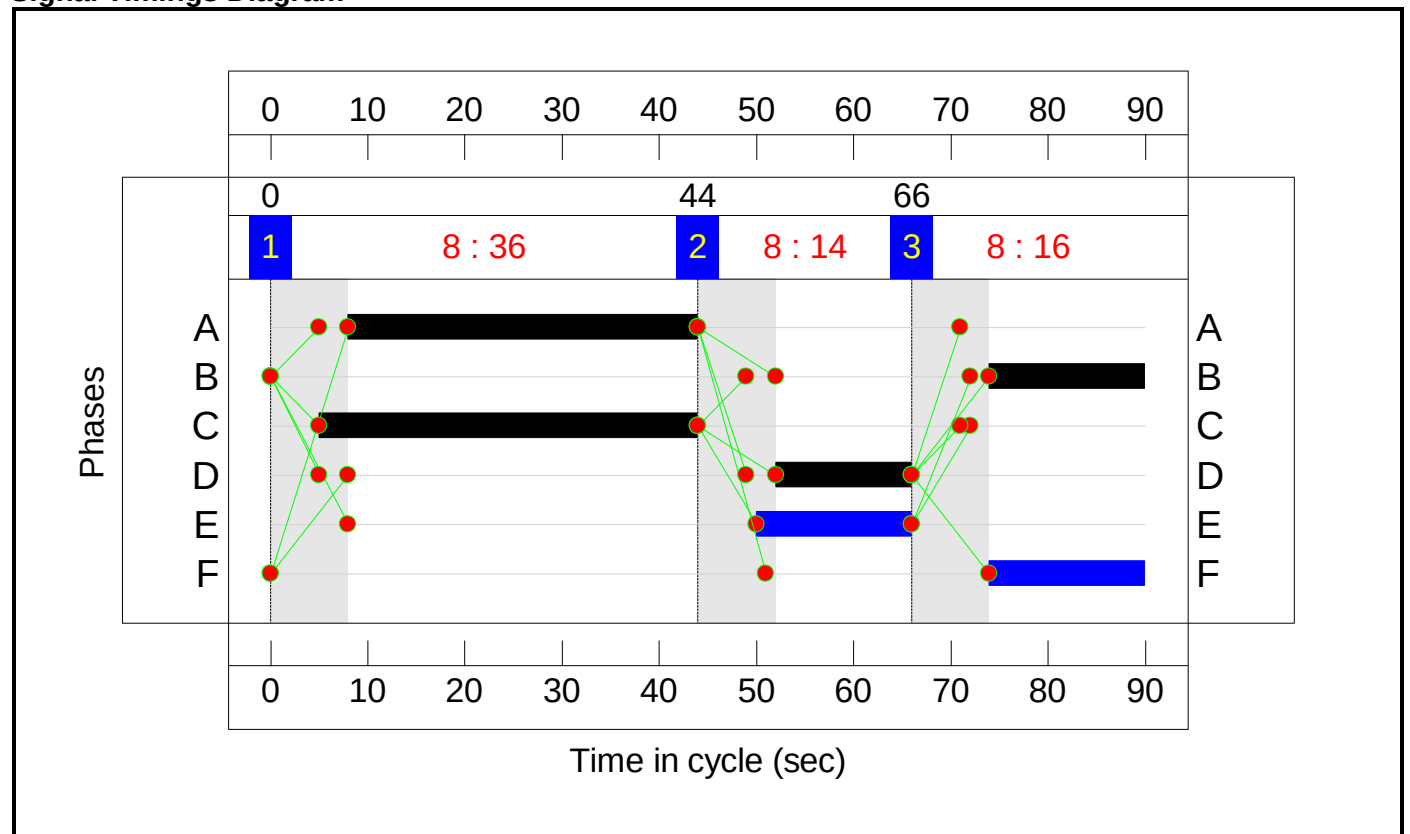
	Destination					
Origin		A	B	C	D	Tot.
	A	0	32	500	31	563
	B	18	0	131	74	223
	C	617	284	0	220	1121
	D	51	138	280	0	469
	Tot.	686	454	911	325	2376

Lane Saturation Flows

Junction: J3 - Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.70	0.00	Y	Arm 4 Left	10.00	11.8 %	1951	1951
				Arm 6 Ahead	Inf	88.2 %		
1/2 (A6133 (E))	3.30	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1945	1945
1/3 (A6133 (E))	3.25	0.00	Y	Arm 8 Right	12.00	100.0 %	1724	1724
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (Keresforth Hall Road)	2.80	0.00	Y	Arm 2 Right	12.00	8.1 %	1692	1692
				Arm 6 Left	8.00	58.7 %		
				Arm 8 Ahead	Inf	33.2 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.20	0.00	Y	Arm 2 Ahead	Inf	73.7 %	1878	1878
				Arm 8 Left	13.00	26.3 %		
5/2 (A6133 (W))	3.60	0.00	Y	Arm 4 Right	15.00	100.0 %	1795	1795
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1 (Racecommon Road)	3.60	0.00	Y	Arm 2 Left	12.00	10.9 %	1873	1873
				Arm 4 Ahead	Inf	29.4 %		
				Arm 6 Right	22.00	59.7 %		
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2027 Opening Year AM' (FG5: '2027 Opening Year AM', Plan 1: 'Network Control Plan 1')

Signal Timings Diagram



Traffic Flows, Desired

Desired Flow :

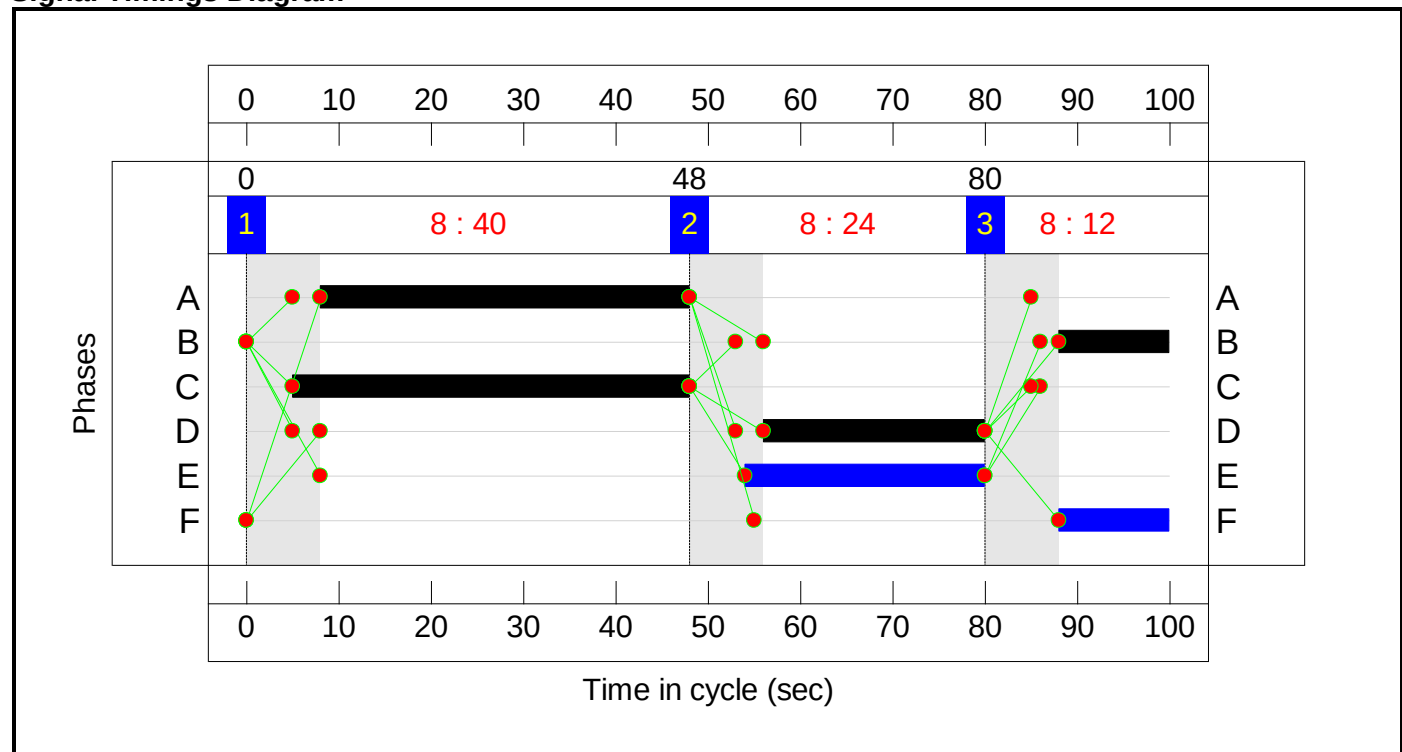
	Destination					
		A	B	C	D	Tot.
Origin	A	0	17	611	50	678
	B	7	0	199	120	326
	C	507	107	0	324	938
	D	15	60	230	0	305
	Tot.	529	184	1040	494	2247

Lane Saturation Flows

Junction: J3 - Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.70	0.00	Y	Arm 4 Left	10.00	5.2 %	1970	1970
				Arm 6 Ahead	Inf	94.8 %		
1/2 (A6133 (E))	3.30	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1945	1945
1/3 (A6133 (E))	3.25	0.00	Y	Arm 8 Right	12.00	100.0 %	1724	1724
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (Keresforth Hall Road)	2.80	0.00	Y	Arm 2 Right	12.00	2.1 %	1696	1696
				Arm 6 Left	8.00	61.0 %		
				Arm 8 Ahead	Inf	36.8 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.20	0.00	Y	Arm 2 Ahead	Inf	61.0 %	1852	1852
				Arm 8 Left	13.00	39.0 %		
5/2 (A6133 (W))	3.60	0.00	Y	Arm 4 Right	15.00	100.0 %	1795	1795
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1 (Racecommon Road)	3.60	0.00	Y	Arm 2 Left	12.00	4.9 %	1868	1868
				Arm 4 Ahead	Inf	19.7 %		
				Arm 6 Right	22.00	75.4 %		
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2027 Opening Year PM' (FG6: '2027 Opening Year AM', Plan 1: 'Network Control Plan 1')

Signal Timings Diagram



Desired Flow :

Desired Flow :

Lane Saturation Flows

Junction: J3 - Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.70	0.00	Y	Arm 4 Left	10.00	11.3 %	1952	1952
				Arm 6 Ahead	Inf	88.7 %		
1/2 (A6133 (E))	3.30	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1945	1945
1/3 (A6133 (E))	3.25	0.00	Y	Arm 8 Right	12.00	100.0 %	1724	1724
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (Keresforth Hall Road)	2.80	0.00	Y	Arm 2 Right	12.00	8.1 %	1692	1692
				Arm 6 Left	8.00	58.7 %		
				Arm 8 Ahead	Inf	33.2 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.20	0.00	Y	Arm 2 Ahead	Inf	73.6 %	1878	1878
				Arm 8 Left	13.00	26.4 %		
5/2 (A6133 (W))	3.60	0.00	Y	Arm 4 Right	15.00	100.0 %	1795	1795
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1 (Racecommon Road)	3.60	0.00	Y	Arm 2 Left	12.00	10.6 %	1873	1873
				Arm 4 Ahead	Inf	28.7 %		
				Arm 6 Right	22.00	60.6 %		
8/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2022 Base AM' (FG1: '2022 Base AM', Plan 1: 'Network Control Plan 1')

Scenario 1: '2022 Base AM' (FG1: '2022 Base AM', Plan 1: 'Network Control Plan 1')

Scenario 3: '2027 Do Nothing AM' (FG3: '2027 Do Nothing AM', Plan 1: 'Network Control Plan 1')

[illegible]

Scenario 4: '2027 Do Nothing PM' (FG4: '2027 Do Nothing PM', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Proposed Residential Development	-	-	-		-	-	-	-	-	-	101.4%	-	-	266	18	31	60.4	-	-
J3 - Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road	-	-	-		-	-	-	-	-	-	101.4%	-	-	266	18	31	60.4	-	-
1/1	A6133 (E) Left Ahead	U	A		1	40	-	272	1951	800	34.0%	272	272	-	-	-	1.8	23.6	5.4
1/2+1/3	A6133 (E) Ahead Right	U+O	A		1	40	-	291	1945:1724	729+72	35.7 : 43.1%	291	291	0	0	31	2.2	26.9	5.2
3/1	Keresforth Hall Road Right Left Ahead	U	B		1	12	-	223	1692	220	101.4%	223	220	-	-	-	11.1	179.7	14.5
5/1	A6133 (W) Ahead Left	U	C		1	43	-	837	1878	826	101.3%	837	826	-	-	-	24.4	104.9	40.9
5/2	A6133 (W) Right	O	C		1	43	-	284	1795	339	83.8%	284	284	266	18	0	5.0	62.8	9.5
7/1	Racecommon Road Left Ahead Right	U	D		1	24	-	469	1873	468	100.2%	469	468	-	-	-	15.9	122.3	24.1
C1 PRC for Signalled Lanes (%): -12.6 Total Delay for Signalled Lanes (pcuHr): 60.38 Cycle Time (s): 100 PRC Over All Lanes (%): -12.6 Total Delay Over All Lanes(pcuHr): 60.38																			

Scenario 6: '2027 Opening Year PM' (FG6: '2027 Opening Year AM', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Proposed Residential Development	-	-	-		-	-	-	-	-	-	102.9%	-	-	258	18	39	69.7	-	-
J3 - Racecommon Road/A6133 Keresforth Hill Road/Keresforth Hall Road	-	-	-		-	-	-	-	-	-	102.9%	-	-	258	18	39	69.7	-	-
1/1	A6133 (E) Left Ahead	U	A		1	40	-	283	1952	800	35.4%	283	283	-	-	-	1.9	23.8	5.7
1/2+1/3	A6133 (E) Ahead Right	U+O	A		1	40	-	303	1945:1724	731+72	37.2 : 43.1%	303	303	0	0	31	2.3	27.0	5.5
3/1	Keresforth Hall Road Right Left Ahead	U	B		1	12	-	223	1692	220	101.4%	223	220	-	-	-	11.1	179.7	14.5
5/1	A6133 (W) Ahead Left	U	C		1	43	-	850	1878	826	102.9%	850	826	-	-	-	29.4	124.5	45.9
5/2	A6133 (W) Right	O	C		1	43	-	284	1795	332	85.6%	284	284	258	18	8	5.3	67.1	9.9
7/1	Racecommon Road Left Ahead Right	U	D		1	24	-	480	1873	468	102.5%	480	468	-	-	-	19.7	147.8	27.9
C1 PRC for Signalled Lanes (%): -14.3 Total Delay for Signalled Lanes (pcuHr): 69.66 Cycle Time (s): 100 PRC Over All Lanes (%): -14.3 Total Delay Over All Lanes(pcuHr): 69.66																			

Appendix 10 – J4 Modelling Results

Junctions 9									
PICADY 9 - Priority Intersection Module									
Version: 9.5.1.7462 © Copyright TRL Limited, 2019									
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Filename: J4 - B6449_B6099 Junction.j9

Path: \\192.168.4.5\Data1\Projects\4283 Bark Meadows Dodworth\Data\Modelling\Sept 22\J4

Report generation date: 10/14/2022 1:05:14 PM

- »2022 Base, AM
- »2022 Base, PM
- »2027 Do Nothing, AM
- »2027 Do Nothing, PM
- »2027 Opening Year, AM
- »2027 Opening Year, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2022 Base									
Stream B-ACD	D1	0.4	12.71	0.30	B	D2	1.2	22.65	0.54	C
Stream A-BCD		0.4	6.57	0.26	A		0.3	7.55	0.18	A
Stream D-AB		1.1	17.53	0.51	C		1.8	24.92	0.65	C
Stream D-BC		1.3	21.47	0.58	C		1.0	23.25	0.52	C
Stream C-ABD		0.0	5.10	0.03	A		0.1	3.83	0.08	A
	2027 Do Nothing									
Stream B-ACD	D3	0.5	13.44	0.33	B	D4	1.6	28.18	0.62	D
Stream A-BCD		0.5	6.73	0.27	A		0.3	7.97	0.20	A
Stream D-AB		1.9	26.84	0.66	D		3.1	39.64	0.77	E
Stream D-BC		2.5	33.83	0.73	D		1.6	32.11	0.63	D
Stream C-ABD		0.1	5.04	0.04	A		0.2	3.72	0.09	A
	2027 Opening Year									
Stream B-ACD	D5	0.5	13.84	0.34	B	D6	2.0	33.30	0.67	D
Stream A-BCD		0.5	6.77	0.27	A		0.3	8.14	0.20	A
Stream D-AB		2.8	36.60	0.75	E		3.9	49.41	0.82	E
Stream D-BC		3.5	43.70	0.80	E		1.9	37.05	0.67	E
Stream C-ABD		0.1	5.01	0.04	A		0.2	3.68	0.09	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Keresforth Road, Dodworth
Location	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Road/B6099 Station Road Junction
Site number	J4
Date	11/10/2022
Version	
Status	
Identifier	
Client	Keepmoat Homes
Jobnumber	LTP/4283
Enumerator	LTP/AC
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	2022 Base	AM	ONE HOUR	07:30	09:00	15
D2	2022 Base	PM	ONE HOUR	16:15	17:45	15
D3	2027 Do Nothing	AM	ONE HOUR	07:30	09:00	15
D4	2027 Do Nothing	PM	ONE HOUR	16:15	17:45	15
D5	2027 Opening Year	AM	ONE HOUR	07:30	09:00	15
D6	2027 Opening Year	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2022 Base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road	Crossroads	Two-way		9.93	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	B6449 Dodworth Green Road		Major
B	B6099 Station Road		Minor
C	B6449 Barnsley Road		Major
D	B6099 High Street		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - B6449 Dodworth Green Road	6.80			250.0	✓	0.00
C - B6449 Barnsley Road	6.80			160.0	✓	0.00

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 (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B - B6099 Station Road	One lane	3.25			20	19
D - B6099 High Street	Two lanes		4.00	3.30	40	60

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	719	-	-	-	-	-	-	0.269	0.384	0.269	-	-	-
B-A	506	0.089	0.225	0.225	-	-	-	0.141	0.321	-	0.225	0.225	0.112
B-C	652	0.096	0.244	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	506	0.089	0.225	0.225	-	-	-	0.141	0.321	0.141	-	-	-
B-D, offside lane	506	0.089	0.225	0.225	-	-	-	0.141	0.321	0.141	-	-	-
C-B	667	0.249	0.249	0.356	-	-	-	-	-	-	-	-	-
D-A	728	-	-	-	-	-	-	0.272	-	0.108	-	-	-
D-B, nearside lane	572	0.160	0.160	0.363	-	-	-	0.254	0.254	0.101	-	-	-
D-B, offside lane	536	0.150	0.150	0.340	-	-	-	0.238	0.238	0.094	-	-	-
D-C	536	-	0.150	0.340	0.119	0.238	0.238	0.238	0.238	0.094	-	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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	2022 Base	AM	ONE HOUR	07:30	09:00	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 - B6449 Dodworth Green Road		✓	291	100.000
B - B6099 Station Road		✓	113	100.000
C - B6449 Barnsley Road		✓	263	100.000
D - B6099 High Street		✓	411	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		A - B6449 Dodworth Green Road	B - B6099 Station Road	C - B6449 Barnsley Road	D - B6099 High Street
From	A - B6449 Dodworth Green Road	0	11	146	134
	B - B6099 Station Road	2	0	19	92
	C - B6449 Barnsley Road	60	15	0	188
	D - B6099 High Street	71	181	159	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		A - B6449 Dodworth Green Road	B - B6099 Station Road	C - B6449 Barnsley Road	D - B6099 High Street
From	A - B6449 Dodworth Green Road	0	9	1	2
	B - B6099 Station Road	0	0	6	2
	C - B6449 Barnsley Road	7	0	0	1
	D - B6099 High Street	1	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-ACD	0.30	12.71	0.4	B
A-BCD	0.26	6.57	0.4	A
A-B				
A-C				
D-AB	0.51	17.53	1.1	C
D-BC	0.58	21.47	1.3	C
C-ABD	0.03	5.10	0.0	A
C-D				
C-A				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	85	451	0.189	84	0.2	10.051	B
A-BCD	120	739	0.163	119	0.2	5.915	A
A-B	7			7			
A-C	92			92			
D-AB	140	499	0.281	139	0.4	10.282	B
D-BC	169	443	0.382	167	0.6	13.083	B
C-ABD	15	726	0.021	15	0.0	5.097	A
C-D	139			139			
C-A	44			44			

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-ACD	102	436	0.233	101	0.3	11.033	B
A-BCD	149	744	0.200	149	0.3	6.168	A
A-B	8			8			
A-C	105			105			
D-AB	173	472	0.367	173	0.6	12.392	B
D-BC	196	425	0.462	195	0.8	15.845	C
C-ABD	19	738	0.026	19	0.0	5.039	A
C-D	165			165			
C-A	53			53			

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-ACD	124	415	0.300	124	0.4	12.662	B
ABCD	192	751	0.256	192	0.4	6.563	A
A-B	9			9			
A-C	119			119			
D-AB	223	436	0.511	221	1.0	17.161	C
D-BC	230	399	0.576	228	1.3	21.105	C
C-ABD	26	757	0.034	26	0.0	4.961	A
C-D	200			200			
C-A	64			64			

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-ACD	124	415	0.300	124	0.4	12.707	B
ABCD	192	751	0.256	192	0.4	6.572	A
A-B	9			9			
A-C	119			119			
D-AB	223	436	0.513	223	1.1	17.533	C
D-BC	229	398	0.575	229	1.3	21.474	C
C-ABD	26	757	0.034	26	0.0	4.966	A
C-D	200			200			
C-A	64			64			

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-ACD	102	436	0.233	102	0.3	11.093	B
ABCD	149	744	0.200	149	0.3	6.183	A
A-B	8			8			
A-C	105			105			
D-AB	174	471	0.369	176	0.6	12.693	B
D-BC	196	424	0.461	197	0.9	16.187	C
C-ABD	19	738	0.026	19	0.0	5.051	A
C-D	165			165			
C-A	53			53			

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-ACD	85	450	0.189	85	0.2	10.126	B
ABCD	120	739	0.163	121	0.2	5.938	A
A-B	7			7			
A-C	92			92			
D-AB	141	498	0.283	141	0.4	10.483	B
D-BC	169	443	0.381	170	0.6	13.411	B
C-ABD	15	725	0.021	15	0.0	5.104	A
C-D	139			139			
C-A	44			44			

2022 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road	Crossroads	Two-way		9.60	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2022 Base	PM	ONE HOUR	16:15	17:45	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 - B6449 Dodworth Green Road		✓	183	100.000
B - B6099 Station Road		✓	173	100.000
C - B6449 Barnsley Road		✓	751	100.000
D - B6099 High Street		✓	394	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		A - B6449 Dodworth Green Road	B - B6099 Station Road	C - B6449 Barnsley Road	D - B6099 High Street
	A - B6449 Dodworth Green Road	0	9	100	74
	B - B6099 Station Road	13	0	17	143
	C - B6449 Barnsley Road	356	23	0	372
	D - B6099 High Street	149	137	108	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		A - B6449 Dodworth Green Road	B - B6099 Station Road	C - B6449 Barnsley Road	D - B6099 High Street
	From				
	A - B6449 Dodworth Green Road	0	0	1	0
	B - B6099 Station Road	17	0	0	2
	C - B6449 Barnsley Road	2	0	0	0
	D - B6099 High Street	1	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-ACD	0.54	22.65	1.2	C
ABCD	0.18	7.55	0.3	A
AB				
AC				
D-AB	0.65	24.92	1.8	C
D-BC	0.52	23.25	1.0	C
C-ABD	0.08	3.83	0.1	A
C-D				
C-A				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	130	406	0.321	128	0.5	13.217	B
ABCD	64	621	0.103	64	0.1	6.461	A
AB	6			6			
AC	68			68			
D-AB	175	500	0.350	173	0.5	11.042	B
D-BC	122	391	0.312	120	0.4	13.273	B
C-ABD	39	984	0.040	39	0.1	3.830	A
C-D	269			269			
C-A	257			257			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	156	384	0.405	155	0.7	16.059	C
ABCD	80	604	0.132	79	0.2	6.875	A
AB	7			7			
AC	78			78			
D-AB	213	464	0.458	212	0.8	14.317	B
D-BC	141	361	0.392	141	0.6	16.333	C
C-ABD	55	1048	0.053	55	0.1	3.648	A
C-D	317			317			
C-A	303			303			

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-ACD	190	354	0.539	189	1.1	22.168	C
ABCD	103	581	0.177	103	0.3	7.543	A
A-B	8			8			
A-C	90			90			
D-AB	269	415	0.648	265	1.7	23.728	C
D-BC	165	320	0.515	163	1.0	22.819	C
C-ABD	86	1139	0.075	86	0.1	3.440	A
C-D	379			379			
C-A	362			362			

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-ACD	190	353	0.539	190	1.2	22.649	C
ABCD	103	581	0.177	103	0.3	7.554	A
A-B	8			8			
A-C	90			90			
D-AB	269	414	0.650	269	1.8	24.920	C
D-BC	165	319	0.515	164	1.0	23.254	C
C-ABD	86	1139	0.076	86	0.1	3.443	A
C-D	379			379			
C-A	362			362			

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-ACD	156	384	0.405	157	0.7	16.454	C
ABCD	80	604	0.132	80	0.2	6.893	A
A-B	7			7			
A-C	78			78			
D-AB	213	463	0.460	217	0.9	14.980	B
D-BC	141	360	0.392	143	0.7	16.695	C
C-ABD	55	1048	0.053	56	0.1	3.651	A
C-D	317			317			
C-A	303			303			

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-ACD	130	406	0.321	131	0.5	13.503	B
ABCD	64	621	0.104	64	0.1	6.480	A
A-B	6			6			
A-C	67			67			
D-AB	175	499	0.351	176	0.6	11.331	B
D-BC	122	390	0.312	122	0.5	13.549	B
C-ABD	39	984	0.040	39	0.1	3.834	A
C-D	269			269			
C-A	257			257			

2027 Do Nothing, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road	Crossroads	Two-way		15.01	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2027 Do Nothing	AM	ONE HOUR	07:30	09:00	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 - B6449 Dodworth Green Road		✓	301	100.000
B - B6099 Station Road		✓	121	100.000
C - B6449 Barnsley Road		✓	291	100.000
D - B6099 High Street		✓	498	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		A - B6449 Dodworth Green Road	B - B6099 Station Road	C - B6449 Barnsley Road	D - B6099 High Street
	A - B6449 Dodworth Green Road	0	11	151	139
	B - B6099 Station Road	2	0	20	99
	C - B6449 Barnsley Road	62	16	0	213
	D - B6099 High Street	75	201	222	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		A - B6449 Dodworth Green Road	B - B6099 Station Road	C - B6449 Barnsley Road	D - B6099 High Street
From	A - B6449 Dodworth Green Road	0	9	1	2
	B - B6099 Station Road	0	0	5	2
	C - B6449 Barnsley Road	7	0	0	1
	D - B6099 High Street	1	4	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-ACD	0.33	13.44	0.5	B
ABCD	0.27	6.73	0.5	A
A-B				
A-C				
D-AB	0.66	26.84	1.9	D
D-BC	0.73	33.83	2.5	D
C-ABD	0.04	5.04	0.1	A
C-D				
C-A				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	91	446	0.204	90	0.3	10.341	B
ABCD	125	736	0.170	124	0.2	5.996	A
A-B	7			7			
A-C	94			94			
D-AB	161	476	0.339	159	0.5	11.640	B
D-BC	214	437	0.489	210	0.9	15.752	C
C-ABD	17	737	0.023	17	0.0	5.028	A
C-D	157			157			
C-A	46			46			

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-ACD	109	430	0.253	108	0.3	11.468	B
ABCD	156	740	0.210	155	0.3	6.277	A
A-B	8			8			
A-C	107			107			
D-AB	202	445	0.455	201	0.8	15.114	C
D-BC	246	416	0.590	244	1.4	20.802	C
C-ABD	21	752	0.029	21	0.0	4.959	A
C-D	186			186			
C-A	54			54			

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-ACD	133	408	0.327	133	0.5	13.375	B
ABCD	201	747	0.270	201	0.5	6.726	A
A-B	9			9			
A-C	121			121			
D-AB	265	405	0.655	261	1.8	25.175	D
D-BC	283	388	0.730	279	2.4	32.073	D
C-ABD	29	775	0.037	29	0.1	4.867	A
C-D	226			226			
C-A	66			66			

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-ACD	133	408	0.327	133	0.5	13.438	B
ABCD	202	747	0.270	202	0.5	6.735	A
A-B	9			9			
A-C	121			121			
D-AB	266	403	0.660	266	1.9	26.836	D
D-BC	282	388	0.728	282	2.5	33.833	D
C-ABD	29	774	0.037	29	0.1	4.873	A
C-D	226			226			
C-A	66			66			

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-ACD	109	429	0.253	109	0.4	11.539	B
ABCD	156	740	0.211	156	0.3	6.294	A
A-B	8			8			
A-C	107			107			
D-AB	204	442	0.460	208	0.9	16.051	C
D-BC	244	416	0.587	248	1.5	22.106	C
C-ABD	21	752	0.029	22	0.0	4.970	A
C-D	186			186			
C-A	54			54			

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-ACD	91	445	0.205	91	0.3	10.433	B
ABCD	126	736	0.171	126	0.2	6.020	A
A-B	7			7			
A-C	94			94			
D-AB	162	473	0.343	164	0.5	12.030	B
D-BC	213	436	0.488	215	1.0	16.531	C
C-ABD	17	737	0.023	17	0.0	5.035	A
C-D	157			157			
C-A	46			46			

2027 Do Nothing, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road	Crossroads	Two-way		13.65	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2027 Do Nothing	PM	ONE HOUR	16:15	17:45	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 - B6449 Dodworth Green Road		✓	191	100.000
B - B6099 Station Road		✓	190	100.000
C - B6449 Barnsley Road		✓	824	100.000
D - B6099 High Street		✓	439	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		A - B6449 Dodworth Green Road	B - B6099 Station Road	C - B6449 Barnsley Road	D - B6099 High Street
	A - B6449 Dodworth Green Road	0	9	104	78
	B - B6099 Station Road	13	0	18	159
	C - B6449 Barnsley Road	369	24	0	431
	D - B6099 High Street	154	148	137	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		A - B6449 Dodworth Green Road	B - B6099 Station Road	C - B6449 Barnsley Road	D - B6099 High Street
From	A - B6449 Dodworth Green Road	0	0	1	0
	B - B6099 Station Road	17	0	0	2
	C - B6449 Barnsley Road	2	0	0	0
	D - B6099 High Street	1	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-ACD	0.62	28.18	1.6	D
ABCD	0.20	7.97	0.3	A
AB				
AC				
D-AB	0.77	39.64	3.1	E
D-BC	0.63	32.11	1.6	D
C-ABD	0.09	3.72	0.2	A
C-D				
C-A				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	143	397	0.360	141	0.6	14.312	B
ABCD	68	609	0.112	68	0.1	6.654	A
AB	6			6			
AC	70			70			
D-AB	187	479	0.391	185	0.6	12.246	B
D-BC	143	379	0.379	141	0.6	15.049	C
C-ABD	44	1018	0.043	44	0.1	3.716	A
C-D	310			310			
C-A	266			266			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	171	373	0.458	170	0.8	18.081	C
ABCD	85	590	0.144	85	0.2	7.142	A
AB	7			7			
AC	80			80			
D-AB	230	439	0.523	228	1.1	17.052	C
D-BC	165	346	0.477	164	0.9	19.658	C
C-ABD	64	1089	0.059	64	0.1	3.532	A
C-D	365			365			
C-A	312			312			

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-ACD	209	340	0.615	206	1.5	27.133	D
ABCD	110	564	0.196	110	0.3	7.952	A
A-B	8			8			
A-C	92			92			
D-AB	294	385	0.764	287	2.8	34.955	D
D-BC	190	301	0.630	187	1.6	30.814	D
C-ABD	102	1190	0.086	102	0.2	3.333	A
C-D	434			434			
C-A	371			371			

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-ACD	209	340	0.616	209	1.6	28.183	D
ABCD	110	564	0.196	110	0.3	7.967	A
A-B	8			8			
A-C	92			92			
D-AB	295	383	0.769	294	3.1	39.641	E
D-BC	189	300	0.629	189	1.6	32.113	D
C-ABD	102	1190	0.086	102	0.2	3.333	A
C-D	434			434			
C-A	371			371			

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-ACD	171	373	0.458	174	0.9	18.818	C
ABCD	85	590	0.144	85	0.2	7.164	A
A-B	7			7			
A-C	80			80			
D-AB	230	437	0.527	238	1.2	18.878	C
D-BC	164	345	0.476	167	0.9	20.545	C
C-ABD	64	1089	0.059	64	0.1	3.535	A
C-D	365			365			
C-A	312			312			

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-ACD	143	397	0.361	144	0.6	14.723	B
ABCD	68	609	0.112	69	0.2	6.678	A
A-B	6			6			
A-C	69			69			
D-AB	188	477	0.393	190	0.7	12.728	B
D-BC	143	378	0.378	144	0.6	15.545	C
C-ABD	44	1018	0.044	45	0.1	3.720	A
C-D	310			310			
C-A	266			266			

2027 Opening Year, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road	Crossroads	Two-way		19.66	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2027 Opening Year	AM	ONE HOUR	07:30	09:00	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 - B6449 Dodworth Green Road		✓	301	100.000
B - B6099 Station Road		✓	126	100.000
C - B6449 Barnsley Road		✓	300	100.000
D - B6099 High Street		✓	541	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		A - B6449 Dodworth Green Road	B - B6099 Station Road	C - B6449 Barnsley Road	D - B6099 High Street
	A - B6449 Dodworth Green Road	0	11	151	139
	B - B6099 Station Road	2	0	20	104
	C - B6449 Barnsley Road	62	16	0	222
	D - B6099 High Street	76	215	250	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		A - B6449 Dodworth Green Road	B - B6099 Station Road	C - B6449 Barnsley Road	D - B6099 High Street
From	A - B6449 Dodworth Green Road	0	9	1	2
	B - B6099 Station Road	0	0	5	2
	C - B6449 Barnsley Road	7	0	0	1
	D - B6099 High Street	1	4	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-ACD	0.34	13.84	0.5	B
ABCD	0.27	6.77	0.5	A
A-B				
A-C				
D-AB	0.75	36.60	2.8	E
D-BC	0.80	43.70	3.5	E
C-ABD	0.04	5.01	0.1	A
C-D				
C-A				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	95	444	0.214	94	0.3	10.504	B
ABCD	125	734	0.171	125	0.2	6.013	A
A-B	7			7			
A-C	94			94			
D-AB	173	465	0.373	171	0.6	12.507	B
D-BC	234	435	0.537	229	1.1	17.284	C
C-ABD	17	742	0.023	17	0.0	4.998	A
C-D	163			163			
C-A	46			46			

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-ACD	113	428	0.265	113	0.4	11.706	B
ABCD	156	738	0.211	156	0.3	6.300	A
A-B	8			8			
A-C	107			107			
D-AB	219	433	0.505	217	1.0	17.036	C
D-BC	268	414	0.646	265	1.7	23.959	C
C-ABD	22	758	0.029	22	0.0	4.924	A
C-D	194			194			
C-A	54			54			

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-ACD	139	405	0.342	138	0.5	13.768	B
ABCD	202	744	0.271	201	0.5	6.753	A
A-B	9			9			
A-C	121			121			
D-AB	289	392	0.738	283	2.6	32.451	D
D-BC	306	385	0.796	300	3.3	40.011	E
C-ABD	29	781	0.038	29	0.1	4.826	A
C-D	235			235			
C-A	66			66			

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-ACD	139	405	0.342	139	0.5	13.840	B
ABCD	202	744	0.271	202	0.5	6.770	A
A-B	9			9			
A-C	121			121			
D-AB	291	390	0.747	290	2.8	36.601	E
D-BC	305	384	0.792	304	3.5	43.695	E
C-ABD	29	781	0.038	29	0.1	4.833	A
C-D	235			235			
C-A	66			66			

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-ACD	113	427	0.265	114	0.4	11.790	B
ABCD	156	738	0.211	157	0.3	6.314	A
A-B	8			8			
A-C	107			107			
D-AB	221	430	0.514	228	1.1	18.920	C
D-BC	265	413	0.642	272	1.9	26.491	D
C-ABD	22	758	0.029	22	0.0	4.934	A
C-D	194			194			
C-A	54			54			

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-ACD	95	443	0.214	95	0.3	10.604	B
ABCD	126	734	0.171	126	0.3	6.039	A
A-B	7			7			
A-C	94			94			
D-AB	175	462	0.378	177	0.6	13.080	B
D-BC	233	434	0.536	235	1.2	18.469	C
C-ABD	17	741	0.023	17	0.0	5.005	A
C-D	163			163			
C-A	46			46			

2027 Opening Year, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road B6449 Barnsley Road/B6099 High Street/B6449 Dodworth Green Road/B6099 Station Road	Crossroads	Two-way		16.45	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2027 Opening Year	PM	ONE HOUR	16:15	17:45	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 - B6449 Dodworth Green Road		✓	192	100.000
B - B6099 Station Road		✓	204	100.000
C - B6449 Barnsley Road		✓	851	100.000
D - B6099 High Street		✓	454	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		A - B6449 Dodworth Green Road	B - B6099 Station Road	C - B6449 Barnsley Road	D - B6099 High Street
	A - B6449 Dodworth Green Road	0	9	104	79
	B - B6099 Station Road	13	0	18	173
	C - B6449 Barnsley Road	369	24	0	458
	D - B6099 High Street	154	153	147	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		A - B6449 Dodworth Green Road	B - B6099 Station Road	C - B6449 Barnsley Road	D - B6099 High Street
From	A - B6449 Dodworth Green Road	0	0	1	0
	B - B6099 Station Road	17	0	0	2
	C - B6449 Barnsley Road	2	0	0	0
	D - B6099 High Street	1	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-ACD	0.67	33.30	2.0	D
ABCD	0.20	8.14	0.3	A
AB				
AC				
D-AB	0.82	49.41	3.9	E
D-BC	0.67	37.05	1.9	E
C-ABD	0.09	3.68	0.2	A
C-D				
C-A				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	154	393	0.391	151	0.6	15.114	C
ABCD	69	604	0.115	69	0.2	6.731	A
AB	6			6			
AC	69			69			
D-AB	191	472	0.405	188	0.7	12.717	B
D-BC	151	374	0.403	148	0.7	15.806	C
C-ABD	46	1031	0.044	45	0.1	3.672	A
C-D	330			330			
C-A	266			266			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	183	369	0.498	182	1.0	19.662	C
ABCD	86	583	0.148	86	0.2	7.248	A
AB	7			7			
AC	80			80			
D-AB	235	430	0.546	233	1.2	18.233	C
D-BC	173	341	0.508	172	1.0	21.196	C
C-ABD	66	1105	0.060	66	0.1	3.484	A
C-D	387			387			
C-A	312			312			

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-ACD	225	335	0.671	221	1.9	31.476	D
ABCD	112	556	0.202	112	0.3	8.116	A
A-B	8			8			
A-C	91			91			
D-AB	302	374	0.809	293	3.5	41.250	E
D-BC	197	294	0.672	194	1.9	35.011	E
C-ABD	107	1209	0.089	107	0.2	3.286	A
C-D	459			459			
C-A	370			370			

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-ACD	225	334	0.672	224	2.0	33.301	D
ABCD	112	556	0.202	112	0.3	8.136	A
A-B	8			8			
A-C	91			91			
D-AB	303	372	0.816	302	3.9	49.410	E
D-BC	196	292	0.671	196	1.9	37.049	E
C-ABD	108	1209	0.089	108	0.2	3.289	A
C-D	459			459			
C-A	370			370			

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-ACD	183	368	0.498	187	1.1	20.812	C
ABCD	86	583	0.148	87	0.2	7.269	A
A-B	7			7			
A-C	80			80			
D-AB	236	428	0.552	246	1.3	21.077	C
D-BC	172	339	0.507	175	1.1	22.476	C
C-ABD	66	1105	0.060	67	0.1	3.489	A
C-D	387			387			
C-A	312			312			

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-ACD	154	393	0.391	155	0.7	15.652	C
ABCD	69	604	0.115	70	0.2	6.753	A
A-B	6			6			
A-C	69			69			
D-AB	192	469	0.408	194	0.7	13.303	B
D-BC	150	373	0.403	152	0.7	16.432	C
C-ABD	46	1031	0.044	46	0.1	3.676	A
C-D	329			329			
C-A	265			265			

Appendix 11 – J5 Modelling Results

Junctions 9										
PICADY 9 - Priority Intersection Module										
Version: 9.5.1.7462										
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Filename: J5 - B6499 Barnsley Road_Mitchelson Avenue.j9

Path: \\192.168.4.5\Data1\Projects\4283 Bark Meadows Dodworth\Data\Modelling\Sept 22\J5

Report generation date: 10/14/2022 1:06:20 PM

- »2022 Base, AM
- »2022 Base, PM
- »2027 Do Nothing, AM
- »2027 Do Nothing, PM
- »2027 Opening Year, AM
- »2027 Opening Year, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2022 Base									
Stream B-C	D1	0.0	7.38	0.02	A	D2	0.0	7.34	0.01	A
Stream B-A		1.2	14.24	0.54	B		0.7	12.96	0.42	B
Stream C-AB		0.1	5.45	0.05	A		0.1	7.51	0.10	A
	2027 Do Nothing									
Stream B-C	D3	0.0	9.14	0.02	A	D4	0.0	7.91	0.01	A
Stream B-A		2.0	20.39	0.68	C		1.0	15.26	0.50	C
Stream C-AB		0.1	5.52	0.05	A		0.1	7.93	0.11	A
	2027 Opening Year									
Stream B-C	D5	0.0	10.61	0.03	B	D6	0.0	8.15	0.01	A
Stream B-A		2.7	24.70	0.73	C		1.1	16.23	0.52	C
Stream C-AB		0.1	5.54	0.05	A		0.1	8.08	0.12	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Keresforth Road, Dodworth
Location	B6449 Barnsley Road/Mitchelson Avenue
Site number	J5
Date	11/10/2022
Version	
Status	
Identifier	
Client	Keepmoat Homes
Jobnumber	LTP/4283
Enumerator	LTP/AC
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	2022 Base	AM	ONE HOUR	07:30	09:00	15
D2	2022 Base	PM	ONE HOUR	16:15	17:45	15
D3	2027 Do Nothing	AM	ONE HOUR	07:30	09:00	15
D4	2027 Do Nothing	PM	ONE HOUR	16:15	17:45	15
D5	2027 Opening Year	AM	ONE HOUR	07:30	09:00	15
D6	2027 Opening Year	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2022 Base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B6499 Barnsley Road/Mitchelson Avenue B6499 Barnsley Road/Mitchelson Avenue J5 - B6449 Barnsley Road/Mitchelson Avenue	T-Junction	Two-way		6.14	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	B6449 Barnsley Road (E)		Major
B	B6449 Barnsley Road (S)		Minor
C	Mitchelson Avenue		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Mitchelson Avenue	7.50		✓	3.00	250.0	✓	7.00

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	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - B6449 Barnsley Road (S)	One lane plus flare	10.00	8.00	5.00	4.00	3.60	✓	2.00	46	104

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	625	0.106	0.269	0.169	0.384
B-C	670	0.096	0.243	-	-
C-B	781	0.283	0.283	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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	2022 Base	AM	ONE HOUR	07:30	09:00	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 - B6449 Barnsley Road (E)		✓	275	100.000
B - B6449 Barnsley Road (S)		✓	278	100.000
C - Mitchelson Avenue		✓	111	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - B6449 Barnsley Road (E)	B - B6449 Barnsley Road (S)	C - Mitchelson Avenue
	From			
	A - B6449 Barnsley Road (E)	0	206	69
	B - B6449 Barnsley Road (S)	270	0	8
	C - Mitchelson Avenue	79	32	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - B6449 Barnsley Road (E)	B - B6449 Barnsley Road (S)	C - Mitchelson Avenue
	From			
	A - B6449 Barnsley Road (E)	0	3	6
	B - B6449 Barnsley Road (S)	1	0	0
	C - Mitchelson Avenue	13	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.02	7.38	0.0	A
B-A	0.54	14.24	1.2	B
C-AB	0.05	5.45	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	577	0.010	6	0.0	6.308	A
B-A	203	575	0.353	201	0.5	9.659	A
C-AB	24	723	0.033	24	0.0	5.152	A
C-A	59			59			
A-B	155			155			
A-C	52			52			

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	7	549	0.013	7	0.0	6.648	A
B-A	243	566	0.429	242	0.7	11.200	B
C-AB	29	711	0.040	29	0.0	5.273	A
C-A	71			71			
A-B	185			185			
A-C	62			62			

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	9	498	0.018	9	0.0	7.360	A
B-A	297	552	0.538	296	1.1	14.077	B
C-AB	35	696	0.051	35	0.1	5.450	A
C-A	87			87			
A-B	227			227			
A-C	76			76			

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	9	496	0.018	9	0.0	7.381	A
B-A	297	552	0.538	297	1.2	14.242	B
C-AB	35	696	0.051	35	0.1	5.450	A
C-A	87			87			
A-B	227			227			
A-C	76			76			

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	7	547	0.013	7	0.0	6.667	A
B-A	243	566	0.429	244	0.8	11.365	B
C-AB	29	711	0.040	29	0.0	5.274	A
C-A	71			71			
A-B	185			185			
A-C	62			62			

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	6	575	0.010	6	0.0	6.324	A
B-A	203	575	0.353	204	0.6	9.816	A
C-AB	24	723	0.033	24	0.0	5.152	A
C-A	59			59			
A-B	155			155			
A-C	52			52			

2022 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B6499 Barnsley Road/Mitchelson Avenue B6499 Barnsley Road/Mitchelson Avenue J5 - B6449 Barnsley Road/Mitchelson Avenue	T-Junction	Two-way		2.49	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2022 Base	PM	ONE HOUR	16:15	17:45	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 - B6449 Barnsley Road (E)		✓	789	100.000
B - B6449 Barnsley Road (S)		✓	184	100.000
C - Mitchelson Avenue		✓	130	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - B6449 Barnsley Road (E)	B - B6449 Barnsley Road (S)	C - Mitchelson Avenue
From	A - B6449 Barnsley Road (E)	0	693	96
	B - B6449 Barnsley Road (S)	181	0	3
	C - Mitchelson Avenue	79	51	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - B6449 Barnsley Road (E)	B - B6449 Barnsley Road (S)	C - Mitchelson Avenue
From	A - B6449 Barnsley Road (E)	0	1	4
	B - B6449 Barnsley Road (S)	1	0	0
	C - Mitchelson Avenue	4	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.01	7.34	0.0	A
B-A	0.42	12.96	0.7	B
C-AB	0.10	7.51	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	2	559	0.004	2	0.0	6.460	A
B-A	136	526	0.259	135	0.3	9.265	A
C-AB	38	613	0.063	38	0.1	6.256	A
C-A	59			59			
A-B	522			522			
A-C	72			72			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	3	534	0.005	3	0.0	6.771	A
B-A	163	507	0.321	162	0.5	10.546	B
C-AB	46	581	0.079	46	0.1	6.731	A
C-A	71			71			
A-B	623			623			
A-C	86			86			

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	3	494	0.007	3	0.0	7.329	A
B-A	199	480	0.415	198	0.7	12.881	B
C-AB	56	536	0.105	56	0.1	7.506	A
C-A	87			87			
A-B	763			763			
A-C	106			106			

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	3	494	0.007	3	0.0	7.338	A
B-A	199	480	0.416	199	0.7	12.964	B
C-AB	56	536	0.105	56	0.1	7.509	A
C-A	87			87			
A-B	763			763			
A-C	106			106			

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	3	534	0.005	3	0.0	6.779	A
B-A	163	506	0.321	164	0.5	10.635	B
C-AB	46	581	0.079	46	0.1	6.736	A
C-A	71			71			
A-B	623			623			
A-C	86			86			

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	2	559	0.004	2	0.0	6.471	A
B-A	136	526	0.259	137	0.4	9.358	A
C-AB	38	613	0.063	38	0.1	6.266	A
C-A	59			59			
A-B	522			522			
A-C	72			72			

2027 Do Nothing, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B6499 Barnsley Road/Mitchelson Avenue B6499 Barnsley Road/Mitchelson Avenue J5 - B6449 Barnsley Road/Mitchelson Avenue	T-Junction	Two-way		9.36	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2027 Do Nothing	AM	ONE HOUR	07:30	09:00	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 - B6449 Barnsley Road (E)		✓	302	100.000
B - B6449 Barnsley Road (S)		✓	345	100.000
C - Mitchelson Avenue		✓	114	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - B6449 Barnsley Road (E)	B - B6449 Barnsley Road (S)	C - Mitchelson Avenue
From	A - B6449 Barnsley Road (E)	0	231	71
	B - B6449 Barnsley Road (S)	337	0	8
	C - Mitchelson Avenue	82	32	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - B6449 Barnsley Road (E)	B - B6449 Barnsley Road (S)	C - Mitchelson Avenue
From	A - B6449 Barnsley Road (E)	0	3	6
	B - B6449 Barnsley Road (S)	1	0	0
	C - Mitchelson Avenue	12	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.02	9.14	0.0	A
B-A	0.68	20.39	2.0	C
C-AB	0.05	5.52	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	547	0.011	6	0.0	6.650	A
B-A	254	573	0.443	251	0.8	11.177	B
C-AB	24	717	0.034	24	0.0	5.193	A
C-A	62			62			
A-B	174			174			
A-C	53			53			

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	7	501	0.014	7	0.0	7.293	A
B-A	303	563	0.538	302	1.1	13.844	B
C-AB	29	704	0.041	29	0.0	5.327	A
C-A	74			74			
A-B	208			208			
A-C	64			64			

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	9	407	0.022	9	0.0	9.031	A
B-A	371	549	0.676	368	2.0	19.730	C
C-AB	35	687	0.051	35	0.1	5.520	A
C-A	90			90			
A-B	254			254			
A-C	78			78			

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	9	403	0.022	9	0.0	9.141	A
B-A	371	548	0.676	371	2.0	20.387	C
C-AB	35	687	0.051	35	0.1	5.520	A
C-A	90			90			
A-B	254			254			
A-C	78			78			

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	7	496	0.014	7	0.0	7.361	A
B-A	303	563	0.538	306	1.2	14.359	B
C-AB	29	704	0.041	29	0.0	5.327	A
C-A	74			74			
A-B	208			208			
A-C	64			64			

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	6	544	0.011	6	0.0	6.690	A
B-A	254	573	0.443	255	0.8	11.506	B
C-AB	24	717	0.034	24	0.0	5.197	A
C-A	62			62			
A-B	174			174			
A-C	53			53			

2027 Do Nothing, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B6499 Barnsley Road/Mitchelson Avenue B6499 Barnsley Road/Mitchelson Avenue J5 - B6449 Barnsley Road/Mitchelson Avenue	T-Junction	Two-way		3.03	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2027 Do Nothing	PM	ONE HOUR	16:15	17:45	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 - B6449 Barnsley Road (E)		✓	863	100.000
B - B6449 Barnsley Road (S)		✓	215	100.000
C - Mitchelson Avenue		✓	135	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - B6449 Barnsley Road (E)	B - B6449 Barnsley Road (S)	C - Mitchelson Avenue
From	A - B6449 Barnsley Road (E)	0	764	99
	B - B6449 Barnsley Road (S)	212	0	3
	C - Mitchelson Avenue	82	53	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - B6449 Barnsley Road (E)	B - B6449 Barnsley Road (S)	C - Mitchelson Avenue
From	A - B6449 Barnsley Road (E)	0	1	4
	B - B6449 Barnsley Road (S)	0	0	0
	C - Mitchelson Avenue	4	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.01	7.91	0.0	A
B-A	0.50	15.26	1.0	C
C-AB	0.11	7.93	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	2	544	0.004	2	0.0	6.640	A
B-A	160	519	0.308	158	0.4	9.926	A
C-AB	40	597	0.067	40	0.1	6.450	A
C-A	62			62			
A-B	575			575			
A-C	75			75			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	3	513	0.005	3	0.0	7.051	A
B-A	191	498	0.383	190	0.6	11.660	B
C-AB	48	562	0.085	48	0.1	7.001	A
C-A	74			74			
A-B	687			687			
A-C	89			89			

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	3	460	0.007	3	0.0	7.887	A
B-A	233	469	0.498	232	1.0	15.090	C
C-AB	58	512	0.114	58	0.1	7.922	A
C-A	90			90			
A-B	841			841			
A-C	109			109			

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	3	459	0.007	3	0.0	7.908	A
B-A	233	469	0.498	233	1.0	15.260	C
C-AB	58	512	0.114	58	0.1	7.927	A
C-A	90			90			
A-B	841			841			
A-C	109			109			

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	3	512	0.005	3	0.0	7.071	A
B-A	191	498	0.383	192	0.6	11.822	B
C-AB	48	562	0.085	48	0.1	7.007	A
C-A	74			74			
A-B	687			687			
A-C	89			89			

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	2	543	0.004	2	0.0	6.656	A
B-A	160	519	0.308	160	0.5	10.067	B
C-AB	40	597	0.067	40	0.1	6.460	A
C-A	62			62			
A-B	575			575			
A-C	75			75			

2027 Opening Year, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B6499 Barnsley Road/Mitchelson Avenue B6499 Barnsley Road/Mitchelson Avenue J5 - B6449 Barnsley Road/Mitchelson Avenue	T-Junction	Two-way		11.63	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2027 Opening Year	AM	ONE HOUR	07:30	09:00	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 - B6449 Barnsley Road (E)		✓	311	100.000
B - B6449 Barnsley Road (S)		✓	373	100.000
C - Mitchelson Avenue		✓	114	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - B6449 Barnsley Road (E)	B - B6449 Barnsley Road (S)	C - Mitchelson Avenue
From	A - B6449 Barnsley Road (E)	0	240	71
	B - B6449 Barnsley Road (S)	365	0	8
	C - Mitchelson Avenue	82	32	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - B6449 Barnsley Road (E)	B - B6449 Barnsley Road (S)	C - Mitchelson Avenue
From	A - B6449 Barnsley Road (E)	0	3	6
	B - B6449 Barnsley Road (S)	1	0	0
	C - Mitchelson Avenue	12	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.03	10.61	0.0	B
B-A	0.73	24.70	2.7	C
C-AB	0.05	5.54	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	533	0.011	6	0.0	6.834	A
B-A	275	572	0.480	271	0.9	11.937	B
C-AB	24	715	0.034	24	0.0	5.207	A
C-A	62			62			
A-B	181			181			
A-C	53			53			

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	7	475	0.015	7	0.0	7.691	A
B-A	328	562	0.584	326	1.4	15.309	C
C-AB	29	702	0.041	29	0.0	5.345	A
C-A	74			74			
A-B	216			216			
A-C	64			64			

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	9	356	0.025	9	0.0	10.356	B
B-A	402	548	0.734	397	2.6	23.432	C
C-AB	35	684	0.051	35	0.1	5.544	A
C-A	90			90			
A-B	264			264			
A-C	78			78			

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	9	348	0.025	9	0.0	10.608	B
B-A	402	548	0.734	401	2.7	24.699	C
C-AB	35	684	0.051	35	0.1	5.544	A
C-A	90			90			
A-B	264			264			
A-C	78			78			

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	7	468	0.015	7	0.0	7.814	A
B-A	328	562	0.584	333	1.5	16.188	C
C-AB	29	702	0.041	29	0.0	5.347	A
C-A	74			74			
A-B	216			216			
A-C	64			64			

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	6	529	0.011	6	0.0	6.891	A
B-A	275	572	0.480	277	1.0	12.395	B
C-AB	24	715	0.034	24	0.0	5.212	A
C-A	62			62			
A-B	181			181			
A-C	53			53			

2027 Opening Year, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	B6499 Barnsley Road/Mitchelson Avenue B6499 Barnsley Road/Mitchelson Avenue J5 - B6449 Barnsley Road/Mitchelson Avenue	T-Junction	Two-way		3.24	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2027 Opening Year	PM	ONE HOUR	16:15	17:45	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 - B6449 Barnsley Road (E)		✓	890	100.000
B - B6449 Barnsley Road (S)		✓	225	100.000
C - Mitchelson Avenue		✓	135	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - B6449 Barnsley Road (E)	B - B6449 Barnsley Road (S)	C - Mitchelson Avenue
From	A - B6449 Barnsley Road (E)	0	791	99
	B - B6449 Barnsley Road (S)	222	0	3
	C - Mitchelson Avenue	82	53	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - B6449 Barnsley Road (E)	B - B6449 Barnsley Road (S)	C - Mitchelson Avenue
From	A - B6449 Barnsley Road (E)	0	1	4
	B - B6449 Barnsley Road (S)	0	0	0
	C - Mitchelson Avenue	4	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.01	8.15	0.0	A
B-A	0.52	16.23	1.1	C
C-AB	0.12	8.08	0.1	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	2	539	0.004	2	0.0	6.705	A
B-A	167	517	0.323	165	0.5	10.191	B
C-AB	40	592	0.067	40	0.1	6.518	A
C-A	62			62			
A-B	596			596			
A-C	75			75			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	3	506	0.005	3	0.0	7.158	A
B-A	200	495	0.403	199	0.7	12.108	B
C-AB	48	555	0.086	48	0.1	7.095	A
C-A	74			74			
A-B	711			711			
A-C	89			89			

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	3	446	0.007	3	0.0	8.123	A
B-A	244	466	0.525	243	1.1	16.010	C
C-AB	58	504	0.116	58	0.1	8.072	A
C-A	90			90			
A-B	871			871			
A-C	109			109			

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	3	445	0.007	3	0.0	8.150	A
B-A	244	466	0.525	244	1.1	16.232	C
C-AB	58	504	0.116	58	0.1	8.077	A
C-A	90			90			
A-B	871			871			
A-C	109			109			

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	3	504	0.005	3	0.0	7.179	A
B-A	200	495	0.403	201	0.7	12.303	B
C-AB	48	555	0.086	48	0.1	7.099	A
C-A	74			74			
A-B	711			711			
A-C	89			89			

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	2	538	0.004	2	0.0	6.723	A
B-A	167	517	0.324	168	0.5	10.352	B
C-AB	40	592	0.067	40	0.1	6.527	A
C-A	62			62			
A-B	596			596			
A-C	75			75			

Appendix 12 – J6 Modelling Results

Junctions 9										
ARCADY 9 - Roundabout Module										
Version: 9.5.1.7462										
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Filename: J6 - Castle View_Car Park Access_B6449 Barnsley Road_B6499.j9

Path: \\192.168.4.5\Data1\Projects\4283 Bark Meadows Dodworth\Data\Modelling\Sept 22\J6

Report generation date: 10/14/2022 1:07:22 PM

- »2022 Base, AM
- »2022 Base, PM
- »2027 Do Nothing, AM
- »2027 Do Nothing, PM
- »2027 Opening Year, AM
- »2027 Opening Year, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2022 Base									
1 - Barnsley Road (E)	D1	0.2	5.27	0.14	A	D2	0.2	11.77	0.19	B
2 - Car Park Access		0.0	5.34	0.01	A		0.0	10.17	0.02	B
3 - B6499 Barnsley Road (W)		2.2	18.23	0.69	C		0.8	9.69	0.43	A
4 - B6449		0.3	4.03	0.23	A		4.0	15.21	0.80	C
	2027 Do Nothing									
1 - Barnsley Road (E)	D3	0.2	5.37	0.15	A	D4	0.3	13.01	0.21	B
2 - Car Park Access		0.0	5.42	0.01	A		0.0	11.06	0.02	B
3 - B6499 Barnsley Road (W)		2.7	21.10	0.73	C		0.8	10.09	0.45	B
4 - B6449		0.3	4.05	0.24	A		5.0	18.55	0.84	C
	2027 Opening Year									
1 - Barnsley Road (E)	D5	0.2	5.42	0.15	A	D6	0.3	13.98	0.22	B
2 - Car Park Access		0.0	5.47	0.01	A		0.0	11.76	0.02	B
3 - B6499 Barnsley Road (W)		3.4	25.47	0.78	D		0.9	10.40	0.47	B
4 - B6449		0.3	4.10	0.25	A		6.0	21.62	0.86	C

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Keresforth Road, Dodworth
Location	Castle View/Car Park Access/B6449 Barnsley Road/B6449
Site number	J6
Date	11/10/2022
Version	
Status	
Identifier	
Client	Keepmoat Homes
Jobnumber	LTP/4283
Enumerator	LTP\AC
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	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
JUNCTIONS 9	5.75				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)	Run automatically
D1	2022 Base	AM	ONE HOUR	07:30	09:00	15	✓
D2	2022 Base	PM	ONE HOUR	16:15	17:45	15	✓
D3	2027 Do Nothing	AM	ONE HOUR	07:30	09:00	15	✓
D4	2027 Do Nothing	PM	ONE HOUR	16:15	17:45	15	✓
D5	2027 Opening Year	AM	ONE HOUR	07:30	09:00	15	✓
D6	2027 Opening Year	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2022 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 3 and 4 have 85% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Castle View_Car Park Access_B6449 Barnsley Road_B6499	Mini-roundabout		1, 2, 3, 4	11.67	B

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Arm	Name	Description
1	Barnsley Road (E)	
2	Car Park Access	
3	B6499 Barnsley Road (W)	
4	B6449	

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
1 - Barnsley Road (E)	4.26	4.14	4.81	4.5	12.25	6.00	0.0	
2 - Car Park Access	5.00	5.00	5.00	0.0	15.65	7.30	0.0	
3 - B6499 Barnsley Road (W)	4.94	4.69	4.77	0.7	15.85	12.00	0.0	
4 - B6449	4.13	3.58	4.38	1.2	14.55	11.00	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Barnsley Road (E)	0.651	973
2 - Car Park Access	0.667	1002
3 - B6499 Barnsley Road (W)	0.662	995
4 - B6449	0.625	918

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

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
3 - B6499 Barnsley Road (W)	Direct	Calibration	-300
4 - B6449	Direct	Calibration	325

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)	Run automatically
D1	2022 Base	AM	ONE HOUR	07:30	09:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnsley Road (E)		ONE HOUR	✓	100	100.000
2 - Car Park Access		ONE HOUR	✓	9	100.000
3 - B6499 Barnsley Road (W)		ONE HOUR	✓	407	100.000
4 - B6449		ONE HOUR	✓	258	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnsley Road (E)	2 - Car Park Access	3 - B6499 Barnsley Road (W)	4 - B6449
From	1 - Barnsley Road (E)	0	4	44	52
	2 - Car Park Access	2	0	1	6
	3 - B6499 Barnsley Road (W)	17	3	1	386
	4 - B6449	12	24	218	4

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - Barnsley Road (E)	2 - Car Park Access	3 - B6499 Barnsley Road (W)	4 - B6449
	1 - Barnsley Road (E)	0	0	0	0
	2 - Car Park Access	0	0	0	20
	3 - B6499 Barnsley Road (W)	0	0	0	2
	4 - B6449	0	0	6	33

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnsley Road (E)	0.14	5.27	0.2	A	92	138
2 - Car Park Access	0.01	5.34	0.0	A	8	12
3 - B6499 Barnsley Road (W)	0.69	18.23	2.2	C	373	560
4 - B6449	0.23	4.03	0.3	A	237	355

Main Results for each time segment

07:30 - 07:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	75	19	187	851	0.088	75	23	0.0	0.1	4.638	A
2 - Car Park Access	7	2	239	842	0.008	7	23	0.0	0.0	4.847	A
3 - B6499 Barnsley Road (W)	306	77	48	663	0.462	303	198	0.0	0.9	10.086	B
4 - B6449	194	49	17	1232	0.158	193	334	0.0	0.2	3.654	A

07:45 - 08:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	90	22	225	827	0.109	90	28	0.1	0.1	4.885	A
2 - Car Park Access	8	2	287	811	0.010	8	28	0.0	0.0	5.045	A
3 - B6499 Barnsley Road (W)	366	91	57	657	0.557	364	237	0.9	1.2	12.461	B
4 - B6449	232	58	21	1230	0.189	232	401	0.2	0.2	3.803	A

08:00 - 08:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	110	28	275	794	0.139	110	34	0.1	0.2	5.262	A
2 - Car Park Access	10	2	351	768	0.013	10	34	0.0	0.0	5.343	A
3 - B6499 Barnsley Road (W)	448	112	70	649	0.691	444	290	1.2	2.1	17.657	C
4 - B6449	284	71	25	1227	0.232	284	490	0.2	0.3	4.024	A

08:15 - 08:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	110	28	275	794	0.139	110	34	0.2	0.2	5.266	A
2 - Car Park Access	10	2	351	768	0.013	10	34	0.0	0.0	5.345	A
3 - B6499 Barnsley Road (W)	448	112	70	648	0.691	448	291	2.1	2.2	18.225	C
4 - B6449	284	71	25	1227	0.232	284	493	0.3	0.3	4.026	A

08:30 - 08:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	90	22	225	826	0.109	90	28	0.2	0.1	4.890	A
2 - Car Park Access	8	2	287	810	0.010	8	28	0.0	0.0	5.050	A
3 - B6499 Barnsley Road (W)	366	91	58	657	0.557	369	238	2.2	1.3	12.910	B
4 - B6449	232	58	21	1230	0.189	232	406	0.3	0.2	3.806	A

08:45 - 09:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	75	19	188	850	0.089	75	23	0.1	0.1	4.646	A
2 - Car Park Access	7	2	240	841	0.008	7	23	0.0	0.0	4.854	A
3 - B6499 Barnsley Road (W)	306	77	48	663	0.462	308	199	1.3	0.9	10.382	B
4 - B6449	194	49	17	1232	0.158	194	339	0.2	0.2	3.659	A

2022 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 4 have 78% of the total flow for the roundabout for one or more time segments][Arms 2 and 4 have 73% of the total flow for the roundabout for one or more time segments][Arms 3 and 4 have 94% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Castle View_Car Park Access_B6449 Barnsley Road_B6499	Mini-roundabout		1, 2, 3, 4	13.82	B

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

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)	Run automatically
D2	2022 Base	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnsley Road (E)		ONE HOUR	✓	64	100.000
2 - Car Park Access		ONE HOUR	✓	6	100.000
3 - B6499 Barnsley Road (W)		ONE HOUR	✓	261	100.000
4 - B6449		ONE HOUR	✓	886	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnsley Road (E)	2 - Car Park Access	3 - B6499 Barnsley Road (W)	4 - B6449
From	1 - Barnsley Road (E)	0	5	28	31
	2 - Car Park Access	3	0	1	2
	3 - B6499 Barnsley Road (W)	33	2	3	223
	4 - B6449	58	16	811	1

Vehicle Mix

Heavy Vehicle Percentages

From	To			
		1 - Barnsley Road (E)	2 - Car Park Access	3 - B6499 Barnsley Road (W)
	1 - Barnsley Road (E)	0	0	0
	2 - Car Park Access	0	0	0
	3 - B6499 Barnsley Road (W)	0	0	3
	4 - B6449	0	0	2

Results

Results Summary for whole modelled period

Am	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnsley Road (E)	0.19	11.77	0.2	B	59	88
2 - Car Park Access	0.02	10.17	0.0	B	6	8
3 - B6499 Barnsley Road (W)	0.43	9.69	0.8	A	239	359
4 - B6449	0.80	15.21	4.0	C	813	1220

Main Results for each time segment

16:15 - 16:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	48	12	623	568	0.085	48	70	0.0	0.1	6.922	A
2 - Car Park Access	5	1	653	566	0.008	4	17	0.0	0.0	6.408	A
3 - B6499 Barnsley Road (W)	196	49	28	677	0.290	195	630	0.0	0.4	7.634	A
4 - B6449	667	167	31	1223	0.545	662	192	0.0	1.2	6.479	A

16:30 - 16:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	58	14	746	487	0.118	57	84	0.1	0.1	8.378	A
2 - Car Park Access	5	1	783	480	0.011	5	21	0.0	0.0	7.589	A
3 - B6499 Barnsley Road (W)	235	59	33	673	0.349	234	755	0.4	0.5	8.398	A
4 - B6449	796	199	37	1220	0.653	794	231	1.2	1.9	8.555	A

16:45 - 17:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	70	18	910	381	0.185	70	103	0.1	0.2	11.572	B
2 - Car Park Access	7	2	955	365	0.018	7	25	0.0	0.0	10.035	B
3 - B6499 Barnsley Road (W)	287	72	41	668	0.430	286	921	0.5	0.8	9.654	A
4 - B6449	976	244	45	1214	0.803	968	282	1.9	3.9	14.394	B

17:00 - 17:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	70	18	917	376	0.187	70	103	0.2	0.2	11.773	B
2 - Car Park Access	7	2	962	361	0.018	7	25	0.0	0.0	10.170	B
3 - B6499 Barnsley Road (W)	287	72	41	668	0.430	287	928	0.8	0.8	9.692	A
4 - B6449	976	244	45	1214	0.803	975	283	3.9	4.0	15.215	C

17:15 - 17:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	58	14	756	480	0.120	58	85	0.2	0.1	8.527	A
2 - Car Park Access	5	1	793	473	0.011	5	21	0.0	0.0	7.703	A
3 - B6499 Barnsley Road (W)	235	59	33	673	0.349	235	765	0.8	0.6	8.456	A
4 - B6449	796	199	37	1219	0.653	805	232	4.0	2.0	9.001	A

17:30 - 17:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	48	12	630	563	0.086	48	71	0.1	0.1	7.001	A
2 - Car Park Access	5	1	661	561	0.008	5	17	0.0	0.0	6.467	A
3 - B6499 Barnsley Road (W)	196	49	28	677	0.290	197	637	0.6	0.4	7.706	A
4 - B6449	667	167	31	1223	0.545	670	194	2.0	1.2	6.659	A

2027 Do Nothing, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 3 and 4 have 86% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Castle View_Car Park Access_B6449 Barnsley Road_B6499	Mini-roundabout		1, 2, 3, 4	13.26	B

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

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)	Run automatically
D3	2027 Do Nothing	AM	ONE HOUR	07:30	09:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Am	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnsley Road (E)		ONE HOUR	✓	104	100.000
2 - Car Park Access		ONE HOUR	✓	9	100.000
3 - B6499 Barnsley Road (W)		ONE HOUR	✓	431	100.000
4 - B6449		ONE HOUR	✓	270	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnsley Road (E)	2 - Car Park Access	3 - B6499 Barnsley Road (W)	4 - B6449
From	1 - Barnsley Road (E)	0	4	46	54
	2 - Car Park Access	2	0	1	6
	3 - B6499 Barnsley Road (W)	18	3	1	409
	4 - B6449	12	25	229	4

Vehicle Mix

Heavy Vehicle Percentages

From	To			
		1 - Barnsley Road (E)	2 - Car Park Access	3 - B6499 Barnsley Road (W)
	1 - Barnsley Road (E)	0	0	0
	2 - Car Park Access	0	0	20
	3 - B6499 Barnsley Road (W)	0	0	2
	4 - B6449	0	0	5
	4 - B6449	33		

Results

Results Summary for whole modelled period

Am	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnsley Road (E)	0.15	5.37	0.2	A	95	143
2 - Car Park Access	0.01	5.42	0.0	A	8	12
3 - B6499 Barnsley Road (W)	0.73	21.10	2.7	C	395	593
4 - B6449	0.24	4.05	0.3	A	248	372

Main Results for each time segment

07:30 - 07:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	78	20	196	845	0.093	78	24	0.0	0.1	4.691	A
2 - Car Park Access	7	2	250	835	0.008	7	24	0.0	0.0	4.890	A
3 - B6499 Barnsley Road (W)	324	81	49	662	0.490	321	208	0.0	1.0	10.621	B
4 - B6449	203	51	18	1231	0.165	202	352	0.0	0.2	3.656	A

07:45 - 08:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	93	23	235	820	0.114	93	29	0.1	0.1	4.957	A
2 - Car Park Access	8	2	300	802	0.010	8	29	0.0	0.0	5.102	A
3 - B6499 Barnsley Road (W)	387	97	59	656	0.591	386	249	1.0	1.4	13.472	B
4 - B6449	243	61	21	1229	0.197	243	423	0.2	0.3	3.816	A

08:00 - 08:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	115	29	288	785	0.146	114	35	0.1	0.2	5.364	A
2 - Car Park Access	10	2	367	757	0.013	10	35	0.0	0.0	5.421	A
3 - B6499 Barnsley Road (W)	475	119	73	647	0.733	470	305	1.4	2.6	20.155	C
4 - B6449	297	74	26	1226	0.242	297	516	0.3	0.3	4.052	A

08:15 - 08:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	115	29	288	785	0.146	115	35	0.2	0.2	5.368	A
2 - Car Park Access	10	2	368	757	0.013	10	35	0.0	0.0	5.424	A
3 - B6499 Barnsley Road (W)	475	119	73	647	0.733	474	305	2.6	2.7	21.097	C
4 - B6449	297	74	26	1226	0.242	297	520	0.3	0.3	4.054	A

08:30 - 08:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	93	23	236	819	0.114	94	29	0.2	0.1	4.961	A
2 - Car Park Access	8	2	301	801	0.010	8	29	0.0	0.0	5.108	A
3 - B6499 Barnsley Road (W)	387	97	59	656	0.591	392	249	2.7	1.5	14.148	B
4 - B6449	243	61	22	1229	0.198	243	430	0.3	0.3	3.822	A

08:45 - 09:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	78	20	197	844	0.093	78	24	0.1	0.1	4.702	A
2 - Car Park Access	7	2	252	834	0.008	7	24	0.0	0.0	4.898	A
3 - B6499 Barnsley Road (W)	324	81	50	662	0.490	327	209	1.5	1.0	10.997	B
4 - B6449	203	51	18	1231	0.165	203	358	0.3	0.2	3.667	A

2027 Do Nothing, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 4 have 77% of the total flow for the roundabout for one or more time segments][Arms 2 and 4 have 73% of the total flow for the roundabout for one or more time segments][Arms 3 and 4 have 94% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Castle View_Car Park Access_B6449 Barnsley Road_B6499	Mini-roundabout		1, 2, 3, 4	16.40	C

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

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)	Run automatically
D4	2027 Do Nothing	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnsley Road (E)		ONE HOUR	✓	66	100.000
2 - Car Park Access		ONE HOUR	✓	6	100.000
3 - B6499 Barnsley Road (W)		ONE HOUR	✓	274	100.000
4 - B6449		ONE HOUR	✓	926	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnsley Road (E)	2 - Car Park Access	3 - B6499 Barnsley Road (W)	4 - B6449
From	1 - Barnsley Road (E)	0	5	29	32
	2 - Car Park Access	3	0	1	2
	3 - B6499 Barnsley Road (W)	34	2	3	235
	4 - B6449	60	17	848	1

Vehicle Mix

Heavy Vehicle Percentages

From	To			
		1 - Barnsley Road (E)	2 - Car Park Access	3 - B6499 Barnsley Road (W)
	1 - Barnsley Road (E)	0	0	0
	2 - Car Park Access	0	0	0
	3 - B6499 Barnsley Road (W)	0	0	3
	4 - B6449	0	0	2

Results

Results Summary for whole modelled period

Am	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnsley Road (E)	0.21	13.01	0.3	B	61	91
2 - Car Park Access	0.02	11.06	0.0	B	6	8
3 - B6499 Barnsley Road (W)	0.45	10.09	0.8	B	251	377
4 - B6449	0.84	18.55	5.0	C	850	1275

Main Results for each time segment

16:15 - 16:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	50	12	651	549	0.090	49	72	0.0	0.1	7.189	A
2 - Car Park Access	5	1	682	547	0.008	4	18	0.0	0.0	6.635	A
3 - B6499 Barnsley Road (W)	206	52	28	676	0.305	205	658	0.0	0.4	7.798	A
4 - B6449	697	174	31	1223	0.570	692	202	0.0	1.3	6.837	A

16:30 - 16:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	59	15	780	465	0.128	59	87	0.1	0.1	8.864	A
2 - Car Park Access	5	1	818	457	0.012	5	21	0.0	0.0	7.978	A
3 - B6499 Barnsley Road (W)	246	62	34	673	0.366	246	789	0.4	0.6	8.639	A
4 - B6449	832	208	38	1219	0.683	829	242	1.3	2.1	9.327	A

16:45 - 17:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	73	18	949	355	0.205	72	106	0.1	0.3	12.705	B
2 - Car Park Access	7	2	995	338	0.020	7	26	0.0	0.0	10.849	B
3 - B6499 Barnsley Road (W)	302	75	42	668	0.452	301	960	0.6	0.8	10.039	B
4 - B6449	1020	255	46	1214	0.840	1009	296	2.1	4.8	17.048	C

17:00 - 17:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	73	18	958	349	0.208	73	107	0.3	0.3	13.013	B
2 - Car Park Access	7	2	1004	332	0.020	7	26	0.0	0.0	11.055	B
3 - B6499 Barnsley Road (W)	302	75	42	667	0.452	302	969	0.8	0.8	10.092	B
4 - B6449	1020	255	46	1214	0.840	1019	297	4.8	5.0	18.548	C

17:15 - 17:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	59	15	793	456	0.130	60	88	0.3	0.2	9.085	A
2 - Car Park Access	5	1	831	447	0.012	5	22	0.0	0.0	8.145	A
3 - B6499 Barnsley Road (W)	246	62	34	672	0.366	247	802	0.8	0.6	8.705	A
4 - B6449	832	208	38	1219	0.683	844	244	5.0	2.3	10.040	B

17:30 - 17:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	50	12	659	544	0.091	50	73	0.2	0.1	7.290	A
2 - Car Park Access	5	1	691	541	0.008	5	18	0.0	0.0	6.707	A
3 - B6499 Barnsley Road (W)	206	52	29	676	0.305	207	667	0.6	0.5	7.878	A
4 - B6449	697	174	32	1223	0.570	701	204	2.3	1.4	7.071	A

2027 Opening Year, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 3 and 4 have 86% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Castle View_Car Park Access_B6449 Barnsley Road_B6499	Mini-roundabout		1, 2, 3, 4	15.80	C

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

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)	Run automatically
D5	2027 Opening Year	AM	ONE HOUR	07:30	09:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Am	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnsley Road (E)		ONE HOUR	✓	104	100.000
2 - Car Park Access		ONE HOUR	✓	9	100.000
3 - B6499 Barnsley Road (W)		ONE HOUR	✓	459	100.000
4 - B6449		ONE HOUR	✓	279	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnsley Road (E)	2 - Car Park Access	3 - B6499 Barnsley Road (W)	4 - B6449
From	1 - Barnsley Road (E)	0	4	46	54
	2 - Car Park Access	2	0	1	6
	3 - B6499 Barnsley Road (W)	18	3	1	437
	4 - B6449	12	25	238	4

Vehicle Mix

Heavy Vehicle Percentages

From	To			
		1 - Barnsley Road (E)	2 - Car Park Access	3 - B6499 Barnsley Road (W)
	1 - Barnsley Road (E)	0	0	0
	2 - Car Park Access	0	0	20
	3 - B6499 Barnsley Road (W)	0	0	2
	4 - B6449	0	0	5
		4 - B6449	33	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnsley Road (E)	0.15	5.42	0.2	A	95	143
2 - Car Park Access	0.01	5.47	0.0	A	8	12
3 - B6499 Barnsley Road (W)	0.78	25.47	3.4	D	421	632
4 - B6449	0.25	4.10	0.3	A	256	384

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	78	20	203	841	0.093	78	24	0.0	0.1	4.718	A
2 - Car Park Access	7	2	257	830	0.008	7	24	0.0	0.0	4.917	A
3 - B6499 Barnsley Road (W)	346	86	49	662	0.522	341	214	0.0	1.1	11.279	B
4 - B6449	210	53	18	1231	0.171	209	373	0.0	0.2	3.680	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	93	23	243	814	0.115	93	29	0.1	0.1	4.993	A
2 - Car Park Access	8	2	308	796	0.010	8	29	0.0	0.0	5.137	A
3 - B6499 Barnsley Road (W)	413	103	59	656	0.629	410	257	1.1	1.7	14.795	B
4 - B6449	251	63	21	1229	0.204	251	448	0.2	0.3	3.848	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	115	29	298	779	0.147	114	35	0.1	0.2	5.416	A
2 - Car Park Access	10	2	377	750	0.013	10	35	0.0	0.0	5.470	A
3 - B6499 Barnsley Road (W)	505	126	73	647	0.781	499	315	1.7	3.3	23.754	C
4 - B6449	307	77	26	1226	0.251	307	545	0.3	0.3	4.096	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	115	29	298	779	0.147	115	35	0.2	0.2	5.420	A
2 - Car Park Access	10	2	378	750	0.013	10	35	0.0	0.0	5.472	A
3 - B6499 Barnsley Road (W)	505	126	73	647	0.781	505	315	3.3	3.4	25.473	D
4 - B6449	307	77	26	1226	0.251	307	551	0.3	0.3	4.098	A

08:30 - 08:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	93	23	244	814	0.115	94	29	0.2	0.1	4.998	A
2 - Car Park Access	8	2	309	796	0.010	8	29	0.0	0.0	5.141	A
3 - B6499 Barnsley Road (W)	413	103	59	656	0.629	419	257	3.4	1.8	15.898	C
4 - B6449	251	63	22	1229	0.204	251	457	0.3	0.3	3.854	A

08:45 - 09:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	78	20	204	840	0.093	78	24	0.1	0.1	4.728	A
2 - Car Park Access	7	2	259	829	0.008	7	24	0.0	0.0	4.923	A
3 - B6499 Barnsley Road (W)	346	86	50	662	0.522	348	216	1.8	1.1	11.780	B
4 - B6449	210	53	18	1231	0.171	210	380	0.3	0.2	3.689	A

2027 Opening Year, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 4 have 77% of the total flow for the roundabout for one or more time segments][Arms 2 and 4 have 73% of the total flow for the roundabout for one or more time segments][Arms 3 and 4 have 94% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Castle View_Car Park Access_B6449 Barnsley Road_B6499	Mini-roundabout		1, 2, 3, 4	18.76	C

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

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)	Run automatically
D6	2027 Opening Year	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Barnsley Road (E)		ONE HOUR	✓	66	100.000
2 - Car Park Access		ONE HOUR	✓	6	100.000
3 - B6499 Barnsley Road (W)		ONE HOUR	✓	284	100.000
4 - B6449		ONE HOUR	✓	953	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Barnsley Road (E)	2 - Car Park Access	3 - B6499 Barnsley Road (W)	4 - B6449
From	1 - Barnsley Road (E)	0	5	29	32
	2 - Car Park Access	3	0	1	2
	3 - B6499 Barnsley Road (W)	34	2	3	245
	4 - B6449	60	17	875	1

Vehicle Mix

Heavy Vehicle Percentages

From	To			
		1 - Barnsley Road (E)	2 - Car Park Access	3 - B6499 Barnsley Road (W)
	1 - Barnsley Road (E)	0	0	0
	2 - Car Park Access	0	0	0
	3 - B6499 Barnsley Road (W)	0	0	3
	4 - B6449	0	0	2

Results

Results Summary for whole modelled period

Am	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Barnsley Road (E)	0.22	13.98	0.3	B	61	91
2 - Car Park Access	0.02	11.76	0.0	B	6	8
3 - B6499 Barnsley Road (W)	0.47	10.40	0.9	B	261	391
4 - B6449	0.86	21.62	6.0	C	874	1312

Main Results for each time segment

16:15 - 16:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	50	12	671	536	0.093	49	72	0.0	0.1	7.386	A
2 - Car Park Access	5	1	702	534	0.008	4	18	0.0	0.0	6.802	A
3 - B6499 Barnsley Road (W)	214	53	28	676	0.316	212	678	0.0	0.5	7.921	A
4 - B6449	717	179	31	1223	0.587	712	209	0.0	1.4	7.095	A

16:30 - 16:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	59	15	804	450	0.132	59	87	0.1	0.2	9.215	A
2 - Car Park Access	5	1	842	441	0.012	5	21	0.0	0.0	8.269	A
3 - B6499 Barnsley Road (W)	255	64	34	673	0.380	255	813	0.5	0.6	8.823	A
4 - B6449	857	214	38	1219	0.703	853	251	1.4	2.3	9.916	A

16:45 - 17:00

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	73	18	976	337	0.215	72	106	0.2	0.3	13.551	B
2 - Car Park Access	7	2	1022	320	0.021	7	26	0.0	0.0	11.477	B
3 - B6499 Barnsley Road (W)	313	78	42	668	0.468	312	987	0.6	0.9	10.341	B
4 - B6449	1049	262	46	1214	0.864	1036	307	2.3	5.6	19.313	C

17:00 - 17:15

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	73	18	987	330	0.220	73	107	0.3	0.3	13.976	B
2 - Car Park Access	7	2	1034	313	0.021	7	26	0.0	0.0	11.759	B
3 - B6499 Barnsley Road (W)	313	78	42	667	0.468	313	998	0.9	0.9	10.405	B
4 - B6449	1049	262	46	1214	0.865	1048	308	5.6	6.0	21.622	C

17:15 - 17:30

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	59	15	820	439	0.135	60	88	0.3	0.2	9.511	A
2 - Car Park Access	5	1	858	429	0.013	5	22	0.0	0.0	8.491	A
3 - B6499 Barnsley Road (W)	255	64	34	672	0.380	256	829	0.9	0.6	8.900	A
4 - B6449	857	214	38	1219	0.703	871	253	6.0	2.5	10.923	B

17:30 - 17:45

Am	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Barnsley Road (E)	50	12	680	530	0.094	50	73	0.2	0.1	7.499	A
2 - Car Park Access	5	1	712	527	0.009	5	18	0.0	0.0	6.888	A
3 - B6499 Barnsley Road (W)	214	53	29	676	0.316	214	687	0.6	0.5	8.011	A
4 - B6449	717	179	32	1223	0.587	722	211	2.5	1.5	7.375	A

Appendix 13 – J7 Modelling Results

Junctions 9										
ARCADY 9 - Roundabout Module										
Version: 9.5.1.7462 © Copyright TRL Limited, 2019										
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Filename: J7 - A628 Whiby Road_A6449_Access Road Roundabout v2.j9

Path: Z:\Projects\4283 Bark Meadows Dodworth\Data\Modelling\Sept 22\J7

Report generation date: 14/10/2022 16:55:57

- »Existing Layout - 2022 Base, AM
- »Existing Layout - 2022 Base, PM
- »Existing Layout - 2027 Do Nothing, AM
- »Existing Layout - 2027 Do Nothing, PM
- »Existing Layout - 2027 Opening Year, AM
- »Existing Layout - 2027 Opening Year, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Existing Layout - 2022 Base									
1 - Whinby Road (N)	D1	0.8	3.10	0.43	A	D2	0.7	2.76	0.41	A
2 - Whinby Road (E)		0.9	2.82	0.46	A		2.7	5.58	0.72	A
3 - B6449		1.6	11.53	0.61	B		0.6	6.95	0.35	A
4 - untitled		0.0	0.00	0.00	A		0.0	0.00	0.00	A
	Existing Layout - 2027 Do Nothing									
1 - Whinby Road (N)	D3	1.6	4.49	0.60	A	D4	1.3	3.66	0.55	A
2 - Whinby Road (E)		1.4	3.60	0.57	A		6.8	12.05	0.87	B
3 - B6449		4.1	28.54	0.81	D		1.1	12.03	0.52	B
4 - untitled		0.0	0.00	0.00	A		0.0	0.00	0.00	A
	Existing Layout - 2027 Opening Year									
1 - Whinby Road (N)	D5	1.6	4.62	0.61	A	D6	1.3	3.69	0.56	A
2 - Whinby Road (E)		1.4	3.63	0.57	A		7.5	13.27	0.88	B
3 - B6449		5.4	36.45	0.86	E		1.2	12.47	0.54	B
4 - untitled		0.0	0.00	0.00	A		0.0	0.00	0.00	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Whinby Road/B6449 Roundabout
Location	Barnsley, South Yorkshire
Site number	
Date	06/04/2022
Version	
Status	
Identifier	
Client	Keepmoat Homes
Jobnumber	4283
Enumerator	LTP\MR
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

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				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)	Run automatically
D1	2022 Base	AM	ONE HOUR	07:30	09:00	15	✓
D2	2022 Base	PM	ONE HOUR	16:15	17:45	15	✓
D3	2027 Do Nothing	AM	ONE HOUR	07:30	09:00	15	✓
D4	2027 Do Nothing	PM	ONE HOUR	16:15	17:45	15	✓
D5	2027 Opening Year	AM	ONE HOUR	07:30	09:00	15	✓
D6	2027 Opening Year	PM	ONE HOUR	16:15	17:45	15	✓
D7	2033 Do Nothing	AM	ONE HOUR	07:30	09:00	15	
D8	2033 Do Nothing	PM	ONE HOUR	16:15	17:45	15	
D9	2033 Future Year	AM	ONE HOUR	07:30	09:00	15	
D10	2033 Future Year	PM	ONE HOUR	16:15	17:45	15	

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Layout	✓	100.000	100.000

Existing Layout - 2022 Base, 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	Whinby Road/B6449	Standard Roundabout		1, 2, 3, 4	4.62	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Whinby Road (N)	
2	Whinby Road (E)	
3	B6449	
4	untitled	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1 - Whinby Road (N)	7.95	7.95	0.0	48.0	42.5	27.1	
2 - Whinby Road (E)	7.66	8.03	8.8	23.4	42.5	16.4	
3 - B6449	3.74	4.33	11.2	24.1	42.5	14.5	
4 - untitled	3.34	5.00	3.6	10.1	42.5	22.9	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Whinby Road (N)	0.806	2502
2 - Whinby Road (E)	0.820	2551
3 - B6449	0.588	1366
4 - untitled	0.527	1187

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)	Run automatically
D1	2022 Base	AM	ONE HOUR	07:30	09:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Whinby Road (N)		ONE HOUR	✓	838	100.000
2 - Whinby Road (E)		ONE HOUR	✓	1036	100.000
3 - B6449		ONE HOUR	✓	454	100.000
4 - untitled		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Whinby Road (N)	2 - Whinby Road (E)	3 - B6449	4 - untitled
From	1 - Whinby Road (N)	0	771	67	0
	2 - Whinby Road (E)	828	17	191	0
	3 - B6449	78	376	0	0
	4 - untitled	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Whinby Road (N)	2 - Whinby Road (E)	3 - B6449	4 - untitled
From	1 - Whinby Road (N)	0	6	6	0
	2 - Whinby Road (E)	6	0	5	0
	3 - B6449	4	2	0	0
	4 - untitled	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Whinby Road (N)	0.43	3.10	0.8	A	769	1153
2 - Whinby Road (E)	0.46	2.82	0.9	A	951	1426
3 - B6449	0.61	11.53	1.6	B	417	625
4 - untitled	0.00	0.00	0.0	A	0	0

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	631	158	294	2265	0.279	629	680	0.0	0.4	2.331	A
2 - Whinby Road (E)	780	195	50	2510	0.311	778	873	0.0	0.5	2.195	A
3 - B6449	342	85	635	993	0.344	340	194	0.0	0.5	5.622	A
4 - untitled	0	0	974	673	0.000	0	0	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	753	188	352	2218	0.340	753	814	0.4	0.5	2.604	A
2 - Whinby Road (E)	931	233	60	2502	0.372	931	1045	0.5	0.6	2.422	A
3 - B6449	408	102	759	920	0.444	407	232	0.5	0.8	7.170	A
4 - untitled	0	0	1166	572	0.000	0	0	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	923	231	430	2155	0.428	922	996	0.5	0.8	3.090	A
2 - Whinby Road (E)	1141	285	74	2491	0.458	1140	1278	0.6	0.9	2.812	A
3 - B6449	500	125	930	819	0.610	497	284	0.8	1.6	11.318	B
4 - untitled	0	0	1426	435	0.000	0	0	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	923	231	433	2153	0.428	923	997	0.8	0.8	3.100	A
2 - Whinby Road (E)	1141	285	74	2491	0.458	1141	1281	0.9	0.9	2.818	A
3 - B6449	500	125	930	819	0.610	500	284	1.6	1.6	11.531	B
4 - untitled	0	0	1430	433	0.000	0	0	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	753	188	356	2215	0.340	754	816	0.8	0.5	2.613	A
2 - Whinby Road (E)	931	233	60	2502	0.372	932	1050	0.9	0.6	2.428	A
3 - B6449	408	102	760	919	0.444	411	232	1.6	0.8	7.299	A
4 - untitled	0	0	1172	569	0.000	0	0	0.0	0.0	0.000	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	631	158	297	2263	0.279	631	683	0.5	0.4	2.341	A
2 - Whinby Road (E)	780	195	50	2510	0.311	781	878	0.6	0.5	2.201	A
3 - B6449	342	85	637	992	0.345	343	194	0.8	0.5	5.690	A
4 - untitled	0	0	980	671	0.000	0	0	0.0	0.0	0.000	A

Existing Layout - 2022 Base, 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	Whinby Road/B6449	Standard Roundabout		1, 2, 3, 4	4.82	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Run automatically
D2	2022 Base	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Whinby Road (N)		ONE HOUR	✓	848	100.000
2 - Whinby Road (E)		ONE HOUR	✓	1595	100.000
3 - B6449		ONE HOUR	✓	262	100.000
4 - untitled		ONE HOUR	✓	1	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Whinby Road (N)	2 - Whinby Road (E)	3 - B6449	4 - untitled
From	1 - Whinby Road (N)	1	708	139	0
	2 - Whinby Road (E)	799	45	751	0
	3 - B6449	50	212	0	0
	4 - untitled	0	1	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Whinby Road (N)	2 - Whinby Road (E)	3 - B6449	4 - untitled
From	1 - Whinby Road (N)	0	3	1	0
	2 - Whinby Road (E)	5	7	2	0
	3 - B6449	4	2	0	0
	4 - untitled	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Whinby Road (N)	0.41	2.76	0.7	A	778	1167
2 - Whinby Road (E)	0.72	5.58	2.7	A	1464	2195
3 - B6449	0.35	6.95	0.6	A	240	361
4 - untitled	0.00	0.00	0.0	A	0	0

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	638	160	193	2347	0.272	637	638	0.0	0.4	2.159	A
2 - Whinby Road (E)	1201	300	105	2465	0.487	1197	724	0.0	1.0	2.934	A
3 - B6449	197	49	634	993	0.199	196	668	0.0	0.3	4.619	A
4 - untitled	0	0	830	749	0.000	0	0	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	762	191	231	2316	0.329	762	763	0.4	0.5	2.378	A
2 - Whinby Road (E)	1434	358	126	2448	0.586	1432	867	1.0	1.5	3.665	A
3 - B6449	236	59	759	920	0.256	235	799	0.3	0.3	5.380	A
4 - untitled	0	0	994	663	0.000	0	0	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	934	233	282	2275	0.410	933	933	0.5	0.7	2.753	A
2 - Whinby Road (E)	1756	439	154	2425	0.724	1751	1061	1.5	2.7	5.498	A
3 - B6449	288	72	928	820	0.352	288	977	0.3	0.5	6.907	A
4 - untitled	0	0	1215	546	0.000	0	0	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	934	233	283	2274	0.411	934	936	0.7	0.7	2.757	A
2 - Whinby Road (E)	1756	439	154	2425	0.724	1756	1062	2.7	2.7	5.576	A
3 - B6449	288	72	930	819	0.352	288	980	0.5	0.6	6.946	A
4 - untitled	0	0	1219	545	0.000	0	0	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	762	191	232	2315	0.329	763	767	0.7	0.5	2.384	A
2 - Whinby Road (E)	1434	358	126	2448	0.586	1439	869	2.7	1.5	3.713	A
3 - B6449	236	59	762	918	0.257	236	803	0.6	0.4	5.415	A
4 - untitled	0	0	999	661	0.000	0	0	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	638	160	194	2346	0.272	639	641	0.5	0.4	2.167	A
2 - Whinby Road (E)	1201	300	105	2465	0.487	1203	727	1.5	1.0	2.962	A
3 - B6449	197	49	637	991	0.199	198	671	0.4	0.3	4.645	A
4 - untitled	0	0	835	747	0.000	0	0	0.0	0.0	0.000	A

Existing Layout - 2027 Do Nothing, 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	Whinby Road/B6449	Standard Roundabout		1, 2, 3, 4	8.13	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Run automatically
D3	2027 Do Nothing	AM	ONE HOUR	07:30	09:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Whinby Road (N)		ONE HOUR	✓	1166	100.000
2 - Whinby Road (E)		ONE HOUR	✓	1279	100.000
3 - B6449		ONE HOUR	✓	491	100.000
4 - untitled		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Whinby Road (N)	2 - Whinby Road (E)	3 - B6449	4 - untitled
From	1 - Whinby Road (N)	0	1079	87	0
	2 - Whinby Road (E)	1060	18	198	3
	3 - B6449	101	390	0	0
	4 - untitled	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Whinby Road (N)	2 - Whinby Road (E)	3 - B6449	4 - untitled
From	1 - Whinby Road (N)	0	7	6	0
	2 - Whinby Road (E)	7	0	5	0
	3 - B6449	4	2	0	0
	4 - untitled	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Whinby Road (N)	0.60	4.49	1.6	A	1070	1605
2 - Whinby Road (E)	0.57	3.60	1.4	A	1174	1760
3 - B6449	0.81	28.54	4.1	D	451	676
4 - untitled	0.00	0.00	0.0	A	0	0

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	878	219	305	2256	0.389	875	871	0.0	0.7	2.783	A
2 - Whinby Road (E)	963	241	65	2498	0.386	960	1115	0.0	0.7	2.491	A
3 - B6449	370	92	812	889	0.416	367	214	0.0	0.7	7.025	A
4 - untitled	0	0	1176	567	0.000	0	2	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1048	262	365	2208	0.475	1047	1042	0.7	1.0	3.313	A
2 - Whinby Road (E)	1150	287	78	2487	0.462	1149	1334	0.7	0.9	2.865	A
3 - B6449	441	110	971	795	0.555	439	256	0.7	1.2	10.300	B
4 - untitled	0	0	1408	445	0.000	0	3	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1284	321	441	2147	0.598	1281	1275	1.0	1.6	4.436	A
2 - Whinby Road (E)	1408	352	96	2473	0.569	1406	1627	0.9	1.4	3.591	A
3 - B6449	541	135	1189	667	0.810	530	313	1.2	3.8	25.281	D
4 - untitled	0	0	1716	283	0.000	0	3	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1284	321	448	2141	0.600	1284	1278	1.6	1.6	4.492	A
2 - Whinby Road (E)	1408	352	96	2473	0.570	1408	1636	1.4	1.4	3.603	A
3 - B6449	541	135	1190	666	0.812	540	314	3.8	4.1	28.543	D
4 - untitled	0	0	1726	277	0.000	0	3	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1048	262	376	2199	0.477	1051	1048	1.6	1.0	3.357	A
2 - Whinby Road (E)	1150	287	78	2487	0.462	1152	1348	1.4	0.9	2.879	A
3 - B6449	441	110	973	794	0.556	452	257	4.1	1.3	11.134	B
4 - untitled	0	0	1423	437	0.000	0	3	0.0	0.0	0.000	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	878	219	309	2253	0.390	879	875	1.0	0.7	2.803	A
2 - Whinby Road (E)	963	241	66	2497	0.386	964	1122	0.9	0.7	2.502	A
3 - B6449	370	92	815	887	0.417	372	215	1.3	0.7	7.188	A
4 - untitled	0	0	1184	563	0.000	0	2	0.0	0.0	0.000	A

Existing Layout - 2027 Do Nothing, 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	Whinby Road/B6449	Standard Roundabout		1, 2, 3, 4	9.19	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Run automatically
D4	2027 Do Nothing	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Whinby Road (N)		ONE HOUR	✓	1136	100.000
2 - Whinby Road (E)		ONE HOUR	✓	1899	100.000
3 - B6449		ONE HOUR	✓	303	100.000
4 - untitled		ONE HOUR	✓	1	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Whinby Road (N)	2 - Whinby Road (E)	3 - B6449	4 - untitled
From	1 - Whinby Road (N)	1	965	170	0
	2 - Whinby Road (E)	1072	47	778	2
	3 - B6449	80	223	0	0
	4 - untitled	0	1	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Whinby Road (N)	2 - Whinby Road (E)	3 - B6449	4 - untitled
From	1 - Whinby Road (N)	0	3	2	0
	2 - Whinby Road (E)	5	7	2	0
	3 - B6449	4	2	0	0
	4 - untitled	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Whinby Road (N)	0.55	3.66	1.3	A	1042	1564
2 - Whinby Road (E)	0.87	12.05	6.8	B	1743	2614
3 - B6449	0.52	12.03	1.1	B	278	417
4 - untitled	0.00	0.00	0.0	A	0	0

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	855	214	202	2339	0.366	853	864	0.0	0.6	2.487	A
2 - Whinby Road (E)	1430	357	128	2446	0.585	1424	927	0.0	1.4	3.635	A
3 - B6449	228	57	841	871	0.262	227	711	0.0	0.4	5.712	A
4 - untitled	0	0	1066	625	0.000	0	1	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1021	255	242	2307	0.443	1020	1034	0.6	0.8	2.877	A
2 - Whinby Road (E)	1707	427	154	2425	0.704	1703	1109	1.4	2.4	5.148	A
3 - B6449	272	68	1006	774	0.352	272	851	0.4	0.5	7.332	A
4 - untitled	0	0	1276	514	0.000	0	2	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1251	313	295	2264	0.552	1249	1260	0.8	1.3	3.642	A
2 - Whinby Road (E)	2091	523	188	2397	0.872	2075	1356	2.4	6.5	11.073	B
3 - B6449	334	83	1226	645	0.517	332	1037	0.5	1.1	11.688	B
4 - untitled	0	0	1555	367	0.000	0	2	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1251	313	297	2262	0.553	1251	1269	1.3	1.3	3.658	A
2 - Whinby Road (E)	2091	523	188	2397	0.872	2090	1360	6.5	6.8	12.049	B
3 - B6449	334	83	1235	640	0.521	333	1043	1.1	1.1	12.033	B
4 - untitled	0	0	1566	361	0.000	0	2	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1021	255	245	2305	0.443	1023	1047	1.3	0.8	2.892	A
2 - Whinby Road (E)	1707	427	154	2425	0.704	1724	1114	6.8	2.5	5.457	A
3 - B6449	272	68	1019	767	0.355	274	859	1.1	0.6	7.526	A
4 - untitled	0	0	1291	506	0.000	0	2	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	855	214	204	2338	0.366	856	871	0.8	0.6	2.502	A
2 - Whinby Road (E)	1430	357	129	2446	0.585	1434	931	2.5	1.5	3.707	A
3 - B6449	228	57	847	868	0.263	229	716	0.6	0.4	5.785	A
4 - untitled	0	0	1075	621	0.000	0	2	0.0	0.0	0.000	A

Existing Layout - 2027 Opening Year, 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	Whinby Road/B6449	Standard Roundabout		1, 2, 3, 4	9.75	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Run automatically
D5	2027 Opening Year	AM	ONE HOUR	07:30	09:00	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Whinby Road (N)		ONE HOUR	✓	1166	100.000
2 - Whinby Road (E)		ONE HOUR	✓	1288	100.000
3 - B6449		ONE HOUR	✓	519	100.000
4 - untitled		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Whinby Road (N)	2 - Whinby Road (E)	3 - B6449	4 - untitled
From	1 - Whinby Road (N)	0	1079	87	0
	2 - Whinby Road (E)	1060	18	207	3
	3 - B6449	101	418	0	0
	4 - untitled	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Whinby Road (N)	2 - Whinby Road (E)	3 - B6449	4 - untitled
From	1 - Whinby Road (N)	0	7	6	0
	2 - Whinby Road (E)	7	0	4	0
	3 - B6449	4	2	0	0
	4 - untitled	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Whinby Road (N)	0.61	4.62	1.6	A	1070	1605
2 - Whinby Road (E)	0.57	3.63	1.4	A	1182	1773
3 - B6449	0.86	36.45	5.4	E	476	714
4 - untitled	0.00	0.00	0.0	A	0	0

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	878	219	326	2239	0.392	875	871	0.0	0.7	2.815	A
2 - Whinby Road (E)	970	242	65	2498	0.388	967	1135	0.0	0.7	2.498	A
3 - B6449	391	98	812	889	0.440	388	221	0.0	0.8	7.309	A
4 - untitled	0	0	1197	556	0.000	0	2	0.0	0.0	0.000	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1048	262	390	2188	0.479	1047	1042	0.7	1.0	3.371	A
2 - Whinby Road (E)	1158	289	78	2487	0.466	1157	1359	0.7	0.9	2.878	A
3 - B6449	467	117	971	795	0.587	464	264	0.8	1.4	11.052	B
4 - untitled	0	0	1432	432	0.000	0	3	0.0	0.0	0.000	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1284	321	469	2124	0.604	1281	1274	1.0	1.6	4.552	A
2 - Whinby Road (E)	1418	355	96	2473	0.573	1416	1654	0.9	1.4	3.619	A
3 - B6449	571	143	1189	667	0.857	557	323	1.4	4.9	30.393	D
4 - untitled	0	0	1743	268	0.000	0	3	0.0	0.0	0.000	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1284	321	478	2116	0.607	1284	1278	1.6	1.6	4.622	A
2 - Whinby Road (E)	1418	355	96	2473	0.574	1418	1666	1.4	1.4	3.630	A
3 - B6449	571	143	1190	666	0.858	569	324	4.9	5.4	36.453	E
4 - untitled	0	0	1756	261	0.000	0	3	0.0	0.0	0.000	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1048	262	405	2176	0.482	1051	1048	1.6	1.0	3.430	A
2 - Whinby Road (E)	1158	289	78	2487	0.466	1160	1377	1.4	0.9	2.889	A
3 - B6449	467	117	973	794	0.588	482	265	5.4	1.5	12.400	B
4 - untitled	0	0	1453	421	0.000	0	3	0.0	0.0	0.000	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	878	219	330	2236	0.393	879	875	1.0	0.7	2.841	A
2 - Whinby Road (E)	970	242	66	2497	0.388	971	1144	0.9	0.7	2.509	A
3 - B6449	391	98	815	887	0.441	393	222	1.5	0.8	7.508	A
4 - untitled	0	0	1206	551	0.000	0	2	0.0	0.0	0.000	A

Existing Layout - 2027 Opening Year, 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	Whinby Road/B6449	Standard Roundabout		1, 2, 3, 4	9.97	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)	Run automatically
D6	2027 Opening Year	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Whinby Road (N)		ONE HOUR	✓	1136	100.000
2 - Whinby Road (E)		ONE HOUR	✓	1926	100.000
3 - B6449		ONE HOUR	✓	313	100.000
4 - untitled		ONE HOUR	✓	1	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		1 - Whinby Road (N)	2 - Whinby Road (E)	3 - B6449	4 - untitled
From	1 - Whinby Road (N)	1	965	170	0
	2 - Whinby Road (E)	1072	47	805	2
	3 - B6449	80	233	0	0
	4 - untitled	0	1	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - Whinby Road (N)	2 - Whinby Road (E)	3 - B6449	4 - untitled
From	1 - Whinby Road (N)	0	3	2	0
	2 - Whinby Road (E)	5	7	2	0
	3 - B6449	4	2	0	0
	4 - untitled	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Whinby Road (N)	0.56	3.69	1.3	A	1042	1564
2 - Whinby Road (E)	0.88	13.27	7.5	B	1767	2651
3 - B6449	0.54	12.47	1.2	B	287	431
4 - untitled	0.00	0.00	0.0	A	0	0

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	855	214	210	2333	0.367	853	864	0.0	0.6	2.497	A
2 - Whinby Road (E)	1450	362	128	2446	0.593	1444	934	0.0	1.5	3.705	A
3 - B6449	236	59	841	871	0.270	234	731	0.0	0.4	5.782	A
4 - untitled	0	0	1074	621	0.000	0	1	0.0	0.0	0.000	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1021	255	251	2300	0.444	1020	1034	0.6	0.8	2.893	A
2 - Whinby Road (E)	1731	433	154	2425	0.714	1727	1118	1.5	2.5	5.320	A
3 - B6449	281	70	1006	774	0.363	281	875	0.4	0.6	7.461	A
4 - untitled	0	0	1285	510	0.000	0	2	0.0	0.0	0.000	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1251	313	306	2255	0.555	1249	1259	0.8	1.3	3.673	A
2 - Whinby Road (E)	2121	530	188	2397	0.885	2102	1367	2.5	7.1	11.986	B
3 - B6449	345	86	1225	646	0.534	342	1066	0.6	1.1	12.067	B
4 - untitled	0	0	1565	362	0.000	0	2	0.0	0.0	0.000	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1251	313	308	2254	0.555	1251	1269	1.3	1.3	3.691	A
2 - Whinby Road (E)	2121	530	188	2397	0.885	2119	1371	7.1	7.5	13.268	B
3 - B6449	345	86	1234	640	0.538	344	1073	1.1	1.2	12.470	B
4 - untitled	0	0	1577	356	0.000	0	2	0.0	0.0	0.000	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	1021	255	254	2297	0.445	1023	1048	1.3	0.8	2.911	A
2 - Whinby Road (E)	1731	433	154	2425	0.714	1751	1123	7.5	2.6	5.697	A
3 - B6449	281	70	1020	766	0.367	284	885	1.2	0.6	7.683	A
4 - untitled	0	0	1302	501	0.000	0	2	0.0	0.0	0.000	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinby Road (N)	855	214	212	2331	0.367	856	871	0.8	0.6	2.510	A
2 - Whinby Road (E)	1450	362	129	2446	0.593	1454	939	2.6	1.5	3.785	A
3 - B6449	236	59	847	868	0.272	237	736	0.6	0.4	5.852	A
4 - untitled	0	0	1082	616	0.000	0	2	0.0	0.0	0.000	A

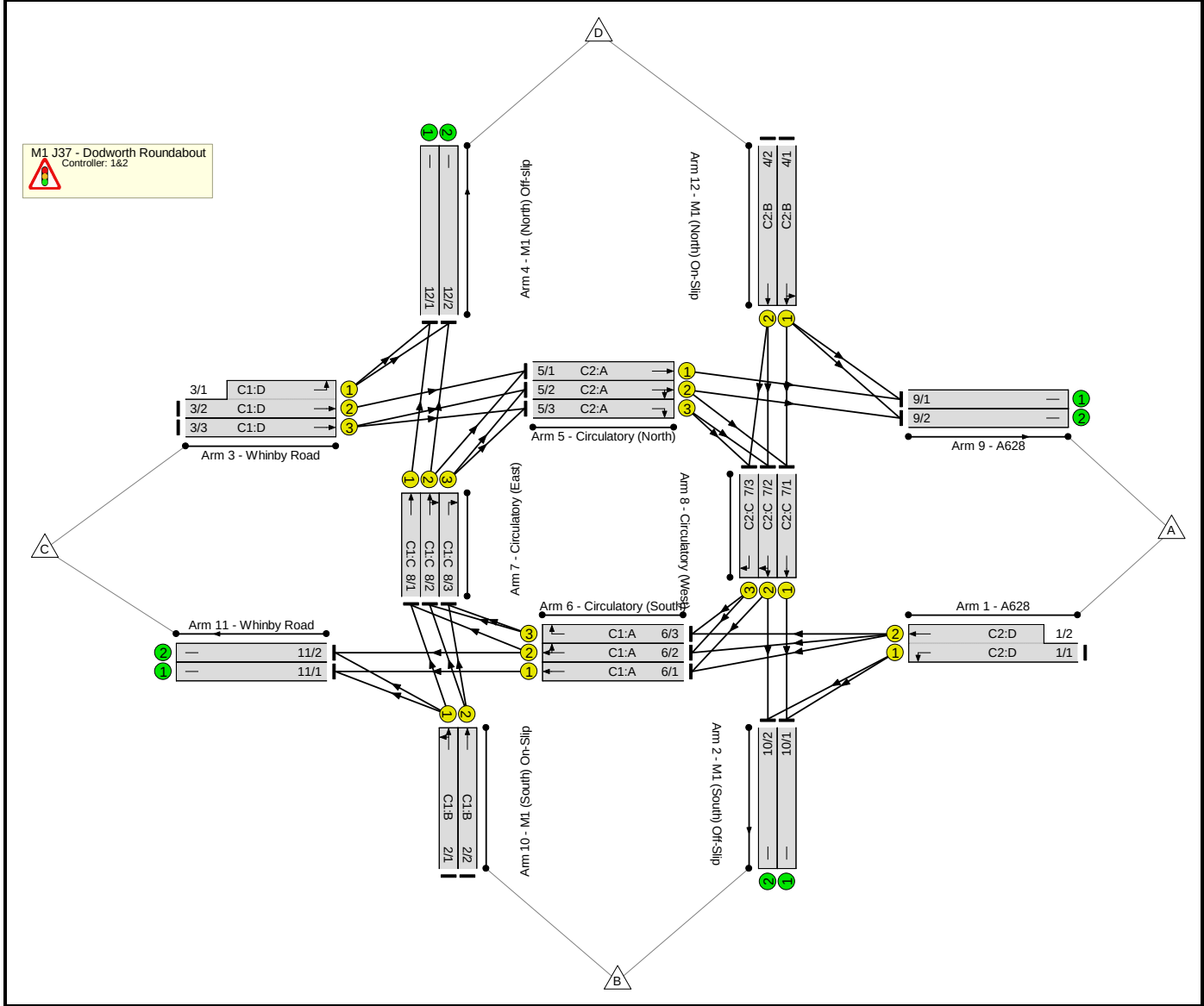
Appendix 14 – J8 Modelling Results

LTP LinSig Output

User and Project Details

Project:	M1 J37 Dodworth Roundabout
Title:	
Location:	Barnsley, South Yorkshire
Client:	Keepmoat Homes
Additional detail:	
File name:	J8 - A628 Dodworth Road_M1_A628 Whinby Road Roundabout.lsg3x
Author:	MR
Company:	LTP
Address:	

Network Layout Diagram



C1 - Northbound Gyratory

Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7

Phase Intergreens Matrix

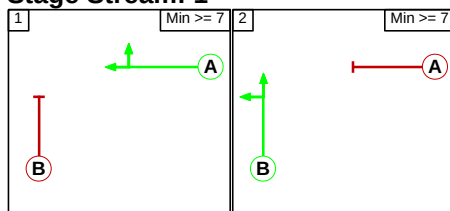
	Starting Phase				
Terminating Phase		A	B	C	D
	A		5	-	-
	B	7		-	-
	C	-	-		5
	D	-	-	5	

Phases in Stage

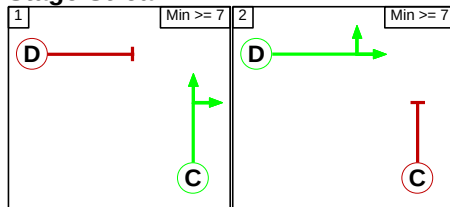
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

From Stage	To Stage		
		1	2
	1		5
	2	7	

Stage Stream: 2

From Stage	To Stage		
		1	2
	1		5
	2	5	

C2 - Southbound Gyratory

Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	2		7	7
B	Traffic	2		7	7
C	Traffic	1		7	7
D	Traffic	1		7	7

Phase Intergreens Matrix

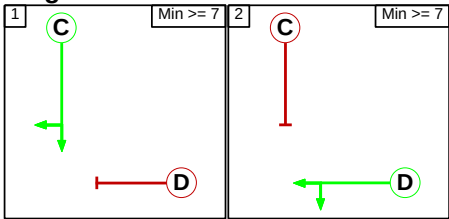
Terminating Phase	Starting Phase				
		A	B	C	D
	A		5	-	-
	B	8		-	-
	C	-	-		5
	D	-	-	5	

Phases in Stage

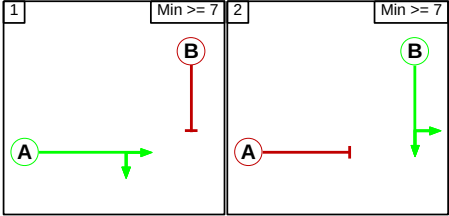
Stream	Stage No.	Phases in Stage
1	1	C
1	2	D
2	1	A
2	2	B

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

From Stage	To Stage		
		1	2
	1		5
	2	5	

Stage Stream: 2

From Stage	To Stage		
		1	2
	1		5
	2	8	

Give-Way Lane Input Data

Junction: M1 J37 - Dodworth Roundabout
There are no Opposed Lanes in this Junction

Lane Input Data

Junction: M1 J37 - Dodworth Roundabout												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A628)	U	D	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 10 Left	40.00
1/2 (A628)	U	D	2	3	24.3	User	3830	-	-	-	-	-
2/1 (M1 (South) Off-Slip)	U	B	2	3	130.4	Geom	-	3.30	0.00	Y	Arm 8 Ahead	60.00
											Arm 11 Left	40.00
2/2 (M1 (South) Off-Slip)	U	B	2	3	130.4	Geom	-	3.00	0.00	Y	Arm 8 Ahead	45.00
3/1 (Whinby Road)	U	D	2	3	8.7	Geom	-	3.00	0.00	Y	Arm 12 Left	15.00
3/2 (Whinby Road)	U	D	2	3	25.2	Geom	-	3.00	0.00	Y	Arm 5 Ahead	18.00
3/3 (Whinby Road)	U	D	2	3	25.2	Geom	-	3.00	0.00	Y	Arm 5 Ahead	20.00
4/1 (M1 (North) Off-slip)	U	B	2	3	95.7	Geom	-	3.00	0.00	Y	Arm 7 Ahead	60.00
											Arm 9 Left	50.00
4/2 (M1 (North) Off-slip)	U	B	2	3	95.7	Geom	-	3.00	0.00	Y	Arm 7 Ahead	60.00
5/1 (Circulatory (North))	U	A	2	3	22.6	Geom	-	3.30	0.00	Y	Arm 9 Ahead	Inf
5/2 (Circulatory (North))	U	A	2	3	22.6	Geom	-	3.30	0.00	Y	Arm 7 Right	Inf
											Arm 9 Ahead	Inf
5/3 (Circulatory (North))	U	A	2	3	22.6	Geom	-	3.30	0.00	Y	Arm 7 Right	Inf
6/1 (Circulatory (South))	U	A	2	3	25.2	Geom	-	3.30	0.00	Y	Arm 11 Ahead	Inf
6/2 (Circulatory (South))	U	A	2	3	25.2	Geom	-	3.30	0.00	Y	Arm 8 Right	Inf
											Arm 11 Ahead	Inf
6/3 (Circulatory (South))	U	A	2	3	25.2	Geom	-	3.30	0.00	Y	Arm 8 Right	Inf
7/1 (Circulatory (East))	U	C	2	3	12.2	Geom	-	3.00	0.00	Y	Arm 10 Ahead	Inf

7/2 (Circulatory (East))	U	C	2	3	12.2	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
											Arm 10 Ahead	Inf
7/3 (Circulatory (East))	U	C	2	3	12.2	Geom	-	3.00	0.00	Y	Arm 6 Right	Inf
8/1 (Circulatory (West))	U	C	2	3	12.2	Geom	-	3.30	0.00	Y	Arm 12 Ahead	Inf
8/2 (Circulatory (West))	U	C	2	3	12.2	Geom	-	3.30	0.00	Y	Arm 5 Right	Inf
											Arm 12 Ahead	Inf
8/3 (Circulatory (West))	U	C	2	3	12.2	Geom	-	3.30	0.00	Y	Arm 5 Right	Inf
9/1 (A628)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/2 (A628)	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1 (M1 (South) On-Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
10/2 (M1 (South) On-Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
11/1 (Whinby Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
11/2 (Whinby Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
12/1 (M1 (North) On-Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
12/2 (M1 (North) On-Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-

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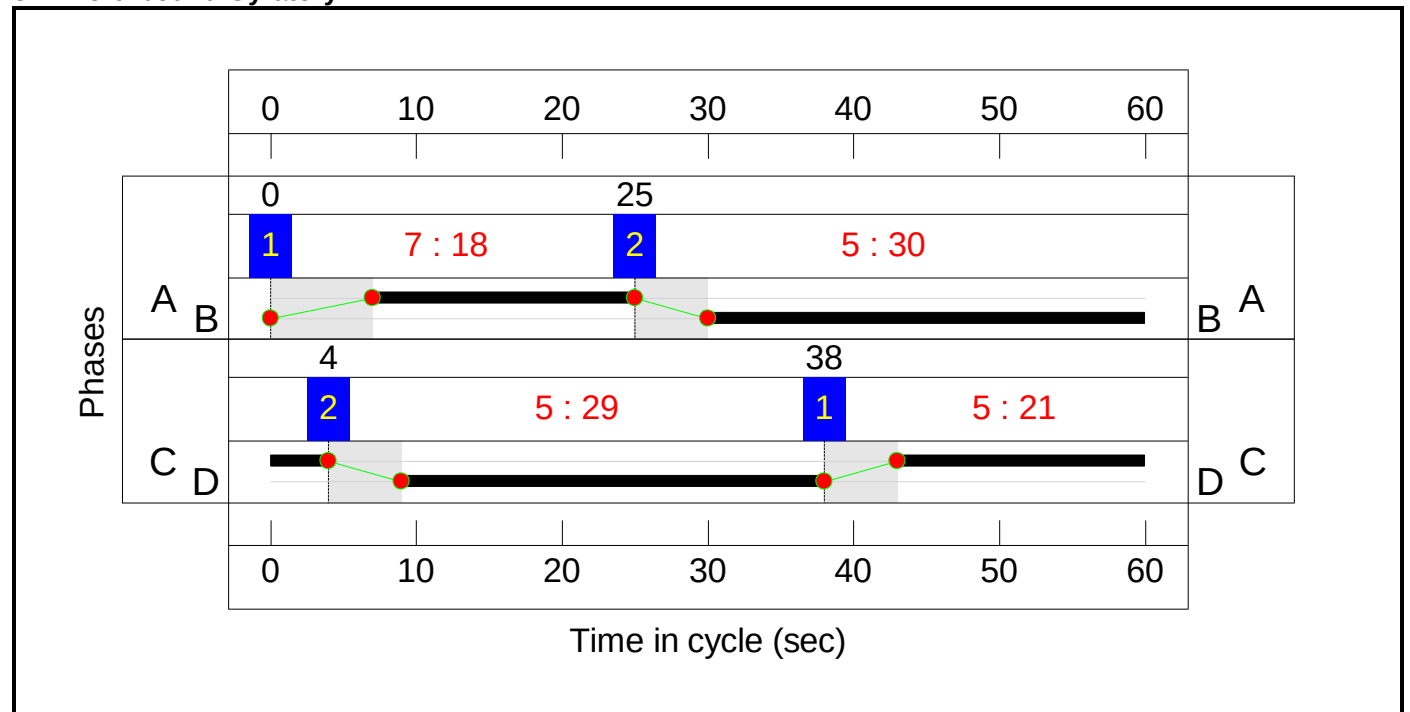
Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022 Base AM'	07:45	08:45	01:00	
2: '2022 Base PM'	16:30	17:30	01:00	
3: '2027 Do Nothing AM'	07:45	08:45	01:00	
4: '2027 Do Nothing PM'	16:30	17:30	01:00	
5: '2027 Opening Year AM'	07:45	08:45	01:00	
6: '2027 Opening Year PM'	16:30	17:30	01:00	
7: '2033 Do Nothing AM'	07:45	08:45	01:00	
8: '2033 Do Nothing PM'	16:30	17:30	01:00	
9: '2033 Future Year AM'	07:45	08:45	01:00	
10: '2033 Future Year PM'	16:30	17:30	01:00	

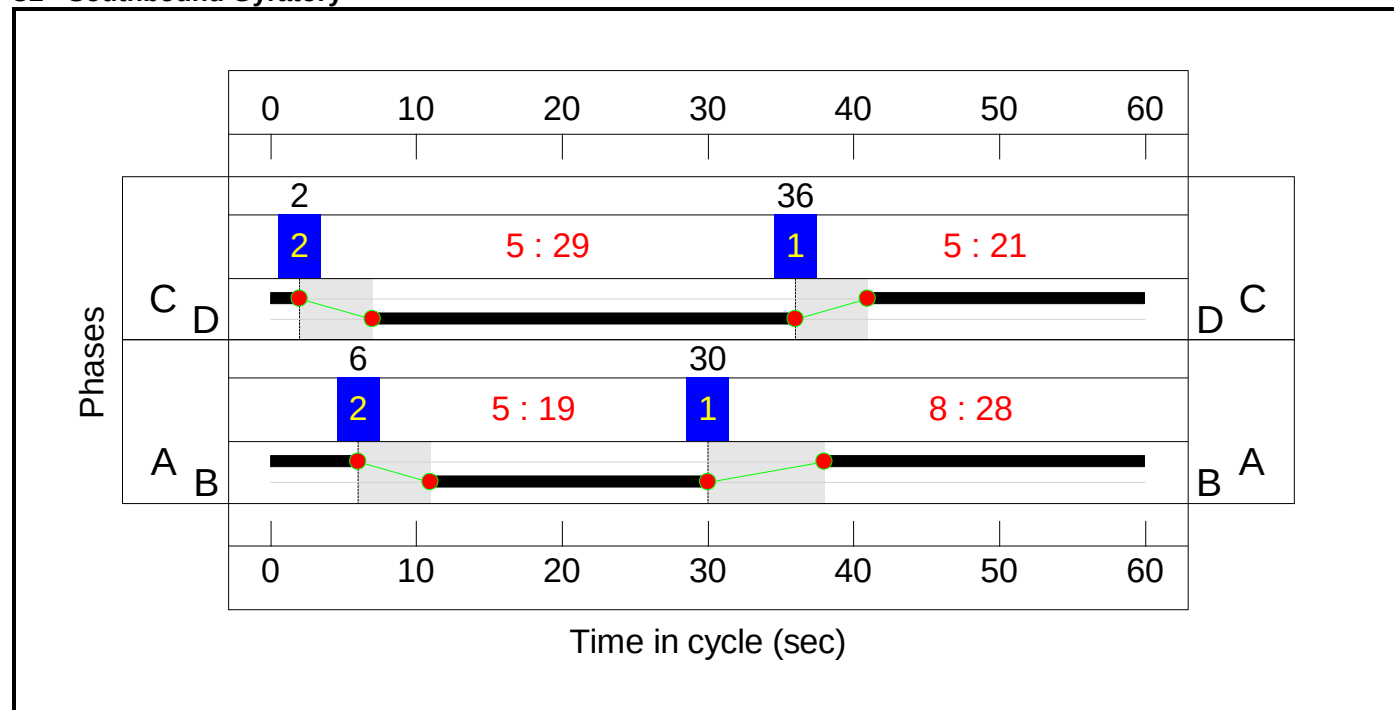
Signal Timings Diagram

Scenario 1: '2022 Base AM' (FG1: '2022 Base AM', Plan 1: 'Network Control Plan 1')

C1 - Northbound Gyratory



C2 - Southbound Gyratory



Traffic Flows, Desired

Desired Flow :

Crosstabs: Row 1						
Origin	Destination					
		A	B	C	D	Tot.
	A	0	512	314	351	1177
	B	614	0	456	5	1075
	C	329	475	0	404	1208
	D	402	9	259	0	670
	Tot.	1345	996	1029	760	4130

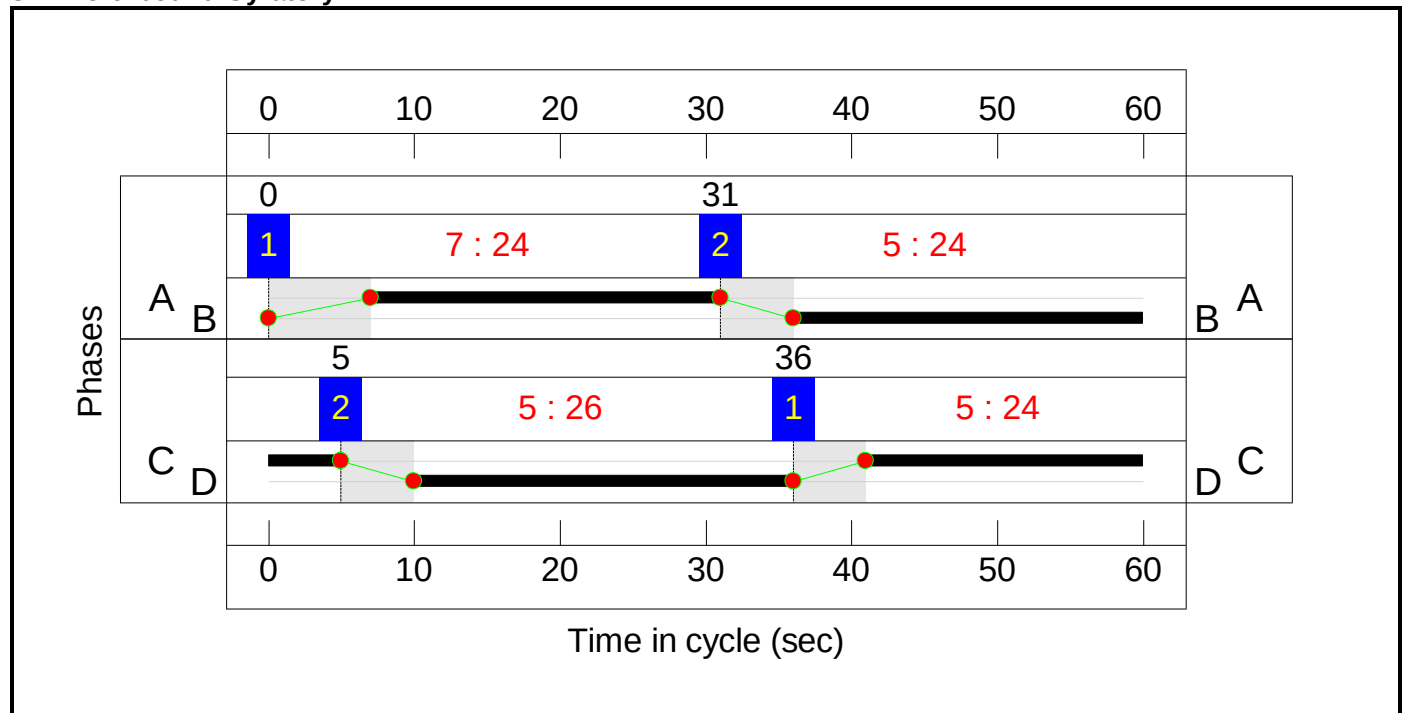
Junction: M1 J37 - Dodworth Roundabout								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A628)	3.00	0.00	Y	Arm 10 Left	40.00	100.0 %	1846	1846
1/2 (A628 Lane 2)	This lane uses a directly entered Saturation Flow						3830	3830
2/1 (M1 (South) Off-Slip)	3.30	0.00	Y	Arm 8 Ahead	60.00	1.1 %	1875	1875
				Arm 11 Left	40.00	98.9 %		
2/2 (M1 (South) Off-Slip)	3.00	0.00	Y	Arm 8 Ahead	45.00	100.0 %	1853	1853
3/1 (Whinby Road)	3.00	0.00	Y	Arm 12 Left	15.00	100.0 %	1741	1741
3/2 (Whinby Road)	3.00	0.00	Y	Arm 5 Ahead	18.00	100.0 %	1768	1768
3/3 (Whinby Road)	3.00	0.00	Y	Arm 5 Ahead	20.00	100.0 %	1781	1781
4/1 (M1 (North) Off-slip)	3.00	0.00	Y	Arm 7 Ahead	60.00	0.0 %	1859	1859
				Arm 9 Left	50.00	100.0 %		
4/2 (M1 (North) Off-slip)	3.00	0.00	Y	Arm 7 Ahead	60.00	100.0 %	1868	1868
5/1 (Circulatory (North))	3.30	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1945	1945
5/2 (Circulatory (North))	3.30	0.00	Y	Arm 7 Right	Inf	29.2 %	1945	1945
				Arm 9 Ahead	Inf	70.8 %		
5/3 (Circulatory (North))	3.30	0.00	Y	Arm 7 Right	Inf	100.0 %	1945	1945
6/1 (Circulatory (South))	3.30	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1945	1945
6/2 (Circulatory (South))	3.30	0.00	Y	Arm 8 Right	Inf	42.1 %	1945	1945
				Arm 11 Ahead	Inf	57.9 %		
6/3 (Circulatory (South))	3.30	0.00	Y	Arm 8 Right	Inf	100.0 %	1945	1945
7/1 (Circulatory (East))	3.00	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1915	1915
7/2 (Circulatory (East))	3.00	0.00	Y	Arm 6 Right	Inf	13.4 %	1915	1915
				Arm 10 Ahead	Inf	86.6 %		
7/3 (Circulatory (East))	3.00	0.00	Y	Arm 6 Right	Inf	100.0 %	1915	1915
8/1 (Circulatory (West))	3.30	0.00	Y	Arm 12 Ahead	Inf	100.0 %	1945	1945
8/2 (Circulatory (West))	3.30	0.00	Y	Arm 5 Right	Inf	48.2 %	1945	1945
				Arm 12 Ahead	Inf	51.8 %		
8/3 (Circulatory (West))	3.30	0.00	Y	Arm 5 Right	Inf	100.0 %	1945	1945
9/1 (A628 Lane 1)	Infinite Saturation Flow						Inf	Inf

9/2 (A628 Lane 2)	Infinite Saturation Flow	Inf	Inf
10/1 (M1 (South) On-Slip Lane 1)	Infinite Saturation Flow	Inf	Inf
10/2 (M1 (South) On-Slip Lane 2)	Infinite Saturation Flow	Inf	Inf
11/1 (Whinby Road Lane 1)	Infinite Saturation Flow	Inf	Inf
11/2 (Whinby Road Lane 2)	Infinite Saturation Flow	Inf	Inf
12/1 (M1 (North) On-Slip Lane 1)	Infinite Saturation Flow	Inf	Inf
12/2 (M1 (North) On-Slip Lane 2)	Infinite Saturation Flow	Inf	Inf

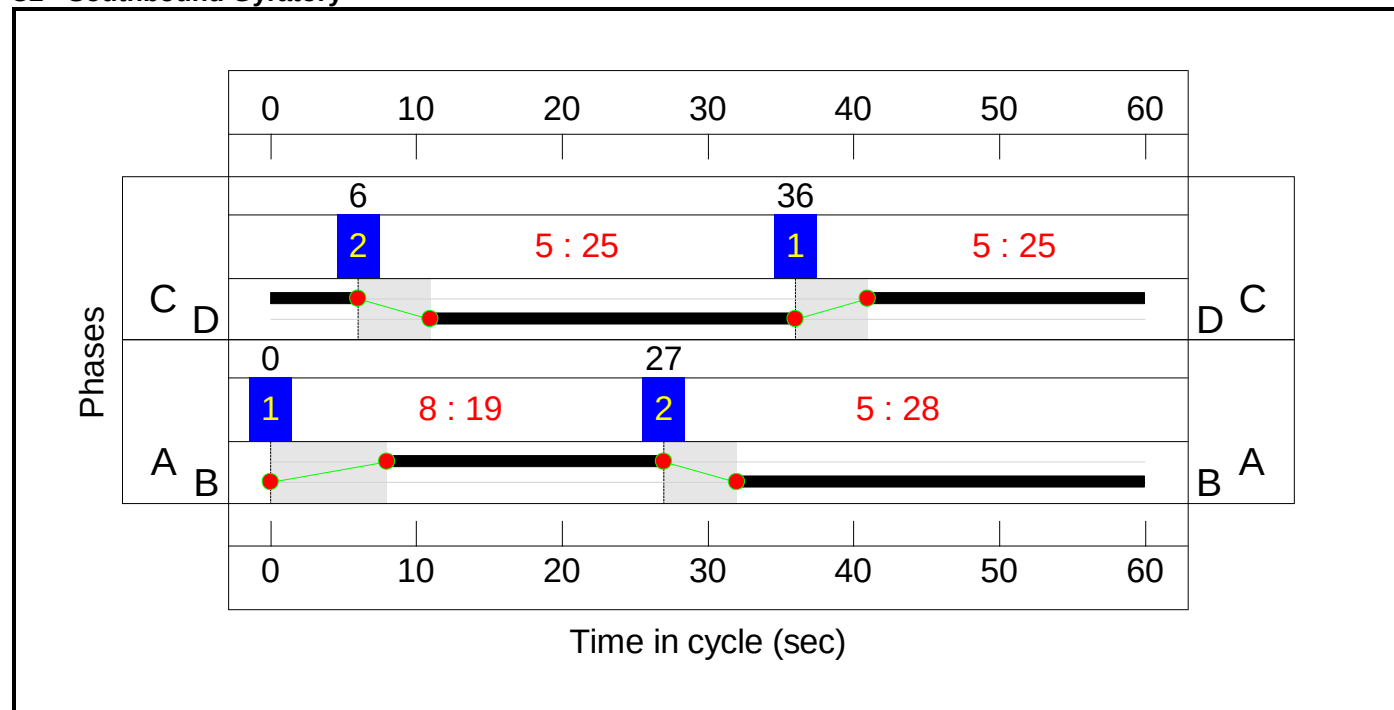
Signal Timings Diagram

Scenario 2: '2022 Base PM' (FG2: '2022 Base PM', Plan 1: 'Network Control Plan 1')

C1 - Northbound Gyratory



C2 - Southbound Gyratory



Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	395	401	310	1106
	B	525	0	577	0	1102
	C	402	288	0	233	923
	D	709	13	625	0	1347
	Tot.	1636	696	1603	543	4478

Junction: M1 J37 - Dodworth Roundabout								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A628)	3.00	0.00	Y	Arm 10 Left	40.00	100.0 %	1846	1846
1/2 (A628 Lane 2)	This lane uses a directly entered Saturation Flow						3830	3830
2/1 (M1 (South) Off-Slip)	3.30	0.00	Y	Arm 8 Ahead	60.00	0.0 %	1875	1875
				Arm 11 Left	40.00	100.0 %		
2/2 (M1 (South) Off-Slip)	3.00	0.00	Y	Arm 8 Ahead	45.00	100.0 %	1853	1853
3/1 (Whinby Road)	3.00	0.00	Y	Arm 12 Left	15.00	100.0 %	1741	1741
3/2 (Whinby Road)	3.00	0.00	Y	Arm 5 Ahead	18.00	100.0 %	1768	1768
3/3 (Whinby Road)	3.00	0.00	Y	Arm 5 Ahead	20.00	100.0 %	1781	1781
4/1 (M1 (North) Off-slip)	3.00	0.00	Y	Arm 7 Ahead	60.00	1.8 %	1859	1859
				Arm 9 Left	50.00	98.2 %		
4/2 (M1 (North) Off-slip)	3.00	0.00	Y	Arm 7 Ahead	60.00	100.0 %	1868	1868
5/1 (Circulatory (North))	3.30	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1945	1945
5/2 (Circulatory (North))	3.30	0.00	Y	Arm 7 Right	Inf	9.5 %	1945	1945
				Arm 9 Ahead	Inf	90.5 %		
5/3 (Circulatory (North))	3.30	0.00	Y	Arm 7 Right	Inf	100.0 %	1945	1945
6/1 (Circulatory (South))	3.30	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1945	1945
6/2 (Circulatory (South))	3.30	0.00	Y	Arm 8 Right	Inf	17.1 %	1945	1945
				Arm 11 Ahead	Inf	82.9 %		
6/3 (Circulatory (South))	3.30	0.00	Y	Arm 8 Right	Inf	100.0 %	1945	1945
7/1 (Circulatory (East))	3.00	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1915	1915
7/2 (Circulatory (East))	3.00	0.00	Y	Arm 6 Right	Inf	47.1 %	1915	1915
				Arm 10 Ahead	Inf	52.9 %		
7/3 (Circulatory (East))	3.00	0.00	Y	Arm 6 Right	Inf	100.0 %	1915	1915
8/1 (Circulatory (West))	3.30	0.00	Y	Arm 12 Ahead	Inf	100.0 %	1945	1945
8/2 (Circulatory (West))	3.30	0.00	Y	Arm 5 Right	Inf	40.1 %	1945	1945
				Arm 12 Ahead	Inf	59.9 %		
8/3 (Circulatory (West))	3.30	0.00	Y	Arm 5 Right	Inf	100.0 %	1945	1945
9/1 (A628 Lane 1)	Infinite Saturation Flow						Inf	Inf

9/2 (A628 Lane 2)	Infinite Saturation Flow	Inf	Inf
10/1 (M1 (South) On-Slip Lane 1)	Infinite Saturation Flow	Inf	Inf
10/2 (M1 (South) On-Slip Lane 2)	Infinite Saturation Flow	Inf	Inf
11/1 (Whinby Road Lane 1)	Infinite Saturation Flow	Inf	Inf
11/2 (Whinby Road Lane 2)	Infinite Saturation Flow	Inf	Inf
12/1 (M1 (North) On-Slip Lane 1)	Infinite Saturation Flow	Inf	Inf
12/2 (M1 (North) On-Slip Lane 2)	Infinite Saturation Flow	Inf	Inf

Signal Timings Diagram

Scenario 3: '2033 Do Nothing AM' (FG7: '2033 Do Nothing AM', Plan 1: 'Network Control Plan 1')

C1 - Northbound Gyratory

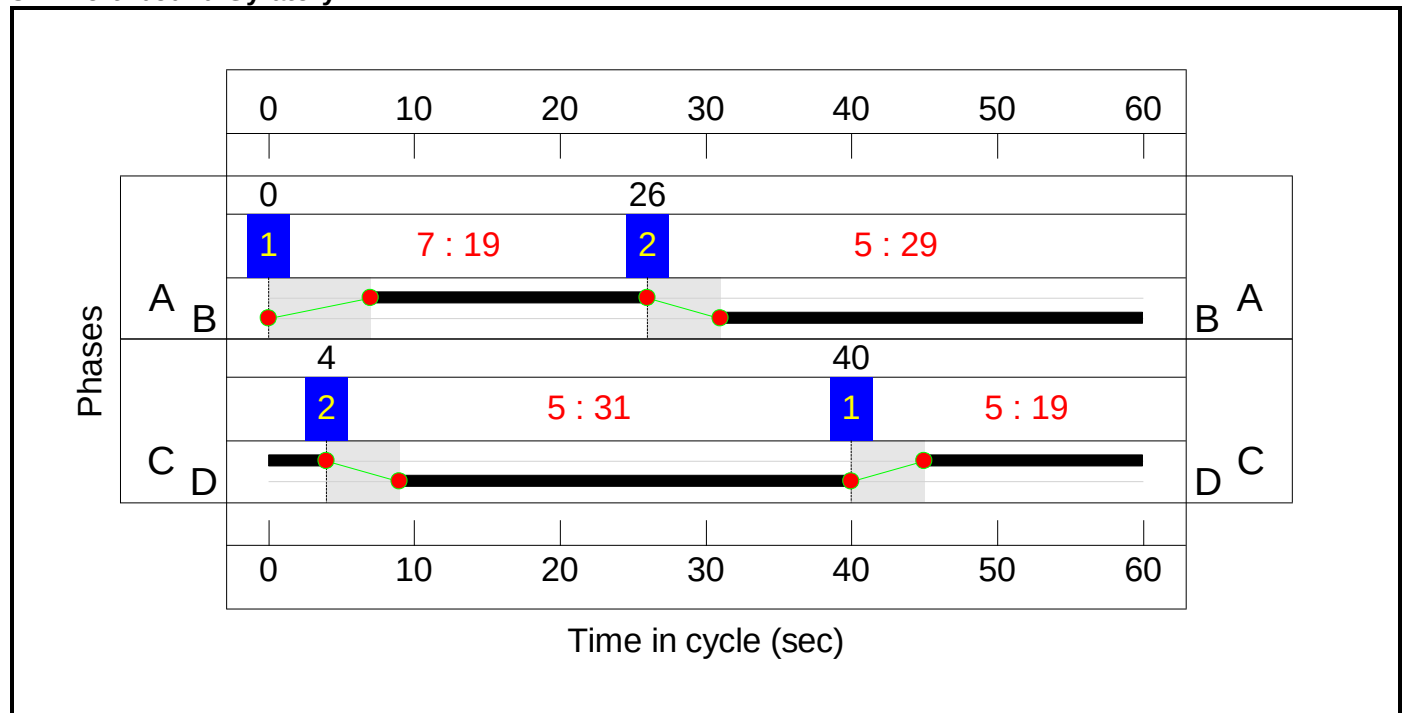


Figure 1: Schematic representation of the experimental design. The figure shows two horizontal timelines for two subjects, A and C, over a 60-second period. Subject A's timeline (bottom) shows a sequence of phases: B (0-10s), A (10-30s), and B (30-60s). Subject C's timeline (top) shows phases: D (0-36s) and C (36-60s). Red dots indicate the start of each phase, and green lines connect the dots for each subject. Blue boxes with numbers 1 and 2 indicate the timing of the two stimuli. Red text indicates the duration of each phase: 5:19 for A, 8:28 for B, 5:29 for C, and 5:21 for D.

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	577	423	397	1397
	B	675	0	587	5	1267
	C	447	642	2	517	1608
	D	442	10	333	0	785
	Tot.	1564	1229	1345	919	5057

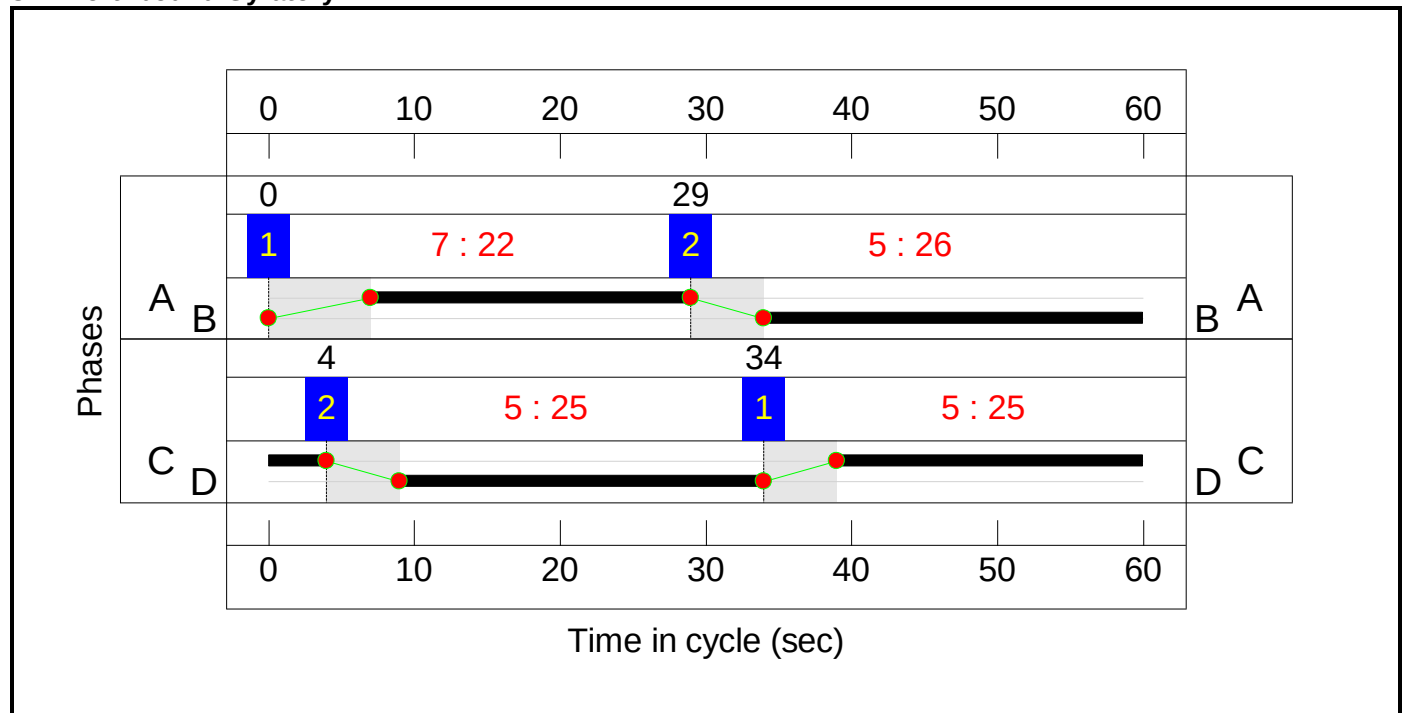
Junction: M1 J37 - Dodworth Roundabout								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A628)	3.00	0.00	Y	Arm 10 Left	40.00	100.0 %	1846	1846
1/2 (A628 Lane 2)	This lane uses a directly entered Saturation Flow						3830	3830
2/1 (M1 (South) Off-Slip)	3.30	0.00	Y	Arm 8 Ahead	60.00	0.8 %	1875	1875
				Arm 11 Left	40.00	99.2 %		
2/2 (M1 (South) Off-Slip)	3.00	0.00	Y	Arm 8 Ahead	45.00	100.0 %	1853	1853
3/1 (Whinby Road)	3.00	0.00	Y	Arm 12 Left	15.00	100.0 %	1741	1741
3/2 (Whinby Road)	3.00	0.00	Y	Arm 5 Ahead	18.00	100.0 %	1768	1768
3/3 (Whinby Road)	3.00	0.00	Y	Arm 5 Ahead	20.00	100.0 %	1781	1781
4/1 (M1 (North) Off-slip)	3.00	0.00	Y	Arm 7 Ahead	60.00	0.9 %	1859	1859
				Arm 9 Left	50.00	99.1 %		
4/2 (M1 (North) Off-slip)	3.00	0.00	Y	Arm 7 Ahead	60.00	100.0 %	1868	1868
5/1 (Circulatory (North))	3.30	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1945	1945
5/2 (Circulatory (North))	3.30	0.00	Y	Arm 7 Right	Inf	39.9 %	1945	1945
				Arm 9 Ahead	Inf	60.1 %		
5/3 (Circulatory (North))	3.30	0.00	Y	Arm 7 Right	Inf	100.0 %	1945	1945
6/1 (Circulatory (South))	3.30	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1945	1945
6/2 (Circulatory (South))	3.30	0.00	Y	Arm 8 Right	Inf	41.2 %	1945	1945
				Arm 11 Ahead	Inf	58.8 %		
6/3 (Circulatory (South))	3.30	0.00	Y	Arm 8 Right	Inf	100.0 %	1945	1945
7/1 (Circulatory (East))	3.00	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1915	1915
7/2 (Circulatory (East))	3.00	0.00	Y	Arm 6 Right	Inf	11.4 %	1915	1915
				Arm 10 Ahead	Inf	88.6 %		
7/3 (Circulatory (East))	3.00	0.00	Y	Arm 6 Right	Inf	100.0 %	1915	1915
8/1 (Circulatory (West))	3.30	0.00	Y	Arm 12 Ahead	Inf	100.0 %	1945	1945
8/2 (Circulatory (West))	3.30	0.00	Y	Arm 5 Right	Inf	56.8 %	1945	1945
				Arm 12 Ahead	Inf	43.2 %		
8/3 (Circulatory (West))	3.30	0.00	Y	Arm 5 Right	Inf	100.0 %	1945	1945
9/1 (A628 Lane 1)	Infinite Saturation Flow						Inf	Inf

9/2 (A628 Lane 2)	Infinite Saturation Flow	Inf	Inf
10/1 (M1 (South) On-Slip Lane 1)	Infinite Saturation Flow	Inf	Inf
10/2 (M1 (South) On-Slip Lane 2)	Infinite Saturation Flow	Inf	Inf
11/1 (Whinby Road Lane 1)	Infinite Saturation Flow	Inf	Inf
11/2 (Whinby Road Lane 2)	Infinite Saturation Flow	Inf	Inf
12/1 (M1 (North) On-Slip Lane 1)	Infinite Saturation Flow	Inf	Inf
12/2 (M1 (North) On-Slip Lane 2)	Infinite Saturation Flow	Inf	Inf

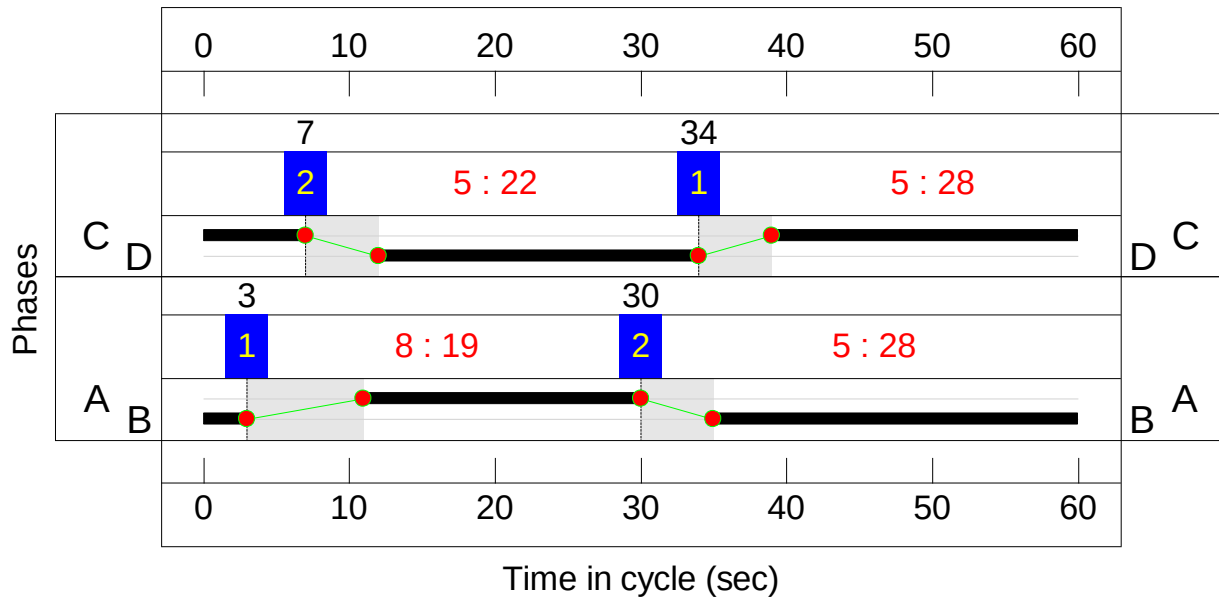
Signal Timings Diagram

Scenario 4: '2033 Do Nothing PM' (FG8: '2033 Do Nothing PM', Plan 1: 'Network Control Plan 1')

C1 - Northbound Gyratory



C2 - Southbound Gyratory



Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	3	443	528	344	1318
	B	593	0	753	0	1346
	C	531	413	7	315	1266
	D	789	14	757	1	1561
	Tot.	1916	870	2045	660	5491

Junction: M1 J37 - Dodworth Roundabout								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A628)	3.00	0.00	Y	Arm 10 Left	40.00	100.0 %	1846	1846
1/2 (A628 Lane 2)	This lane uses a directly entered Saturation Flow						3830	3830
2/1 (M1 (South) Off-Slip)	3.30	0.00	Y	Arm 8 Ahead	60.00	0.0 %	1875	1875
				Arm 11 Left	40.00	100.0 %		
2/2 (M1 (South) Off-Slip)	3.00	0.00	Y	Arm 8 Ahead	45.00	100.0 %	1853	1853
3/1 (Whinby Road)	3.00	0.00	Y	Arm 12 Left	15.00	100.0 %	1741	1741
3/2 (Whinby Road)	3.00	0.00	Y	Arm 5 Ahead	18.00	100.0 %	1768	1768
3/3 (Whinby Road)	3.00	0.00	Y	Arm 5 Ahead	20.00	100.0 %	1781	1781
4/1 (M1 (North) Off-slip)	3.00	0.00	Y	Arm 7 Ahead	60.00	1.7 %	1859	1859
				Arm 9 Left	50.00	98.3 %		
4/2 (M1 (North) Off-slip)	3.00	0.00	Y	Arm 7 Ahead	60.00	100.0 %	1868	1868
5/1 (Circulatory (North))	3.30	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1945	1945
5/2 (Circulatory (North))	3.30	0.00	Y	Arm 7 Right	Inf	2.0 %	1945	1945
				Arm 9 Ahead	Inf	98.0 %		
5/3 (Circulatory (North))	3.30	0.00	Y	Arm 7 Right	Inf	100.0 %	1945	1945
6/1 (Circulatory (South))	3.30	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1945	1945
6/2 (Circulatory (South))	3.30	0.00	Y	Arm 8 Right	Inf	0.0 %	1945	1945
				Arm 11 Ahead	Inf	100.0 %		
6/3 (Circulatory (South))	3.30	0.00	Y	Arm 8 Right	Inf	100.0 %	1945	1945
7/1 (Circulatory (East))	3.00	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1915	1915
7/2 (Circulatory (East))	3.00	0.00	Y	Arm 6 Right	Inf	38.4 %	1915	1915
				Arm 10 Ahead	Inf	61.6 %		
7/3 (Circulatory (East))	3.00	0.00	Y	Arm 6 Right	Inf	100.0 %	1915	1915
8/1 (Circulatory (West))	3.30	0.00	Y	Arm 12 Ahead	Inf	0.0 %	1945	1945
8/2 (Circulatory (West))	3.30	0.00	Y	Arm 5 Right	Inf	29.4 %		
				Arm 12 Ahead	Inf	70.6 %		
8/3 (Circulatory (West))	3.30	0.00	Y	Arm 5 Right	Inf	100.0 %	1945	1945
9/1 (A628 Lane 1)	Infinite Saturation Flow						Inf	Inf

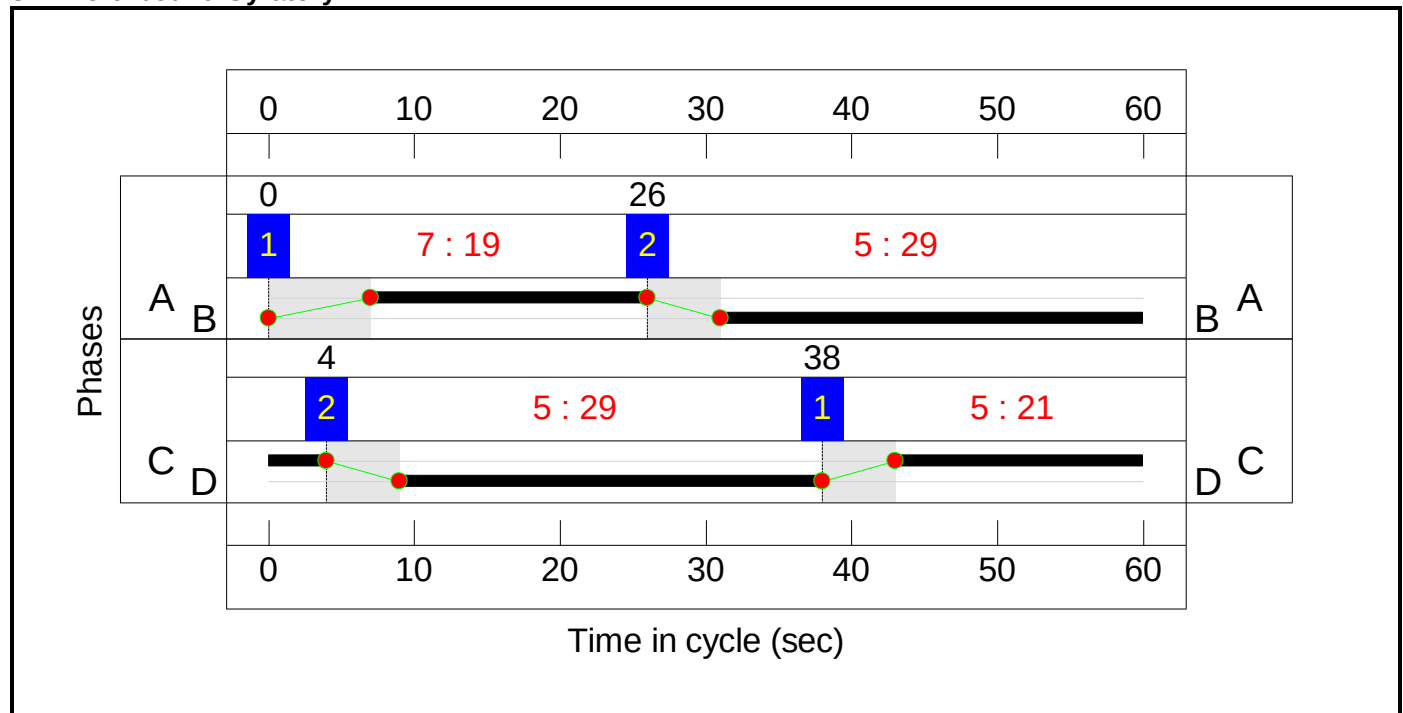
Junction: M1 J37 - Dodworth Roundabout								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A628)	3.00	0.00	Y	Arm 10 Left	40.00	100.0 %	1846	1846
1/2 (A628 Lane 2)	This lane uses a directly entered Saturation Flow						3830	3830
2/1 (M1 (South) Off-Slip)	3.30	0.00	Y	Arm 8 Ahead	60.00	0.0 %	1875	1875
				Arm 11 Left	40.00	100.0 %		
2/2 (M1 (South) Off-Slip)	3.00	0.00	Y	Arm 8 Ahead	45.00	100.0 %	1853	1853
3/1 (Whinby Road)	3.00	0.00	Y	Arm 12 Left	15.00	100.0 %	1741	1741
3/2 (Whinby Road)	3.00	0.00	Y	Arm 5 Ahead	18.00	100.0 %	1768	1768
3/3 (Whinby Road)	3.00	0.00	Y	Arm 5 Ahead	20.00	100.0 %	1781	1781
4/1 (M1 (North) Off-slip)	3.00	0.00	Y	Arm 7 Ahead	60.00	1.7 %	1859	1859
				Arm 9 Left	50.00	98.3 %		
4/2 (M1 (North) Off-slip)	3.00	0.00	Y	Arm 7 Ahead	60.00	100.0 %	1868	1868
5/1 (Circulatory (North))	3.30	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1945	1945
5/2 (Circulatory (North))	3.30	0.00	Y	Arm 7 Right	Inf	2.0 %	1945	1945
				Arm 9 Ahead	Inf	98.0 %		
5/3 (Circulatory (North))	3.30	0.00	Y	Arm 7 Right	Inf	100.0 %	1945	1945
6/1 (Circulatory (South))	3.30	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1945	1945
6/2 (Circulatory (South))	3.30	0.00	Y	Arm 8 Right	Inf	0.0 %	1945	1945
				Arm 11 Ahead	Inf	100.0 %		
6/3 (Circulatory (South))	3.30	0.00	Y	Arm 8 Right	Inf	100.0 %	1945	1945
7/1 (Circulatory (East))	3.00	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1915	1915
7/2 (Circulatory (East))	3.00	0.00	Y	Arm 6 Right	Inf	38.4 %	1915	1915
				Arm 10 Ahead	Inf	61.6 %		
7/3 (Circulatory (East))	3.00	0.00	Y	Arm 6 Right	Inf	100.0 %	1915	1915
8/1 (Circulatory (West))	3.30	0.00	Y	Arm 12 Ahead	Inf	0.0 %	1945	1945
8/2 (Circulatory (West))	3.30	0.00	Y	Arm 5 Right	Inf	29.4 %	1945	1945
				Arm 12 Ahead	Inf	70.6 %		
8/3 (Circulatory (West))	3.30	0.00	Y	Arm 5 Right	Inf	100.0 %	1945	1945
9/1 (A628 Lane 1)	Infinite Saturation Flow						Inf	Inf

9/2 (A628 Lane 2)	Infinite Saturation Flow	Inf	Inf
10/1 (M1 (South) On-Slip Lane 1)	Infinite Saturation Flow	Inf	Inf
10/2 (M1 (South) On-Slip Lane 2)	Infinite Saturation Flow	Inf	Inf
11/1 (Whinby Road Lane 1)	Infinite Saturation Flow	Inf	Inf
11/2 (Whinby Road Lane 2)	Infinite Saturation Flow	Inf	Inf
12/1 (M1 (North) On-Slip Lane 1)	Infinite Saturation Flow	Inf	Inf
12/2 (M1 (North) On-Slip Lane 2)	Infinite Saturation Flow	Inf	Inf

Signal Timings Diagram

Scenario 5: '2033 With Development AM' (FG9: '2033 Future Year AM', Plan 1: 'Network Control Plan 1')

C1 - Northbound Gyratory



Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	577	423	397	1397
	B	675	0	591	5	1271
	C	447	655	2	532	1636
	D	442	10	338	0	790
	Tot.	1564	1242	1354	934	5094

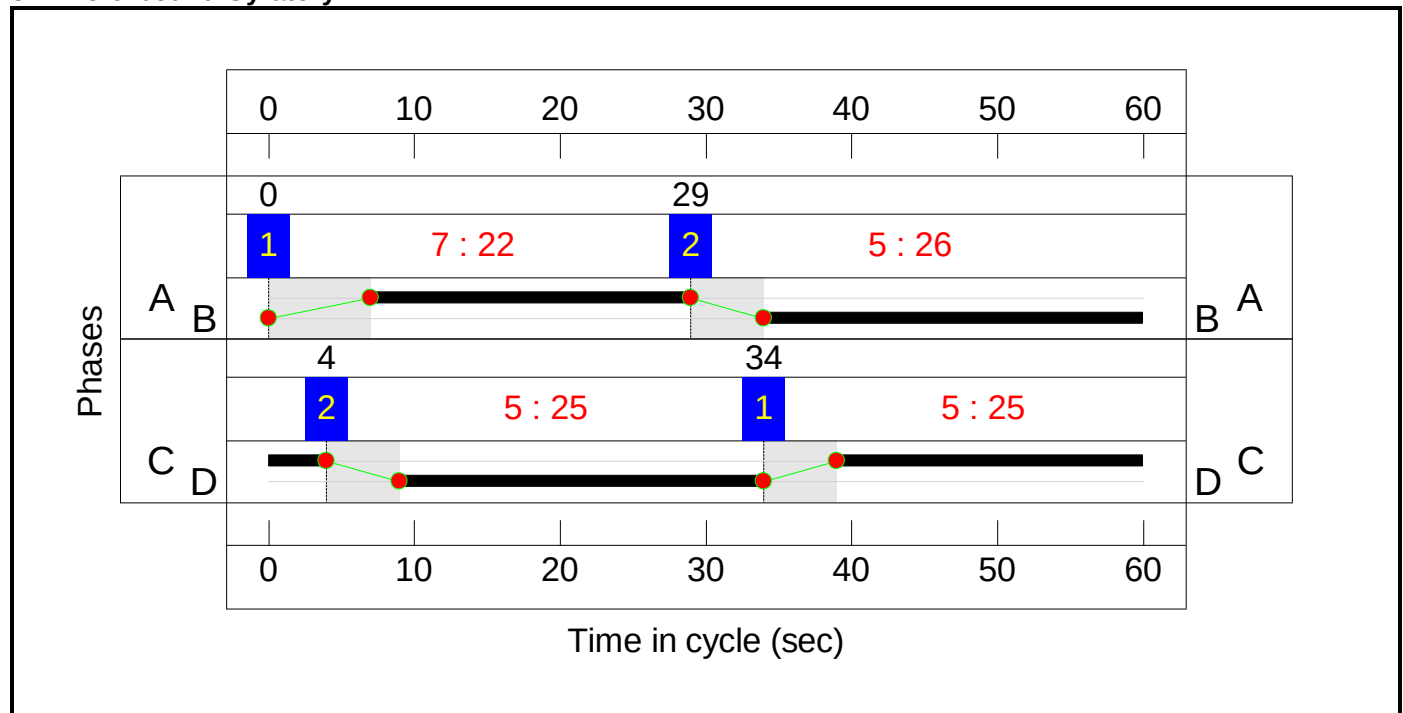
Junction: M1 J37 - Dodworth Roundabout								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A628)	3.00	0.00	Y	Arm 10 Left	40.00	100.0 %	1846	1846
1/2 (A628 Lane 2)	This lane uses a directly entered Saturation Flow						3830	3830
2/1 (M1 (South) Off-Slip)	3.30	0.00	Y	Arm 8 Ahead	60.00	0.8 %	1875	1875
				Arm 11 Left	40.00	99.2 %		
2/2 (M1 (South) Off-Slip)	3.00	0.00	Y	Arm 8 Ahead	45.00	100.0 %	1853	1853
3/1 (Whinby Road)	3.00	0.00	Y	Arm 12 Left	15.00	100.0 %	1741	1741
3/2 (Whinby Road)	3.00	0.00	Y	Arm 5 Ahead	18.00	100.0 %	1768	1768
3/3 (Whinby Road)	3.00	0.00	Y	Arm 5 Ahead	20.00	100.0 %	1781	1781
4/1 (M1 (North) Off-slip)	3.00	0.00	Y	Arm 7 Ahead	60.00	0.0 %	1859	1859
				Arm 9 Left	50.00	100.0 %		
4/2 (M1 (North) Off-slip)	3.00	0.00	Y	Arm 7 Ahead	60.00	100.0 %	1868	1868
5/1 (Circulatory (North))	3.30	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1945	1945
5/2 (Circulatory (North))	3.30	0.00	Y	Arm 7 Right	Inf	39.7 %	1945	1945
				Arm 9 Ahead	Inf	60.3 %		
5/3 (Circulatory (North))	3.30	0.00	Y	Arm 7 Right	Inf	100.0 %	1945	1945
6/1 (Circulatory (South))	3.30	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1945	1945
6/2 (Circulatory (South))	3.30	0.00	Y	Arm 8 Right	Inf	36.3 %	1945	1945
				Arm 11 Ahead	Inf	63.7 %		
6/3 (Circulatory (South))	3.30	0.00	Y	Arm 8 Right	Inf	100.0 %	1945	1945
7/1 (Circulatory (East))	3.00	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1915	1915
7/2 (Circulatory (East))	3.00	0.00	Y	Arm 6 Right	Inf	9.5 %	1915	1915
				Arm 10 Ahead	Inf	90.5 %		
7/3 (Circulatory (East))	3.00	0.00	Y	Arm 6 Right	Inf	100.0 %	1915	1915
8/1 (Circulatory (West))	3.30	0.00	Y	Arm 12 Ahead	Inf	100.0 %	1945	1945
8/2 (Circulatory (West))	3.30	0.00	Y	Arm 5 Right	Inf	52.9 %	1945	1945
				Arm 12 Ahead	Inf	47.1 %		
8/3 (Circulatory (West))	3.30	0.00	Y	Arm 5 Right	Inf	100.0 %	1945	1945
9/1 (A628 Lane 1)	Infinite Saturation Flow						Inf	Inf

9/2 (A628 Lane 2)	Infinite Saturation Flow	Inf	Inf
10/1 (M1 (South) On-Slip Lane 1)	Infinite Saturation Flow	Inf	Inf
10/2 (M1 (South) On-Slip Lane 2)	Infinite Saturation Flow	Inf	Inf
11/1 (Whinby Road Lane 1)	Infinite Saturation Flow	Inf	Inf
11/2 (Whinby Road Lane 2)	Infinite Saturation Flow	Inf	Inf
12/1 (M1 (North) On-Slip Lane 1)	Infinite Saturation Flow	Inf	Inf
12/2 (M1 (North) On-Slip Lane 2)	Infinite Saturation Flow	Inf	Inf

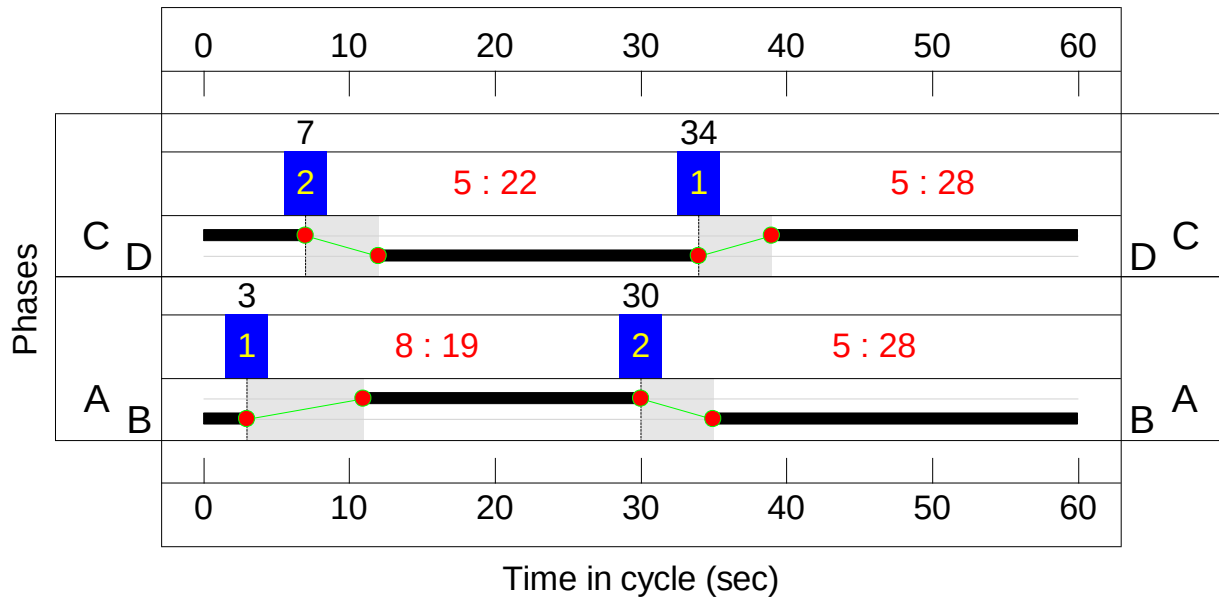
Signal Timings Diagram

Scenario 6: '2033 With Development PM' (FG10: '2033 Future Year PM', Plan 1: 'Network Control Plan 1')

C1 - Northbound Gyratory



C2 - Southbound Gyratory



Traffic Flows, Desired

Desired Flow :

Origin	Destination				
	A	B	C	D	Tot.
A	3	443	528	344	1318
B	593	0	766	0	1359
C	531	418	7	320	1276
D	789	14	771	1	1575
Tot.	1916	875	2072	665	5528

Lane Saturation Flows

Junction: M1 J37 - Dodworth Roundabout								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A628)	3.00	0.00	Y	Arm 10 Left	40.00	100.0 %	1846	1846
1/2 (A628 Lane 2)	This lane uses a directly entered Saturation Flow						3830	3830
2/1 (M1 (South) Off-Slip)	3.30	0.00	Y	Arm 8 Ahead	60.00	0.0 %	1875	1875
				Arm 11 Left	40.00	100.0 %		
2/2 (M1 (South) Off-Slip)	3.00	0.00	Y	Arm 8 Ahead	45.00	100.0 %	1853	1853
3/1 (Whinby Road)	3.00	0.00	Y	Arm 12 Left	15.00	100.0 %	1741	1741
3/2 (Whinby Road)	3.00	0.00	Y	Arm 5 Ahead	18.00	100.0 %	1768	1768
3/3 (Whinby Road)	3.00	0.00	Y	Arm 5 Ahead	20.00	100.0 %	1781	1781
4/1 (M1 (North) Off-slip)	3.00	0.00	Y	Arm 7 Ahead	60.00	1.7 %	1859	1859
				Arm 9 Left	50.00	98.3 %		
4/2 (M1 (North) Off-slip)	3.00	0.00	Y	Arm 7 Ahead	60.00	100.0 %	1868	1868
5/1 (Circulatory (North))	3.30	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1945	1945
5/2 (Circulatory (North))	3.30	0.00	Y	Arm 7 Right	Inf	2.8 %	1945	1945
				Arm 9 Ahead	Inf	97.2 %		
5/3 (Circulatory (North))	3.30	0.00	Y	Arm 7 Right	Inf	100.0 %	1945	1945
6/1 (Circulatory (South))	3.30	0.00	Y	Arm 11 Ahead	Inf	100.0 %	1945	1945
6/2 (Circulatory (South))	3.30	0.00	Y	Arm 8 Right	Inf	0.0 %	1945	1945
				Arm 11 Ahead	Inf	100.0 %		
6/3 (Circulatory (South))	3.30	0.00	Y	Arm 8 Right	Inf	100.0 %	1945	1945
7/1 (Circulatory (East))	3.00	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1915	1915
7/2 (Circulatory (East))	3.00	0.00	Y	Arm 6 Right	Inf	39.3 %	1915	1915
				Arm 10 Ahead	Inf	60.7 %		
7/3 (Circulatory (East))	3.00	0.00	Y	Arm 6 Right	Inf	100.0 %	1915	1915
8/1 (Circulatory (West))	3.30	0.00	Y	Arm 12 Ahead	Inf	0.0 %	1945	1945
8/2 (Circulatory (West))	3.30	0.00	Y	Arm 5 Right	Inf	27.7 %	1945	1945
				Arm 12 Ahead	Inf	72.3 %		
8/3 (Circulatory (West))	3.30	0.00	Y	Arm 5 Right	Inf	100.0 %	1945	1945
9/1 (A628 Lane 1)	Infinite Saturation Flow						Inf	Inf

9/2 (A628 Lane 2)	Infinite Saturation Flow	Inf	Inf
10/1 (M1 (South) On-Slip Lane 1)	Infinite Saturation Flow	Inf	Inf
10/2 (M1 (South) On-Slip Lane 2)	Infinite Saturation Flow	Inf	Inf
11/1 (Whinby Road Lane 1)	Infinite Saturation Flow	Inf	Inf
11/2 (Whinby Road Lane 2)	Infinite Saturation Flow	Inf	Inf
12/1 (M1 (North) On-Slip Lane 1)	Infinite Saturation Flow	Inf	Inf
12/2 (M1 (North) On-Slip Lane 2)	Infinite Saturation Flow	Inf	Inf

Network Results

Scenario 1: '2022 Base AM' (FG1: '2022 Base AM', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	65.1%	-	-	0	0	0	35.6	-	-
M1 J37 - Dodworth Roundabout	-	-	-		-	-	-	-	-	-	65.1%	-	-	0	0	0	35.6	-	-
1/1+1/2	A628 Ahead Left	U	C2:D		1	29	-	1177	1846:3830	923+1197	55.5 : 55.6%	1177	1177	-	-	-	3.8	11.6	7.3
2/1	M1 (South) Off-Slip Ahead Left	U	C1:B		1	30	-	461	1875	969	47.6%	461	461	-	-	-	1.6	12.8	5.3
2/2	M1 (South) Off-Slip Ahead	U	C1:B		1	30	-	614	1853	957	64.1%	614	614	-	-	-	2.7	15.7	8.2
3/2+3/1	Whinby Road Ahead Left	U	C1:D		1	29	-	731	1768:1741	585+723	55.9 : 55.9%	731	731	-	-	-	2.6	12.6	5.0
3/3	Whinby Road Ahead	U	C1:D		1	29	-	477	1781	890	53.6%	477	477	-	-	-	1.9	14.6	5.9
4/1	M1 (North) Off-slip Ahead Left	U	C2:B		1	19	-	402	1859	620	64.9%	402	402	-	-	-	2.8	25.2	6.6
4/2	M1 (North) Off-slip Ahead	U	C2:B		1	19	-	268	1868	623	43.0%	268	268	-	-	-	1.5	20.6	3.8
5/1	Circulatory (North) Ahead	U	C2:A		1	28	-	510	1945	940	54.3%	510	510	-	-	-	2.5	17.5	6.2
5/2	Circulatory (North) Right Ahead	U	C2:A		1	28	-	612	1945	940	65.1%	612	612	-	-	-	2.0	11.6	4.3
5/3	Circulatory (North) Right	U	C2:A		1	28	-	296	1945	940	31.5%	296	296	-	-	-	1.7	20.7	5.1
6/1	Circulatory (South) Ahead	U	C1:A		1	18	-	361	1945	616	58.6%	361	361	-	-	-	1.8	18.2	2.9

Scenario 2: '2022 Base PM' (FG2: '2022 Base PM', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	80.4%	-	-	0	0	0	42.6	-	-
M1 J37 - Dodworth Roundabout	-	-	-		-	-	-	-	-	-	80.4%	-	-	0	0	0	42.6	-	-
1/1+1/2	A628 Ahead Left	U	C2:D		1	25	-	1106	1846:3830	800+1559	49.4 : 45.6%	1106	1106	-	-	-	4.1	13.4	8.5
2/1	M1 (South) Off-Slip Ahead Left	U	C1:B		1	24	-	577	1875	781	73.9%	577	577	-	-	-	3.8	23.4	9.4
2/2	M1 (South) Off-Slip Ahead	U	C1:B		1	24	-	525	1853	772	68.0%	525	525	-	-	-	3.1	21.5	8.1
3/2+3/1	Whinby Road Ahead Left	U	C1:D		1	26	-	587	1768:1741	706+465	50.1 : 50.1%	587	587	-	-	-	2.3	14.1	4.5
3/3	Whinby Road Ahead	U	C1:D		1	26	-	336	1781	801	41.9%	336	336	-	-	-	1.4	15.1	4.1
4/1	M1 (North) Off-slip Ahead Left	U	C2:B		1	28	-	722	1859	899	80.4%	722	722	-	-	-	4.6	23.1	12.0
4/2	M1 (North) Off-slip Ahead	U	C2:B		1	28	-	625	1868	903	69.2%	625	625	-	-	-	3.2	18.5	9.1
5/1	Circulatory (North) Ahead	U	C2:A		1	19	-	500	1945	648	77.1%	500	500	-	-	-	3.1	22.3	6.1
5/2	Circulatory (North) Right Ahead	U	C2:A		1	19	-	472	1945	648	72.8%	472	472	-	-	-	3.6	27.1	8.9
5/3	Circulatory (North) Right	U	C2:A		1	19	-	243	1945	648	37.5%	243	243	-	-	-	0.9	12.6	1.3
6/1	Circulatory (South) Ahead	U	C1:A		1	24	-	579	1945	810	71.4%	579	579	-	-	-	2.6	16.2	6.1

Scenario 3: '2033 Do Nothing AM' (FG7: '2033 Do Nothing AM', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	75.1%	-	-	0	0	0	49.0	-	-
M1 J37 - Dodworth Roundabout	-	-	-		-	-	-	-	-	-	75.1%	-	-	0	0	0	49.0	-	-
1/1+1/2	A628 Ahead Left	U	C2:D		1	29	-	1397	1846:3830	923+1360	62.5 : 60.3%	1397	1397	-	-	-	4.7	12.1	9.4
2/1	M1 (South) Off-Slip Ahead Left	U	C1:B		1	29	-	592	1875	937	63.1%	592	592	-	-	-	2.7	16.1	7.9
2/2	M1 (South) Off-Slip Ahead	U	C1:B		1	29	-	675	1853	926	72.9%	675	675	-	-	-	3.5	18.9	10.1
3/2+3/1	Whinby Road Ahead Left	U	C1:D		1	31	-	964	1768:1741	647+748	69.1 : 69.1%	964	964	-	-	-	3.5	13.2	6.7
3/3	Whinby Road Ahead	U	C1:D		1	31	-	642	1781	950	67.6%	642	642	-	-	-	2.9	16.0	8.7
4/1	M1 (North) Off-slip Ahead Left	U	C2:B		1	19	-	446	1859	620	72.0%	446	446	-	-	-	3.4	27.8	7.7
4/2	M1 (North) Off-slip Ahead	U	C2:B		1	19	-	339	1868	623	54.4%	339	339	-	-	-	2.1	22.6	5.1
5/1	Circulatory (North) Ahead	U	C2:A		1	28	-	706	1945	940	75.1%	706	706	-	-	-	4.2	21.2	9.3
5/2	Circulatory (North) Right Ahead	U	C2:A		1	28	-	692	1945	940	73.6%	692	692	-	-	-	2.8	14.8	6.4
5/3	Circulatory (North) Right	U	C2:A		1	28	-	366	1945	940	38.9%	366	366	-	-	-	2.1	20.2	6.4
6/1	Circulatory (South) Ahead	U	C1:A		1	19	-	471	1945	648	72.6%	471	471	-	-	-	2.7	20.3	4.2

6/2	Circulatory (South) Right Ahead	U	C1:A		1	19	-	485	1945	648	74.8%	485	485	-	-	-	3.8	28.1	9.1
6/3	Circulatory (South) Right	U	C1:A		1	19	-	197	1945	648	30.4%	197	197	-	-	-	0.7	12.5	1.1
7/1	Circulatory (East) Ahead	U	C2:C		1	21	-	280	1915	702	39.9%	280	280	-	-	-	0.4	4.5	0.9
7/2	Circulatory (East) Right Ahead	U	C2:C		1	21	-	420	1915	702	59.8%	420	420	-	-	-	1.0	8.9	2.9
7/3	Circulatory (East) Right	U	C2:C		1	21	-	285	1915	702	40.6%	285	285	-	-	-	2.1	27.1	5.1
8/1	Circulatory (West) Ahead	U	C1:C		1	19	-	205	1945	648	31.6%	205	205	-	-	-	1.7	29.4	3.6
8/2	Circulatory (West) Right Ahead	U	C1:C		1	19	-	456	1945	648	70.3%	456	456	-	-	-	3.3	26.1	8.3
8/3	Circulatory (West) Right	U	C1:C		1	19	-	416	1945	648	64.2%	416	416	-	-	-	1.5	12.9	6.6
			C1 - Northbound Gyratory	Stream: 1		PRC for Signalled Lanes (%):		20.3		Total Delay for Signalled Lanes (pcuHr):		13.33		Cycle Time (s):		60			
			C1 - Northbound Gyratory	Stream: 2		PRC for Signalled Lanes (%):		28.0		Total Delay for Signalled Lanes (pcuHr):		12.86		Cycle Time (s):		60			
			C2 - Southbound Gyratory	Stream: 1		PRC for Signalled Lanes (%):		44.0		Total Delay for Signalled Lanes (pcuHr):		8.24		Cycle Time (s):		60			
			C2 - Southbound Gyratory	Stream: 2		PRC for Signalled Lanes (%):		19.8		Total Delay for Signalled Lanes (pcuHr):		14.61		Cycle Time (s):		60			
				PRC Over All Lanes (%):		19.8				Total Delay Over All Lanes(pcuHr):		49.03							

Scenario 4: '2033 Do Nothing PM' (FG8: '2033 Do Nothing PM', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	89.4%	-	-	0	0	0	67.3	-	-
M1 J37 - Dodworth Roundabout	-	-	-		-	-	-	-	-	-	89.4%	-	-	0	0	0	67.3	-	-
1/1+1/2	A628 Ahead Left	U	C2:D		1	22	-	1315	1846:3830	708+1468	62.6 : 59.4%	1315	1315	-	-	-	6.2	16.9	12.1
2/1	M1 (South) Off-Slip Ahead Left	U	C1:B		1	26	-	753	1875	844	89.2%	753	753	-	-	-	7.0	33.5	15.3
2/2	M1 (South) Off-Slip Ahead	U	C1:B		1	26	-	593	1853	834	71.1%	593	593	-	-	-	3.4	20.7	9.1
3/2+3/1	Whinby Road Ahead Left	U	C1:D		1	25	-	747	1768:1741	682+497	63.4 : 63.4%	747	747	-	-	-	3.4	16.5	6.1
3/3	Whinby Road Ahead	U	C1:D		1	25	-	512	1781	772	66.3%	512	512	-	-	-	2.9	20.4	7.7
4/1	M1 (North) Off-slip Ahead Left	U	C2:B		1	28	-	803	1859	899	89.4%	803	803	-	-	-	7.0	31.5	15.9
4/2	M1 (North) Off-slip Ahead	U	C2:B		1	28	-	757	1868	903	83.8%	757	757	-	-	-	5.3	25.4	13.4
5/1	Circulatory (North) Ahead	U	C2:A		1	19	-	575	1945	648	88.7%	575	575	-	-	-	5.2	32.5	12.6
5/2	Circulatory (North) Right Ahead	U	C2:A		1	19	-	560	1945	648	86.4%	560	560	-	-	-	6.3	40.4	12.2
5/3	Circulatory (North) Right	U	C2:A		1	19	-	402	1945	648	62.0%	402	402	-	-	-	1.5	13.2	1.9
6/1	Circulatory (South) Ahead	U	C1:A		1	22	-	645	1945	746	86.5%	645	645	-	-	-	4.5	25.2	8.6

Scenario 5: '2033 With Development AM' (FG9: '2033 Future Year AM', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	74.8%	-	-	0	0	0	49.1	-	-
M1 J37 - Dodworth Roundabout	-	-	-		-	-	-	-	-	-	74.8%	-	-	0	0	0	49.1	-	-
1/1+1/2	A628 Ahead Left	U	C2:D		1	29	-	1397	1846:3830	923+1360	62.5 : 60.3%	1397	1397	-	-	-	4.7	12.1	9.4
2/1	M1 (South) Off-Slip Ahead Left	U	C1:B		1	29	-	596	1875	937	63.6%	596	596	-	-	-	2.7	16.2	8.0
2/2	M1 (South) Off-Slip Ahead	U	C1:B		1	29	-	675	1853	926	72.9%	675	675	-	-	-	3.5	18.9	10.1
3/2+3/1	Whinby Road Ahead Left	U	C1:D		1	29	-	979	1768:1741	605+720	73.9 : 73.9%	979	979	-	-	-	4.3	15.6	7.8
3/3	Whinby Road Ahead	U	C1:D		1	29	-	655	1781	890	73.6%	655	655	-	-	-	3.5	19.4	9.9
4/1	M1 (North) Off-slip Ahead Left	U	C2:B		1	19	-	442	1859	620	71.3%	442	442	-	-	-	3.4	27.5	7.6
4/2	M1 (North) Off-slip Ahead	U	C2:B		1	19	-	348	1868	623	55.9%	348	348	-	-	-	2.2	22.9	5.4
5/1	Circulatory (North) Ahead	U	C2:A		1	28	-	703	1945	940	74.8%	703	703	-	-	-	3.2	16.4	11.9
5/2	Circulatory (North) Right Ahead	U	C2:A		1	28	-	695	1945	940	73.9%	695	695	-	-	-	4.2	21.9	11.7
5/3	Circulatory (North) Right	U	C2:A		1	28	-	379	1945	940	40.3%	379	379	-	-	-	0.7	6.2	1.0
6/1	Circulatory (South) Ahead	U	C1:A		1	19	-	464	1945	648	71.6%	464	464	-	-	-	2.4	18.7	4.0

Scenario 6: '2033 With Development PM' (FG10: '2033 Future Year PM', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-		-	-	-	-	-	-	90.8%	-	-	0	0	0	69.3	-	-
M1 J37 - Dodworth Roundabout	-	-	-		-	-	-	-	-	-	90.8%	-	-	0	0	0	69.3	-	-
1/1+1/2	A628 Ahead Left	U	C2:D		1	22	-	1315	1846:3830	708+1468	62.6 : 59.4%	1315	1315	-	-	-	6.2	16.9	12.1
2/1	M1 (South) Off-Slip Ahead Left	U	C1:B		1	26	-	766	1875	844	90.8%	766	766	-	-	-	7.7	36.1	16.1
2/2	M1 (South) Off-Slip Ahead	U	C1:B		1	26	-	593	1853	834	71.1%	593	593	-	-	-	3.4	20.7	9.1
3/2+3/1	Whinby Road Ahead Left	U	C1:D		1	25	-	766	1768:1741	683+490	65.3 : 65.3%	766	766	-	-	-	3.6	16.8	6.5
3/3	Whinby Road Ahead	U	C1:D		1	25	-	503	1781	772	65.2%	503	503	-	-	-	2.8	20.1	7.5
4/1	M1 (North) Off-slip Ahead Left	U	C2:B		1	28	-	803	1859	899	89.4%	803	803	-	-	-	7.0	31.5	15.9
4/2	M1 (North) Off-slip Ahead	U	C2:B		1	28	-	771	1868	903	85.4%	771	771	-	-	-	5.7	26.7	13.9
5/1	Circulatory (North) Ahead	U	C2:A		1	19	-	578	1945	648	89.2%	578	578	-	-	-	5.3	32.9	12.9
5/2	Circulatory (North) Right Ahead	U	C2:A		1	19	-	562	1945	648	86.7%	562	562	-	-	-	6.4	41.1	12.3
5/3	Circulatory (North) Right	U	C2:A		1	19	-	402	1945	648	62.0%	402	402	-	-	-	1.5	13.1	1.9
6/1	Circulatory (South) Ahead	U	C1:A		1	22	-	653	1945	746	87.6%	653	653	-	-	-	4.8	26.6	9.4

Appendix 15 – J9 Modelling Results

Junctions 9										
PICADY 9 - Priority Intersection Module										
Version: 9.5.1.7462										
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Filename: J9 - B6099 Keresforth Hill Road_Gilroyd Lane_B6099 Keresforth Road.j9

Path: \\192.168.4.5\Data1\Projects\4283 Bark Meadows Dodworth\Data\Modelling\Sept 22\J9

Report generation date: 10/14/2022 1:32:38 PM

- »2022, AM
- »2022, PM
- »2027 Do Nothing, AM
- »2027 Do Nothing, PM
- »2027 Opening Year, AM
- »2027 Opening Year, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2022									
Stream B-C	D1	0.1	7.82	0.10	A	D2	0.2	8.08	0.16	A
Stream B-A		0.4	11.76	0.27	B		0.4	12.26	0.27	B
Stream C-AB		0.4	5.38	0.18	A		0.8	11.94	0.43	B
	2027 Do Nothing									
Stream B-C	D3	0.1	7.98	0.11	A	D4	0.2	8.47	0.17	A
Stream B-A		0.4	12.32	0.29	B		0.5	14.91	0.31	B
Stream C-AB		0.5	5.30	0.20	A		1.7	10.83	0.54	B
	2027 Opening Year									
Stream B-C	D5	0.1	8.09	0.11	A	D6	0.2	8.72	0.18	A
Stream B-A		0.4	12.87	0.29	B		0.5	15.87	0.33	C
Stream C-AB		0.6	5.24	0.22	A		1.9	11.33	0.57	B

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	Keresforth Road, Dodworth
Location	Keresforth Road/Gilroyd Lane
Site number	J9
Date	11/10/2022
Version	
Status	
Identifier	
Client	Keepmoat Homes
Jobnumber	LTP/4283
Enumerator	LTP/AC
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	2022	AM	ONE HOUR	07:30	09:00	15
D2	2022	PM	ONE HOUR	16:15	17:45	15
D3	2027 Do Nothing	AM	ONE HOUR	07:30	09:00	15
D4	2027 Do Nothing	PM	ONE HOUR	16:15	17:45	15
D5	2027 Opening Year	AM	ONE HOUR	07:30	09:00	15
D6	2027 Opening Year	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2022, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	J9 - B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road	T-Junction	Two-way		2.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	B6099 Keresforth Hill Road		Major
B	Gilroyd Lane		Minor
C	B6099 Keresforth Road		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - B6099 Keresforth Road	10.00			80.0	✓	0.00

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	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Gilroyd Lane	One lane plus flare	10.00	5.20	4.25	4.00	3.65	✓	1.00	105	31

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	593	0.089	0.225	0.142	0.322
B-C	666	0.084	0.213	-	-
C-B	620	0.199	0.199	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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	2022	AM	ONE HOUR	07:30	09:00	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 - B6099 Keresforth Hill Road		✓	352	100.000
B - Gilroyd Lane		✓	156	100.000
C - B6099 Keresforth Road		✓	461	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - B6099 Keresforth Hill Road	B - Gilroyd Lane	C - B6099 Keresforth Road
From	A - B6099 Keresforth Hill Road	0	84	268
	B - Gilroyd Lane	105	0	51
	C - B6099 Keresforth Road	392	69	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - B6099 Keresforth Hill Road	B - Gilroyd Lane	C - B6099 Keresforth Road
From	A - B6099 Keresforth Hill Road	0	5	2
	B - Gilroyd Lane	3	0	6
	C - B6099 Keresforth Road	1	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.10	7.82	0.1	A
B-A	0.27	11.76	0.4	B
C-AB	0.18	5.38	0.4	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	38	590	0.065	38	0.1	6.914	A
B-A	79	483	0.164	78	0.2	9.149	A
C-AB	84	770	0.109	83	0.2	5.361	A
C-A	263			263			
A-B	63			63			
A-C	202			202			

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	46	572	0.080	46	0.1	7.253	A
B-A	94	461	0.205	94	0.3	10.098	B
C-AB	111	801	0.139	111	0.3	5.334	A
C-A	303			303			
A-B	76			76			
A-C	241			241			

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	56	545	0.103	56	0.1	7.810	A
B-A	116	431	0.268	115	0.4	11.725	B
C-AB	156	845	0.185	155	0.4	5.336	A
C-A	352			352			
A-B	92			92			
A-C	295			295			

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	56	544	0.103	56	0.1	7.818	A
B-A	116	431	0.268	116	0.4	11.760	B
C-AB	156	845	0.185	156	0.4	5.340	A
C-A	351			351			
A-B	92			92			
A-C	295			295			

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	46	571	0.080	46	0.1	7.265	A
B-A	94	461	0.205	95	0.3	10.138	B
C-AB	111	801	0.139	112	0.3	5.338	A
C-A	303			303			
A-B	76			76			
A-C	241			241			

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	38	589	0.065	38	0.1	6.928	A
B-A	79	483	0.164	79	0.2	9.201	A
C-AB	85	770	0.110	85	0.2	5.376	A
C-A	262			262			
A-B	63			63			
A-C	202			202			

2022, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	J9 - B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road	T-Junction	Two-way		4.84	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2022	PM	ONE HOUR	16:15	17:45	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 - B6099 Keresforth Hill Road		✓	489	100.000
B - Gilroyd Lane		✓	176	100.000
C - B6099 Keresforth Road		✓	222	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - B6099 Keresforth Hill Road	B - Gilroyd Lane	C - B6099 Keresforth Road
From	A - B6099 Keresforth Hill Road	0	186	303
	B - Gilroyd Lane	99	0	77
	C - B6099 Keresforth Road	25	197	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - B6099 Keresforth Hill Road	B - Gilroyd Lane	C - B6099 Keresforth Road
From	A - B6099 Keresforth Hill Road	0	1	0
	B - Gilroyd Lane	3	0	3
	C - B6099 Keresforth Road	0	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.16	8.08	0.2	A
B-A	0.27	12.26	0.4	B
C-AB	0.43	11.94	0.8	B
C-A				
A-B				
A-C				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	58	595	0.097	58	0.1	6.891	A
B-A	75	466	0.160	74	0.2	9.450	A
C-AB	153	560	0.274	152	0.4	8.869	A
C-A	14			14			
A-B	140			140			
A-C	228			228			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	69	575	0.120	69	0.1	7.331	A
B-A	89	443	0.201	89	0.3	10.462	B
C-AB	185	549	0.337	184	0.5	9.955	A
C-A	15			15			
A-B	167			167			
A-C	272			272			

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	85	544	0.156	85	0.2	8.067	A
B-A	109	412	0.265	109	0.4	12.218	B
C-AB	229	533	0.429	228	0.8	11.871	B
C-A	16			16			
A-B	205			205			
A-C	334			334			

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	85	544	0.156	85	0.2	8.080	A
B-A	109	411	0.265	109	0.4	12.265	B
C-AB	229	533	0.429	229	0.8	11.942	B
C-A	16			16			
A-B	205			205			
A-C	334			334			

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	69	574	0.121	69	0.1	7.350	A
B-A	89	443	0.201	89	0.3	10.513	B
C-AB	185	549	0.337	186	0.5	10.036	B
C-A	15			15			
A-B	167			167			
A-C	272			272			

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	58	594	0.098	58	0.1	6.916	A
B-A	75	465	0.160	75	0.2	9.510	A
C-AB	154	560	0.274	154	0.4	8.961	A
C-A	14			14			
A-B	140			140			
A-C	228			228			

2027 Do Nothing, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	J9 - B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road	T-Junction	Two-way		2.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2027 Do Nothing	AM	ONE HOUR	07:30	09:00	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 - B6099 Keresforth Hill Road		✓	372	100.000
B - Gilroyd Lane		✓	162	100.000
C - B6099 Keresforth Road		✓	498	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - B6099 Keresforth Hill Road	B - Gilroyd Lane	C - B6099 Keresforth Road
From	A - B6099 Keresforth Hill Road	0	94	278
	B - Gilroyd Lane	109	0	53
	C - B6099 Keresforth Road	427	71	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - B6099 Keresforth Hill Road	B - Gilroyd Lane	C - B6099 Keresforth Road
From	A - B6099 Keresforth Hill Road	0	4	2
	B - Gilroyd Lane	3	0	6
	C - B6099 Keresforth Road	1	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.11	7.98	0.1	A
B-A	0.29	12.32	0.4	B
C-AB	0.20	5.30	0.5	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	40	586	0.068	40	0.1	6.981	A
B-A	82	476	0.172	81	0.2	9.370	A
C-AB	90	785	0.115	90	0.2	5.287	A
C-A	284			284			
A-B	71			71			
A-C	209			209			

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	48	567	0.084	48	0.1	7.349	A
B-A	98	453	0.216	98	0.3	10.425	B
C-AB	121	820	0.147	120	0.3	5.258	A
C-A	327			327			
A-B	85			85			
A-C	250			250			

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	58	537	0.109	58	0.1	7.967	A
B-A	120	421	0.285	120	0.4	12.273	B
C-AB	171	869	0.197	171	0.5	5.266	A
C-A	377			377			
A-B	103			103			
A-C	306			306			

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	58	537	0.109	58	0.1	7.977	A
B-A	120	421	0.285	120	0.4	12.318	B
C-AB	172	869	0.197	172	0.5	5.273	A
C-A	377			377			
A-B	103			103			
A-C	306			306			

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	48	566	0.084	48	0.1	7.363	A
B-A	98	453	0.216	98	0.3	10.476	B
C-AB	121	820	0.147	121	0.3	5.265	A
C-A	327			327			
A-B	85			85			
A-C	250			250			

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	40	585	0.068	40	0.1	7.000	A
B-A	82	476	0.172	82	0.2	9.429	A
C-AB	91	786	0.116	91	0.2	5.300	A
C-A	284			284			
A-B	71			71			
A-C	209			209			

2027 Do Nothing, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	J9 - B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road	T-Junction	Two-way		4.85	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2027 Do Nothing	PM	ONE HOUR	16:15	17:45	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 - B6099 Keresforth Hill Road		✓	524	100.000
B - Gilroyd Lane		✓	183	100.000
C - B6099 Keresforth Road		✓	498	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - B6099 Keresforth Hill Road	B - Gilroyd Lane	C - B6099 Keresforth Road
From	A - B6099 Keresforth Hill Road	0	210	314
	B - Gilroyd Lane	103	0	80
	C - B6099 Keresforth Road	294	204	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - B6099 Keresforth Hill Road	B - Gilroyd Lane	C - B6099 Keresforth Road
From	A - B6099 Keresforth Hill Road	0	1	0
	B - Gilroyd Lane	3	0	3
	C - B6099 Keresforth Road	0	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.17	8.47	0.2	A
B-A	0.31	14.91	0.5	B
C-AB	0.54	10.83	1.7	B
C-A				
A-B				
A-C				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	60	588	0.102	60	0.1	7.014	A
B-A	78	432	0.179	77	0.2	10.395	B
C-AB	225	697	0.323	223	0.6	7.625	A
C-A	150			150			
A-B	158			158			
A-C	236			236			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	72	564	0.127	72	0.1	7.526	A
B-A	93	403	0.230	92	0.3	11.915	B
C-AB	292	714	0.409	291	0.9	8.577	A
C-A	155			155			
A-B	189			189			
A-C	282			282			

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	88	526	0.167	88	0.2	8.449	A
B-A	113	363	0.313	113	0.5	14.805	B
C-AB	402	740	0.543	399	1.6	10.665	B
C-A	146			146			
A-B	231			231			
A-C	346			346			

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	88	526	0.168	88	0.2	8.471	A
B-A	113	362	0.313	113	0.5	14.909	B
C-AB	403	741	0.544	403	1.7	10.833	B
C-A	145			145			
A-B	231			231			
A-C	346			346			

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	72	563	0.128	72	0.2	7.552	A
B-A	93	402	0.230	93	0.3	12.019	B
C-AB	294	716	0.410	296	1.0	8.730	A
C-A	154			154			
A-B	189			189			
A-C	282			282			

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	60	587	0.103	60	0.1	7.043	A
B-A	78	432	0.180	78	0.2	10.492	B
C-AB	226	698	0.324	228	0.7	7.749	A
C-A	149			149			
A-B	158			158			
A-C	236			236			

2027 Opening Year, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	J9 - B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road	T-Junction	Two-way		2.45	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2027 Opening Year	AM	ONE HOUR	07:30	09:00	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 - B6099 Keresforth Hill Road		✓	386	100.000
B - Gilroyd Lane		✓	164	100.000
C - B6099 Keresforth Road		✓	547	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - B6099 Keresforth Hill Road	B - Gilroyd Lane	C - B6099 Keresforth Road
From	A - B6099 Keresforth Hill Road	0	94	292
	B - Gilroyd Lane	109	0	55
	C - B6099 Keresforth Road	471	76	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - B6099 Keresforth Hill Road	B - Gilroyd Lane	C - B6099 Keresforth Road
From	A - B6099 Keresforth Hill Road	0	4	2
	B - Gilroyd Lane	3	0	6
	C - B6099 Keresforth Road	1	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.11	8.09	0.1	A
B-A	0.29	12.87	0.4	B
C-AB	0.22	5.24	0.6	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	41	584	0.071	41	0.1	7.022	A
B-A	82	467	0.176	81	0.2	9.592	A
C-AB	102	806	0.127	101	0.3	5.211	A
C-A	310			310			
A-B	71			71			
A-C	220			220			

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	49	564	0.088	49	0.1	7.412	A
B-A	98	442	0.222	98	0.3	10.753	B
C-AB	138	845	0.163	137	0.4	5.194	A
C-A	354			354			
A-B	85			85			
A-C	263			263			

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	61	533	0.114	60	0.1	8.079	A
B-A	120	408	0.294	119	0.4	12.824	B
C-AB	198	901	0.220	198	0.6	5.230	A
C-A	404			404			
A-B	103			103			
A-C	321			321			

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	61	532	0.114	61	0.1	8.090	A
B-A	120	408	0.294	120	0.4	12.875	B
C-AB	199	901	0.221	199	0.6	5.235	A
C-A	403			403			
A-B	103			103			
A-C	321			321			

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	49	564	0.088	50	0.1	7.427	A
B-A	98	442	0.222	98	0.3	10.809	B
C-AB	138	846	0.163	139	0.4	5.199	A
C-A	354			354			
A-B	85			85			
A-C	263			263			

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	41	584	0.071	41	0.1	7.038	A
B-A	82	467	0.176	82	0.2	9.655	A
C-AB	103	807	0.127	103	0.3	5.230	A
C-A	309			309			
A-B	71			71			
A-C	220			220			

2027 Opening Year, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	J9 - B6099 Keresforth Hill Road/Gilroyd Lane/B6099 Keresforth Road	T-Junction	Two-way		4.98	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2027 Opening Year	PM	ONE HOUR	16:15	17:45	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 - B6099 Keresforth Hill Road		✓	566	100.000
B - Gilroyd Lane		✓	188	100.000
C - B6099 Keresforth Road		✓	516	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - B6099 Keresforth Hill Road	B - Gilroyd Lane	C - B6099 Keresforth Road
From	A - B6099 Keresforth Hill Road	0	210	356
	B - Gilroyd Lane	103	0	85
	C - B6099 Keresforth Road	310	206	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - B6099 Keresforth Hill Road	B - Gilroyd Lane	C - B6099 Keresforth Road
From	A - B6099 Keresforth Hill Road	0	1	0
	B - Gilroyd Lane	3	0	2
	C - B6099 Keresforth Road	0	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.18	8.72	0.2	A
B-A	0.33	15.87	0.5	C
C-AB	0.57	11.33	1.9	B
C-A				
A-B				
A-C				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	64	583	0.110	63	0.1	7.068	A
B-A	78	422	0.184	77	0.2	10.716	B
C-AB	233	700	0.333	230	0.7	7.697	A
C-A	156			156			
A-B	158			158			
A-C	268			268			

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	76	557	0.137	76	0.2	7.637	A
B-A	93	391	0.237	92	0.3	12.405	B
C-AB	304	718	0.423	303	1.0	8.735	A
C-A	160			160			
A-B	189			189			
A-C	320			320			

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	94	516	0.182	93	0.2	8.691	A
B-A	113	348	0.326	113	0.5	15.739	C
C-AB	421	745	0.566	418	1.8	11.119	B
C-A	147			147			
A-B	231			231			
A-C	392			392			

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	94	515	0.182	94	0.2	8.719	A
B-A	113	347	0.327	113	0.5	15.873	C
C-AB	423	746	0.567	423	1.9	11.334	B
C-A	145			145			
A-B	231			231			
A-C	392			392			

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	76	556	0.137	77	0.2	7.666	A
B-A	93	390	0.238	93	0.3	12.536	B
C-AB	306	720	0.424	309	1.1	8.919	A
C-A	158			158			
A-B	189			189			
A-C	320			320			

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	64	582	0.110	64	0.1	7.096	A
B-A	78	421	0.184	78	0.2	10.824	B
C-AB	234	701	0.334	236	0.7	7.834	A
C-A	154			154			
A-B	158			158			
A-C	268			268			

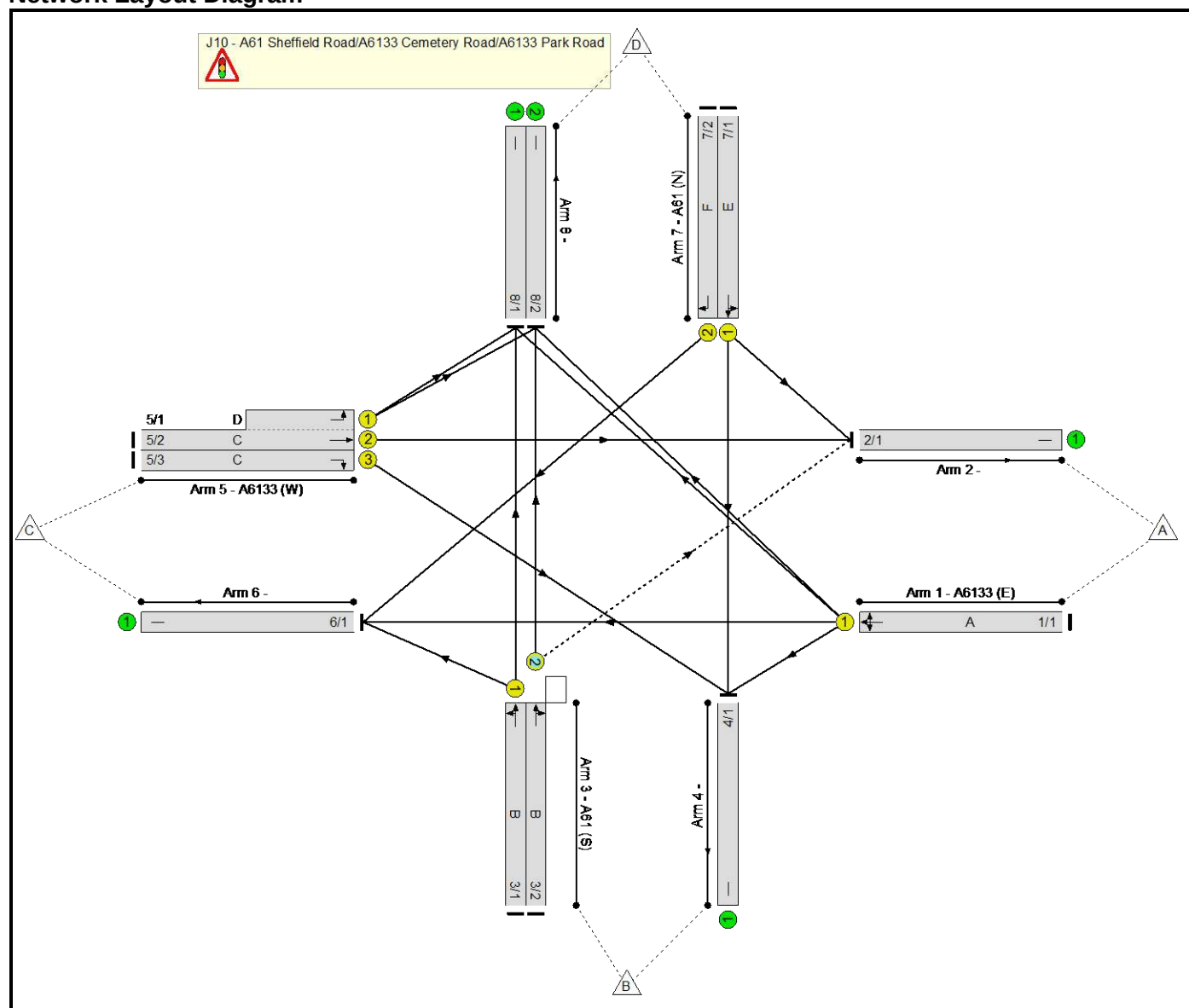
Appendix 16 – J10 Modelling Results

LTP LinSig Output

User and Project Details

Project:	4283 Bark Meadows Dodworth
Title:	Proposed Residential Development
Location:	Barnsley
Client:	Keepmoat Homes
Site Ref(s):	J10 - A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road
Additional detail:	
File name:	J10 - A61 Sheffield Road_A6133 Cemetery Road_A6133 Park Road.lsg3x
Author:	AC
Company:	Local Transport Projects Ltd
Address:	

Network Layout Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Traffic		7	7
F	Traffic		7	7
G	Pedestrian		7	7
H	Pedestrian		7	7
I	Pedestrian		7	7
J	Pedestrian		7	7
K	Pedestrian		7	7
L	Pedestrian		7	7

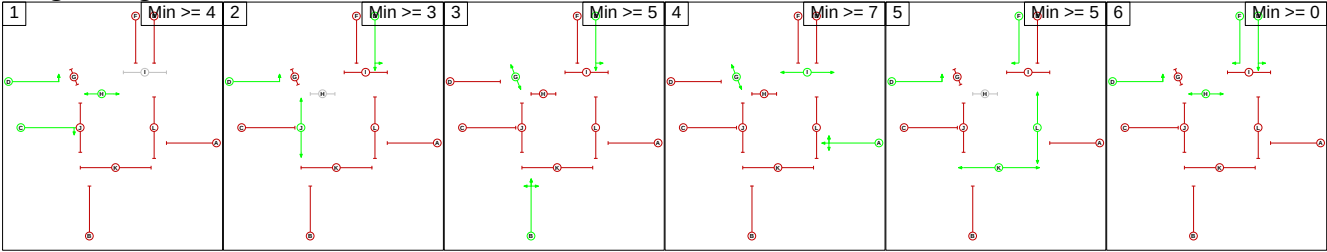
Phase Intergreens Matrix

		Starting Phase												
Terminating Phase		A	B	C	D	E	F	G	H	I	J	K	L	
	A		5	5	8	5	5	-	8	-	8	6	5	
	B	5		5	7	-	5	-	8	-	7	5	7	
	C	5	5		-	5	5	-	-	-	5	8	8	
	D	5	5	-		-	-	5	-	-	-	-	-	
	E	6	-	5	-		-	-	-	5	-	8	8	
	F	5	5	5	-	-		-	-	5	8	-	-	
	G	-	-	-	8	-	-		-	-	-	-	-	
	H	7	7	-	-	-	-	-		-	-	-	-	
	I	-	-	-	-	7	7	-	-		-	-	-	
	J	10	10	10	-	-	10	-	-	-		-	-	
	K	12	12	12	-	12	-	-	-	-	-		-	
	L	8	8	8	-	8	-	-	-	-	-	-		

Phases in Stage

Stage No.	Phases in Stage
1	C D H
2	D E J
3	B E G
4	A G I
5	D F K L
6	D E F H

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

	To Stage						
From Stage		1	2	3	4	5	6
	1		5	7	7	8	5
	2	10		10	10	10	10
	3	8	8		6	8	8
	4	8	8	7		8	8
	5	12	12	12	12		12
	6	5	8	7	7	8	

Give-Way Lane Input Data

Junction: J10 - A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road											
Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
3/2 (A61 (S))	2/1 (Right)	1439	0	7/1	1.09	All	2.00	2.00	0.50	2	2.00

Lane Input Data

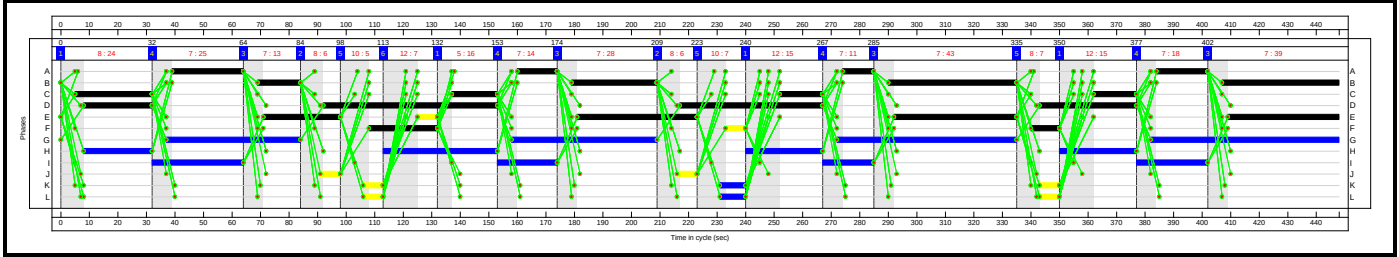
Junction: J10 - A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (A6133 (E))	U	A	2	3	60.0	Geom	-	3.60	0.00	Y	Arm 4 Left	5.00
											Arm 6 Ahead	Inf
											Arm 8 Right	17.00
2/1	U	B	2	3	60.0	Inf	-	-	-	-	-	-
3/1 (A61 (S))	U		2	3	60.0	Geom	-	2.80	0.00	Y	Arm 6 Left	20.00
											Arm 8 Ahead	Inf
3/2 (A61 (S))	O	B	2	3	60.0	Geom	-	2.70	0.00	Y	Arm 2 Right	11.50
											Arm 8 Ahead	Inf
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (A6133 (W))	U	D	2	3	8.0	Geom	-	3.00	0.00	Y	Arm 8 Left	18.00
5/2 (A6133 (W))	U	C	2	3	60.0	Geom	-	2.70	0.00	Y	Arm 2 Ahead	Inf
5/3 (A6133 (W))	U	C	2	3	60.0	Geom	-	3.10	0.00	Y	Arm 4 Right	22.00
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (A61 (N))	U	E	2	3	60.0	Geom	-	3.30	0.00	Y	Arm 2 Left	7.00
											Arm 4 Ahead	Inf
7/2 (A61 (N))	U	F	2	3	60.0	Geom	-	3.30	0.00	Y	Arm 6 Right	14.00
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/2	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2022 Base AM'	07:45	08:45	01:00	
2: '2022 Base PM'	16:30	17:30	01:00	
3: '2027 Do Nothing AM'	07:45	08:45	01:00	
4: '2027 Do Nothing PM'	16:30	17:30	01:00	
5: '2027 Opening Year AM'	07:45	08:45	01:00	
6: '2027 Opening Year PM'	16:30	17:30	01:00	

Scenario 1: '2022 Base AM' (FG1: '2022 Base AM', Plan 1: 'Network Control Plan 1')

Signal Timings Diagram



Traffic Flows, Desired

Desired Flow :

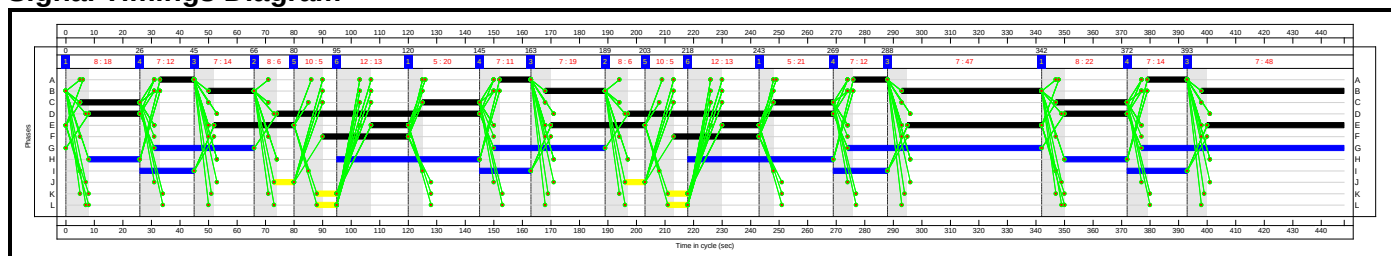
	Destination					
		A	B	C	D	Tot.
Origin	A	0	6	163	24	193
	B	15	0	102	583	700
	C	192	82	0	80	354
	D	16	418	75	0	509
	Tot.	223	506	340	687	1756

Lane Saturation Flows

Junction: J10 - A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.60	0.00	Y	Arm 4 Left	5.00	3.1 %	1936	1936
				Arm 6 Ahead	Inf	84.5 %		
				Arm 8 Right	17.00	12.4 %		
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (A61 (S))	2.80	0.00	Y	Arm 6 Left	20.00	29.4 %	1854	1854
				Arm 8 Ahead	Inf	70.6 %		
3/2 (A61 (S))	2.70	0.00	Y	Arm 2 Right	11.50	4.2 %	1875	1875
				Arm 8 Ahead	Inf	95.8 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.00	0.00	Y	Arm 8 Left	18.00	100.0 %	1768	1768
5/2 (A6133 (W))	2.70	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1885	1885
5/3 (A6133 (W))	3.10	0.00	Y	Arm 4 Right	22.00	100.0 %	1802	1802
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (A61 (N))	3.30	0.00	Y	Arm 2 Left	7.00	3.7 %	1930	1930
				Arm 4 Ahead	Inf	96.3 %		
7/2 (A61 (N))	3.30	0.00	Y	Arm 6 Right	14.00	100.0 %	1757	1757
8/1	Infinite Saturation Flow						Inf	Inf
8/2	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2022 Base PM' (FG2: '2022 Base PM', Plan 2: 'Network Control Plan 2')

Signal Timings Diagram



Traffic Flows, Desired

Desired Flow :

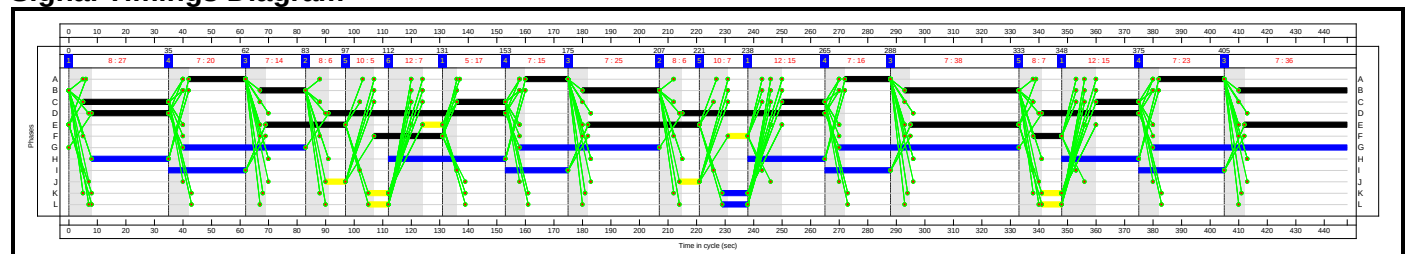
Origin	Destination					
		A	B	C	D	Tot.
	A	0	7	164	22	193
	B	20	0	101	470	591
	C	306	185	0	75	566
	D	35	654	103	0	792
	Tot.	361	846	368	567	2142

Lane Saturation Flows

Junction: J10 - A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.60	0.00	Y	Arm 4 Left	5.00	3.6 %	1934	1934
				Arm 6 Ahead	Inf	85.0 %		
				Arm 8 Right	17.00	11.4 %		
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (A61 (S))	2.80	0.00	Y	Arm 6 Left	20.00	34.5 %	1847	1847
				Arm 8 Ahead	Inf	65.5 %		
3/2 (A61 (S))	2.70	0.00	Y	Arm 2 Right	11.50	6.7 %	1869	1869
				Arm 8 Ahead	Inf	93.3 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.00	0.00	Y	Arm 8 Left	18.00	100.0 %	1768	1768
5/2 (A6133 (W))	2.70	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1885	1885
5/3 (A6133 (W))	3.10	0.00	Y	Arm 4 Right	22.00	100.0 %	1802	1802
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (A61 (N))	3.30	0.00	Y	Arm 2 Left	7.00	5.1 %	1924	1924
				Arm 4 Ahead	Inf	94.9 %		
7/2 (A61 (N))	3.30	0.00	Y	Arm 6 Right	14.00	100.0 %	1757	1757
8/1	Infinite Saturation Flow						Inf	Inf
8/2	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2027 Do Nothing AM' (FG3: '2027 Do Nothing AM', Plan 1: 'Network Control Plan 1')

Signal Timings Diagram



Desired Flow :

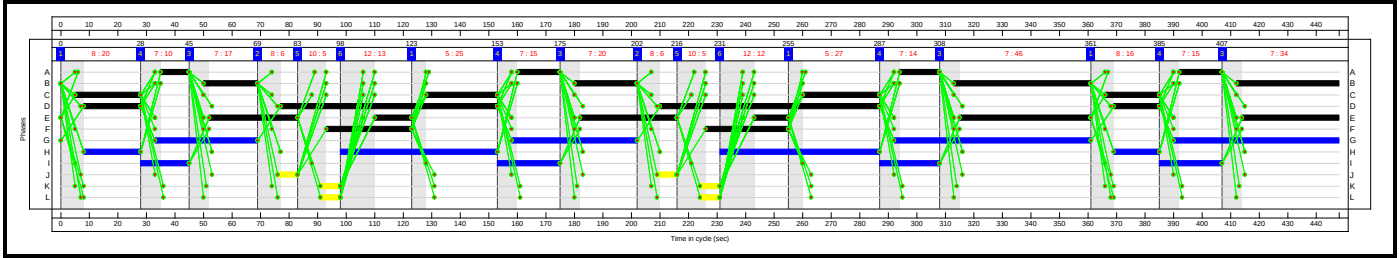
	Destination					
Origin	A	B	C	D	Tot.	
	0	6	215	25	246	
	16	0	134	604	754	
	234	109	0	91	434	
	17	433	86	0	536	
	Tot.	267	548	435	720	1970

Lane Saturation Flows

Junction: J10 - A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.60	0.00	Y	Arm 4 Left	5.00	2.4 %	1943	1943
				Arm 6 Ahead	Inf	87.4 %		
				Arm 8 Right	17.00	10.2 %		
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (A61 (S))	2.80	0.00	Y	Arm 6 Left	20.00	35.9 %	1845	1845
				Arm 8 Ahead	Inf	64.1 %		
3/2 (A61 (S))	2.70	0.00	Y	Arm 2 Right	11.50	4.2 %	1875	1875
				Arm 8 Ahead	Inf	95.8 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.00	0.00	Y	Arm 8 Left	18.00	100.0 %	1768	1768
5/2 (A6133 (W))	2.70	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1885	1885
5/3 (A6133 (W))	3.10	0.00	Y	Arm 4 Right	22.00	100.0 %	1802	1802
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (A61 (N))	3.30	0.00	Y	Arm 2 Left	7.00	3.8 %	1929	1929
				Arm 4 Ahead	Inf	96.2 %		
7/2 (A61 (N))	3.30	0.00	Y	Arm 6 Right	14.00	100.0 %	1757	1757
8/1	Infinite Saturation Flow						Inf	Inf
8/2	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2027 Do Nothing PM' (FG4: '2027 Do Nothing PM', Plan 2: 'Network Control Plan 2')

Signal Timings Diagram



Traffic Flows, Desired

Desired Flow :

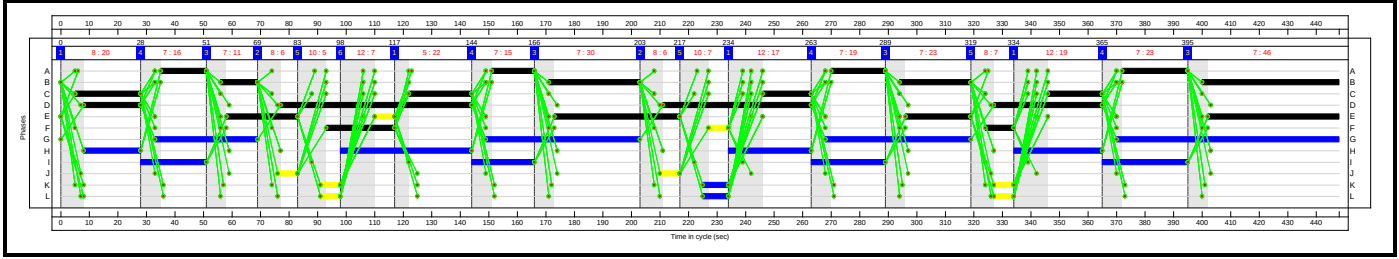
Origin	Destination					
		A	B	C	D	Tot.
	A	0	7	205	23	235
	B	21	0	129	487	637
	C	362	220	0	86	668
	D	36	677	115	0	828
	Tot.	419	904	449	596	2368

Lane Saturation Flows

Junction: J10 - A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.60	0.00	Y	Arm 4 Left	5.00	3.0 %	1941	1941
				Arm 6 Ahead	Inf	87.2 %		
				Arm 8 Right	17.00	9.8 %		
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (A61 (S))	2.80	0.00	Y	Arm 6 Left	20.00	40.8 %	1839	1839
				Arm 8 Ahead	Inf	59.2 %		
3/2 (A61 (S))	2.70	0.00	Y	Arm 2 Right	11.50	6.5 %	1869	1869
				Arm 8 Ahead	Inf	93.5 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.00	0.00	Y	Arm 8 Left	18.00	100.0 %	1768	1768
5/2 (A6133 (W))	2.70	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1885	1885
5/3 (A6133 (W))	3.10	0.00	Y	Arm 4 Right	22.00	100.0 %	1802	1802
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (A61 (N))	3.30	0.00	Y	Arm 2 Left	7.00	5.0 %	1924	1924
				Arm 4 Ahead	Inf	95.0 %		
7/2 (A61 (N))	3.30	0.00	Y	Arm 6 Right	14.00	100.0 %	1757	1757
8/1	Infinite Saturation Flow						Inf	Inf
8/2	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2027 With Development AM' (FG5: '2027 Opening Year AM', Plan 1: 'Network Control Plan 1')

Signal Timings Diagram



Traffic Flows, Desired

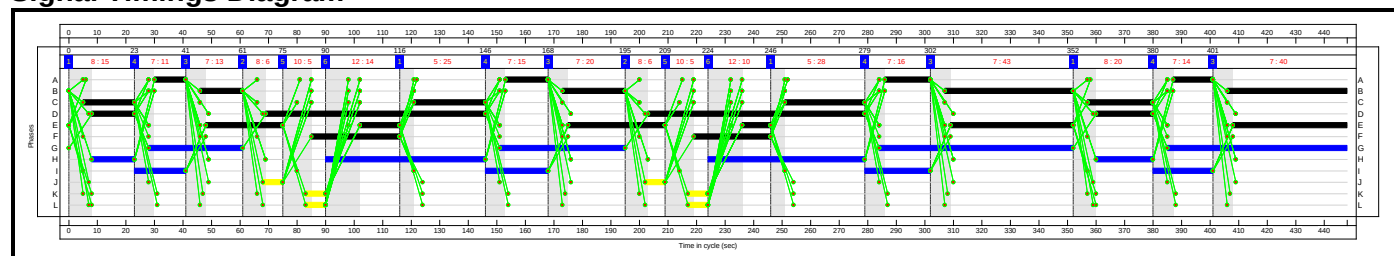
Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	6	219	25	250
	B	16	0	134	604	754
	C	245	110	0	102	457
	D	17	433	90	0	540
	Tot.	278	549	443	731	2001

Lane Saturation Flows

Junction: J10 - A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.60	0.00	Y	Arm 4 Left	5.00	2.4 %	1944	1944
				Arm 6 Ahead	Inf	87.6 %		
				Arm 8 Right	17.00	10.0 %		
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (A61 (S))	2.80	0.00	Y	Arm 6 Left	20.00	35.9 %	1845	1845
				Arm 8 Ahead	Inf	64.1 %		
3/2 (A61 (S))	2.70	0.00	Y	Arm 2 Right	11.50	4.2 %	1875	1875
				Arm 8 Ahead	Inf	95.8 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.00	0.00	Y	Arm 8 Left	18.00	100.0 %	1768	1768
5/2 (A6133 (W))	2.70	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1885	1885
5/3 (A6133 (W))	3.10	0.00	Y	Arm 4 Right	22.00	100.0 %	1802	1802
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (A61 (N))	3.30	0.00	Y	Arm 2 Left	7.00	3.8 %	1929	1929
				Arm 4 Ahead	Inf	96.2 %		
7/2 (A61 (N))	3.30	0.00	Y	Arm 6 Right	14.00	100.0 %	1757	1757
8/1	Infinite Saturation Flow						Inf	Inf
8/2	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2027 With Development PM' (FG6: '2027 Opening Year PM', Plan 2: 'Network Control Plan 2')
Signal Timings Diagram



Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	7	216	23	246
	B	21	0	130	487	638
	C	366	221	0	90	677
	D	36	677	126	0	839
	Tot.	423	905	472	600	2400

Lane Saturation Flows

Junction: J10 - A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A6133 (E))	3.60	0.00	Y	Arm 4 Left	5.00	2.8 %	1942	1942
				Arm 6 Ahead	Inf	87.8 %		
				Arm 8 Right	17.00	9.3 %		
2/1	Infinite Saturation Flow						Inf	Inf
3/1 (A61 (S))	2.80	0.00	Y	Arm 6 Left	20.00	41.3 %	1838	1838
				Arm 8 Ahead	Inf	58.7 %		
3/2 (A61 (S))	2.70	0.00	Y	Arm 2 Right	11.50	6.5 %	1869	1869
				Arm 8 Ahead	Inf	93.5 %		
4/1	Infinite Saturation Flow						Inf	Inf
5/1 (A6133 (W))	3.00	0.00	Y	Arm 8 Left	18.00	100.0 %	1768	1768
5/2 (A6133 (W))	2.70	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1885	1885
5/3 (A6133 (W))	3.10	0.00	Y	Arm 4 Right	22.00	100.0 %	1802	1802
6/1	Infinite Saturation Flow						Inf	Inf
7/1 (A61 (N))	3.30	0.00	Y	Arm 2 Left	7.00	5.0 %	1924	1924
				Arm 4 Ahead	Inf	95.0 %		
7/2 (A61 (N))	3.30	0.00	Y	Arm 6 Right	14.00	100.0 %	1757	1757
8/1	Infinite Saturation Flow						Inf	Inf
8/2	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2022 Base AM' (FG1: '2022 Base AM', Plan 1: 'Network Control Plan 1')

Scenario 3: '2027 Do Nothing AM' (FG3: '2027 Do Nothing AM', Plan 1: 'Network Control Plan 1')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Proposed Residential Development	-	-	-		-	-	-	-	-	-	73.2%	-	-	16	0	0	27.7	-	-
J10 - A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road	-	-	-		-	-	-	-	-	-	73.2%	-	-	16	0	0	27.7	-	-
1/1	A6133 (E) Left Ahead Right	U	A		4	74	-	246	1943	338	72.7%	246	246	-	-	-	4.3	62.8	8.9
3/1	A61 (S) Left Ahead	U	B		4	121	-	373	1845	515	72.5%	373	373	-	-	-	5.1	49.6	13.7
3/2	A61 (S) Right Ahead	O	B		4	121	-	381	1875	523	72.8%	381	381	16	0	0	5.3	50.2	14.0
5/2+5/1	A6133 (W) Ahead Left	U	C D		4	77:173	-	325	1885:1768	320+124	73.2 : 73.2%	325	325	-	-	-	4.7	52.2	8.7
5/3	A6133 (W) Right	U	C		4	77	-	109	1802	326	33.5%	109	109	-	-	-	1.5	48.7	3.5
7/1	A61 (N) Left Ahead	U	E		5	148	-	450	1929	659	68.3%	450	450	-	-	-	4.6	36.5	13.7
7/2	A61 (N) Right	U	F		3	41	-	86	1757	173	49.8%	86	86	-	-	-	2.2	93.4	5.7
C1 PRC for Signalled Lanes (%): 22.9 Total Delay for Signalled Lanes (pcuHr): 27.72 Cycle Time (s): 448 PRC Over All Lanes (%): 22.9 Total Delay Over All Lanes(pcuHr): 27.72																			

Scenario 4: '2027 Do Nothing PM' (FG4: '2027 Do Nothing PM', Plan 2: 'Network Control Plan 2')

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Proposed Residential Development	-	-	-		-	-	-	-	-	-	94.3%	-	-	14	0	7	45.8	-	-
J10 - A61 Sheffield Road/A6133 Cemetery Road/A6133 Park Road	-	-	-		-	-	-	-	-	-	94.3%	-	-	14	0	7	45.8	-	-
1/1	A6133 (E) Left Ahead Right	U	A		4	54	-	235	1941	251	93.5%	235	235	-	-	-	8.0	122.6	13.3
3/1	A61 (S) Left Ahead	U	B		4	125	-	316	1839	530	59.7%	316	316	-	-	-	4.2	47.6	12.3
3/2	A61 (S) Right Ahead	O	B		4	125	-	321	1869	534	60.1%	321	321	14	0	7	4.4	49.3	12.5
5/2+5/1	A6133 (W) Ahead Left	U	C D		4	94:189	-	448	1885:1768	385+91	94.1 : 94.1%	448	448	-	-	-	10.7	86.1	20.5
5/3	A6133 (W) Right	U	C		4	94	-	220	1802	394	55.8%	220	220	-	-	-	3.1	50.5	8.0
7/1	A61 (N) Left Ahead	U	E		6	170	-	713	1924	756	94.3%	713	713	-	-	-	11.4	57.8	26.3
7/2	A61 (N) Right	U	F		2	59	-	115	1757	239	48.1%	115	115	-	-	-	4.0	123.8	10.2
C1 PRC for Signalled Lanes (%): -4.8 Total Delay for Signalled Lanes (pcuHr): 45.77 Cycle Time (s): 448 PRC Over All Lanes (%): -4.8 Total Delay Over All Lanes(pcuHr): 45.77																			

