

Technical Note TN01

Response to HCC Consultation Response

Land Surrounding Burloes Cottages Newmarket Road

Project Number: 24414
Doc Number: TN01
Prepared for: Vistry Group

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Rev	Issue Purpose	Author	Reviewed	Approved	Date
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1. Introduction

1.1 Application 24/01013/HYA

- 1.1.1 In May 2024, Countryside Properties (UK) Limited and Sir Francis Newman (the Applicant) submitted a hybrid planning application to North Hertfordshire Council (NHC) for a development proposal at a site, *Land Surrounding Burloes Cottages Newmarket Road Royston Hertfordshire*, for a development proposal with description of development as follows:

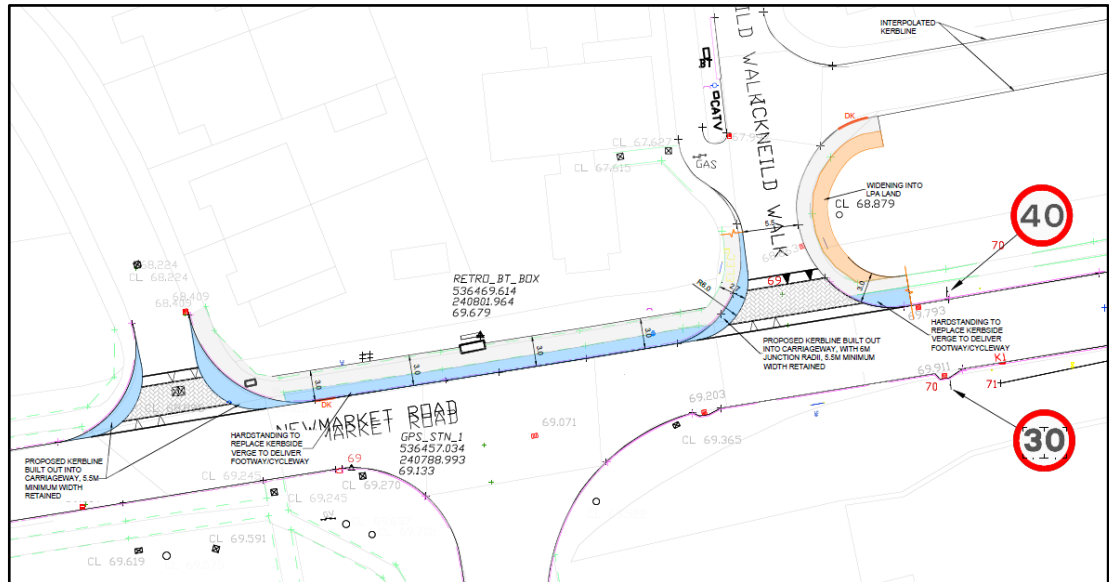
Hybrid application for residential development of up to 325 dwellings comprising (a) full planning application for Phase 1 comprising 106 dwellings and associated infrastructure including access from Newmarket Road, emergency and pedestrian/cycle access from Burloes Hall Drive, internal highways, public open space, landscaping and drainage and b) outline application for up to 219 dwellings and associated infrastructure with all matters reserved apart from primary means of access and emergency and pedestrian/cycle access from Burloes Hall Drive

- 1.1.2 This Current Application was supported by a Transport Assessment (TA), prepared by Markides Associates (MA).
- 1.1.3 The TA identified that the site is allocated for development under Policy RY10 of the adopted NHC Local Plan, for a scale of development up to 300 homes.
- 1.1.4 The TA also identified the recent planning history for the site, noting that in February 2020 NHC granted approval (application reference 17/00110/1) for an outline planning application for up to 325 units at the site, with access taken from Newmarket Road, of the same form and location as the current proposals (Approved Application). The Approved Application was also supported by a Transport Assessment (Approved Transport Assessment), which included

traffic impact analysis at a number of off-site junctions across Royston, presenting minor interventions to increase capacity at certain junctions, for which a financial contribution was secured as part of a S106 Agreement to facilitate delivery.

- 1.1.5 Following submission of the Current Application, the wider design team have sought to address both on-site and off-site design related comments raised by both NHC officers and Hertfordshire County Council (HCC) officers, with an original consultation response received from HCC, dated 21 May 2024, and a more recent response received, dated 4th August 2025, attached at **Appendix A**.
- 1.1.6 MA have been instructed to prepare this Technical Note (**TN01**) to respond to the most recent HCC consultation response.
- 1.1.7 The subject matter of each HCC comment/concern is listed in turn and a response prepared accordingly, apart from comments made in relation to 'Traffic Analysis,' which are discussed within a stand alone chapter. **Appendix A** can be accessed to review HCC's comments in full.

- Figure 2.2 Drawing 23224-MA-CC-CC-DR-C-0103 Extract – 3m footway/cycleway between Icknield Walk and Poplar Drive, with Side Road Entry Treatments**



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Figure 2.3 Site Plan Extract, Indicating Link Toward Aintree Road



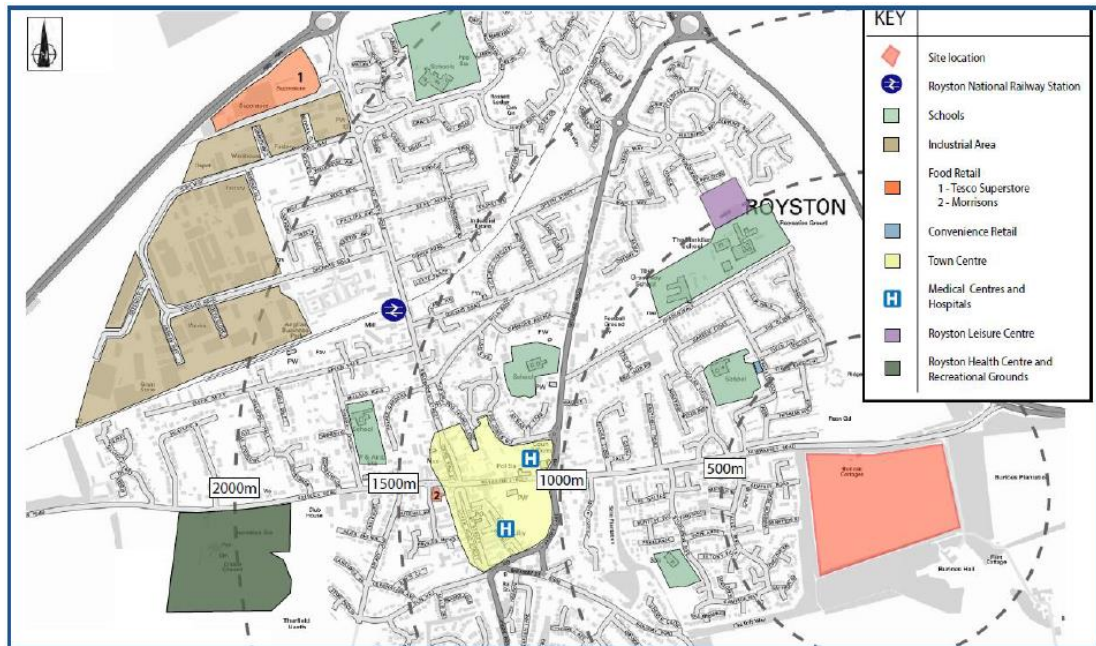
2.1.8 In terms of the internal site levels along the shared use footway/cycleway, to confirm, this is not 1:15 (6.5%) as suggested in the HCC consultation response and is in fact shallower at 1:20 (5%) after an initial 1:25 (4%). The existing site levels are challenging, with gradients across the site at 1:9 to 1:12. The proposals have therefore tried to improve these levels as much as possible in order to best accommodate the shared use pedestrian/cycleway along the spine road. Introducing a shallower gradient for the facility will result in the facility being lower than the carriageway, impacting on the internal drainage arrangements. There are however breaks along this route where the facility crosses side roads, where gradients of 1:40 sections occur, resulting in a maximum length at 1:20 being approximately 60m, with HCC's Place and Movement Guide referencing that *"Absolute Limits: Departure from Standards - Steeper gradients will only be considered where existing ground, levels make it impractical to achieve the acceptable limits specified,"* which is the case here.

2.1.9 Visibility splays from driveways onto the shared use facility will be included within any subsequent S38 plans, noting at this stage that driveways are offset from the edge of the facility.

2.2 Isochrones

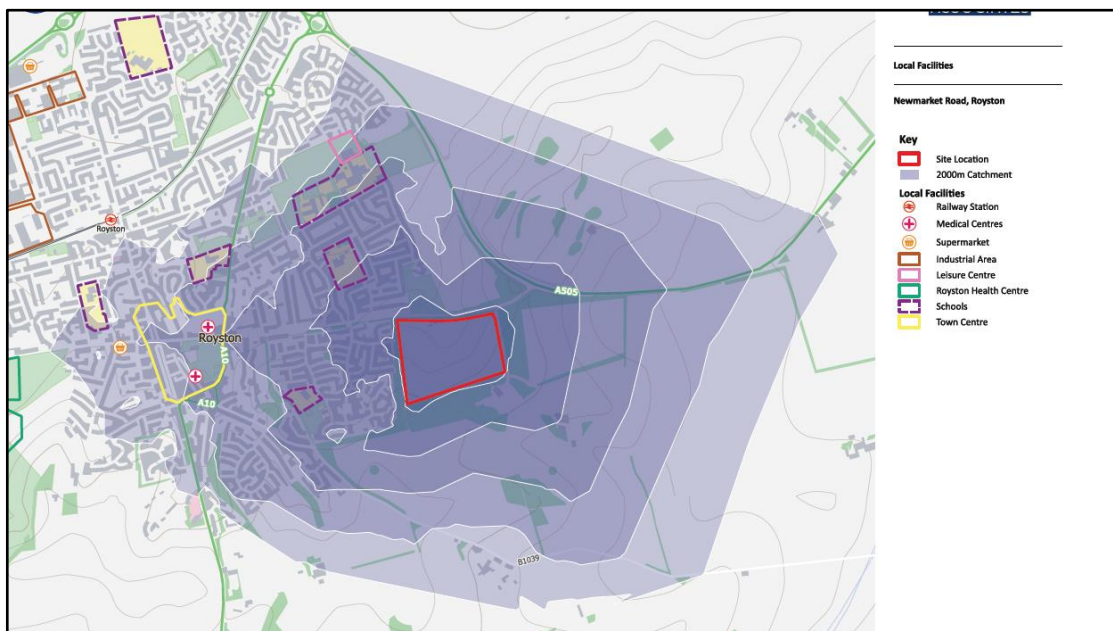
2.2.1 The TA submitted in support of the current application included location plans that confirmed the location of the site in relation to a range of social infrastructure such as schools, employment areas, health facilities and retail, along with straight distance radii, reproduced below.

Figure 2.4 Local Facilities (TA Figure 3.1)



2.2.2 In response to HCC comments about the need to show distances as isochrones, rather than straight-line distances, walk and cycle distance isochrone plans have been prepared using GIS software, attached to this Technical Note at **Appendix B**, extracted below.

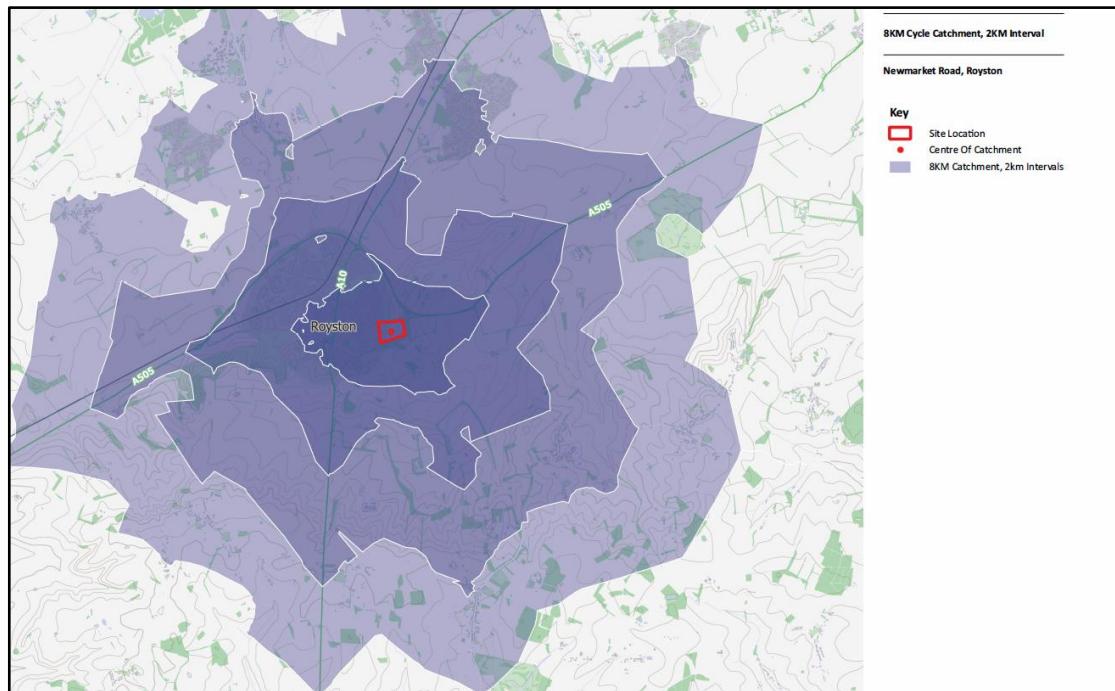
Figure 2.5 400m Walk Distance Isochrones



2.2.3 **Figure 2.5** confirms that the majority of the identified facilities are located within a 2km walk distance of the site, a walk distance within Transport Planning that is considered to offer the most opportunity to support access on foot.

- 2.2.4 Similarly, **Figure 2.6** confirms that the whole of Royston is within a 4km cycle distance from the site, with 5km typically adopted within Transport Planning as having the greatest potential to be undertaken by bike.

Figure 2.6 800m Cycle Distance Isochrones

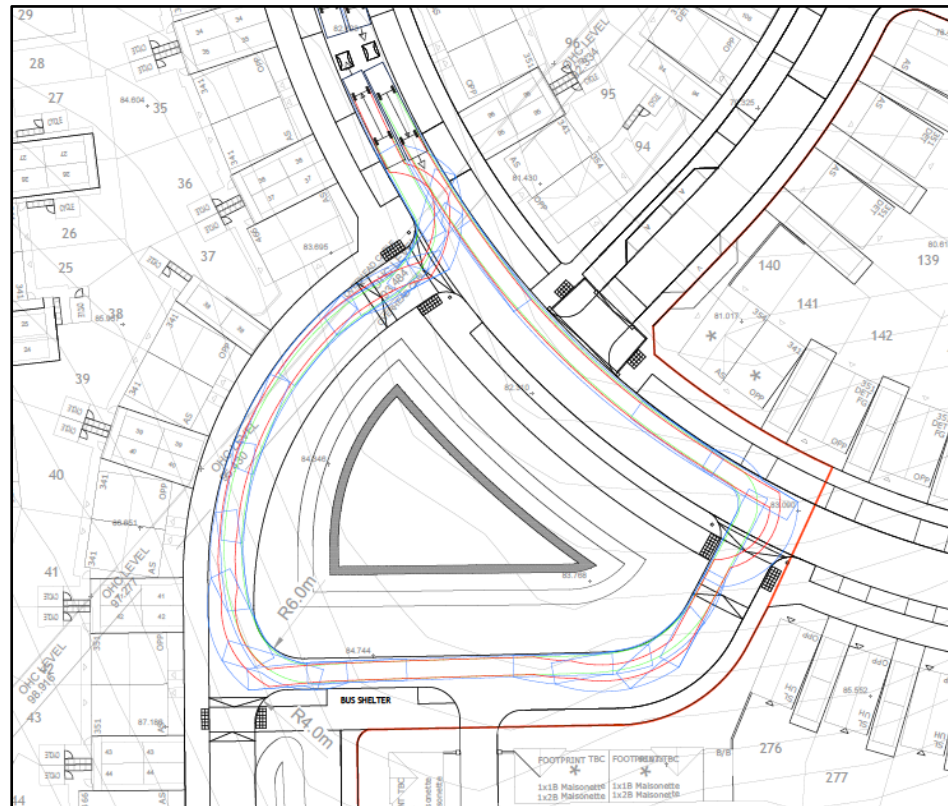


- 2.2.5 On this basis, and given the improvements the development proposal will deliver to ensure connectivity of the site with the existing active travel network, there should be no concerns regarding the site being a sustainable location for residential development, a position that is likely to have informed the site's allocation in the first place.

2.3 Bus Access

- 2.3.1 In terms of the requested bus contribution, this is subject to S106 discussions which are underway with the local planning authority.
- 2.3.2 We do however query the amount of contribution requested on the basis that bus access could be achieved via the diversion of an existing service into the site that we understand would already be travelling on Newmarket Road, rather than a new service, which should surely require a lesser amount.
- 2.3.3 In terms of the bus facilities on-site, the detailed requirements for Kassall kerbing, shelter and stop pole are noted and will be included within S38 plans, which would be shared with HCC for approval.
- 2.3.4 Vehicle swept path analysis has been undertaken to demonstrate the proposed turning facility is accessible to a 12m bus, attached at **Appendix C**, with extract below.

Figure 2.7 Bus Swept Path Analysis



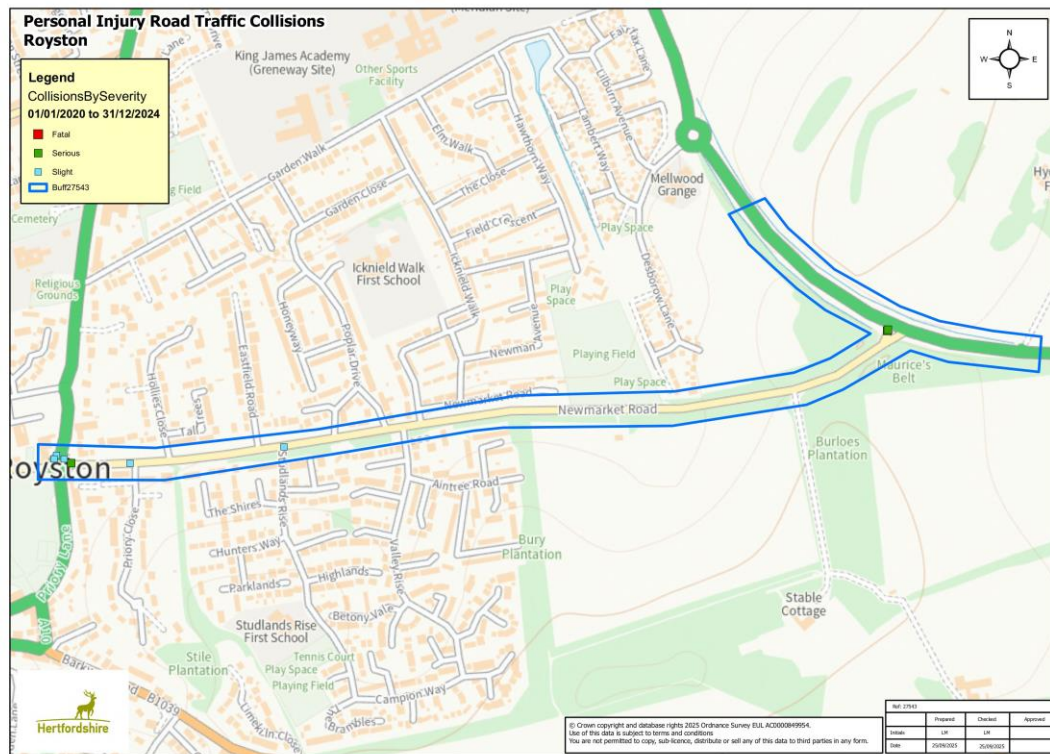
2.4 Spine Road

- 2.4.1 The requirement for junction corners to include more than one bollard will be picked up on S38 plans.

2.5 Road Safety

- 2.5.1 In response to the HCC Consultation Response, a review of 5 year Road Traffic Collision data has been undertaken for Newmarket Road, from the A505/Newmarket Road junction in the east to the A10 junction to the west, using information sourced from HCC.
- 2.5.2 In accordance with HCC requirements, only non-confidential part of the RTC data is shared and contributory factors cannot be displayed other than in aggregated form.
- 2.5.3 The data encompasses a period 1st January 2020 – 31st December 2024.
- 2.5.4 The distribution and location of all recorded collisions is included below at **Figure 2.8**, with the full data included at **Appendix D**.

Figure 2.8 PIC Distribution (2020 – 2024)



Source: Hertfordshire County Council

- 2.5.5 A total of 8 collisions occurred within the study area within the selected time period.
- 2.5.6 Of these collisions, 5 have been classed as slight, with the remaining 3 collisions classified as being as serious. No fatal collisions were recorded in the time period.
- 2.5.7 The yearly distribution of collisions is provided in **Table 2.1** overleaf.

Table 2.1 PIC Yearly Distribution

Collision Severity	2020	2021	2022	2023	2024
Slight	2	0	1	0	2
Serious	1	0	1	1	0
Fatal	0	0	0	0	0
Total	3	0	3	1	2

- 2.5.8 A clustering of collisions is evident at Newmarket Road/Priory Lane (A10) junction (4 incidents), one of which is classified as serious.
- 2.5.9 Two incidents were recorded at the A505/Newmarket Road junction, both of which were classified as serious.

2.5.10 A further two incidents were recorded on Newmarket Road itself.

2.5.11 The total number of casualties resulting from all collisions is 13, with **Table 2.2** below outlining the casualty classifications and if any vulnerable road users were affected.

Table 2.2 PIC Casualty Types

Casualty	Slight	Serious	Fatal	Total
Vehicle Driver	5	0	0	0
Passenger	4	1	0	5
Motorcycle Rider	0	1	0	1
Cyclist	0	0	0	0
Pedestrian	0	1	0	1
Other	1	0	0	1
Total	10	3	0	13

2.5.12 **Table 2.2** therefore confirms that only a small number of incidents involved vulnerable road users, with one pedestrian and one motorcyclist.

2.5.13 In terms of the 3 serious collisions:

- A serious collision occurred at 14:38 on Friday 15th July 2022 involving 2 vehicles (1 car and 1 LGV) on the A505 at the junction with Newmarket Road. The driver of vehicle 1 (LGV) is attempting to turn right out of Newmarket Road, accessing the central margin on the A505, when it collided with the vehicle 2 (car) travelling northbound, causing the front of vehicle 2 to collide with the offside of vehicle 1. The passenger of vehicle 2, sustained serious injuries. Contributory factors did not identify any fault of the highway network.
- A serious collision occurred at 17:07 on Sunday 16th April 2022 involving 2 vehicles (1 car and 1 motorcycle) on the A505 junction with Newmarket Road. The driver of vehicle 1 (car) has turned right out of Newmarket Road and collided with the front of vehicle 2 (motorcycle) travelling northbound, unseating the rider. No contributory factors were recorded.
- A serious collision occurred at 09:45 on Wednesday 09th September 2020 involving 1 vehicle (car) at the junction between Newmarket Road and A10. The driver of the Vehicle 1 has left the roundabout onto Newmarket Road and collided with a pedestrian crossing the road. No contributory factors were recorded.

2.6 Travel Plan

2.6.1 In response to concerns raised by HCC regarding the content of the Travel Plan submitted as part of the current planning application a revised Travel Plan has been prepared and is attached at **Appendix E**.

2.6.2 The revised Travel Plan includes amendments that:

- Confirm a secondary Travel Plan Coordinator (TPC) contact will be provided at appointment;
- Indicate time commitment needed for the TPC involvement
- That resident vouchers of £100 per household will be provided by the Applicant in exchange for bus ticketing or cycle purchase
- The setting of more ambitious mode shift targets, noting that these are dependant on the results of a baseline travel survey;
- That an Evaluation and Support fee will be secured.

2.6.3 The Applicants signing of any subsequent S106 Agreement, which will include obligations in relation to the Travel Plan, will by default provide their statement of commitment to the Travel Plan implementation.

2.7 S106 Contributions

2.7.1 The Strand 1 and Strand 2 contribution requests are acknowledged and are being considered against the wider viability of the scheme, in discussions with NHC.

3. HCC Consultation Response Traffic Analysis

3.1 Introduction

- 3.1.1 The TA submitted in support of the current application referenced traffic impact analysis undertaken within the Approved Transport Assessment, prepared in support of the Approved Application (reference 17/00110/1).
- 3.1.2 That analysis identified that potential interventions would be needed to mitigate the impact of the development at two off-site junctions, namely the A505/A10 roundabout junction and the A505/A1198 junction, involving small changes to entry widths, resulting in a position of nil detriment being achieved. These interventions were on top of other committed improvements that were identified to mitigate the impact of the development of the site *Land East Of Garden Walk And North Of Newmarket Road Garden Walk Royston (planning reference 14/02485/1*, which is currently being delivered.
- 3.1.3 A financial contribution of £50,000 was secured within the Approved Application S106 Agreement to help deliver these interventions.
- 3.1.4 The TA also referenced more recent traffic impact analysis that has been undertaken in support of a pending application for 280 dwellings at a site, Land North of Flint Hall (reference 21/00765/OP), located off Barkway Road (Flint Hall). At that time of preparation of the TA, the Flint Hall application was supported by a Transport Assessment and Transport Assessment Addendum, which undertook capacity analysis at a number of junctions across Royston. Crucially, this analysis allowed for the cumulative impact of other committed developments within the town, including the Burloes Cottage site. The study area encompassed the same off-site junctions that had been assessed as part of the Approved TA that was produced in support of the Approved Application.
- 3.1.5 HCC's consultation response to the Flint Hall application at the time of preparation of the TA (included within Appendix M of the TA), was that there were no objections on the basis of traffic impact and mitigation to deliver capacity enhancements was not considered necessary, with HCC's preference being for interventions to be focussed on improving active travel infrastructure. Given the analysis included the cumulative impact associated with Burloes Cottage, the impact of the current proposals has therefore been indirectly considered and accepted.
- 3.1.6 HCC's first consultation response to the current application raised no comments or concerns in relation to traffic impact.
- 3.1.7 HCC's more recent consultation response, over a year after their first response, has since raised a concern regarding traffic impact, stating:

Whist HCC Highways are aware that the Traffic Impact of the site was considered acceptable subject to previously agreed S106 contributions and the trip generation was determined robust, the application has however since lapsed and the analysis presented in the 2017 TA (2021 design year) is considered extremely dated and should

be brought up to date using fresh traffic counts before a decision can be made as to the developments traffic impact

- 3.1.8 In response to this, it is acknowledged that the analysis within the Approved Transport Assessment relies on outdated traffic flows, but it is reiterated that the TA also referenced the analysis undertaken as part of the Flint Hall planning application, which was informed by more recent traffic survey information and which allowed for a cumulative impact scenario that included traffic generated by the subject site. This analysis demonstrated that the cumulative impact scenario was acceptable and HCC were content that capacity enhancements were not necessary.
- 3.1.9 Notwithstanding, **TN01** presents updated capacity analysis in order to respond to HCC's concern positively.

3.2 Updated Analysis

- 3.2.1 In addressing the concern, MA have been made aware that the Flint Hall planning application has too been informed by updated traffic impact analysis due to a further consultation response from HCC that the 2020 traffic flows used to inform their original analysis was outdated.
- 3.2.2 In response to these comments the Flint Hall application has been informed by new traffic surveys undertaken in December 2024, with the junction modelling updated accordingly as presented and analysed within a Transport Assessment Addendum, April 2025 (Mode Transport Planning report reference J325129 TAA V1.2).
- 3.2.3 Again, this updated analysis has allowed for a cumulative impact scenario for a future year of 2027, which included the additional traffic associated with committed development proposals, including the Burloes Cottage site.
- 3.2.4 Again, the April Transport Assessment Addendum has continued to demonstrate that even with this updated traffic survey information the cumulative impact of Flint Hall application and the current development proposals can continue to accommodated without resulting in a severe residual impact, negating the need for capacity enhancements.
- 3.2.5 HCC, within their most recent consultation response to that application (24th April 2025, reference NH/6208/2021), have agreed and reached a position of recommending approval for the application.
- 3.2.6 Whilst the Flint Hall application has not yet been determined, on the basis that the cumulative scenario included the impact associated with Burloes Cottage and this has been deemed acceptable by HCC, by definition, the impact of the Burloes Cottage proposals, either in isolation or cumulatively, should also be deemed acceptable.
- 3.2.7 Nonetheless, in response to HCC's concern, the development's impact on the local highway network will be assessed, using the December 2024 surveys as presented Flint Hall Road April Transport Assessment Addendum. The traffic flow diagrams are extracted in **Appendix F** for

ease of reference (also noting that the raw traffic survey results can be found in Appendix E of the April Transport Assessment Addendum).

Highway Network

3.2.8 As per the Approved Transport Assessment, the highway network which will be the subject of this updated junction capacity analysis encompasses the following junctions, also indicated in **Figure 3.1**.

- A505/Newmarket Road priority junction;
- A505/A10 roundabout junction;
- A505/A1198 roundabout junction; and
- A10/Newmarket Road/Melbourn Street roundabout junction.

Figure 3.1 Capacity Assessment Study Area



3.2.9 The traffic flow diagrams for the highway network in **Figure 3.1**, presenting the results of the 2024 traffic surveys, are contained in **Appendix G**.

Junction Modelling

3.3 Modelling Scenarios

3.3.1 The following scenarios have been assessed for both the AM and PM periods:

- 2024
- 2030
- 2030 plus Development
- 2030 plus Development plus Flint Hall Sensitivity Test

- 3.3.2 Whilst the Flint Hall analysis has maintained a future opening year of 2027 throughout, 2030 has been adopted within this analysis as it is more realistic allowing for build out rates. This is therefore more robust as it will inherently allow for higher levels of background traffic growth in the interim period.

TEMPro

- 3.3.3 In determining a future 2030 year a TEMPro growth factor has been applied to the 2024 base surveys.
- 3.3.4 As per the methodology used within the Flint Hall April Transport Assessment Addendum, the area of North Hertfordshire 002 MSOA was selected to determine the weekday AM and PM period growth factors. This calculates that between 2024 and 2030 a total of 142 dwellings are expected to be delivered, with the resultant following growth factors:
- Weekday AM Peak Period, 2024-2030 – 1.0494
 - Weekday PM Peak Period, 2024-2030 – 1.0501
- 3.3.5 As detailed within the Flint Hall April Transport Assessment Addendum, at the time of the December 2024 traffic surveys being undertaken it was estimated that there were circa 50 dwellings each left to construct for the below listed developments. It was not proposed to add this as committed development flows, but that the remainder of developments would inherently form part of the TEMPro growth factor. The same assumption has been made for this current analysis.
- Land East of Garden Walk and North of Newmarket Road Garden Walk, Royston – 14/02485/1 - This has partially been built out, and expected to be complete in 2025.
 - Land West of Royston & North of Baldock Road, Royston SG8 9NT – 16/00378/1 - This has partially been built out, and expected to be complete in 2025.
- 3.3.6 There are other committed developments in the vicinity of the site, however these are referenced as having been completed at the time of the December 2024 traffic surveys, and therefore do not require further assessment.
- Land Across Verges at Royston Bypass Royston, Hertfordshire – 17/02470/1
 - Land at Safeline Avs Ltd, Royston Business Park, Greenfield, Royston Hertfordshire – 17/04357/FP
 - Anglian Business Park, Royston – 19/01172/HYA

Plus Development

- 3.3.7 On that basis, the only committed development flows Flint Hall April Transport Assessment Addendum accounted for was the Burloes Cottage proposals, with traffic flow assignments presented in the appended traffic flows, which have been used within the future year plus development scenario.

Sensitivity Test

- 3.3.8 As a sensitivity test, the traffic flows associated with the Flint Hall application have been added to the Plus development scenario to undertake a cumulative impact assessment in the same way as the Flint Hall analysis. The respective traffic flow diagrams can be seen in **Appendix G**.

3.4 Junction Capacity Assessments

- 3.4.1 The results of the junction capacity assessments for the aforementioned listed junction are presented in **Table 3.1** to **Table 3.4**, with the full modelling results presented in **Appendix H**.
- 3.4.2 The junction capacity assessments have been undertaken in the Junction 9 software ARCADY for roundabouts and PICADY for priority junctions. Junctions with a Ratio to Flow (RFC) capacity of less than 0.85 are considered to be operating within practical capacity, with junctions with an RFC of 0.85 to 1.0 being considered to operate within theoretical capacity. A junction with an RFC of over 1.0 is considered to be operating over theoretical capacity.
- 3.4.3 The same geometric parameters for the junction models that were used within the Approved Transport Assessment have been maintained. Where applicable, the junctions have been assessed on the basis of mitigation being delivered as per the approved development at Land East Of Garden Walk And North Of Newmarket Road Garden Walk Royston (planning reference 14/02485/1); this being consistent with the approach adopted within the Approved Transport Assessment for the site.

Table 3.1 A505/Newmarket Road priority junction

Arm	AM Peak			PM Peak		
	Queue (Vehicles)	Delay (seconds)	RFC	Queue (Vehicles)	Delay (seconds)	RFC
	2024					
Newmarket Road - Left Turn	0	13	0.22	0	9	0.14
Newmarket Road - Right Turn	1	16	0.55	0	9	0.25
2030						
Newmarket Road - Left Turn	0	14	0.24	0	9	0.15
Newmarket Road - Right Turn	1	18	0.59	0	10	0.27
2030 + Development						
Newmarket Road - Left Turn	1	24	0.47	0	10	0.22
Newmarket Road - Right Turn	3	27	0.72	1	11	0.34
2030 + Development + Sensitivity						
Newmarket Road - Left Turn	1	39	0.59	0	11	0.22
Newmarket Road - Right Turn	4	41	0.82	1	12	0.36

- 3.4.4 The results in **Table 3.1** demonstrates that with the development proposal the priority junction of the A505/Newmarket Road is forecast to operate within practical capacity. No mitigation is therefore required. The junction also operates under a cumulative development scenario.

Table 3.2 A505/A10 roundabout junction

Arm	AM Peak			PM Peak		
	Queue (Vehicles)	Delay (mins)	RFC	Queue (Vehicles)	Delay (mins)	RFC
	2024					
A10 (North)	1	0.1	0.51	2	0.1	0.67
A505 (East)	2	0.1	0.65	1	0.1	0.58
A10 (South)	1	0.1	0.54	1	0.1	0.48
A505 (West)	3	0.1	0.77	2	0.1	0.67
2030						
A10 (North)	1	0.1	0.54	3	0.2	0.71
A505 (East)	2	0.2	0.69	2	0.1	0.62
A10 (South)	1	0.1	0.58	1	0.1	0.52
A505 (West)	4	0.2	0.81	2	0.1	0.70
2030 + Development						
A10 (North)	1	0.1	0.55	3	0.2	0.74
A505 (East)	3	0.2	0.74	2	0.1	0.66
A10 (South)	2	0.1	0.60	1	0.1	0.52
A505 (West)	4	0.2	0.82	3	0.1	0.72
2030 + Development + Sensitivity						
A10 (North)	1	0.1	0.56	3	0.2	0.76
A505 (East)	3	0.2	0.74	2	0.2	0.66
A10 (South)	2	0.2	0.63	1	0.1	0.53
A505 (West)	5	0.2	0.83	3	0.1	0.72

- 3.4.5 The results in **Table 3.2** demonstrates that with the development proposal the roundabout junction of the A505/A10 is forecast to operate within practical capacity. No mitigation is therefore required. The junction also operates under a cumulative development scenario.

Table 3.3 A505/A1198 Roundabout Junction

Arm	AM Peak			PM Peak		
	Queue (Vehicles)	Delay (mins)	RFC	Queue (Vehicles)	Delay (mins)	RFC
	2024					
A1198 (North)	2	0.1	0.67	2	0.1	0.67
A505 (East)	8	0.3	0.89	5	0.2	0.84
A1198 (South)	2	0.1	0.64	1	0.1	0.56
A505 (West)	11	0.4	0.93	3	0.1	0.75
2030						
A1198 (North)	3	0.2	0.73	3	0.2	0.73
A505 (East)	14	0.6	0.95	8	0.3	0.90
A1198 (South)	2	0.2	0.69	2	0.1	0.62
A505 (West)	24	0.8	0.99	4	0.2	0.80
2030 + Development						
A1198 (North)	3	0.2	0.75	3	0.2	0.74
A505 (East)	20	0.7	0.98	9	0.4	0.91
A1198 (South)	2	0.2	0.70	2	0.1	0.63
A505 (West)	28	0.9	1.00	4	0.2	0.82
2030 + Development + Sensitivity						
A1198 (North)	3	0.2	0.75	3	0.2	0.76
A505 (East)	20	0.8	0.98	9	0.4	0.91
A1198 (South)	3	0.2	0.72	2	0.1	0.64
A505 (West)	31	1.0	1.00	4	0.2	0.82

- 3.4.6 The results in **Table 3.3** demonstrates that with the development proposal the roundabout junction of the A505/A1198 is forecast to operate within theoretical capacity.
- 3.4.7 In terms of the development's impact on the operation of this junction, it will contribute up to seven vehicles queuing on the A505 East with an additional 0.1 minutes (six seconds) of delay. This is not considered to be a 'severe' impact in accordance with NPPF.
- 3.4.8 The A505 arms of the roundabout are already and are forecast to operate within theoretical capacity, and as the proposal is not materially contributing to the delay and queuing expected at the junction no mitigation is required. This is consistent with the modelling and approach that has been agreed by HCC for Flint Hall.

Table 3.4 A10/Newmarket Road/Melbourn Street roundabout junction

Arm	AM Peak			PM Peak		
	Queue (Vehicles)	Delay (mins)	RFC	Queue (Vehicles)	Delay (mins)	RFC
	2024					
A10 (North)	1	0.1	0.52	1	0.1	0.50
Newmarket Road	1	0.1	0.37	1	0.1	0.42
A10 (South)	1	0.1	0.56	1	0.1	0.57
Melbourne Street	2	0.1	0.60	1	0.1	0.57
	2030					
A10 (North)	1	0.1	0.56	1	0.1	0.54
Newmarket Road	1	0.1	0.39	1	0.1	0.45
A10 (South)	1	0.1	0.59	2	0.1	0.61
Melbourne Street	2	0.2	0.65	2	0.2	0.62
	2030 + Development					
A10 (North)	1	0.2	0.59	2	0.2	0.62
Newmarket Road	1	0.1	0.46	1	0.1	0.48
A10 (South)	2	0.1	0.61	2	0.1	0.63
Melbourne Street	2	0.2	0.67	2	0.2	0.66
	2030 + Development + Proposed					
A10 (North)	2	0.2	0.62	2	0.2	0.68
Newmarket Road	1	0.1	0.48	1	0.1	0.53
A10 (South)	3	0.2	0.71	2	0.1	0.67
Melbourne Street	3	0.2	0.72	3	0.2	0.73

- 3.4.9 The results in **Table 3.4** demonstrates that with the development proposal the roundabout junction of the A10/Newmarket Road/Melbourn Street is forecast to operate within capacity. No mitigation is therefore required. The junction also operates under a cumulative development scenario.

3.5 2024 Traffic Survey Validation

- 3.5.1 During the preparation of this Technical Note, we have been made aware of the Flint Hall development proposals having been taken to planning committee in early September, with the committee resolving to defer the application on the basis of queries raised in relation to highways.
- 3.5.2 We understand one of the main concerns related to the modelling of the A10 Gyratory and Barkway Road, located south of the Newmarket Road junction with the A10. In terms of the proposals at Burloes Cottages, only a minority of development related traffic is anticipated as being distributed south toward the gyratory and, unlike the Flint Hall proposals, the access strategy is not reliant on access via Barkway Road. On that basis such a concern should not relate to the Burloes Cottages proposals.

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- 3.5.3 We note other concerns raised in relation to neutrality of survey period and the use of outdated modelling software and that a rebuttal note has been prepared by the applicants to address these concerns (Mode Technical Note J325129 15th September 2025).
- 3.5.4 We have reviewed this rebuttal note and do not find any reasons to disagree with comments made. With regards to the neutrality point we concur with the rebuttal in that WEBTAG guidance requires surveys to simply not be taken during abnormal conditions, outside of school holidays or in bad weather conditions. With regards to the use of Junctions 11, over Junctions 9, modelling software, we note the rebuttal confirms that use of the different models results in negligible changes to outputs which don't materially impact on the conclusions.

4. Summary and Conclusion

- 4.1.1 In conclusion therefore, this Technical Note has been prepared in response to recent HCC comments in relation to the proposed development at Land Surrounding Burloes Cottages Newmarket Road, as set out in their consultation response dated 4th August 2025.
- 4.1.2 Each of the comments and concerns raised are believed to have been suitably addressed.
- 4.1.3 The development proposal is on an allocated site, has benefited from a previous planning approval with the same scale of development and access strategy. It has been demonstrated that the site is sustainably located, in close enough proximity to essential social infrastructure to facilitate access by active travel, encouraged by the delivery of improvements to the existing active travel infrastructure which have evolved in response to HCC comments where possible. Furthermore, the development proposals will likely provide further financial contributions to improve the sustainable transport infrastructure further, subject to further S106 discussions with the local planning authority.
- 4.1.4 The Applicants are committed to engaging with adjacent stakeholders to ensure the delivery of off-site connections west toward Aintree Road.
- 4.1.5 The Technical Note is supported by updated traffic impact analysis, which reinforces conclusions established as part of the original planning approval that the impact of the development proposals will not result in a severe impact, a position HCC have agreed with in their review of the Flint Hall planning application which had taken into account the Burloes Cottage proposals as a committed development.
- 4.1.6 The proposals will be subject to subsequent S38 and S278 Agreements, where both the on-site and off-site highway related works will be scrutinised further.
- 4.1.7 On this basis we believe that HCC's concerns have been addressed.

APPENDIX A - HCC CONSULTATION RESPONSE



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Development Management Group Manager
Hertfordshire County Council
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Farnham House
Six Hills Way
Stevenage
SG1 2ST

Response to Planning application from Hertfordshire County Council (T and CP GDP Order 2015)

Director of Planning

North Hertfordshire Council
Council Offices
Gernon Road
Letchworth Garden City
Hertfordshire
SG6 3JF

District ref: 24/01013/HYA
HCC ref: NH/21068/2024
HCC received: 4 August 2025
Area manager: James Dale
Case officer: Adrian McHale

Location

Land Surrounding Burloes Cottages, Newmarket Road, Royston, Hertfordshire,

Application type

Outline

Proposal

AMENDED PROPOSAL

Outline Application : Hybrid application for residential development of up to 325 dwellings comprising (a) full planning application for Phase 1 comprising 106 dwellings and associated infrastructure including access from Newmarket Road, emergency and pedestrian/cycle access from Burloes Hall Drive, internal highways, public open space, landscaping and drainage and b) outline application for up to 219 dwellings and associated infrastructure with all matters reserved apart from primary means of access and emergency and pedestrian/cycle access from Burloes Hall Drive

Recommendation

Notice is given under article 22 of the Town and Country Planning (Development Management Procedure) (England) Order 2015 that Hertfordshire County Council as Highway Authority recommends that permission be refused for the following reasons:

REASON(S) AND COMMENTS

The proposal site is located just outside the eastern edge of town of Royston in North Hertfordshire and is bound to the west by the tree belt which borders the eastern edge of the existing urban area, to the north by the wooded corridor of Newmarket Road, to the east by further woods that surrounds the access lane to the historic Burloes Hall (currently a wedding venue), to the south by the densely packed woods that surrounds the Hall. A hybrid application has come forward to develop 325

homes on the site; a full planning application for Phase 1 (106 homes + associated infrastructure) and an outline application (219 homes).

Sustainable Transport Access

In line with the Policies of LTP4, particularly Policies 1 (the Transport User Hierarchy) and 5 (Development Management) it is essential given the declared climate emergency that this is considered first to unlock a site sustainably.

HCC Highways has concerns over the proposed sustainable transport corridor which could potentially unlock this site.

Within a 40mph zone the 3.0m shared foot/cycleway should be set back by ideally 1.0m (0.5m may be acceptable in certain circumstances). However, given the proximity of the shared path to the north of the Newmarket Road vehicle access to the 60mph zone, westbound vehicles may still be travelling in excess of the proposed 40mph speed limit past the foot/cycleway. Therefore, a 2.0m setback would be required or the 60/40mph transition signs need to be relocated further east and a 1.0m setback provided.

Shared foot/cycle lane junctions and bends must also provide for cycle turning circles realistic for the design speed to comply with Tables 5-1 to 5-7 of LTN 1/20. Whereas, currently the proposed design involves right angles with no curve or chamfer.

The shared use foot/cycle way between Icknield Walk and Poplar Drive required to provide a connection to the Icknield Walk First School on Poplar Drive and areas in the north of Royston, including the Rail Station and the Orchard Road Employment Area, is currently a substandard width and needs to be widened to at least 3.0m as per HCC Highways Place & Movement Planning and Design Guide (P&M PDG). Furthermore, to provide safely for this connection crossings over Icknield Walk and Poplar Drive are required.

As stated in the 10 June 2024 response by HCC Highways proposed footpath to Aintree Road is a clear desire line for cyclists and provides connections to Studlands Rise First School and areas to the South of Royston and needs to be upgraded to facilitate it.

Within the site it is unclear the exact gradient of the shared use foot/cycleway but it is envisaged that it is in the region of 1:15 (6.5%), which as per HCC Highways Place & Movement Planning and Design Guide (P&M PDG Part 3 Chapter 4 page 99) is too steep, and the appropriate resting platforms must be provided no more than 25m apart. Furthermore, adequate visibility to the shared foot/cycle way from residential driveways needs to be demonstrated.

Isochrones

The Transport Assessment (TA) shows 'As-the-Crow flies' walking and cycling Isochrones these are misleading and unacceptable as they do not take account of actual walking or cycling times which are likely longer due to gradients and obstacles such as busy roads and limited safe crossing points. Actual walking and cycling routes isochrones are required.

Bus Access

The average operating cost of a single vehicle is approximately £175,000 per annum, and thus we would seek contributions on this basis for a period of five years, totalling £875,000 (index-linked).

The vehicle would be added to an existing service that could divert into the site, or alternatively used to support the development of a new service if required at the time. This would aim to enhance connectivity to key locations such as railway station/s and interchanges with other services, supporting sustainable travel and local development.

Service levels will be reviewed at the time of introduction to determine the appropriate frequency, based on factors such as occupancy levels and the availability of local funding.

For sites like this, which include a dedicated turning point and infrastructure within the development, it is advisable that developers provide detailed tracking data and specify the infrastructure to be delivered. This should include Kassel kerbing, a shelter (with Hertfordshire flag bracket), a stop pole if not integrated with the shelter and bus cage/s to protect the stop from others parking. All infrastructure should be installed and accessible from day one of occupation.

The PTU team have concerns over the ability of services to operate via the proposed priority controlled access due to its proximity to the 60mph section of Newmarket Road and would also prefer the 60/40mph transition signs relocated further to the east.

Furthermore, swept path analysis needs to demonstrate that a 12m vehicle can enter/ exit the site and turn around within.

Spine Road

HCC Highways welcomes the changes to the detailed layout of the Spine Road since the previous application and HCC response, however we consider that more than one bollard might be needed on junction corners.

Road Safety

The TA fails to present a detailed analysis of Road Traffic Collisions (RTC) in the vicinity of the site that would enable HCC Highways DM to appropriately consider the impact of the proposals upon the safety of the road network.

HCC Highways consider that an 5 year RTC analysis of Newmarket Road between the A10 and A505 and 200m either side of the A505/Newmarket Road junction should be undertaken. The most upto date RTC data for the last 5 years can be obtained from Anthea.Nott@hertfordshire.gov.uk.

Travel Plan (TP)

HCC's Travel Plan team have reviewed the submitted TP and consider that it requires amendment before we can approve. In particular, more ambition in relation to modal shift targets, a commitment to annual monitoring and review, and a commitment for the plan to be in place until 5 years post full occupation.

This Travel Plan does require amendment before we can approve. In particular, more ambition in relation to modal shift targets, a commitment to annual monitoring and review, and a commitment for the plan to be in place until 5 years post full occupation. Detailed comments are as follows:

- Travel Plan Co-ordinator details should be provided on appointment along with those of a secondary contact in case of personnel changes.
- An indication of time allocated to role and frequency on site should also be provided.

- We also ask that a statement of management commitment be provided from a suitable member of the estate management company to demonstrate commitment to the robust implementation of the plan.
- Residential travel vouchers, which could be used either towards walking, cycling, or towards any diverted/new bus services, should be provided in line with our guidance, see www.hertfordshire.gov.uk/travelplans Table 1 p13.
- Given the potential for the use of sustainable modes suggested by the assessment of the site's accessibility and likely bus service diversion, modal shift targets should be more ambitious – 8% over 5 years, with only a 1% increase in walking being targeted. We would like to see a minimum 10% over 5 years, obviously this can be reviewed following the baseline survey and based on opportunities at the site.
- We require annual surveys (not alternate years as proposed) and the Travel Plan needs to be in place for 5 years post full occupation (which may be longer than the 5 years proposed) – this is assuming targets are met during this period. Review of the plan needs to take place after each survey.
- An Evaluation and Support fee of £1200 per year should be sought for the Travel Plan to be in place until 5 years post full occupation.

Traffic Analysis

Whilst HCC Highways are aware that the Traffic Impact of the site was considered acceptable subject to previously agreed S106 contributions and the trip generation was determined robust, the application has however since lapsed and the analysis presented in the 2017 TA (2021 design year) is considered extremely dated and should be brought up to date using fresh traffic counts before a decision can be made as to the developments traffic impact.

S106 Contributions

HCC Highways operate two levels of mitigation agreements (Strand 1 and Strand 2). Strand 1 mitigation works being works that are directly required to unlock the development and solely the responsibility of the development. Strand 2 mitigation works being works that address the wider cumulative impact of the development for which the development isn't solely responsible for but does derive benefit from.

In the first instance HCC would envisage that S278 works to integrate the site into the walking and cycling networks, finalised bus contributions and travel plan contributions are delivered via a Strand 1 s106 agreement.

In the second instance (Strand 2) HCC calculate an appropriate headline figure based on the findings of HCC's adopted Developers Planning Obligation Toolkit (2021). Strand 2 contributions should address the cumulative impacts of all development, large and small, facilitating delivery and enhancement of the necessary active and sustainable transport networks. These local sustainable networks must be provided in their entirety to provide the sustainable connections to the key trip generators, as such contributions will be pooled to fund these networks within the local area (subject to any legislative restrictions), as supported by National Planning Policy Framework (NPPF). This second strand contribution is intended to help implement broader transport measures in the catchments of new development from which contributions are secured. The need for second strand contributions will be balanced against the level of first strand contributions and any other relevant planning matters.

For the development HCC Highways calculates the Strand 2 contribution at £2,218,450 would be required if this development were to proceed. This would be aimed at improving the

sustainable network that the site could integrate into and allocated to schemes such as those identified in the recently adopted NHDC LCWIP (Local Cycling and Walking Implementation Plan, September 2023) or Package 15 (Royston) of the emerging North Central Growth and Transport Plan (NC GTP), a sub document of LTP 4.

<https://www.hertfordshire.gov.uk/about-the-council/consultations/transport-and-highways/lcwips-2022/north-hertfordshire-local-cycling-and-walking-infrastructure-plan.aspx>

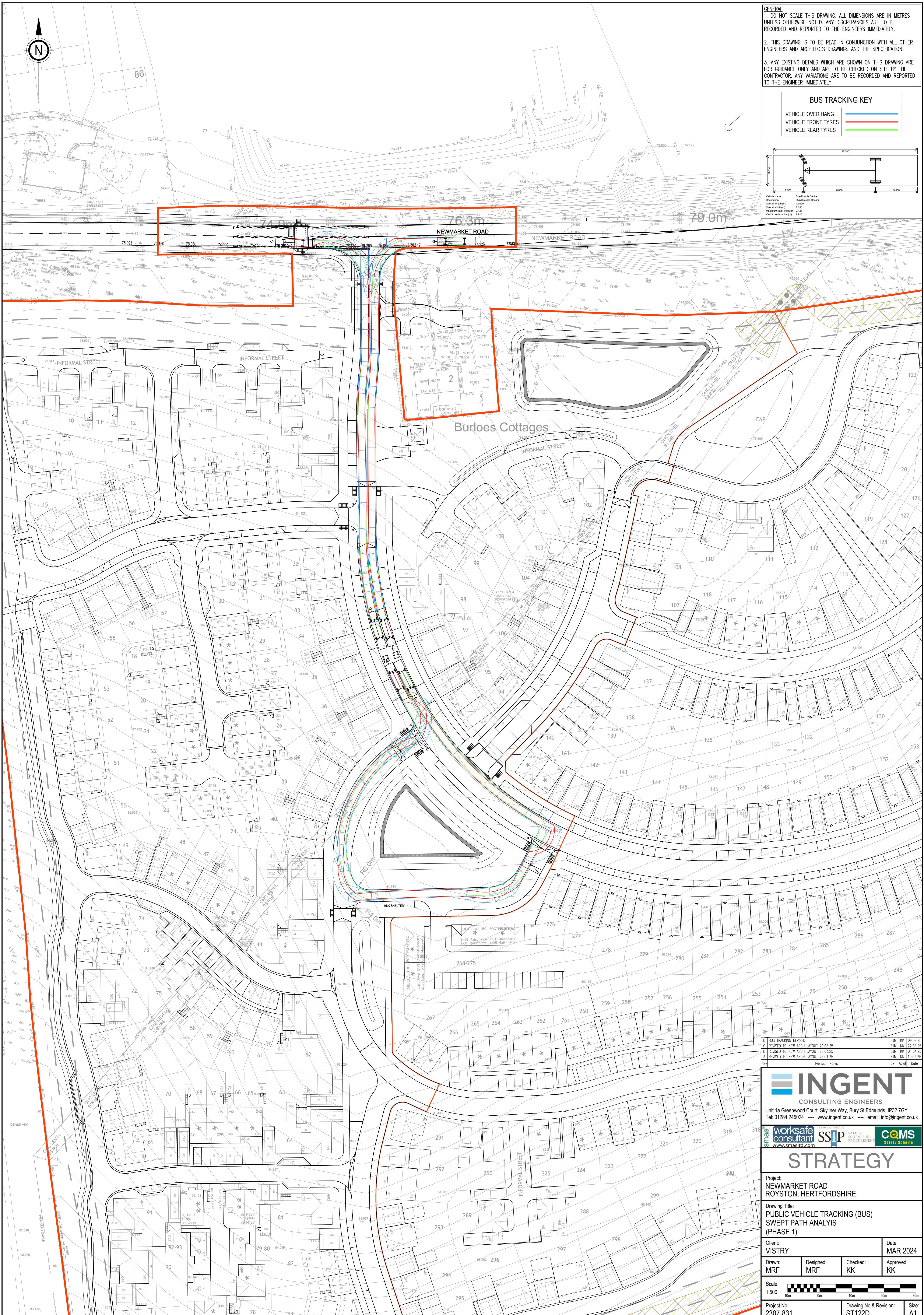
<https://www.hertfordshire.gov.uk/media-library/documents/highways/north-central-gtp/ncgtp-interventions-paper-final-acc..pdf>

Signed

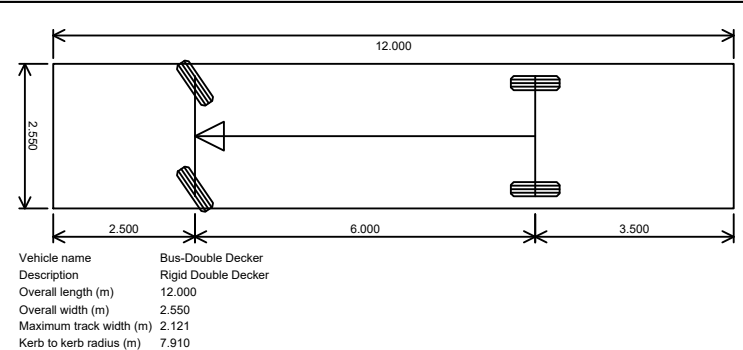
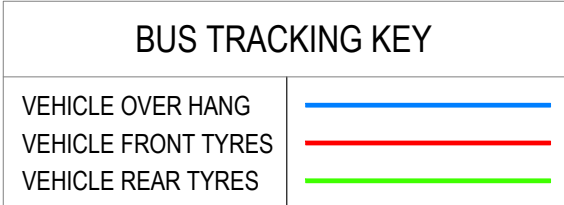
Adrian McHale

20 August 2025

APPENDIX C – BUS TRACKING ANALYSIS



- GENERAL
1. DO NOT SCALE THIS DRAWING. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED. ANY DISCREPANCIES ARE TO BE RECORDED AND REPORTED TO THE ENGINEERS IMMEDIATELY.
 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER ENGINEERS AND ARCHITECTS DRAWINGS AND THE SPECIFICATION.
 3. ANY EXISTING DETAILS WHICH ARE SHOWN ON THIS DRAWING ARE FOR GUIDANCE ONLY AND ARE TO BE CHECKED ON SITE BY THE CONTRACTOR. ANY VARIATIONS ARE TO BE RECORDED AND REPORTED TO THE ENGINEER IMMEDIATELY.



Vehicle name	Bus/Coach/Truck
Description	Rigid Double Decker
Overall length (m)	12,000
Overall width (m)	2,500
Maximum wheel width (m)	2,500
Kerb to kerb width (m)	7,500

APPENDIX D - ACCIDENT DATA

Personal Injury Road Traffic Collisions
Royston

Legend

CollisionsBySeverity

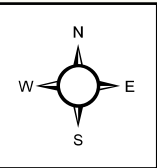
01/01/2020 to 31/12/2024

Fatal

Serious

Slight

Buff27543



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You are not permitted to copy, sub-licence, distribute or sell any of this data to third parties in any form.

Ref: 27543			
	Prepared	Checked	Approved
Initials	LM	LM	
Date	25/09/2025	25/09/2025	

Short Non Confidential Accident Report

Date Produced: 25-Sep-25

Set Name (if saved) : 27543

Set Total : 8

acc ref:	date: day of week: Time:	Acc Severity: 1st Road: 2nd Road:	parish: district:	speed_limit: jun_detail: jun_control:	weather: light: road_surface:	pedestrian x: spec_conditions: c/way hazard	cwy_type: Num Vehicles:	Casualty Type:	Num Casualties:
2024-411541418	12-Dec-24 Thu 18 06	Slight A10/113 A10/115	NHerts	30mph R/bout Giveaway	Rain Darklit Wet	Npercntr None None	Single 2	Other Vehicle Types	1
A10 Melbourn Road Royston J/w A10 Newmarket Road Rbt									
Easting: 535883		Northing: 240745							
2024-411450258	23-May-24 Thu 08 36	Slight C165/155 5U886/10	NHerts	30mph T Giveaway	Fine Day Dry	Npernox None None	Single 2	Car Users	2
C165 Newmarket Road Royston J/w U886 Studlands Rise									
Easting: 536269		Northing: 240761							
2023-411298727	16-Apr-23 Sun 17 07	Serious A505/571 C165/155	NHerts	70mph T Giveaway	Fine Day Dry	Npernox None None	Dual 2	Motorcyclists	1
A505 Royston Bypass Royston J/w C165 Newmarket Road									
Easting: 537293		Northing: 240964							
2022-411202969	15-Jul-22 Fri 14 38	Serious A505/571 C165/155	NHerts	70mph T Giveaway	Fine Day Dry	Npernox None None	Dual 2	Car Users	4
A505 Royston Bypass Royston J/w C165 Newmarket Road,									
Easting: 537292		Northing: 240962							

Set Name (if saved) : 27543

Page 1 of 2

acc ref:	date: day of week: Time:	Acc Severity: 1st Road: 2nd Road:	parish: district:	speed_limit: jun_detail: jun_control:	weather: light: road_surface:	pedestrian x: spec_conditions: c/way hazard	cwy_type: Num Vehicles:	Casualty Type:	Num Casualties:
2022-411182003	18-May-22 Wed 16 10	Slight A10/115 A10/113	NHerts	30mph R/bout Giveway	Fine Day Dry	Npernox None None	R/bout 2	Motorcyclists	2
A10 Newmarket Road Rbt Royston J/w A10 Melbourn Road									
Easting:	535896	Northing:	240739						
2020-410985732	30-Sep-20 Wed 09 45	Serious C165/150 A10/115	NHerts	30mph R/bout Giveway	Fine Day Dry	Npercntr None None	Single 1	Pedestrians	1
C165 Newmarket Road Royston J/w A10 Melbourn Road Rbt									
Easting:	535908	Northing:	240732						
2020-410952036	01-May-20 Fri 08 10	Slight A10/115 A10/113	NHerts	30mph R/bout Giveway	Fine Day Dry	Nperzebx None None	R/bout 2	Cyclists	1
A10 Newmarket Road Rbt Royston J/w A10 Melbourn Road									
Easting:	535879	Northing:	240739						
2020-410929792	07-Feb-20 Fri 08 59	Slight C165/150 5U874/10	NHerts	30mph T Giveway	Fine Day Wet	Npernox None None	Single 2	Car Users	1
C165 Newmarket Road Royston J/w U874 Priory Close									
Easting:	536008	Northing:	240732						
Total Accidents:			8	Set Name (if saved) : 27543					

APPENDIX E – TRAVEL PLAN

Land Surrounding Burloes Cottages Newmarket Road, Royston

Travel Plan

24 September 2025

Prepared for
Vistry Group Plc



Prepared for:
Vistry Group Plc

Prepared by:
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Project Number: 23324
Doc Number: TP01

Rev	Issue Purpose	Author	Checked	Reviewed	Approved	Date
	Final	ML	AKS	ML	AKS	11/04/24
A	Final	ML	AKS	ML	AKS	19/04/24
B	Final	ML	AKS	ML	AKS	24/09/25

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Appendices

Appendix A – Illustrative Framework Plan

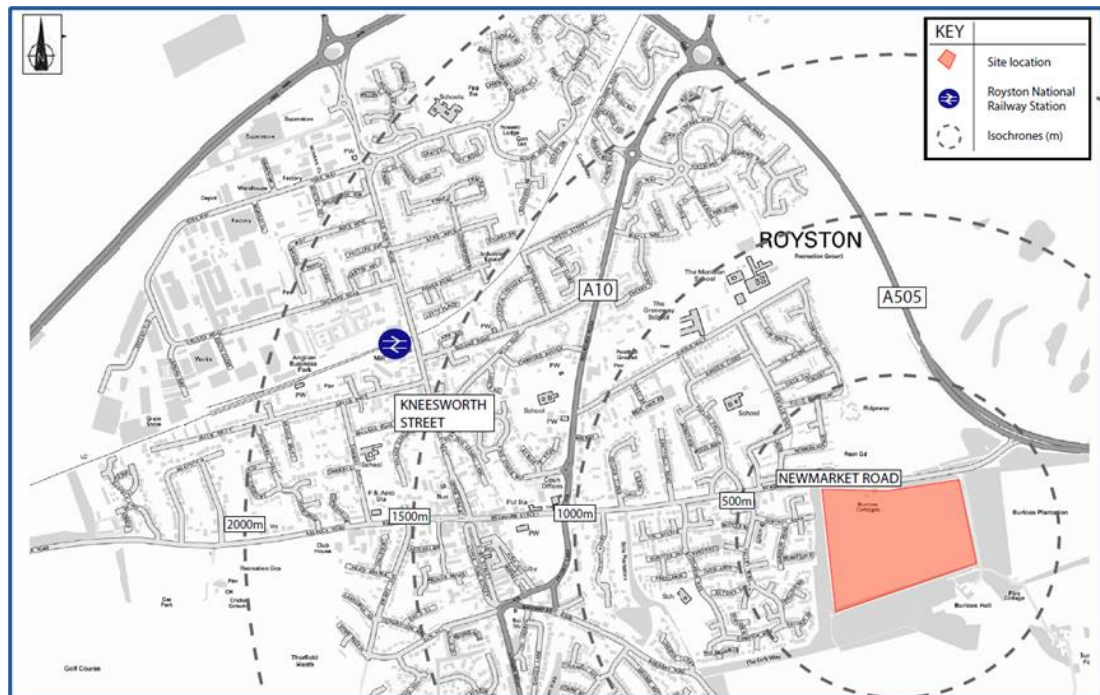
Appendix B – Full application Extent

1. Introduction

1.1 Preamble and Site Location

- 1.1.1 Markides Associates (MA) has been instructed by Vistry Group ('the Applicant') to prepare a Residential Framework Travel Plan (TP) in support of their planning application for a residential development proposal for a scale of development of up to 325 residential dwellings at a site located south of Newmarket Road, Royston.
- 1.1.2 The site is located within the authoritative boundary of North Herts District Council (NHDC), with Hertfordshire County Council (HCC) being the relevant local highway authority.
- 1.1.3 The site, referred to as '*Land surrounding Burloes Cottages*,' is undeveloped agricultural land, located south of Newmarket Road, with location indicated below at **Figure 1.1**

Figure 1.1 Site Location Plan



- 1.1.4 **Figure 1.1** confirms the site is bound to the north by Newmarket Road from which it is accessed. The site is otherwise surrounded by woodland, beyond which is Burloes Lane to the east, a private road that provides access to the Burloes Estate, which lies south of the site. Beyond the woodland to the west, which falls within the ownership of NHDC, there is an established residential community, centred around Valley Rise and Studlands Rise and accessed from Newmarket Road.

- 1.1.5 The site accommodates an undulating topography, with only the central part of the site being level with Newmarket Road, with the site rising to the west and falling to the east along the Newmarket Road frontage.

1.2 Development Proposals

- 1.2.1 The Applicant is preparing a new application, to be submitted in hybrid form, with description of development as follows:

Hybrid application for residential development of up to 325 dwellings comprising: (a) full planning application for Phase 1 comprising 106 dwellings and associated infrastructure including access from Newmarket Road, emergency and pedestrian/cycle access from Burloes Hall Drive, internal highways, public open space, landscaping and drainage and (b) outline application for up to 219 dwellings and associated infrastructure with all matters reserved apart from primary means of access and emergency and pedestrian/cycle access from Burloes Hall Drive.

- 1.2.2 Together, the full application extent and outline application extent are indicated on an illustrative Framework Plan, attached at **Appendix A**, with extract below at **Figure 1.2**.
- 1.2.3 The full application extent, which primarily covers the western part of the site, encompasses the proposed site access from Newmarket Road, adjacent signalised pedestrian crossing, internal spine road that encompasses a bus turning loop and internal road and footpath network, including connections with the established permissive footpath network to the west of the site that connects with the established footway network within the adjacent residential estate via Aintree Road.
- 1.2.4 The existing Burloes Cottages are retained, though the proposals remove the existing vehicle crossover from Newmarket Road, with access to the cottages achieved via a new crossover accessed from the proposed spine road.
- 1.2.5 The full application extent also encompasses the emergency access from Burloes Lane and the associated works to Burloes Lane to facilitate construction vehicle access. The full application extent is attached at **Appendix B**, with extract below at **Figure 1.3**.
- 1.2.6 The outline extent is supported by a series of parameter plans, which identify the extent of development within the remaining part of the site.

Figure 1.2: Illustrative Framework Plan (Source: McBains Drawing ROY01-MCB-ZZ-ZZ-DR-A-0140-D5-P7_Illustrative Framework)



Figure 1.3: Full Application Extent Plan (Source: McBains Drawing ROY01-MCB-ZZ-ZZ-DR-A-0230-D5-P2-Site Layout Plan)



1.3 TP Policy Requirement

- 1.3.1 The National Planning Policy Framework (NPPF) states that all developments which generate significant amounts of movement should provide a TP, defining it as:

'A long-term management strategy for an organisation or site that seeks to deliver sustainable transport objectives and is regularly reviewed.'

- 1.3.2 *Policy 5: Development Management* of HCC's Local Transport Plan 4 (2018), states that, HCC will work with development promoters and the district and borough councils to:

- Ensure the location and design of proposals reflect the Local Transport Plan Transport User Hierarchy and encourage movement by sustainable transport modes and reduced travel demand; and
- Require a Travel Plan for developments according to the requirements of the county council's Travel Plan Guidance

1.4 TP Aims and Objectives

- 1.4.1 The aim of this TP is to ensure management strategies and infrastructure is in place to support sustainable travel choices for residents at first occupation with focus given to the most sustainable forms of travel, walking and cycling. This will help to remove any immediate reliance on travel by car and in particular single occupancy (SOV) travel.

- 1.4.2 The headline objectives of this TP are therefore to:

- Support a low proportion of SOV travel to / from the site for residents, in favour of the most sustainable forms of travel, walking and cycling;
- Ensure residents are aware of the range of sustainable travel options that are available to access the site; and
- Encourage car sharing.

- 1.4.3 The success of the TP will be measured primarily against modal split targets across a proposed 5-year life time.

- 1.4.4 The TP will help to deliver a number of benefits, including:

- Availability of an improved range of travel choices;
- Health benefits for residents walking and cycling more; and
- More attractive environments around developments through supporting low car parking provision

1.5 TP Structure

1.5.1 Following this introduction section, the TP is structured as follows:

- **Section 2** details the baseline existing transport infrastructure that will be available from the site, which will influence the measures that will be adopted in the Full TP strategy;
- **Section 3** details the proposed development;
- **Section 4** sets out baseline modal splits prior to the implementation of the TP;
- **Section 5** details the TP Strategy, including responsibilities, implementation, marketing, monitoring and reporting, handover and funding;
- **Section 6** details the proposed measures that will be implemented to support sustainable travel; and
- **Section 7** details targets and performance indicators against which the success of the TP will be measured.

1.5.2 The planning application is also supported by the submission of a Transport Assessment (TA), which assesses the traffic and transportation issues associated with the development proposal. The TA estimates the travel demands generated by the scale of development and assesses how these demands can be accommodated within the existing transport infrastructure. Much of the content of the TA, in terms of the review of existing transport infrastructure, the description of the proposed development and baseline trip generation calculations has been used to inform this TP.

2. Existing Situation

2.1 Site Location

- 2.1.1 The site is located on land south of Newmarket Road, approximately 1.5km east of Royston town centre, with a frontage along Newmarket Road of approximately 430m in length.
- 2.1.2 The site is currently used for agricultural purposes, but also accommodates two semi-detached cottages that are located centrally along the site frontage, with an established vehicular access from Newmarket Road. These cottages will be retained. The associated access to these properties will, however, be amended so that they are served from the site's internal access roads. This will ensure that there is only one vehicular access point onto Newmarket Road in this location, addressing any concerns related to junction spacing.
- 2.1.3 The site is bound to the north by Newmarket Road from which it is accessed. The site is otherwise surrounded by woodland, beyond which is Burloes Lane to the east, a private road that provides access to the Burloes Estate, which lies south of the site. Beyond the woodland to the west, which falls within the ownership of NHDC, there is an established residential community, centred around Valley Rise and Studlands Rise and accessed from Newmarket Road.
- 2.1.4 The site accommodates an undulating topography, with only the central part of the site being level with Newmarket Road, with the site rising to the west and falling to the east along the Newmarket Road frontage. These topographical constraints influenced the vehicular access strategy adopted as part of the outline planning application.

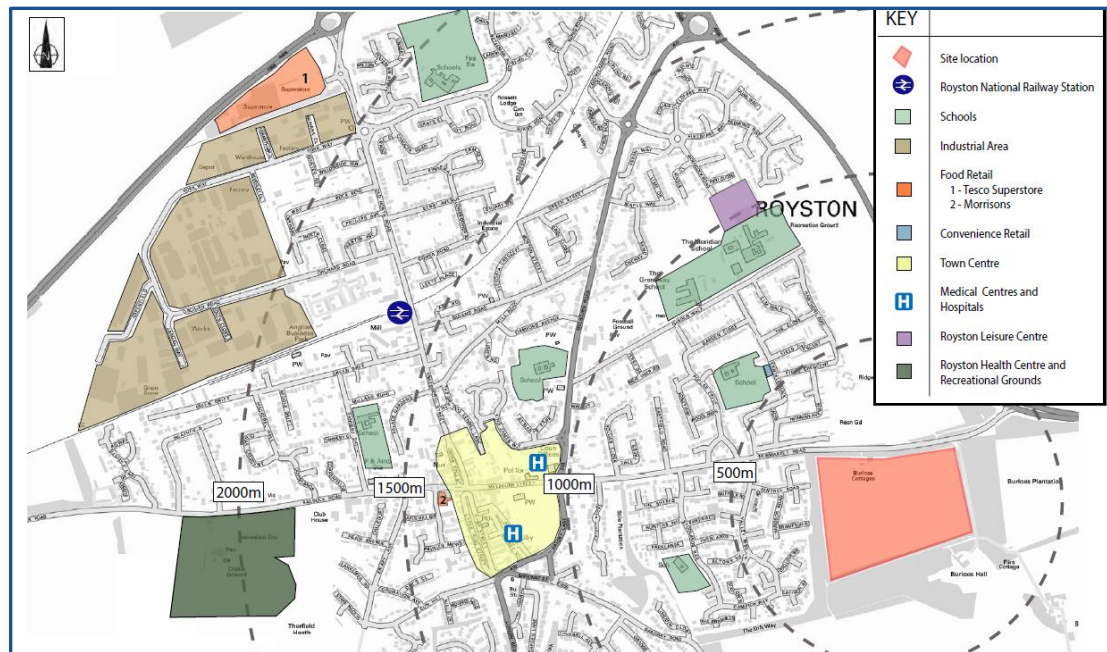
2.2 Accessibility

- 2.2.1 The site benefits from being located within close proximity of a range of social infrastructure that acts as typical trip attractors for a residential land use, including education, food retail, leisure and health land uses, ensuring residents would not be wholly reliant on travel by private car to access essential goods and services.
- 2.2.2 Examples of this social infrastructure, and their associated walk distance from the centre of the site, are detailed below in **Table 2.1** and indicated on **Figure 2.1**.

Table 2.1: Walk Distance to Trip Attractors from Edge of Site

Attractor Land Use	Site	Assumed Travel Route	Walk Distance from the Centre of the site	Cycle Time
Primary School	Icknield Walk First School (4-9)	Newmarket Road / Poplar Drive	950m / 12 minutes	2 mins
Middle/Secondary School	Greneway Middle School (9-13)	Newmarket Road / Recreational Grounds / Icknield Walk / Garden Walk	1100m / 14 minutes	3 mins
	Meridian Secondary School (13-18)	Newmarket Road / Recreational Grounds / Icknield Walk / Garden Walk	1100m / 14 minutes	4 mins
Food Retail	Morrisons	Newmarket Road / Melbourn Street / Baldock Street	1600m / 20 minutes	4 mins
	Icknield stores	Newmarket Road / Recreational Grounds / Icknield Walk	800m / 10 minutes	2 mins
	Tesco express	Newmarket Road / Priory Lane / Market Hill	1500m / 19 minutes	6 mins
Health	Royston Health Centre	Newmarket Road / Melbourn Street	1200m / 15 minutes	3 mins
	Lloyds pharmacy	Newmarket Road / Melbourn Street / King Street	1400m / 18 minutes	6 mins
Leisure	Royston Leisure Centre	Newmarket Road / Poplar Drive / Garden Walk / Melbourn Road / Maple Way / Woodcock Road	1960m / 24 minutes	5 mins
	Royston Town Football Club	Newmarket Road / Poplar Drive / Garden Walk	1500m / 19 minutes	4 mins
	Royston Town Centre	Newmarket Road / Melbourn Street / King Street	1500m / 19 minutes	4 mins
Public Transport	Royston National Rail Station	Newmarket Road / Melbourn Street / Kneesworth Street	2100m / 26 minutes	7 mins
	Royston Bus Station	Newmarket Road / Priory Lane	1500 / 19 minutes	5 mins
	Bus Stop Icknield Walk	Newmarket Road / Icknield Walk	530m / 7 minutes	1 min
Employment	Orchard Road Industrial Estate	Newmarket Road / Melbourn Street / Kneesworth Street / Old North Road / York Road	2700m / 34 minutes	9 mins

Figure 2.1: Site Accessibility



- 2.2.3 The proximity demonstrated in **Table 2.1** ensures that these trip attractors can be accessed by modes other than the private car and realistically on foot by most able-bodied residents, thereby reflecting fundamental requirements of national, county and local planning policy for creating sustainable communities. The site location is therefore appropriate for residential development.
- 2.2.4 It is acknowledged that, for some residents, some of these walk distances maybe excessive. In this regard, the existing 'Town Service' circular bus route (16) provides an alternative means of access, which the development proposals are intending to accommodate.

2.3 Pedestrian Infrastructure

- 2.3.1 Along Newmarket Road, west from the junction with the A505, there is no footway provision along the southern side of Newmarket Road until Valley Rise, and therefore along the full site frontage.
- 2.3.2 Along the northern side of the carriageway there is also no footway provision until the Burloes Lane junction where a narrow 0.75m footway commences, which continues west toward Icknield Walk. Opposite the existing cottages access the footway widens to approximately 1.2-1.5m, although vegetation has encroached over the back of footway, reducing the effective width in places. Approximately 80m west of the cottages access, the footway narrows again to approximately 1m wide, adjacent to where a roadside verge commences. At this location, the back of footway is generally level with the recreation ground, located to the rear, which is understood to fall within the ownership of NHDC. Within this area there is currently no formalised connection between the recreation ground and this Newmarket Road footway. The Newmarket Road footway then continues for another 150m, after which the verge ceases and the footway widens to approximately 1.8m up to the junction with Icknield Road.

- 2.3.3 Newman Avenue, a residential cul-de-sac that provides access to the recreation ground, runs parallel with Newmarket Road, and provides an alternative route for pedestrians to access the wider highway network, supported by footway provision on the northern side of the carriageway. There is currently no formalised connection between Newmarket Road and Newman Avenue.
- 2.3.4 West of Valley Rise there are footways on both sides of Newmarket Road measuring between 1-1.5m in width. There is also a pedestrian crossing in-between Poplar Drive and Wheatfield Crescent which would be used primarily at School peak times due to Icknield Walk First School located on Poplar Drive to the north west of the site.
- 2.3.5 The wooded area immediately west of the site, Bury Plantation, is currently used recreationally, with a number of tracks evident, although these are not formal Public Rights of Way. An informal crossing location on Newmarket Road links the informal track with similar on the northern side of the carriageway, although visibility in this location is obscured by a crest in the carriageway to the west and is not therefore a safe crossing point.
- 2.3.6 There are then wider recreation routes surrounding the site, including Icknield Way, which runs east/west along the northern edge of Newmarket Road, before crossing to the southern side of Newmarket Road at the Burloes Lane junction.

2.4 Cycle Infrastructure

- 2.4.1 There are currently no formal cycle routes that link with the site, although the residential roads to the north are conducive to cycling. The nearest cycle route is located on Poplar Drive approximately 620m to the north west of the Site. This cycle route links to the northern residential part of Royston offering connections to local facilities, schools, and Royston Rail Station. These local cycle routes link to the A10 cycle route which travels northwards from Royston and offers a traffic free route linking to Melbourn which runs parallel to the A10.
- 2.4.2 There is an on-street cycle route accessible on Briary Lane approximately 1.3km to the west of the Site. This provides access to a wider circular cycle network linking Therfield, Reed and Shaftenhoe End.

2.5 Public Transport

Rail

- 2.5.1 Royston National Rail Station is located approximately 1.5 miles walk distance from the site, although it is also accessible via the existing circular bus route through the town and has secure cycle parking and car parking on-site. Royston Station offers access to Great Northern and Thameslink services between London King's Cross/St Pancras and Cambridge, with Thameslink services continuing through to London Bridge, Gatwick and Brighton.
- 2.5.2 The rail services and frequency available from Royston Station is summarised in **Table 2.2**, confirming that Royston benefits from a relatively frequent service toward major regional employment centres.

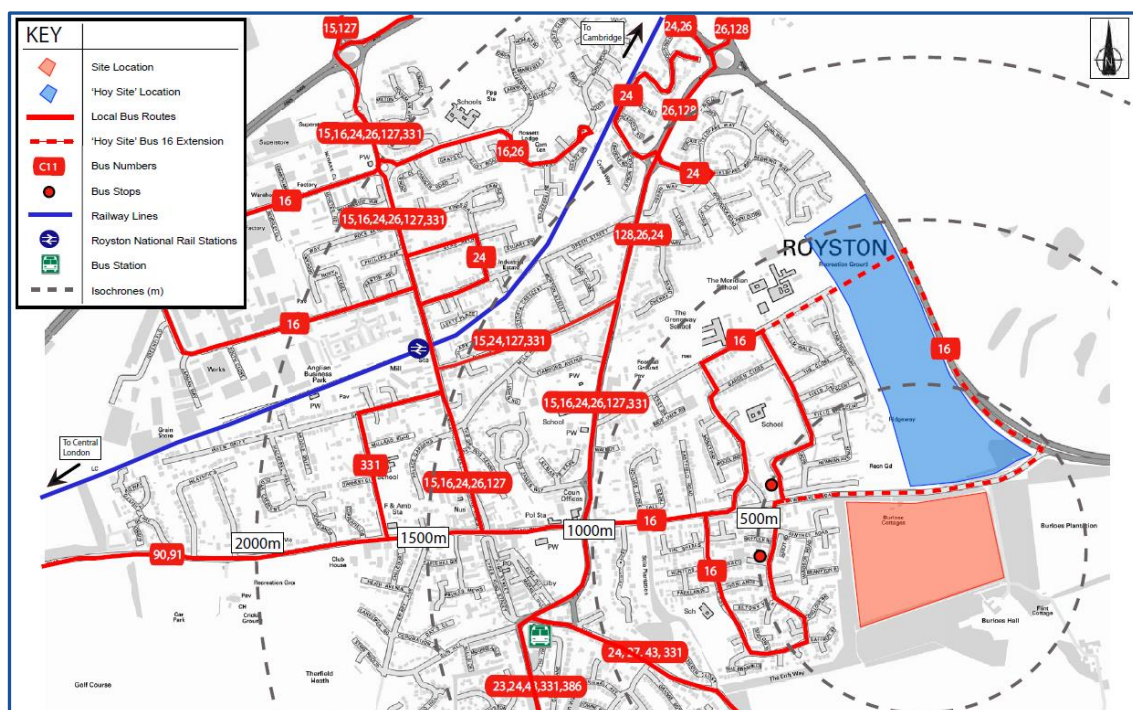
Table 2.2 Rail service frequency

Destination (and vice versa)	Weekday Peak Hours	Duration of Journey (Approximately)
To Cambridge	6	14-20 mins
To London Kings Cross/St Pancras	5	39-52 mins

Public Bus

- 2.5.3 The closest bus stops to the site are located on Icknield Walk, approximately 300m walk distance from the edge of the site and 625m from the site centre. These bus stops accommodate the Royston circular route 16, which operates Monday to Saturday, with between 1-2 services per hour between 07.00hrs and 18.00hrs.
- 2.5.4 The service provides access to Royston National Rail Station, Orchard Road industrial estate and the town centre, offering interchange opportunities with other bus services that operate via the town centre, with existing routes indicated on **Figure 2.2**.

Figure 2.2: Public Transport



- 2.5.5 It is understood that the 'Hoy' development site, which is currently being delivered north of Newmarket Road, indicated on **Figure 2.2** above, was to fund the extension of the existing bus route to allow it to enter that site from the A505, continuing east along Newmarket Road toward the A505 junction, rather than left turning into Icknield Way. This diversion offers the

potential for the service to be diverted within the subject site and increasing the site's accessibility, an opportunity that will be accommodated within the proposed site layout.

2.6 Local Highway Network

- 2.6.1 Newmarket Road is a 7.3m wide single carriageway road, providing a link between the A505 to the east and Royston town centre, where it forms a roundabout junction with the A10 and Melbourn Street.
- 2.6.2 Along the site frontage the speed limit of Newmarket Road changes from National speed limit (60mph) to 40mph adjacent to the existing site access. Moving west, the speed limit then further reduces to 30mph immediately east of the junction with Icknield Walk.
- 2.6.3 The A505, which bypasses the town centre and runs between the M11 and A1(M), duals as it passes Newmarket Road, with no right turn entry into Newmarket Road for southbound vehicles on the A505.
- 2.6.4 Approximately 2km north of the junction with Newmarket Road, the A505 forms a roundabout junction with the A10 Melbourne Way, which serves Cambridge to the north. A further 1.5km west and the A505 forms a roundabout junction with the A1198/Old North Road. Both the A10 and A1198 Old North Road provide access into Royston town centre.
- 2.6.5 From Icknield Walk, west of the site, Newmarket Road rises, with a crest located in line with the western site boundary. The gradient then falls toward the site access, before rising again toward the eastern site boundary, which continues to a crest approximately 80m east of Burloes Lane, after which it falls again toward the A505 junction.

- 3.2.2 The access is located immediately west of the existing cottages, roughly half way along the site frontage, within the 40mph section of Newmarket Road.
- 3.2.3 The junction accommodates 10m radii, serving a 6.75m wide access road, with this width dictated by the need to accommodate bus access.

3.3 Pedestrian Access

- 3.3.1 The proposals include a signalised pedestrian crossing immediately west of the proposed site access, ensuring safe connectivity with the existing Newmarket Road footway on the northern side of the carriageway.
- 3.3.2 In order to ensure sufficient widths on each side of the crossing the proposals include a minor realignment of the kerbline on each side of the carriageway, reflected in the access proposals.
- 3.3.3 Pedestrians are then able to continue west toward Royston using the existing footway along Newmarket Road.
- 3.3.4 Should it be considered necessary, the Applicant is willing to contribute toward the delivery of a pedestrian footpath that provides a link from the Newmarket Road footway toward Newmans Road, via the adjacent recreation ground, acknowledging that as this land is not within public highway it is not in their gift to deliver directly. There is a potential alignment with sufficient gap between existing trees to the rear of the Newmarket Road footway and with no significant change in levels where this route could be delivered. The access proposals currently indicate this route as a shared use footway/cycleway.

3.4 Bus Access

- 3.4.1 Pre-application discussions with HCC's PTU as part of a previous application at that site established that bus access is required in order to ensure that each residential unit will be within 400m of a bus route.
- 3.4.2 It is envisaged that the existing circular bus route 16 will access the site as part of its diverted route that will occur in association with the Hoy site, with the route continuing east toward the A505, from which it will access the Hoy site before travelling east toward Royston town centre.
- 3.4.3 The proposals accommodate this via the 6.75m spine road and bus turning loop.

3.5 Car Parking

- 3.5.1 The proposals adopt a parking strategy where each unit is provided with at least two allocated parking spaces, apart from the 2 x one-bedroom maisonettes, which are ground floor wheelchair accessible units, provided with a single blue badge parking space each. A total of 210 allocated spaces are provided for the dwellings.

- 3.5.2 The proposals then include a total of 28 unallocated visitor spaces, a ratio of 0.27 spaces per unit.
- 3.5.3 The proposals therefore include a total of 238 car parking spaces, which is in accordance with adopted parking standards.
- 3.5.4 Electric vehicle charging provision will be provided in accordance with the building regulations Part S.

3.6 Cycle Parking and Access

- 3.6.1 Cycle parking will be provided within the curtilage of each property.
- 3.6.2 The access proposals include the provision of a shared use footway/cycleway from Newmarket Road to Newmans Road via the recreation ground. Off-site highway improvement proposals also include the widening of existing footway provision along Newmarket Road between Icknield Walk and Poplar Drive, which will also allow shared use with cyclists.

4. Baseline Modal Splits Pre-Travel Plan

4.1.1 The 2011 Census Method of Travel to Work data for the ward in which the site is located, Royston Meridian, with this journey purpose assumed to be reflective of all journey purposes, has been used to source Baseline Modal Splits, against which the success of the TP will be measured. 2021 Census data has not been relied upon for mode splits given the influence on Covid affecting journey patterns at that time.

4.1.2 **Table 4.1** below summarises these mode splits.

Table 4.1 Baseline Modal Split Proportions for Royston Meridian ward

Mode of Travel	Proportion
Underground, Metro, Light Rail, Tram	0%
Train	10%
Bus, Minibus or Coach	1%
Taxi	0%
Motorcycle, Scooter or Moped	0%
Car Driver	71%
Passenger in a Car or Van	4%
Bicycle	2%
On Foot	10%
Other	0%
Total	100%

4.1.3 **Table 4.1** therefore confirms a relatively high proportion of trips being reliant on travel by private car.

5. Framework TP Strategy

5.1 Introduction

- 5.1.1 A TP is a practical management tool, rather than a static document, that sets out 'active' initiatives throughout an agreed TP lifetime. It requires infrastructure and management initiatives to be in place before implementation, an implementation strategy, a monitoring strategy that can assess the success of the TP and respond to site occupier concerns, a reporting strategy so that a path of communication with the local highway authority is set up and a funding strategy.
- 5.1.2 This chapter sets out the key elements of the wider strategy of the TP.

5.2 Appointing a TP Coordinator

- 5.2.1 The successful implementation of this TP will require active participation from all occupiers of the site, which will be fronted by a TP Coordinator (TPC), who will ultimately be responsible for the implementation of the TP at a site wide level.
- 5.2.2 The site wide assets are likely to be managed by an appointed estate management company and it is envisaged that the role of the TPC can be included within this remit, fulfilled within an existing role.
- 5.2.3 It is proposed that the TPC role and responsibilities will be assigned 3 months before initial occupation of the residential units.
- 5.2.4 Once appointed, the TPC will contact NHDC and HCC to confirm the contact details and allow a communication channel to be formulated. A secondary contact will also be provided to mitigate potential personnel changes in the future.
- 5.2.5 General responsibilities of the TPC at the application site can be summarised as follows:
- Ensure that identified physical measures have been implemented during construction;
 - Be the central point of contact for site occupants and NHDC/HCC regarding travel and transport concerns related to the development;
 - Promoting and marketing the TP;
 - Organise travel survey questionnaires;
 - Undertake the monitoring and reporting
 - Providing all users of the site with up-to-date information relating to sustainable travel options as appropriate; and
 - Informing all users of the site of promotional schemes relating to sustainable travel.

- 5.2.6 It is envisaged that the TPC will spend approximately 1 day a week for the first 6 months following occupation, reducing to 1 to 2 days a month thereafter, with additional time needed during the organisation of travel surveys and preparation of monitoring reports.

5.3 Implementation Strategy and Action Plan

- 5.3.1 A staged programme for implementation of the TP strategy is required to ensure consistency and ease the process of introducing the TP.
- 5.3.2 Infrastructure measures, such as pedestrian infrastructure, will be put in place during construction and fit out, with all marketing and informative material available to occupiers at first occupation. This material would be regularly reviewed to ensure it reflects up to date information as part of the monitoring strategy.
- 5.3.3 The anticipated timescales for the TP strategy are summarised in an Action Plan indicated in **Table 5.1**

Table 5.1 Anticipated Timescales Summary

Action	Timing
Consideration of TP by local highway authority	Following planning submission and during consultation period.
Planning condition/S106 detailing required content and strategy for TP	At planning permission
"Hard" measures detailed within TP implemented	During Construction
Appointment of TPC	Three months prior to occupation
TPC responsibilities implemented Preparation of Welcome Pack Set up Webpage Site Notices Formation of stakeholder group Formation of BUG Cycle shop relationship Walking / Cycling events Car Sharing Database	TPC Appointment

Action	Timing
Baseline Travel Survey undertaken at agreed trigger point	Occupation of 100 th unit
Baseline Travel Survey results submitted with revised TP, where necessary, including final targets.	1 month after Baseline Travel Survey
TP, including final targets, approved by local highway authority. Revisions made where necessary to reflect local highway authority comments.	Within 1 month after TP submitted
TP implementation	Ongoing
TRICS (or similar) compliant residential travel surveys undertaken	Annually after the baseline survey for a period of 5 years
Monitoring reports, including revised strategies if necessary submitted to the local highway authority	3 months after TRICS (or similar) surveys undertaken
Applicant TP responsibility discharged	At the end of the 5 year life plan of the Full

5.4 Marketing and Promotion of Travel Information

5.4.1 Marketing and promotion is essential in raising awareness of the existence and aims of the TP. The following section discusses the marketing and promotion measures that will be implemented in detail.

Information for Marketing Offices and Show Homes

5.4.2 An information sheet will be produced and displayed within the on-site marketing office and show homes to promote the TP, including specific initiatives associated with it and its objectives.

Welcome Pack

5.4.3 At first occupation, all new households will be provided with a 'Welcome Pack', which will include the following information:

- Location map of the site;
- A list of key destinations within close proximity of the site;
- A description of distance, time, and (where relevant) routes for travelling from the site to key local destinations on foot, bicycle and public transport;
- Site specific public transport information including rail and bus timetables for local services;
- Details of any site-specific measures such as Bicycle User Group; and
- Details of cycle training

Dedicated Webpage

- 5.4.4 The site website will include a dedicated webpage that references the TP and includes relevant travel information for residents and visitors. The TPC will manage the webpage and will ensure that its content is regularly maintained and updated.

5.5 Monitoring and Reporting

- 5.5.1 Monitoring typically involves assessing the success of the TP against agreed modal split targets, with additional measures to support sustainable travel implemented where these targets are not being achieved.
- 5.5.2 A Baseline Travel Survey will take place within 3 months of the development exceeding its trigger point and will aim to determine the modal split of residents at TP commencement. The trigger point will be occupancy of the 100th unit.
- 5.5.3 The results of the survey will be used to ratify the interim modal split targets, which will be included within a revised TP which will be submitted to NHDC 1 month after completion of the surveys. NHDC will then have 1 month to agree to the content of the TP, including the final modal split targets, after which the TP will be implemented.
- 5.5.4 The monitoring of the TP will occur in the form of a TRICS (or similar) compliant travel survey undertaken annually on the anniversary of the baseline survey, for a period of 5 years.
- 5.5.5 The TPC will be responsible for commissioning the surveys and compiling the results, which will include:
- Mode of travel by travel purpose
 - Journey distance by travel purpose
 - Bicycle User Group (BUG) uptake
 - Pedestrian and cycle infrastructure review
 - Deliveries and servicing activity
 - Qualitative interview
- 5.5.6 Monitoring reports will be circulated to the appropriate officers at NHDC within 3 months of the surveys being undertaken. The monitoring report will include the results of travel surveys and general feedback. The report will include details of measures and initiatives introduced in the past year, plus an outline of planned measures and initiatives that would be implemented in the following year if at all necessary.

5.6 Lifetime and Handover Arrangements

- 5.6.1 It is anticipated that after the 5th year of Full TP implementation, all transport related concerns of site occupiers are likely to have been addressed, at which point the Applicant's responsibility with regards to the TP will cease and additional monitoring and reporting to NHDC will not be required.

5.7 Funding

- 5.7.1 The initial funding of all aspects of the TP, including the introduction of infrastructure measures, employing of stakeholders, monitoring and reporting will be the responsibility of the Applicant, secured through a legal agreement.
- 5.7.2 This responsibility will be maintained for the full life of the TP, until it is discharged, unless an alternative agreement is made with the management company and/or an alternative developer. Should this occur, the transfer of responsibility will be notified to NHDC.

6. Travel Plan Measures

6.1 General TP Measures

- 6.1.1 This section of the document describes the actual TP measures to be implemented. Such measures have been developed specifically with due regard to the transport conditions at the development site, including existing levels of accessibility by sustainable modes of travel.
- 6.1.2 In general, measures can be assumed to fall into one of two categories; namely 'hard measures', such as physical facilities built into the scheme, and 'soft measures' such as promotional activities, marketing and incentives. Both have a part to play in the success of the TP and are discussed below.

6.2 Hard Measures

- 6.2.1 Hard measures represent elements of the scheme designed in from the outset. Their primary role is to facilitate a modal shift by making facilities available to support 'soft' measures. It is the duty of the TPC to monitor the use of 'hard measures' implemented at the site and consider steps to improve them to better support the objectives of the TP.
- 6.2.2 In this case, these measures will encompass residential cycle parking, bus access and turning and the proposed signalised pedestrian crossing and pedestrian improvements.

6.3 Soft Measures

- 6.3.1 Soft measures are those that are implemented during the life of the TP, and which do not represent physical measures as those set out above. They broadly include marketing initiatives and campaigns to promote a shift away from the private car (and indeed other motorised travel) to other, more sustainable modes.

Encouraging Walking

- 6.3.2 Walking will be strongly encouraged as the main mode of travel for shorter journeys or in combination with public transport for longer distance journeys. It will be the TPC's responsibility to encourage residents to walk by:
- Acting as a point of contact for users who may be concerned about the condition of local pedestrian routes and liaise with the highway authority to ensure necessary maintenance / improvements.
 - Organise participation amongst residents in a 'Walking School Bus', by inviting families who live nearby to walk to school, helping them to identify a suitable route to accommodate all participants, and ensuring all supervising adults feel confident / are able to undertake such a role.
 - Organise participation amongst residents in promotional events such as 'Walk to School Week' or 'Walk to Work Week'.

- Provision of information relevant to local pedestrian routes to the nearest facilities and / or public transport nodes.

6.3.3 Information about pedestrian routes and walk distances will be provided via the Welcome Packs.

Encouraging Cycling

6.3.4 The TPC will encourage residents to cycle to and from the application site by:

- Providing information on local cycle routes (including route planning) in the vicinity of the application site.
- Inviting residents to join a Bike User Group (BUG), allowing less experienced cyclists or those who are not confident in their route to gain experience by cycling with more experienced cyclists.
- Using reasonable endeavours to obtain a discount for residents at a local bicycle shop.
- Organising participation in promotional events such as 'Bike to Work Week'.
- Providing and / or promoting Dr Bike maintenance sessions and cycle maintenance training sessions on site.

Encouraging use of Public Transport

6.3.5 The use of public transport will be encouraged in line with the objectives of this TP.

6.3.6 The proposed site layout is designed to accommodate on-site bus access, with a centrally located bus turning area.

6.3.7 The TPC will encourage all users at the site to use public transport by:

- Acting as a point of contact for residents of the site who may have concerns about local public transport services.
- Providing information on public transport stops, routes, timetables, and fares from the application site, including advertising service changes as part of the Welcome Pack discussed below.
- Providing personalised journey planners and if appropriate journey planning facilities.

Managing Car Use – Car Sharing Database

- 6.3.8 The aforementioned webpage will include a dedicated Car Sharing section for residents where they can log their travel patterns and allow them to search for common routes.
- 6.3.9 The TPC will organise an annual car sharing event for on-site residents to promote the concept of car sharing.

Travel Vouchers

- 6.3.10 The Applicant will provide each household on first occupation a travel voucher up to the value of £100, which can be exchanged for bus tickets or cycle equipment purchase, on the basis this forms part of the total S106 contribution expected for transport.

7. Modal Split Targets

7.1 Interim Modal Shift Targets

- 7.1.1 Section 4 identified the likely modal split associated with the Application Site without a TP in place, which was based on 2011 Census data and the TRICS database.
- 7.1.2 The introduction of a range of measures to support sustainable travel and in particular walking and cycling will result in modal shift.
- 7.1.3 Targets for the scale of modal shift against which the success of the TP can be measured need to be SMART:
- Specific
 - Measurable
 - Achievable
 - Realistic
 - Timed
- 7.1.4 Interim modal shift targets for the end of years 1, 3 and 5 after TP approval are set out below in **Table 7.1**.

Table 7.1 Target Yearly Modal Shift

Mode	Baseline	Year 1	Year 3	Year 5
Car Drivers	71%	68%	65%	61%
Walk	10%	10%	11%	12%
Cycle	2%	3%	4%	5%
Public Transport	11%	12%	14%	15%
Car Passenger	4%	5%	6%	7%

- 7.1.5 Following the baseline travel survey, these interim modal shift targets will be revised to reflect the site and resident specific travel characteristics.
- 7.1.6 Revised targets will be included within the TP that will be submitted to NHDC 1 month after the survey is complete, for agreement or for revision where necessary.

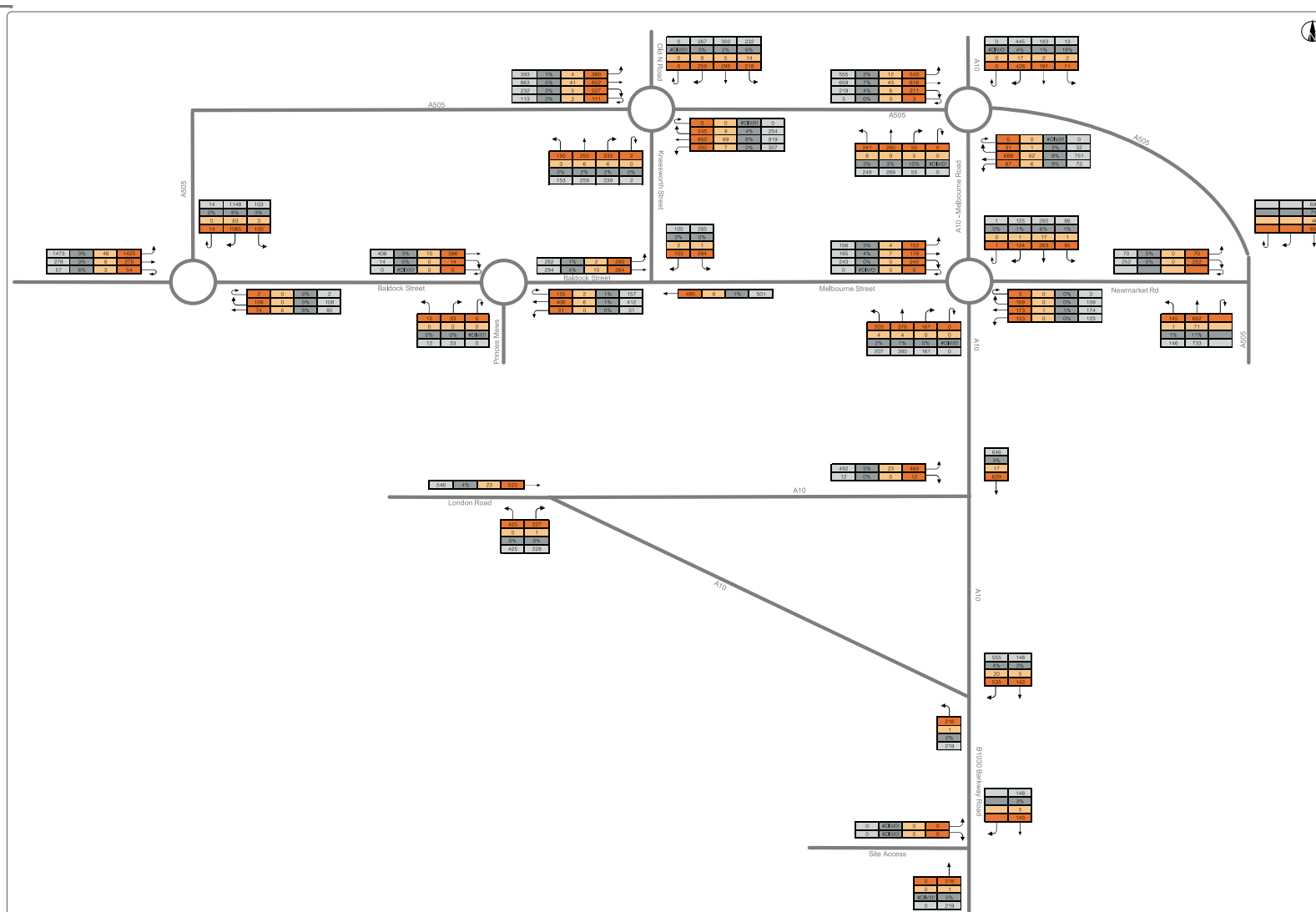
8. Securing the Travel Plan

- 8.1.1 It is envisaged that the TP will be secured via a planning obligation contained within any S106 Agreement.
- 8.1.2 It is acknowledged that an HCC Evaluation and Support fee of £1200 per year will be secured as part of this obligation, for a period 5 years after full occupation.

APPENDIX F - 21/00765/OP TRAFFIC FLOW DIAGRAMS

APPENDIX E

Traffic Flow Diagrams



NOTES

LEGEND



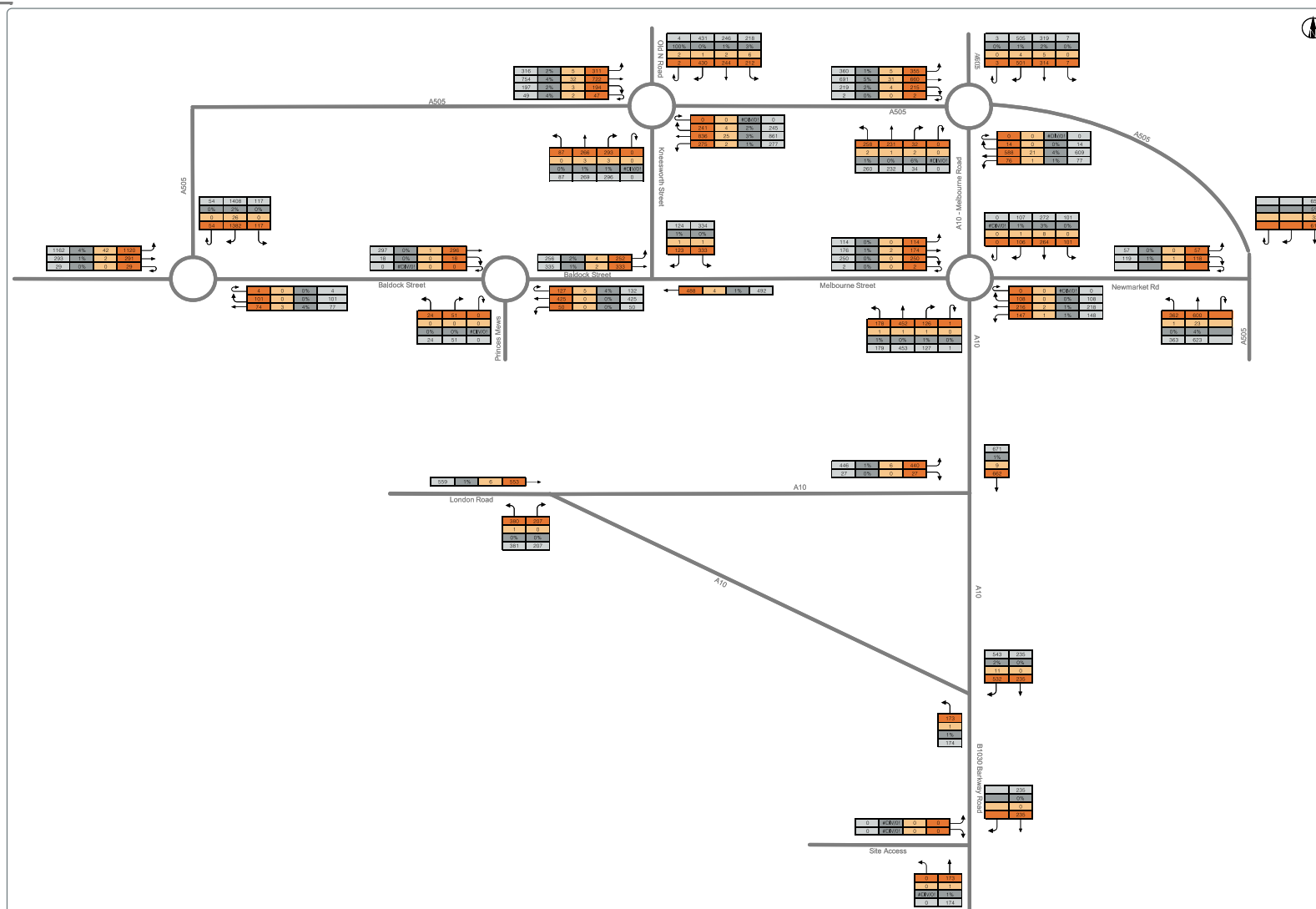
Bullseye Homes
Land north of Flint Hall, Royston

Figure 1
2024 Baseline Figures - AM Peak Hour (0745 - 0845)
January 2025

PREPARED:
MM

CHECKED:
SS

mode
transport planning



NOTES

LEGEND

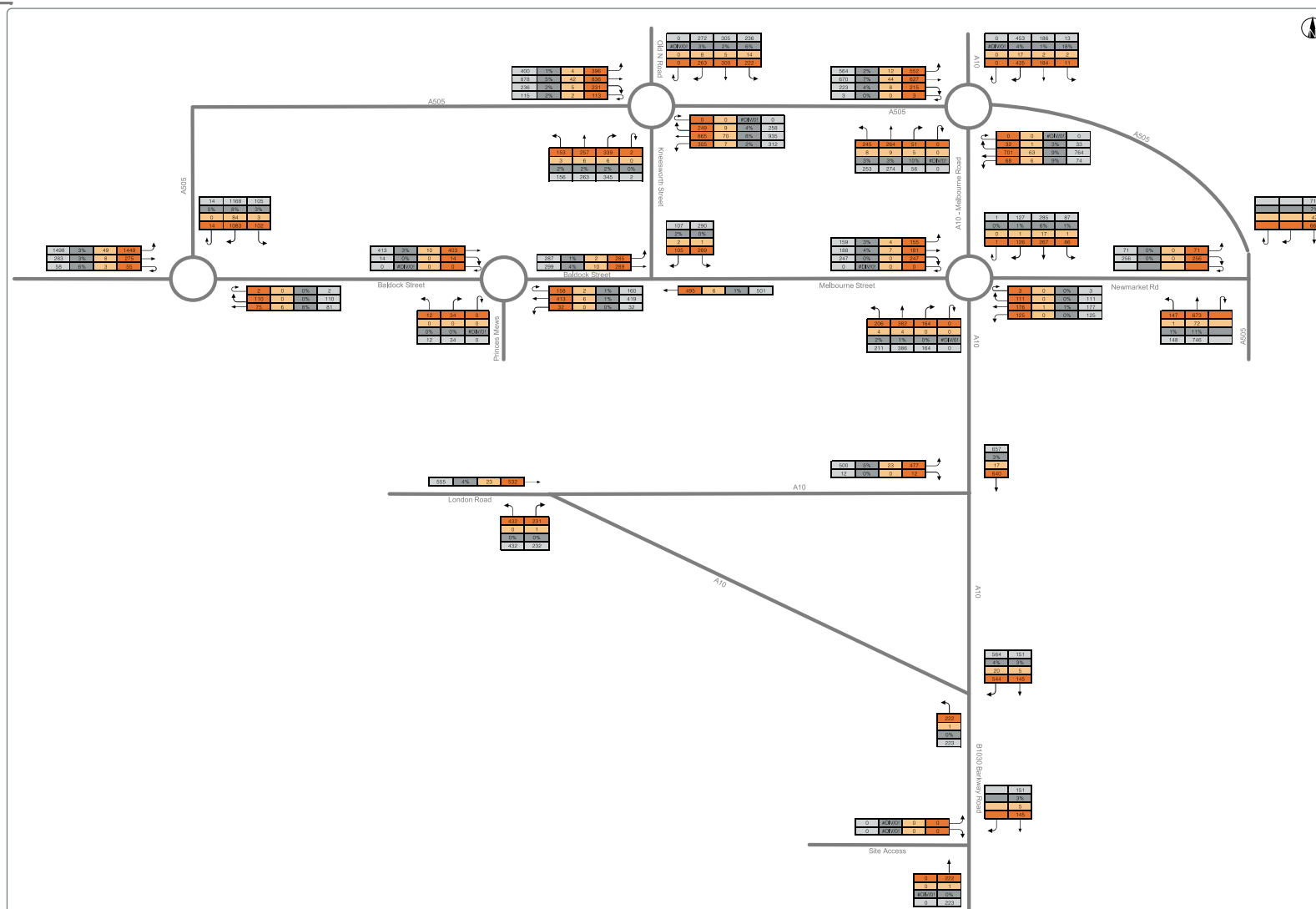
Total Vehicles	
Total HGV	
% HGV	
PCU	

Bullseye Homes
Land north of Flint Hall, Royston

Figure 2
2024 Baseline Figures - PM Peak Hour (16:00 - 17:00)
January 2025

PREPARED: NM
CHECKED: SS





Growth Factor
1.0171

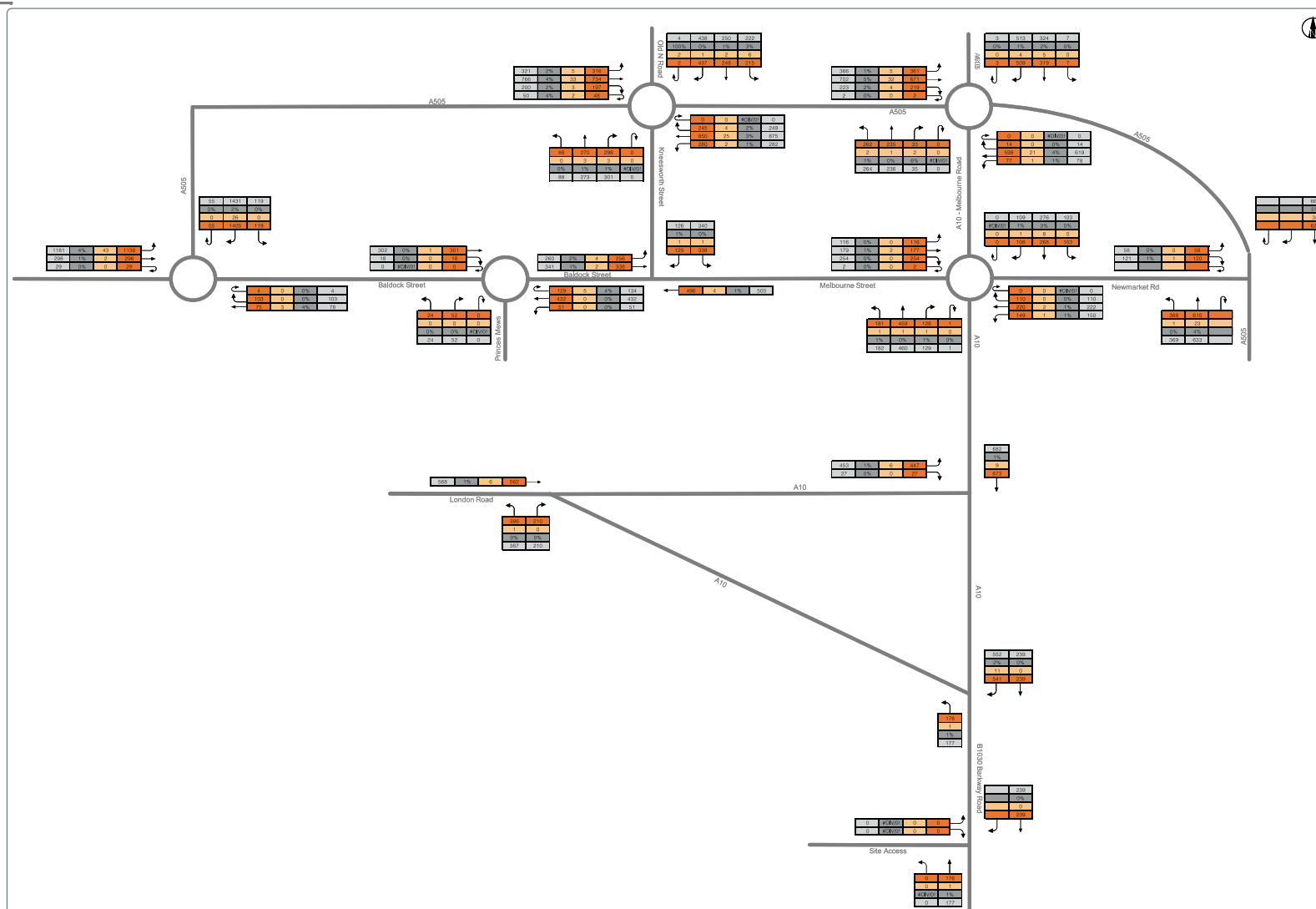
Bullasystems
Land north of Flint Hall, Royston

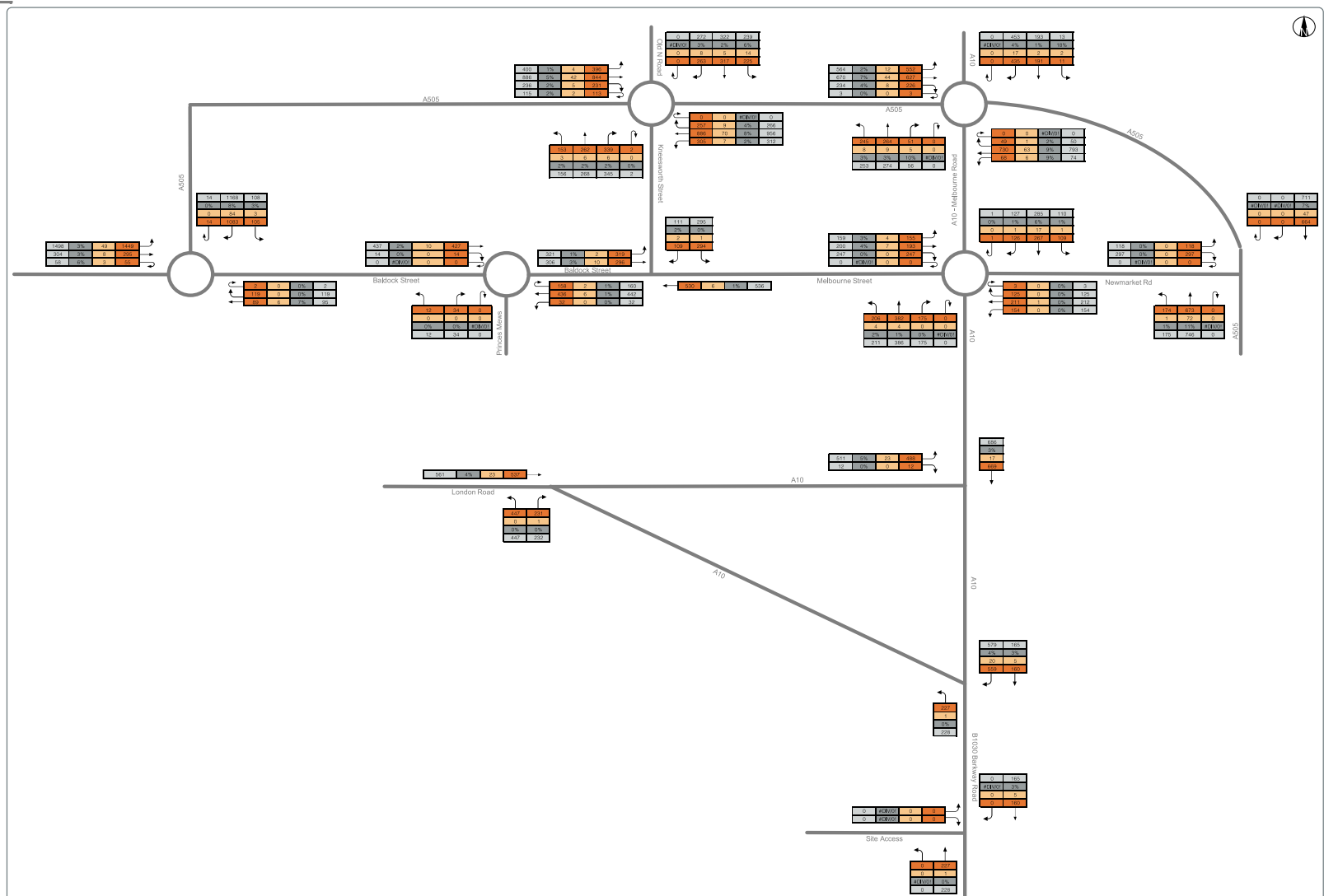
Figure 3
2027 Future Year - AM Peak Hour (0745 - 0845)
January 2025

PREPARED:
MM

CHECKED:
SS

mode
transport planning





NOTES

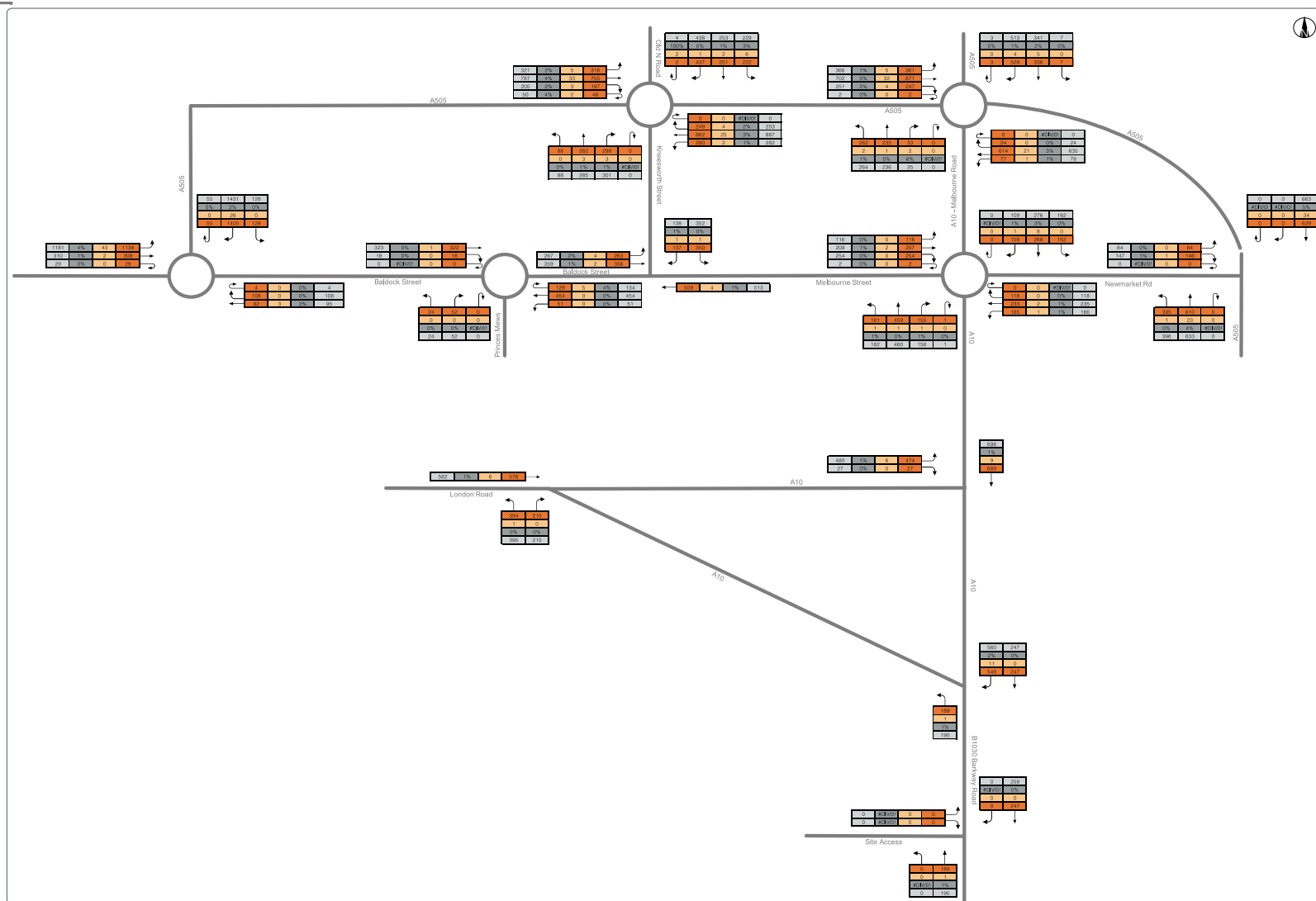
LEGEND

Bulbsey Homes
Land north of Flint Hall, Royston

Figure 5
2027 Future Year - Committed Development - AM Peak Hour (0745 - 0845)
January 2025

PREPARED: 184
CHECKED: SS

mode
transport planning



NOTES

LEGEND



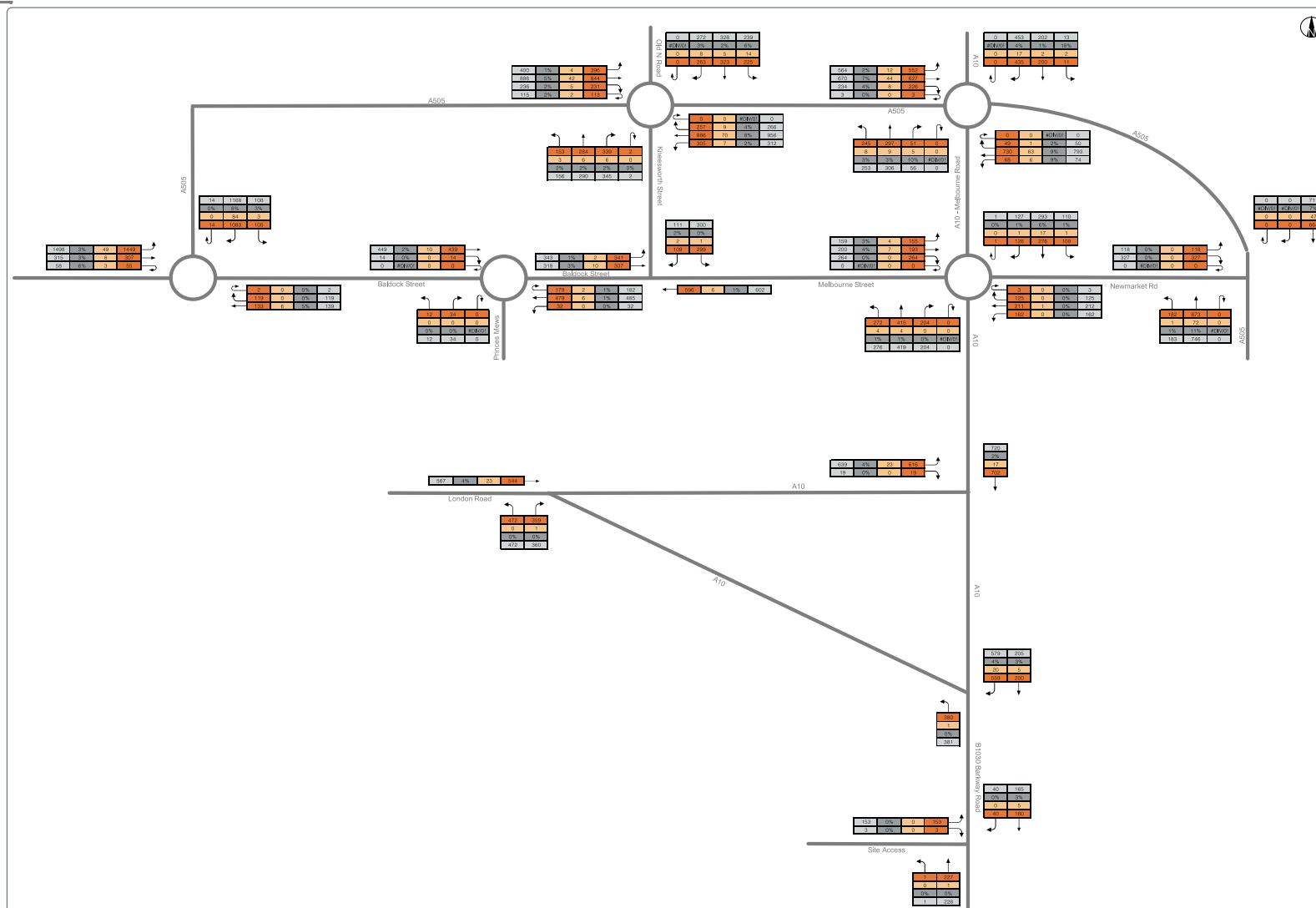
Bulbway Homes
Land north of Flint Hall, Royston

Figure 6
2027 Future Year + Committed Development - PM Peak Hour (16:00 - 17:00)
January 2025

PREPARED
MM

CHECKED
SS

mode
transport planning



NOTES

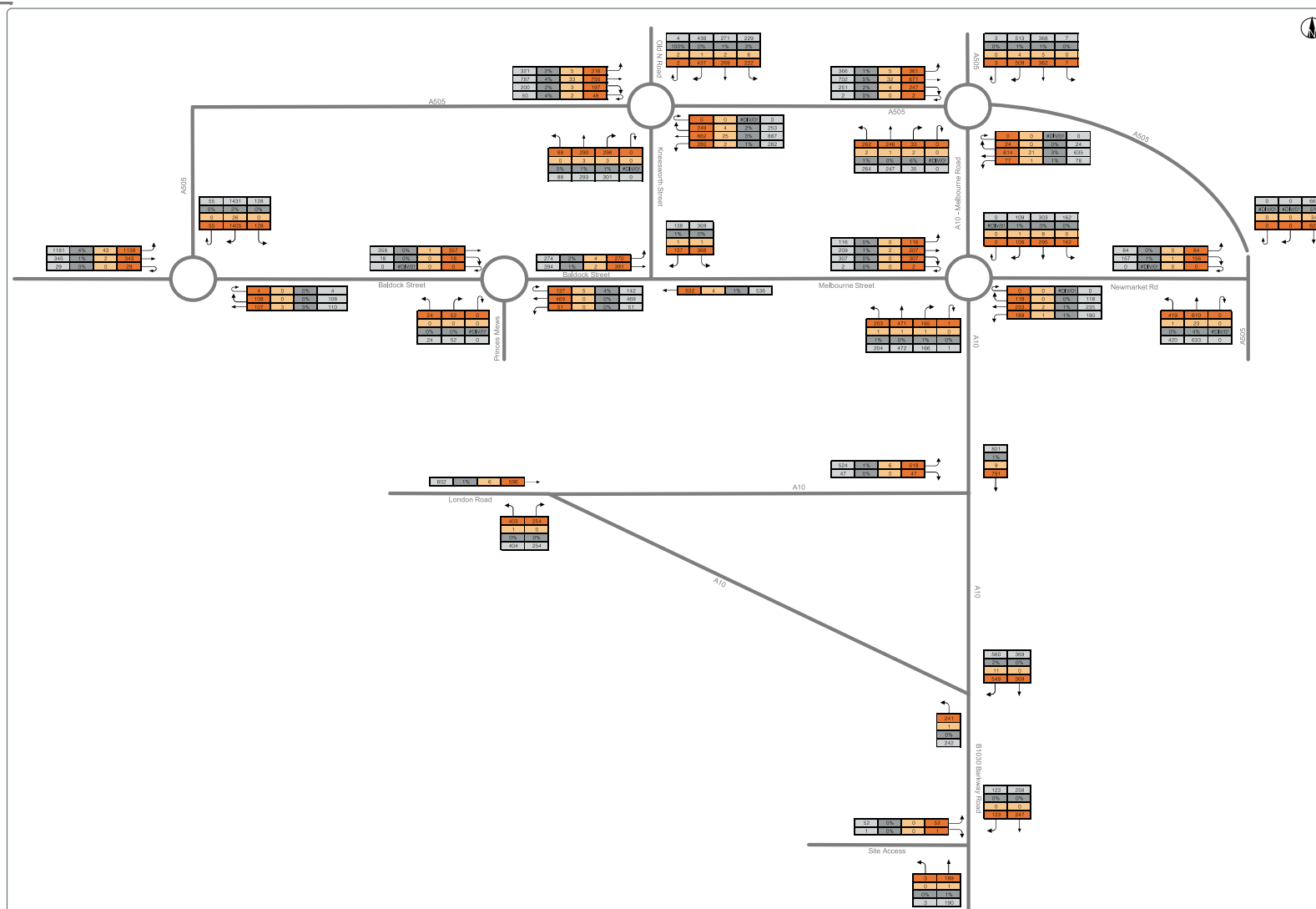
LEGEND

Bullseye Homes
Land north of Flint Hall, Royston

Figure 7
2027 Future Year + Committed + Development - AM Peak Hour (0745 - 0845)
January 2025

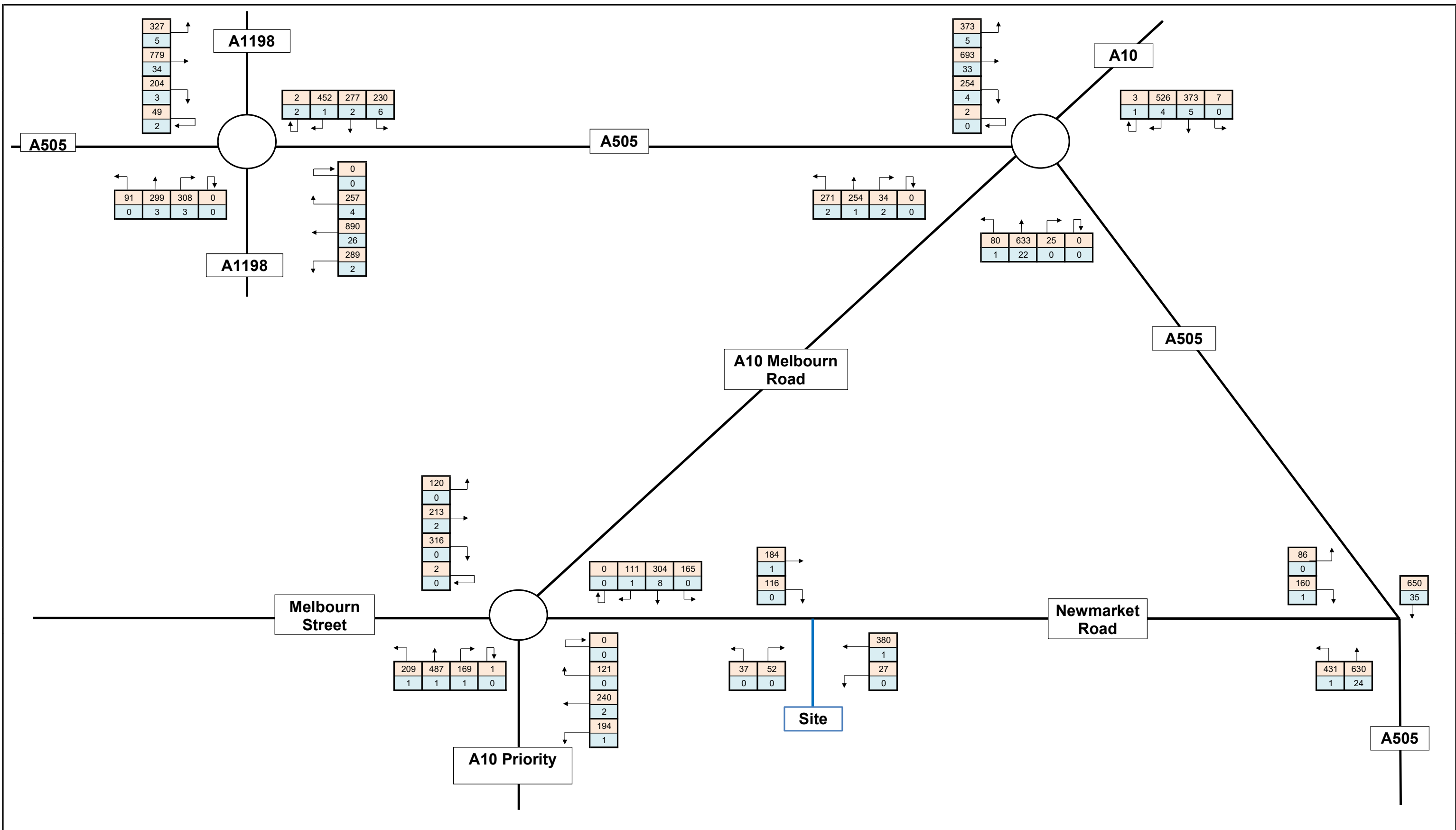
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CHECKED: SS



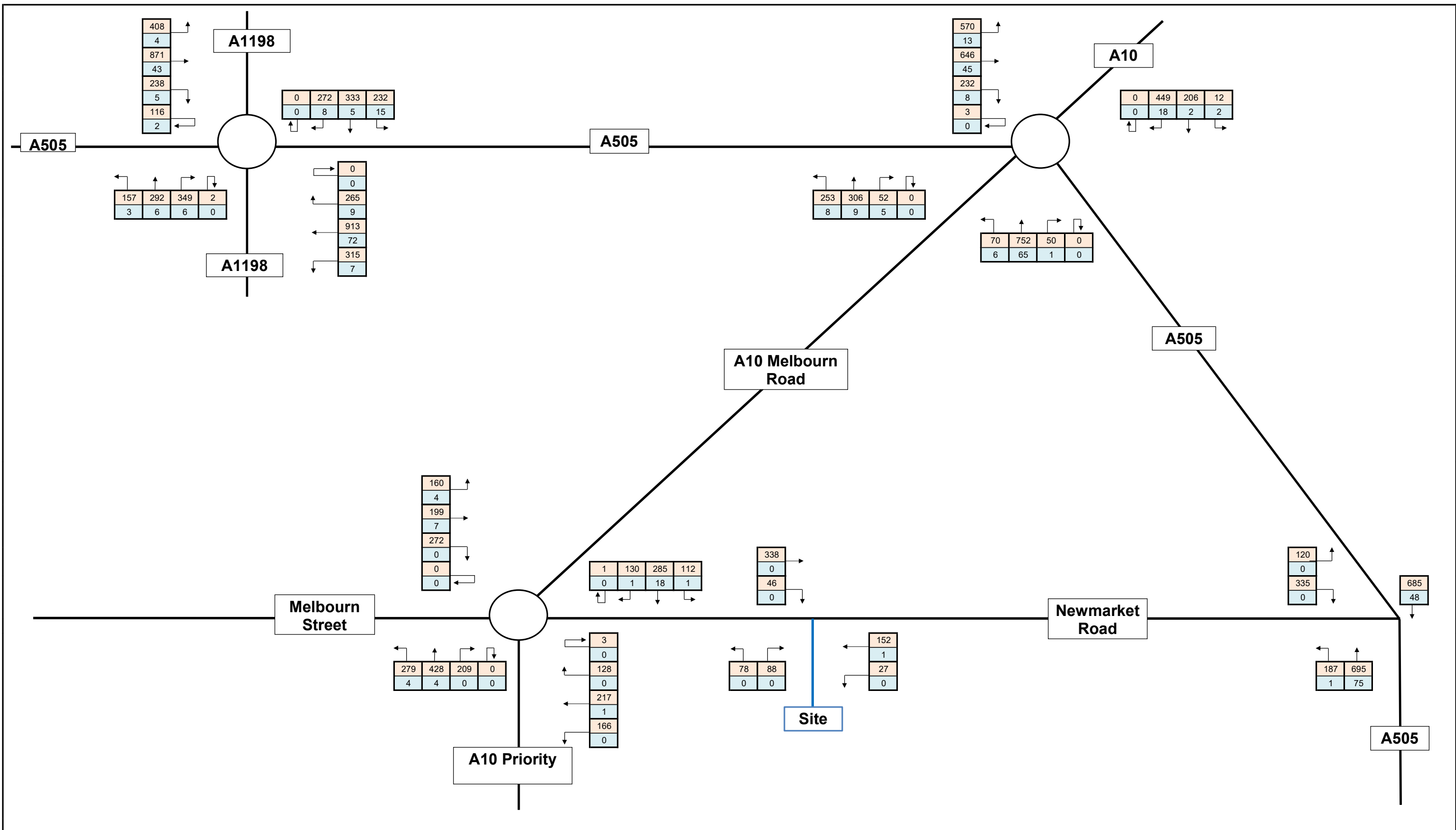


APPENDIX G – TRAFFIC FLOW DIAGRAMS

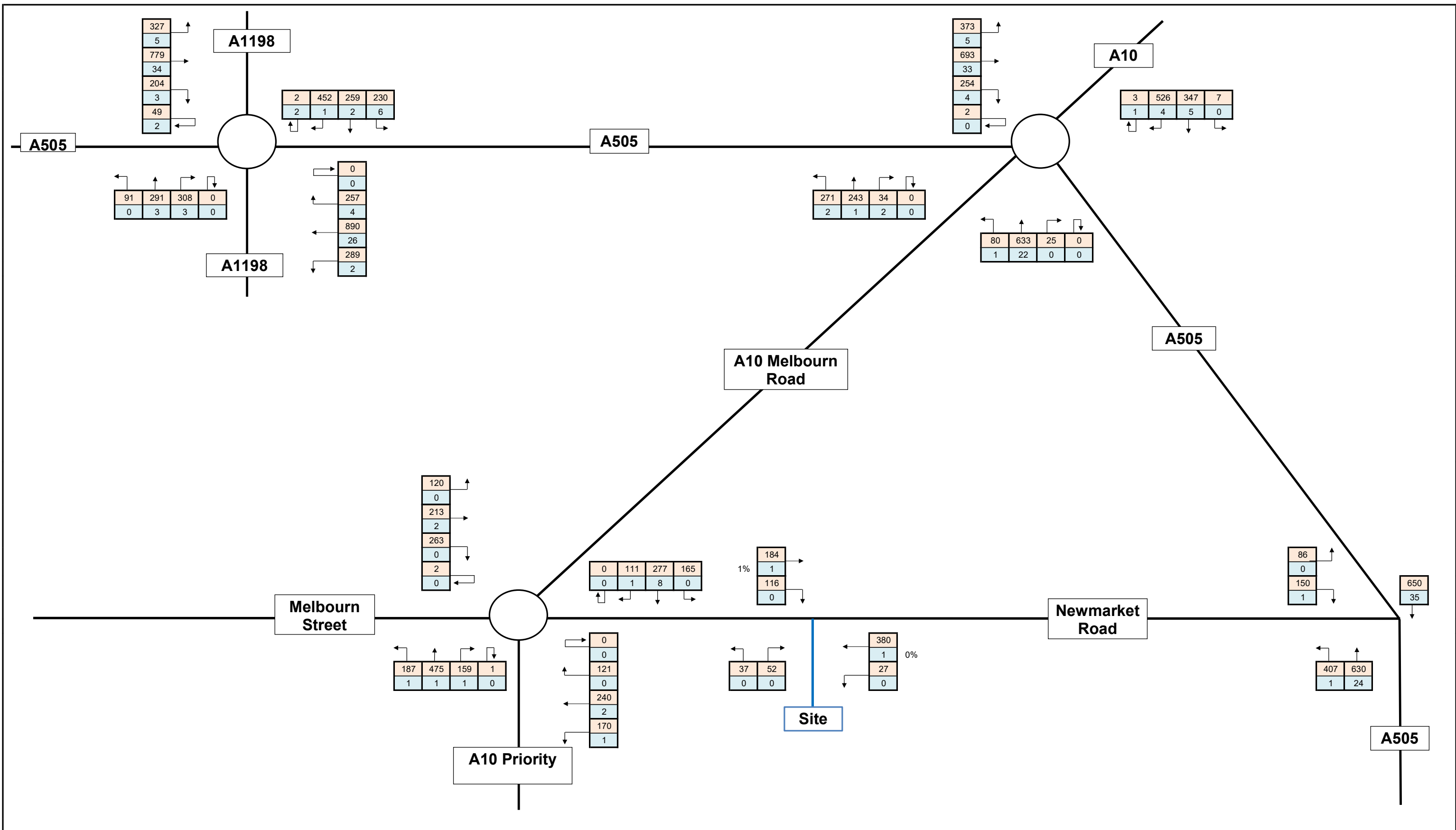
- B1.1 2024 AM**
- B1.2 2024 PM**
- B1.3 2030 AM**
- B1.4 2030 PM**
- B1.5 2030 AM + Development**
- B1.6 2030 PM + Development**
- B1.7 2030 AM + Development + Proposed**
- B1.8 2030 PM + Development + Proposed**



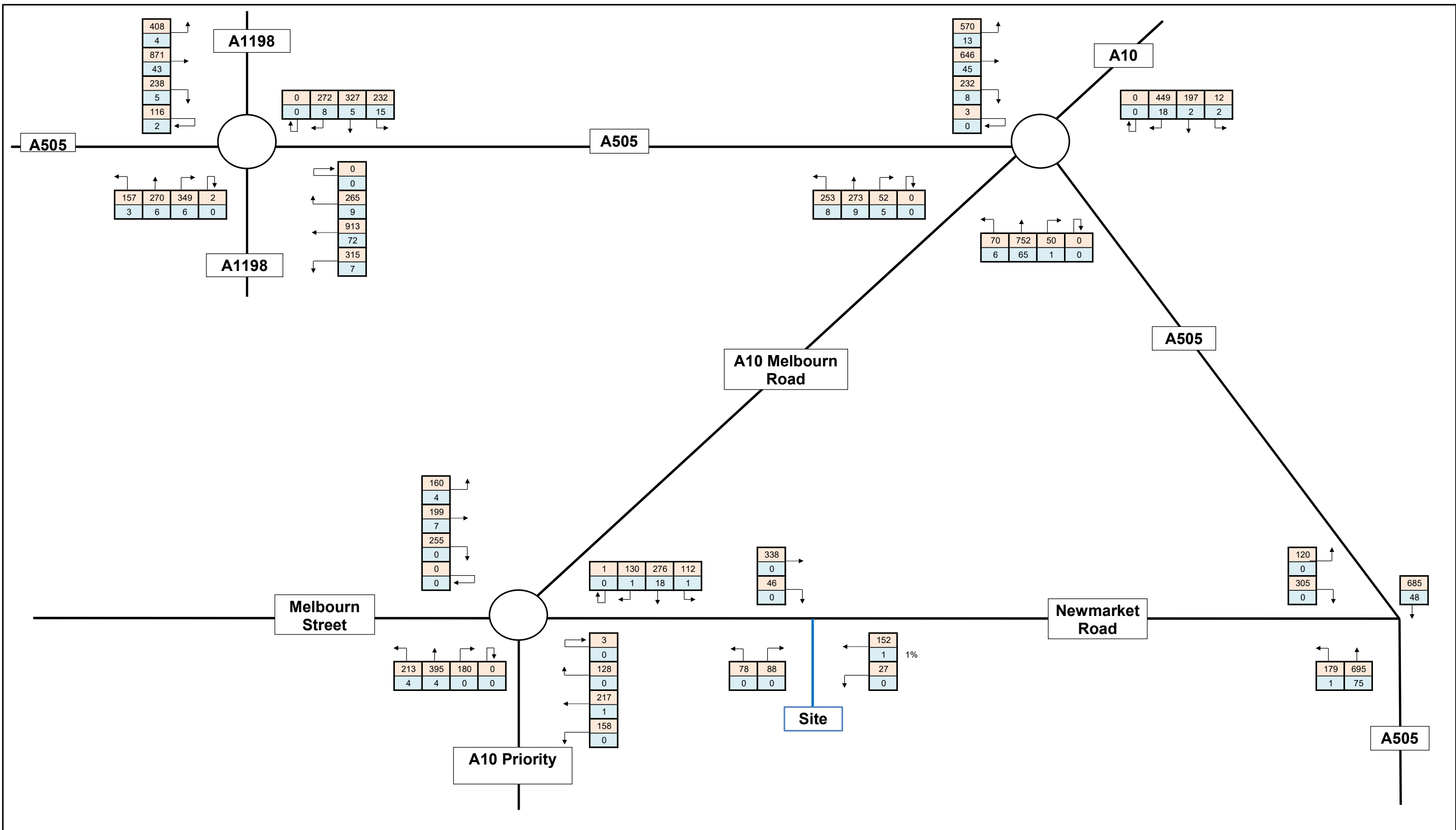
 MARKIDES ASSOCIATES 9th Floor, The Tower Building London, SE1 7NX T:020 7442 2225 E: enquiries@markidesassociates.co.uk W: www.markidesassociates.co.uk	Notes: X Total Vehicles X HGVs	Job Title: Land Surrounding Burloes Cottages, Newmarket Road	Scale: NTS
		Drawing Title: 2030 PM + Development + Proposed	Job No: 23324
		Figure No: Appendix B1.12	Date: September 2025



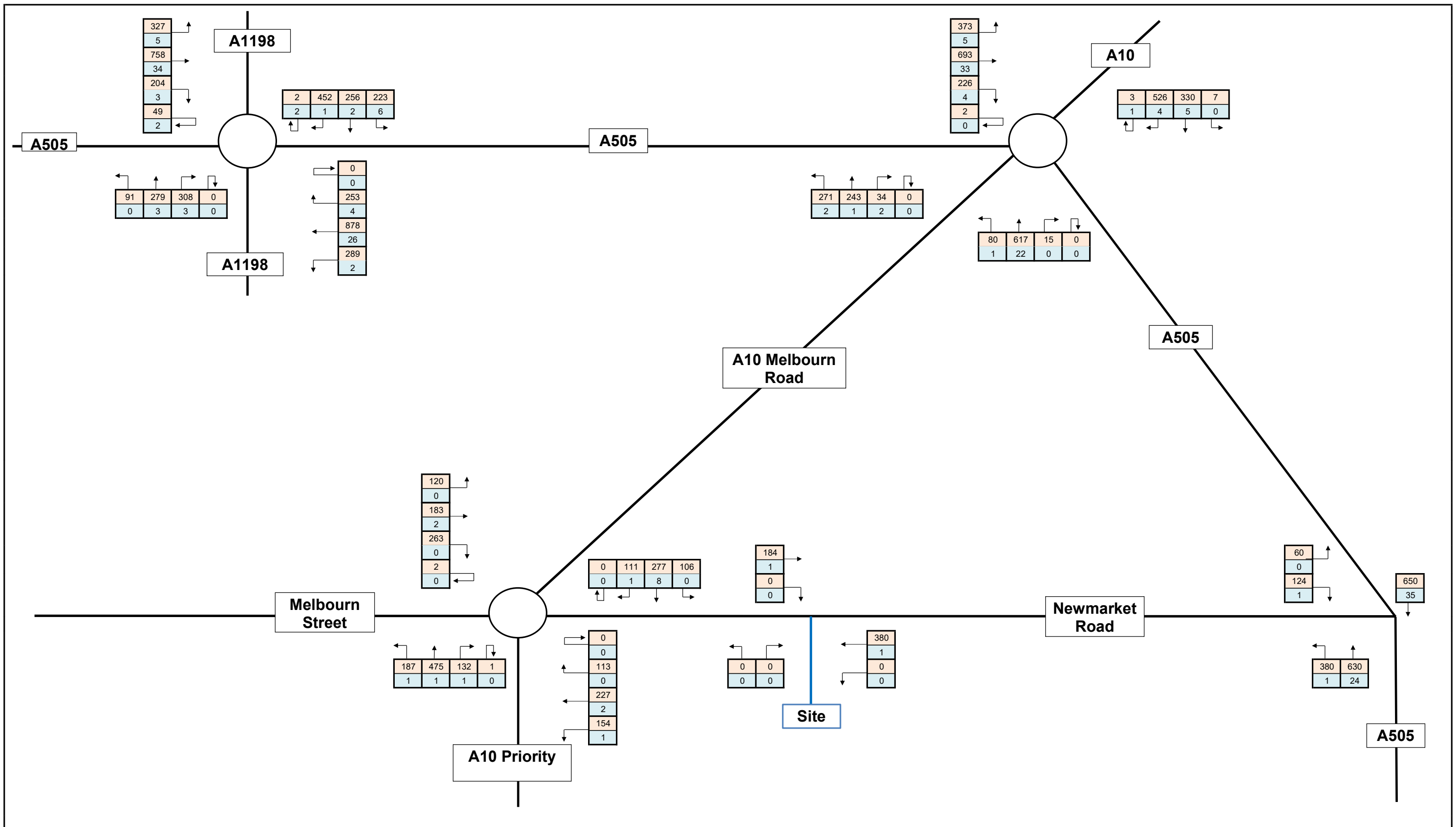
 MARKIDES ASSOCIATES 9th Floor, The Tower Building London, SE1 7NX T:020 7442 2225 E: enquiries@markidesassociates.co.uk W: www.markidesassociates.co.uk	Notes: X Total Vehicles X HGVs	Job Title:	Scale:
		Land Surrounding Burloes Cottages, Newmarket Road	NTS
		Drawing Title:	Job No:
		2030 AM + Development + Proposed	23324
Figure No:	Date:		
Appendix B1.11	September 2025		

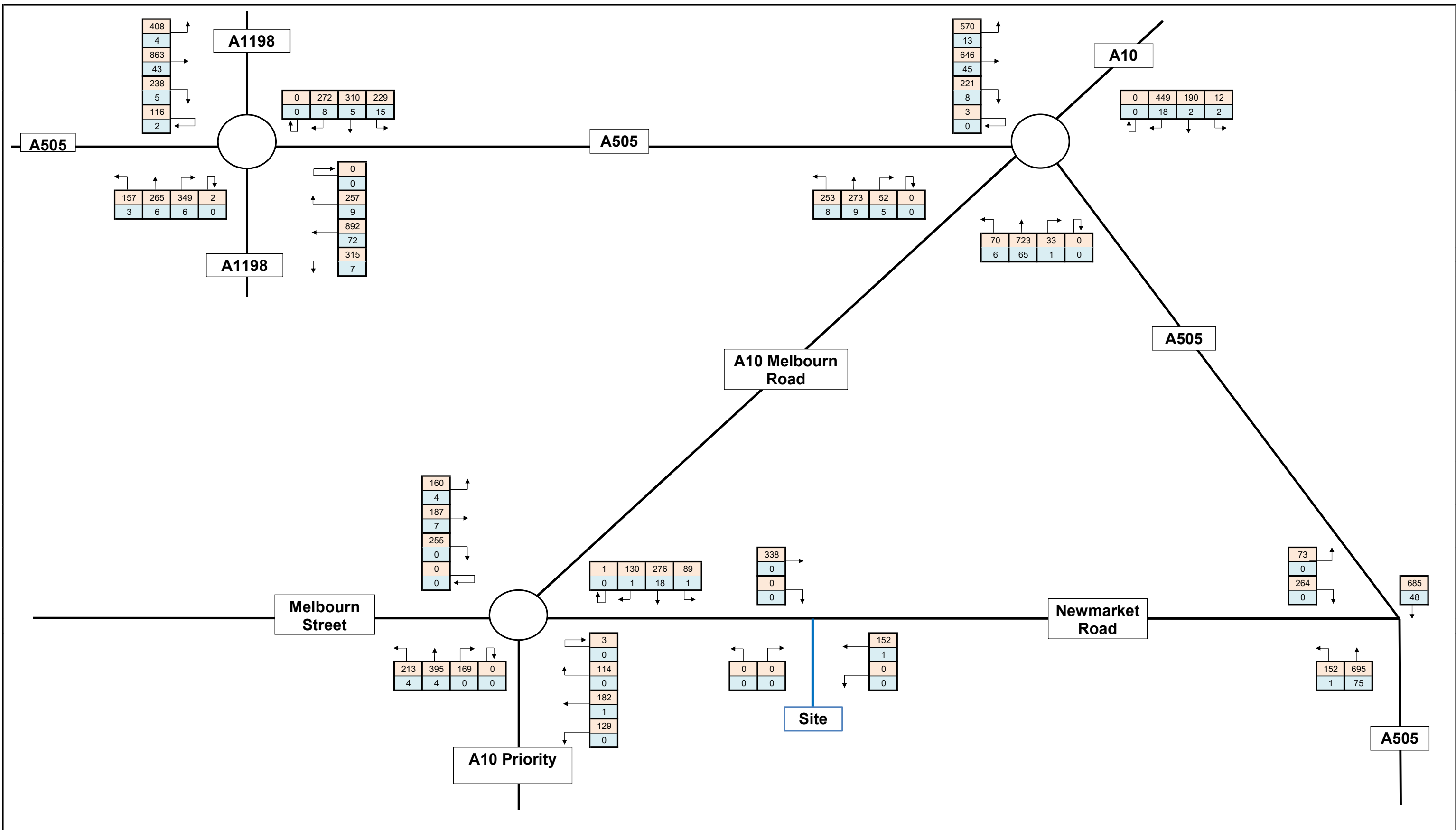


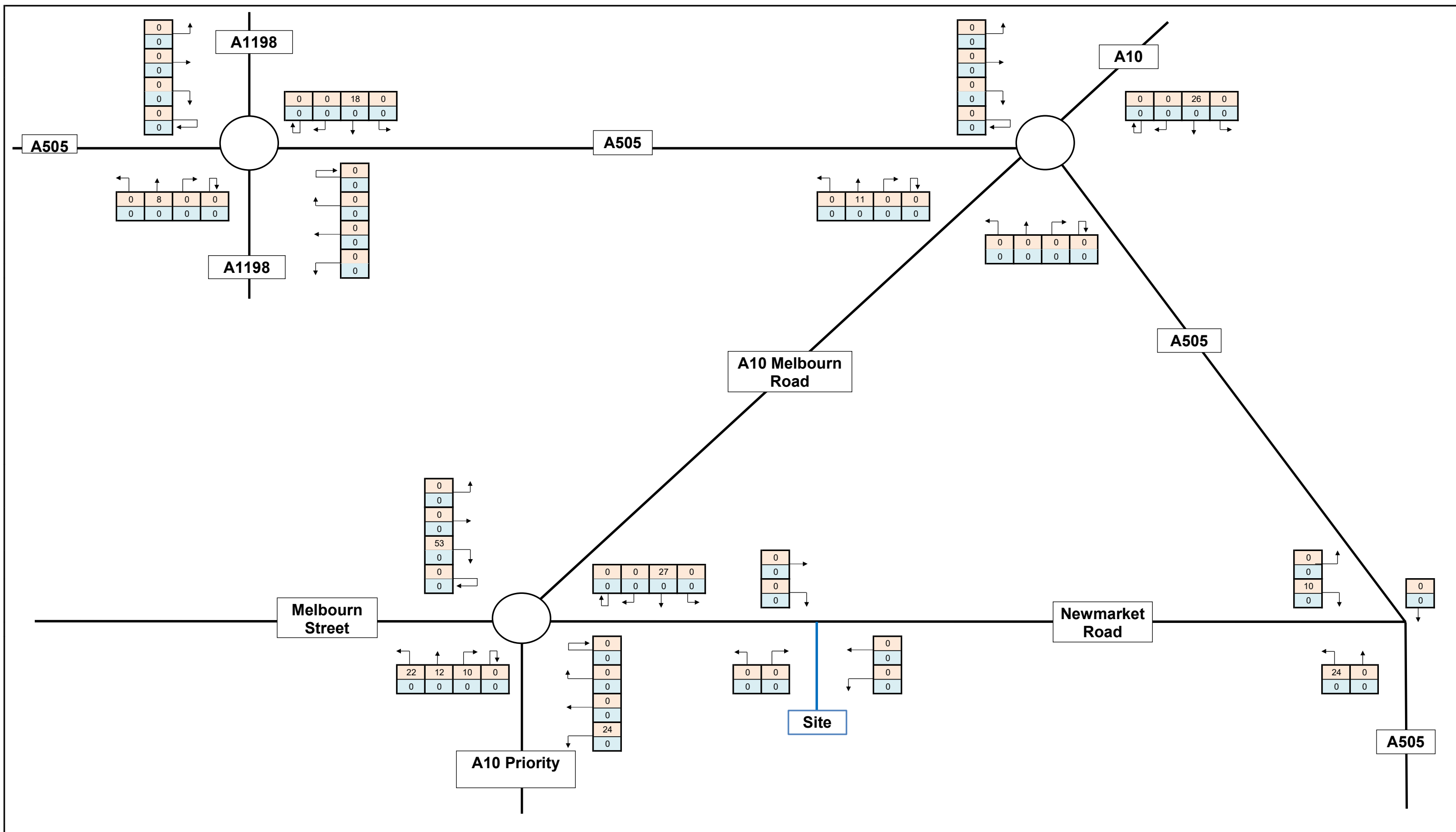
 MARKIDES ASSOCIATES 9th Floor, The Tower Building London, SE1 7NX T:020 7442 2225 E: enquiries@markidesassociates.co.uk W: www.markidesassociates.co.uk	Notes: X Total Vehicles X HGVs	Job Title:	Scale:
		Land Surrounding Burloes Cottages, Newmarket Road	NTS
		Drawing Title:	Job No:
		2030 PM + Development	23324
Figure No:	Date:		
Appendix B1.10	September 2025		



 9th Floor, The Tower Building London, SE1 7NX T:020 7442 2225 E: enquiries@markidesassociates.co.uk W: www.markidesassociates.co.uk	Notes: X Total Vehicles X HGVs	Job Title:	Scale:
		Land Surrounding Burloes Cottages, Newmarket Road	NTS
		Drawing Title:	Job No:
		2030 AM + Development	23324
		Figure No:	Date:
		Appendix B1.9	September 2025







9th Floor, The Tower Building
London, SE1 7NX

T: 020 7442 2225

E: enquiries@markidesassociates.co.uk
W: www.markidesassociates.co.uk

Notes:

x	Total Vehicles
x	HGVs

Job Title:

Land Surrounding Burloes Cottages, Newmarket Road

Scale:

NTS

Drawing Title:

Proposed Development Flows - AM

Job No:	
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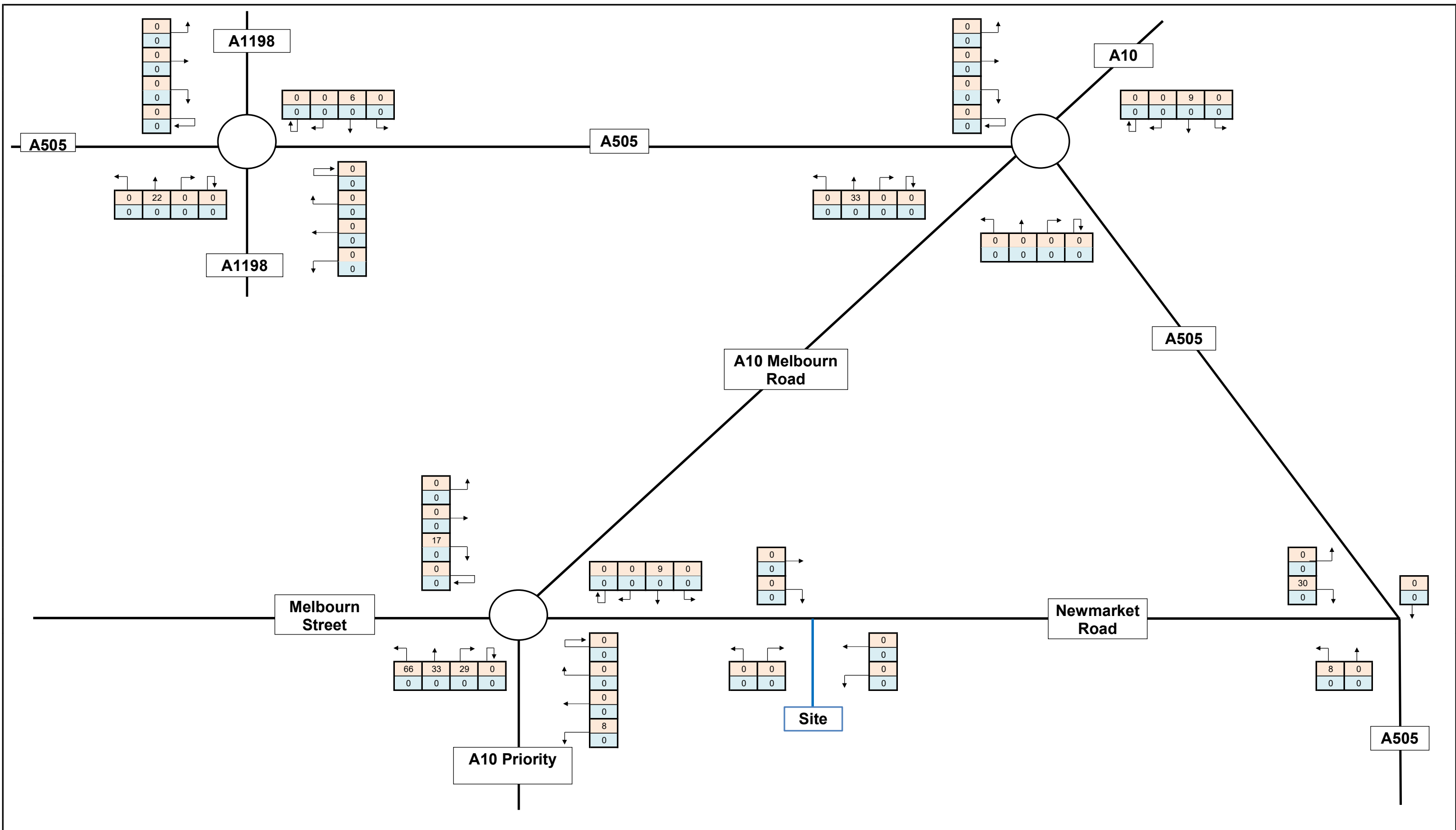
23324

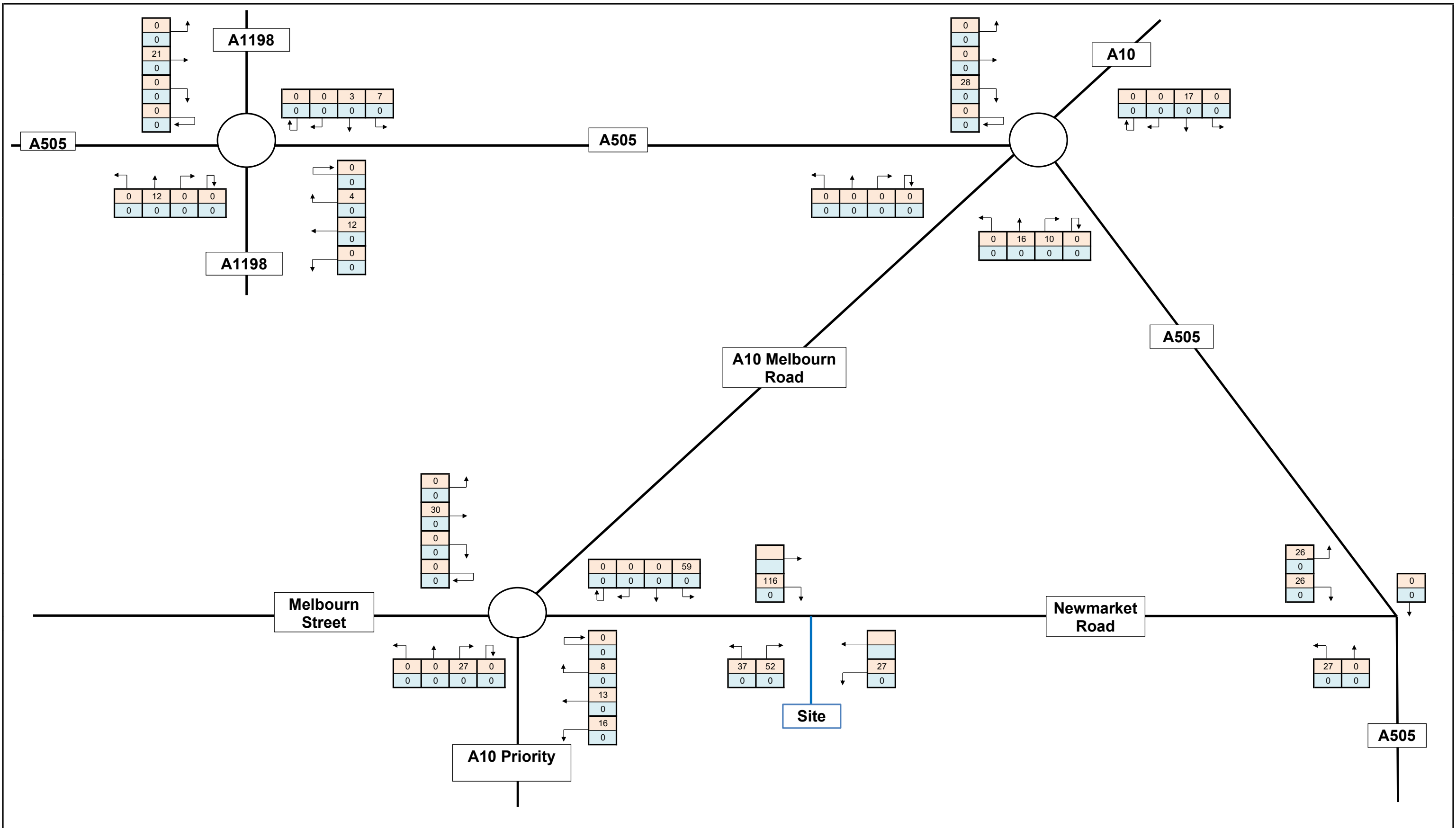
Figure No:

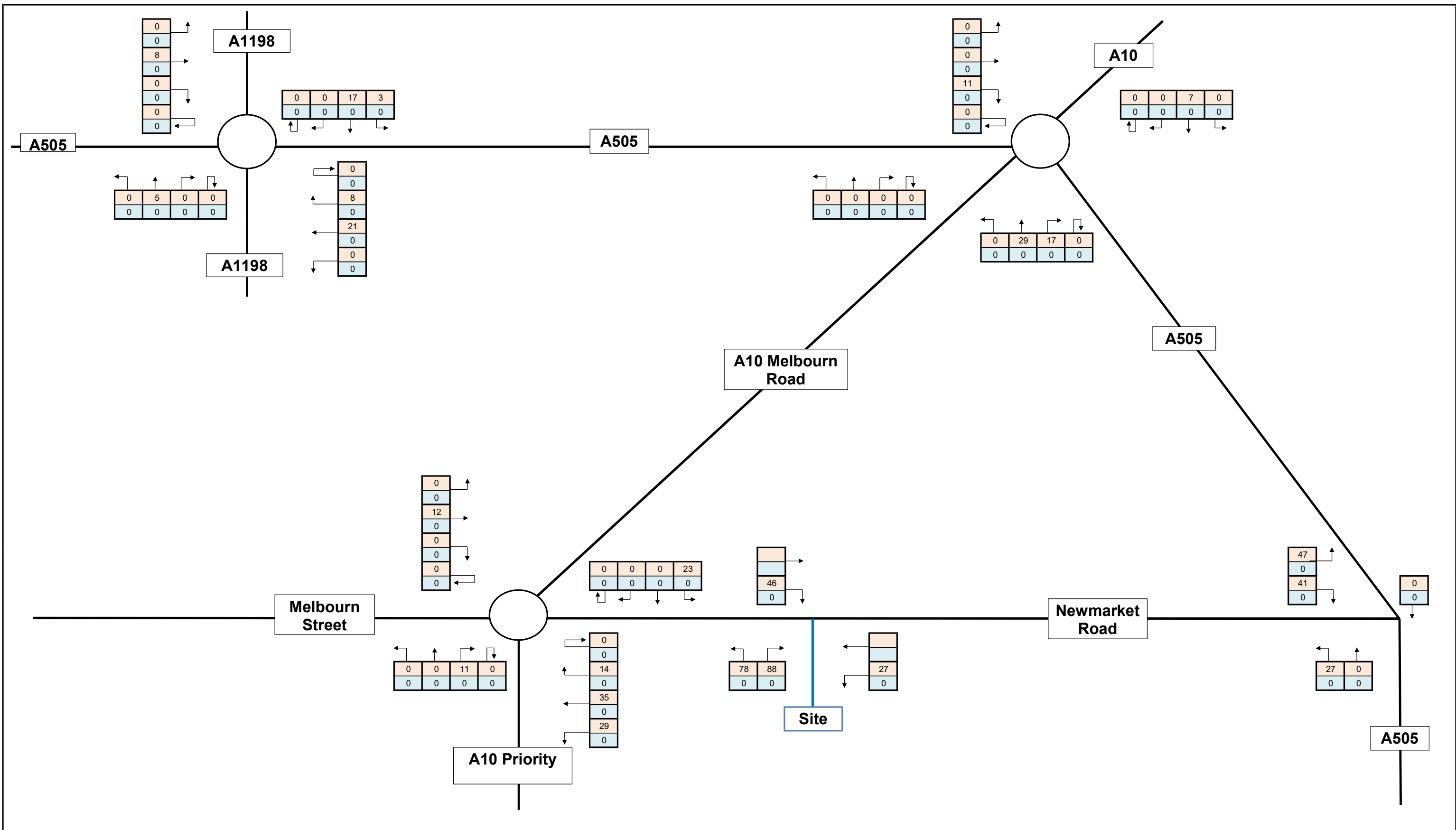
Appendix B1.6

	Date:
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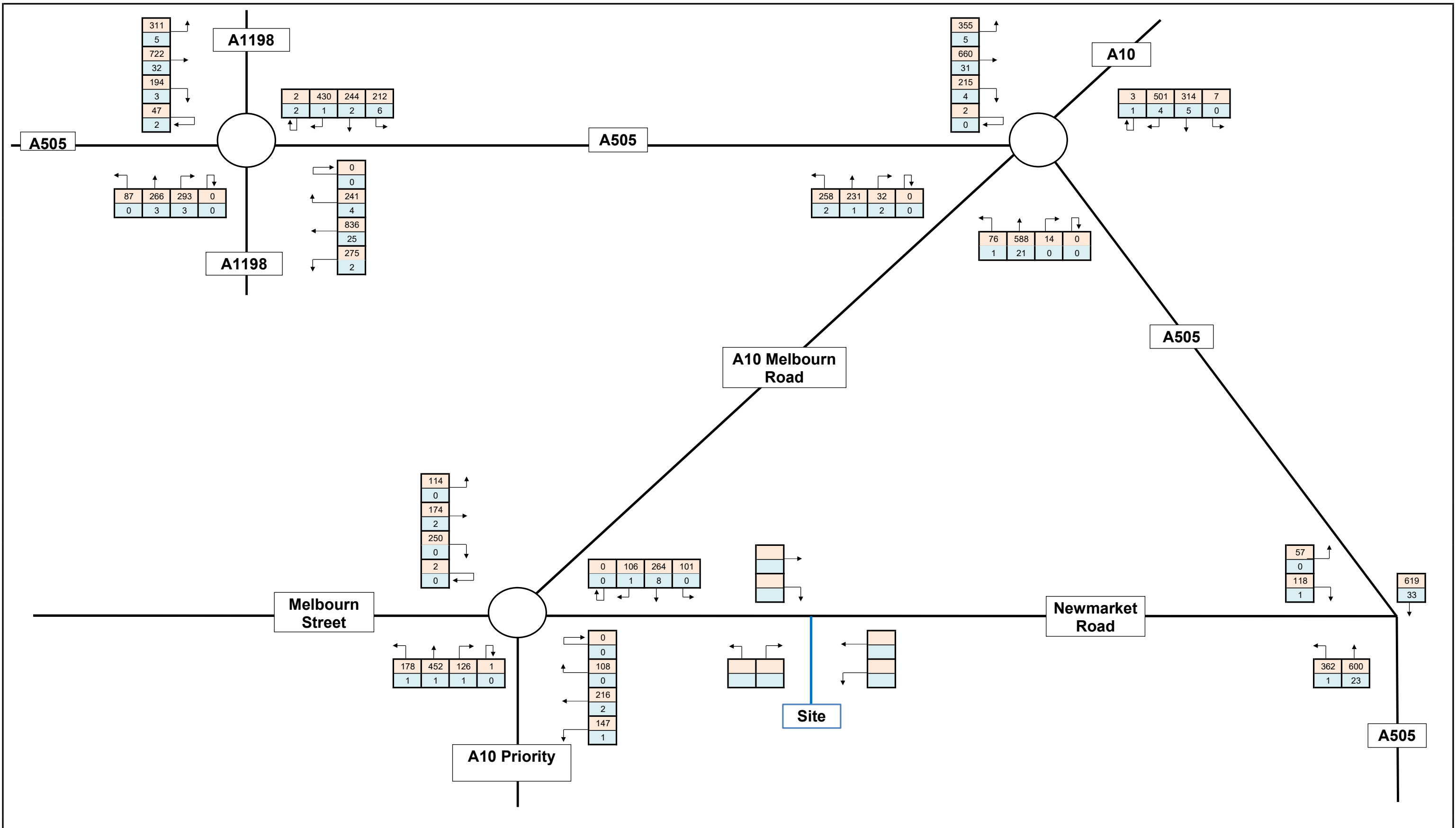
September 2025

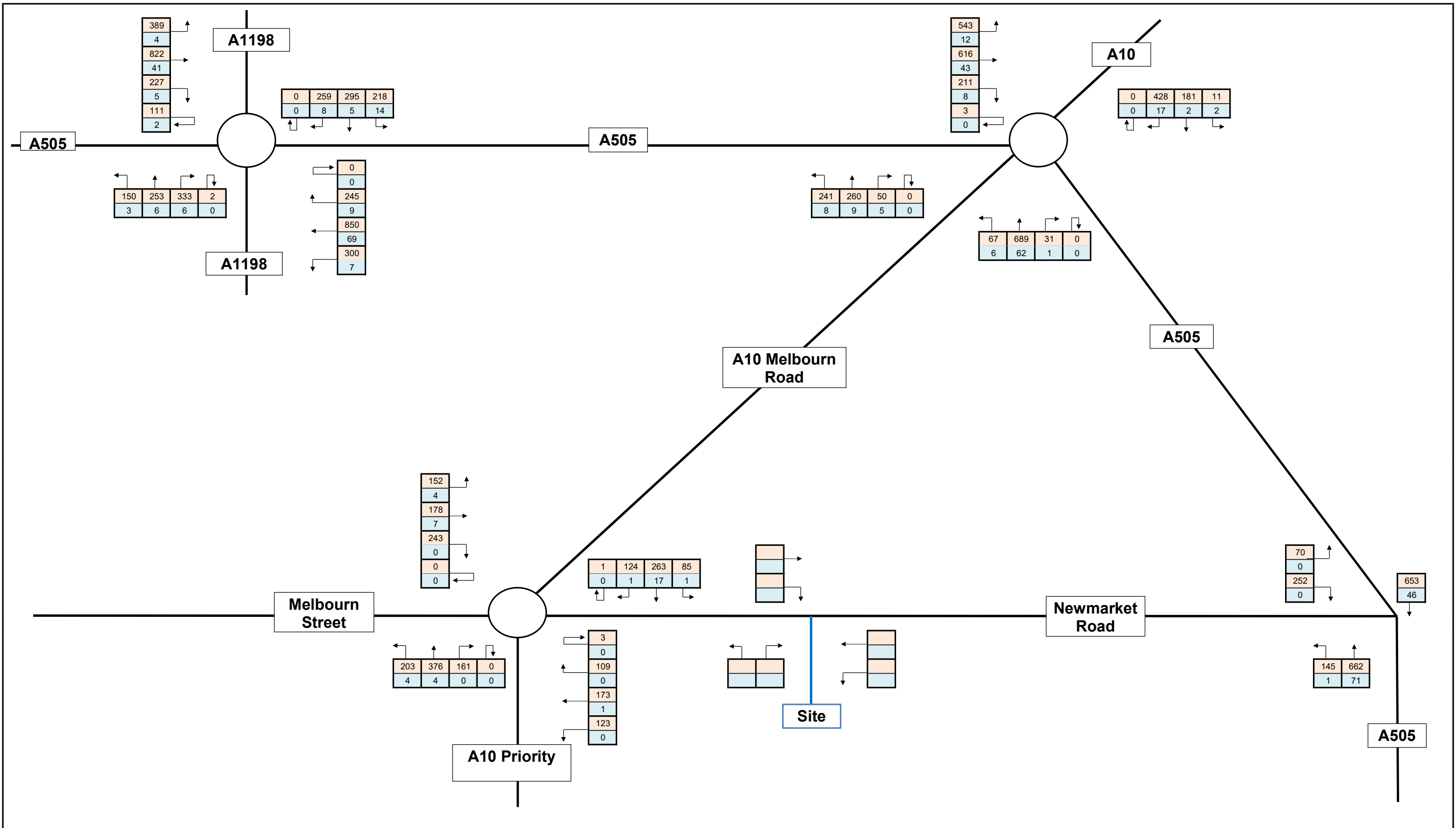






 MARKIDES ASSOCIATES 9th Floor, The Tower Building London, SE1 7NX T:020 7442 2225 E: enquiries@markidesassociates.co.uk W: www.markidesassociates.co.uk	Notes: X Total Vehicles X HGVs	Job Title:	Scale:
		Land Surrounding Burloes Cottages, Newmarket Road	NTS
		Drawing Title:	Job No:
		Development Flows - AM	23324
Figure No:	Date:		
Appendix B1.3	September 2025		





APPENDIX H – JUNCTION CAPACITY ASSESSMENT RESULTS

Junctions 9									
PICADY 9 - Priority Intersection Module									
Version: 9.5.1.7462 © Copyright TRL Limited, 2019									
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk									
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution									

Filename: Newmarket Rd- A505 Junction junction.j9

Path: M:\Projects\2023\23324 - Newmarket Road, Royston\07. Technical\07.02 Modelling\PICADY

Report generation date: 23/09/2025 15:02:02

»2024, AM
 »2024, PM
 »2030, AM
 »2030, PM
 »2030 + Dev, AM
 »2030 + Dev, PM
 »2030 + Dev + Proposed, AM
 »2030 + Dev + Proposed, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	2024									
Stream B-C	D1	0.3	13.00	0.22	B	D2	0.2	9.04	0.14	A
Stream B-A		1.2	15.67	0.55	C		0.3	9.36	0.25	A
Stream C-B		0.0	0.00	0.00	A		0.0	0.00	0.00	A
	2030									
Stream B-C	D3	0.3	14.44	0.24	B	D4	0.2	9.37	0.15	A
Stream B-A		1.4	17.88	0.59	C		0.4	9.87	0.27	A
Stream C-B		0.0	0.00	0.00	A		0.0	0.00	0.00	A
	2030 + Dev									
Stream B-C	D5	0.9	24.47	0.47	C	D6	0.3	10.44	0.22	B
Stream B-A		2.5	27.48	0.72	D		0.5	11.17	0.34	B
Stream C-B		0.0	0.00	0.00	A		0.0	0.00	0.00	A
	2030 + Dev + Proposed									
Stream B-C	D7	1.3	38.57	0.59	E	D8	0.3	10.76	0.22	B
Stream B-A		4.0	41.25	0.82	E		0.6	11.56	0.36	B
Stream C-B		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	Newmarket Road / A505 Junction
Location	
Site number	
Date	27/02/2015
Version	
Status	
Identifier	
Client	
Jobnumber	
Enumerator	dpsyllides [W3436-ODYSSEY]
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	Veh	Veh	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	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2024	AM		ONE HOUR	07:30	09:00	15	✓
D2	2024	PM	2014 PM	ONE HOUR	16:45	18:15	15	✓
D3	2030	AM		ONE HOUR	07:30	09:00	15	✓
D4	2030	PM	2014 PM	ONE HOUR	16:45	18:15	15	✓
D5	2030 + Dev	AM		ONE HOUR	07:30	09:00	15	✓
D6	2030 + Dev	PM	2014 PM	ONE HOUR	16:45	18:15	15	✓
D7	2030 + Dev + Proposed	AM		ONE HOUR	07:30	09:00	15	✓
D8	2030 + Dev + Proposed	PM	2014 PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

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

2024, 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	Newmarket Road / A505	T-Junction	Two-way		2.55	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A505 East		Major
B	Newmarket Road		Minor
C	A505 West		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - A505 West	13.30	✓	10.00		0.0		-

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 - Newmarket Road	One lane plus flare	10.00	7.00	4.50	4.50	3.30		1.00	200	80

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	792	0.080	0.203	0.128	0.290
B-C	623	0.065	0.165	-	-
C-B	574	0.152	0.152	-	-

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)	Run automatically
D1	2024	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 (Veh/hr)	Scaling Factor (%)
A - A505 East		ONE HOUR	✓	807	100.000
B - Newmarket Road		ONE HOUR	✓	322	100.000
C - A505 West		ONE HOUR	✓	653	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
	From			
	A - A505 East	0	145	662
	B - Newmarket Road	252	0	70
	C - A505 West	653	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
	From			
	A - A505 East	0	1	11
	B - Newmarket Road	0	0	0
	C - A505 West	7	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.22	13.00	0.3	B	64	96
B-A	0.55	15.67	1.2	C	231	347
C-A					599	899
C-B	0.00	0.00	0.0	A	0	0
AB					133	200
AC					607	911

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	53	13	470	0.112	52	0.0	0.1	8.604	A
B-A	190	47	601	0.316	188	0.0	0.5	8.678	A
C-A	492	123			492				
C-B	0	0	473	0.000	0	0.0	0.0	0.000	A
A-B	109	27			109				
A-C	498	125			498				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	63	16	428	0.147	63	0.1	0.2	9.842	A
B-A	227	57	562	0.403	226	0.5	0.7	10.665	B
C-A	587	147			587				
C-B	0	0	454	0.000	0	0.0	0.0	0.000	A
A-B	130	33			130				
A-C	595	149			595				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	77	19	356	0.217	77	0.2	0.3	12.883	B
B-A	277	69	507	0.547	275	0.7	1.2	15.407	C
C-A	719	180			719				
C-B	0	0	427	0.000	0	0.0	0.0	0.000	A
A-B	160	40			160				
A-C	729	182			729				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	77	19	354	0.218	77	0.3	0.3	13.000	B
B-A	277	69	507	0.547	277	1.2	1.2	15.669	C
C-A	719	180			719				
C-B	0	0	427	0.000	0	0.0	0.0	0.000	A
A-B	160	40			160				
A-C	729	182			729				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	63	16	427	0.147	63	0.3	0.2	9.920	A
B-A	227	57	562	0.403	229	1.2	0.7	10.849	B
C-A	587	147			587				
C-B	0	0	454	0.000	0	0.0	0.0	0.000	A
A-B	130	33			130				
A-C	595	149			595				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	53	13	469	0.112	53	0.2	0.1	8.657	A
B-A	190	47	601	0.316	191	0.7	0.5	8.794	A
C-A	492	123			492				
C-B	0	0	473	0.000	0	0.0	0.0	0.000	A
A-B	109	27			109				
A-C	498	125			498				

2024, 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	Newmarket Road / A505	T-Junction	Two-way		0.90	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2024	PM	2014 PM	ONE HOUR	16:45	18:15	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 (Veh/hr)	Scaling Factor (%)
A - A505 East		ONE HOUR	✓	962	100.000
B - Newmarket Road		ONE HOUR	✓	175	100.000
C - A505 West		ONE HOUR	✓	619	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
From	A - A505 East	0	362	600
	B - Newmarket Road	118	0	57
	C - A505 West	619	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
From	A - A505 East	0	0	4
	B - Newmarket Road	1	0	0
	C - A505 West	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.14	9.04	0.2	A	52	78
B-A	0.25	9.36	0.3	A	108	162
C-A					568	852
C-B	0.00	0.00	0.0	A	0	0
A-B					332	498
A-C					551	826

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	43	11	523	0.082	43	0.0	0.1	7.485	A
B-A	89	22	598	0.149	88	0.0	0.2	7.058	A
C-A	466	117			466				
C-B	0	0	461	0.000	0	0.0	0.0	0.000	A
A-B	273	68			273				
A-C	452	113			452				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	51	13	498	0.103	51	0.1	0.1	8.055	A
B-A	106	27	563	0.188	106	0.2	0.2	7.872	A
C-A	556	139			556				
C-B	0	0	439	0.000	0	0.0	0.0	0.000	A
A-B	325	81			325				
A-C	539	135			539				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	63	16	461	0.136	63	0.1	0.2	9.032	A
B-A	130	32	514	0.253	130	0.2	0.3	9.340	A
C-A	682	170			682				
C-B	0	0	409	0.000	0	0.0	0.0	0.000	A
A-B	399	100			399				
A-C	661	165			661				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	63	16	461	0.136	63	0.2	0.2	9.043	A
B-A	130	32	514	0.253	130	0.3	0.3	9.361	A
C-A	682	170			682				
C-B	0	0	409	0.000	0	0.0	0.0	0.000	A
A-B	399	100			399				
A-C	661	165			661				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	51	13	498	0.103	51	0.2	0.1	8.070	A
B-A	106	27	563	0.188	106	0.3	0.2	7.894	A
C-A	556	139			556				
C-B	0	0	439	0.000	0	0.0	0.0	0.000	A
A-B	325	81			325				
A-C	539	135			539				

18:00 - 18:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	43	11	523	0.082	43	0.1	0.1	7.501	A
B-A	89	22	598	0.149	89	0.2	0.2	7.082	A
C-A	466	117			466				
C-B	0	0	461	0.000	0	0.0	0.0	0.000	A
A-B	273	68			273				
A-C	452	113			452				

2030, 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	Newmarket Road / A505	T-Junction	Two-way		2.89	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	2030	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 (Veh/hr)	Scaling Factor (%)
A - A505 East		ONE HOUR	✓	847	100.000
B - Newmarket Road		ONE HOUR	✓	337	100.000
C - A505 West		ONE HOUR	✓	685	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
From	A - A505 East	0	152	695
	B - Newmarket Road	264	0	73
	C - A505 West	685	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
From	A - A505 East	0	1	11
	B - Newmarket Road	0	0	0
	C - A505 West	7	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.24	14.44	0.3	B	67	100
B-A	0.59	17.88	1.4	C	242	363
C-A					629	943
C-B	0.00	0.00	0.0	A	0	0
A-B					139	209
A-C					638	957

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	55	14	460	0.119	54	0.0	0.1	8.855	A
B-A	199	50	591	0.336	197	0.0	0.5	9.079	A
C-A	516	129			516				
C-B	0	0	468	0.000	0	0.0	0.0	0.000	A
A-B	114	29			114				
A-C	523	131			523				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	66	16	414	0.158	65	0.1	0.2	10.310	B
B-A	237	59	551	0.431	236	0.5	0.7	11.418	B
C-A	616	154			616				
C-B	0	0	448	0.000	0	0.0	0.0	0.000	A
A-B	137	34			137				
A-C	625	156			625				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	80	20	332	0.242	80	0.2	0.3	14.252	B
B-A	291	73	492	0.591	288	0.7	1.4	17.463	C
C-A	754	189			754				
C-B	0	0	419	0.000	0	0.0	0.0	0.000	A
A-B	167	42			167				
A-C	765	191			765				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	80	20	330	0.244	80	0.3	0.3	14.442	B
B-A	291	73	491	0.591	291	1.4	1.4	17.881	C
C-A	754	189			754				
C-B	0	0	419	0.000	0	0.0	0.0	0.000	A
A-B	167	42			167				
A-C	765	191			765				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	66	16	412	0.159	66	0.3	0.2	10.421	B
B-A	237	59	550	0.431	240	1.4	0.8	11.682	B
C-A	616	154			616				
C-B	0	0	448	0.000	0	0.0	0.0	0.000	A
A-B	137	34			137				
A-C	625	156			625				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	55	14	459	0.120	55	0.2	0.1	8.919	A
B-A	199	50	591	0.336	200	0.8	0.5	9.221	A
C-A	516	129			516				
C-B	0	0	468	0.000	0	0.0	0.0	0.000	A
A-B	114	29			114				
A-C	523	131			523				

2030, 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	Newmarket Road / A505	T-Junction	Two-way		0.95	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2030	PM	2014 PM	ONE HOUR	16:45	18:15	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 (Veh/hr)	Scaling Factor (%)
A - A505 East		ONE HOUR	✓	1010	100.000
B - Newmarket Road		ONE HOUR	✓	184	100.000
C - A505 West		ONE HOUR	✓	650	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
From	A - A505 East	0	380	630
	B - Newmarket Road	124	0	60
	C - A505 West	650	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
From	A - A505 East	0	0	4
	B - Newmarket Road	1	0	0
	C - A505 West	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.15	9.37	0.2	A	55	83
B-A	0.27	9.87	0.4	A	114	171
C-A					596	895
C-B	0.00	0.00	0.0	A	0	0
A-B					349	523
A-C					578	867

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	45	11	517	0.087	45	0.0	0.1	7.617	A
B-A	93	23	589	0.159	93	0.0	0.2	7.248	A
C-A	489	122			489				
C-B	0	0	456	0.000	0	0.0	0.0	0.000	A
A-B	286	72			286				
A-C	474	119			474				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	54	13	490	0.110	54	0.1	0.1	8.251	A
B-A	111	28	552	0.202	111	0.2	0.3	8.159	A
C-A	584	146			584				
C-B	0	0	433	0.000	0	0.0	0.0	0.000	A
A-B	342	85			342				
A-C	566	142			566				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	66	17	450	0.147	66	0.1	0.2	9.359	A
B-A	137	34	501	0.272	136	0.3	0.4	9.849	A
C-A	716	179			716				
C-B	0	0	401	0.000	0	0.0	0.0	0.000	A
A-B	418	105			418				
A-C	694	173			694				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	66	17	450	0.147	66	0.2	0.2	9.373	A
B-A	137	34	501	0.272	137	0.4	0.4	9.875	A
C-A	716	179			716				
C-B	0	0	401	0.000	0	0.0	0.0	0.000	A
A-B	418	105			418				
A-C	694	173			694				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	54	13	490	0.110	54	0.2	0.1	8.268	A
B-A	111	28	552	0.202	112	0.4	0.3	8.188	A
C-A	584	146			584				
C-B	0	0	433	0.000	0	0.0	0.0	0.000	A
A-B	342	85			342				
A-C	566	142			566				

18:00 - 18:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	45	11	517	0.087	45	0.1	0.1	7.638	A
B-A	93	23	589	0.159	94	0.3	0.2	7.279	A
C-A	489	122			489				
C-B	0	0	456	0.000	0	0.0	0.0	0.000	A
A-B	286	72			286				
A-C	474	119			474				

2030 + Dev, 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	Newmarket Road / A505	T-Junction	Two-way		5.36	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)	Run automatically
D5	2030 + Dev	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 (Veh/hr)	Scaling Factor (%)
A - A505 East		ONE HOUR	✓	874	100.000
B - Newmarket Road		ONE HOUR	✓	425	100.000
C - A505 West		ONE HOUR	✓	685	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
From	A - A505 East	0	179	695
	B - Newmarket Road	305	0	120
	C - A505 West	685	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
From	A - A505 East	0	1	11
	B - Newmarket Road	0	0	0
	C - A505 West	7	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.47	24.47	0.9	C	110	165
B-A	0.72	27.48	2.5	D	280	420
C-A					629	943
C-B	0.00	0.00	0.0	A	0	0
A-B					164	246
A-C					638	957

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	90	23	451	0.200	89	0.0	0.2	9.930	A
B-A	230	57	587	0.391	227	0.0	0.6	9.936	A
C-A	516	129			516				
C-B	0	0	465	0.000	0	0.0	0.0	0.000	A
A-B	135	34			135				
A-C	523	131			523				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	108	27	393	0.274	107	0.2	0.4	12.566	B
B-A	274	69	540	0.507	273	0.6	1.0	13.372	B
C-A	616	154			616				
C-B	0	0	444	0.000	0	0.0	0.0	0.000	A
A-B	161	40			161				
A-C	625	156			625				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	132	33	285	0.464	130	0.4	0.8	23.011	C
B-A	336	84	467	0.719	330	1.0	2.3	25.461	D
C-A	754	189			754				
C-B	0	0	415	0.000	0	0.0	0.0	0.000	A
A-B	197	49			197				
A-C	765	191			765				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	132	33	279	0.474	132	0.8	0.9	24.471	C
B-A	336	84	465	0.722	335	2.3	2.5	27.485	D
C-A	754	189			754				
C-B	0	0	415	0.000	0	0.0	0.0	0.000	A
A-B	197	49			197				
A-C	765	191			765				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	108	27	388	0.278	110	0.9	0.4	13.031	B
B-A	274	69	539	0.508	280	2.5	1.1	14.157	B
C-A	616	154			616				
C-B	0	0	444	0.000	0	0.0	0.0	0.000	A
A-B	161	40			161				
A-C	625	156			625				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	90	23	449	0.201	91	0.4	0.3	10.078	B
B-A	230	57	587	0.392	231	1.1	0.7	10.181	B
C-A	516	129			516				
C-B	0	0	465	0.000	0	0.0	0.0	0.000	A
A-B	135	34			135				
A-C	523	131			523				

2030 + Dev, 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	Newmarket Road / A505	T-Junction	Two-way		1.31	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2030 + Dev	PM	2014 PM	ONE HOUR	16:45	18:15	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 (Veh/hr)	Scaling Factor (%)
A - A505 East		ONE HOUR	✓	1037	100.000
B - Newmarket Road		ONE HOUR	✓	236	100.000
C - A505 West		ONE HOUR	✓	650	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
From	A - A505 East	0	407	630
	B - Newmarket Road	150	0	86
	C - A505 West	650	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
From	A - A505 East	0	0	4
	B - Newmarket Road	1	0	0
	C - A505 West	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.22	10.44	0.3	B	79	118
B-A	0.34	11.17	0.5	B	138	206
C-A					596	895
C-B	0.00	0.00	0.0	A	0	0
A-B					373	560
A-C					578	867

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	65	16	517	0.125	64	0.0	0.1	7.938	A
B-A	113	28	578	0.195	112	0.0	0.2	7.713	A
C-A	489	122			489				
C-B	0	0	453	0.000	0	0.0	0.0	0.000	A
A-B	306	77			306				
A-C	474	119			474				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	77	19	487	0.159	77	0.1	0.2	8.786	A
B-A	135	34	541	0.249	134	0.2	0.3	8.857	A
C-A	584	146			584				
C-B	0	0	429	0.000	0	0.0	0.0	0.000	A
A-B	366	91			366				
A-C	566	142			566				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	95	24	440	0.215	94	0.2	0.3	10.405	B
B-A	165	41	488	0.339	164	0.3	0.5	11.119	B
C-A	716	179			716				
C-B	0	0	396	0.000	0	0.0	0.0	0.000	A
A-B	448	112			448				
A-C	694	173			694				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	95	24	440	0.215	95	0.3	0.3	10.439	B
B-A	165	41	487	0.339	165	0.5	0.5	11.166	B
C-A	716	179			716				
C-B	0	0	396	0.000	0	0.0	0.0	0.000	A
A-B	448	112			448				
A-C	694	173			694				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	77	19	486	0.159	78	0.3	0.2	8.818	A
B-A	135	34	541	0.249	136	0.5	0.3	8.905	A
C-A	584	146			584				
C-B	0	0	429	0.000	0	0.0	0.0	0.000	A
A-B	366	91			366				
A-C	566	142			566				

18:00 - 18:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	65	16	517	0.125	65	0.2	0.1	7.973	A
B-A	113	28	578	0.195	113	0.3	0.2	7.757	A
C-A	489	122			489				
C-B	0	0	453	0.000	0	0.0	0.0	0.000	A
A-B	306	77			306				
A-C	474	119			474				

2030 + Dev + Proposed, 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	Newmarket Road / A505	T-Junction	Two-way		8.59	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
D7	2030 + Dev + Proposed	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 (Veh/hr)	Scaling Factor (%)
A - A505 East		ONE HOUR	✓	882	100.000
B - Newmarket Road		ONE HOUR	✓	455	100.000
C - A505 West		ONE HOUR	✓	685	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
From	A - A505 East	0	187	695
	B - Newmarket Road	335	0	120
	C - A505 West	685	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
From	A - A505 East	0	1	11
	B - Newmarket Road	0	0	0
	C - A505 West	7	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.59	38.57	1.3	E	110	165
B-A	0.82	41.25	4.0	E	307	461
C-A					629	943
C-B	0.00	0.00	0.0	A	0	0
A-B					172	257
A-C					638	957

Main Results for each time segment

07:30 - 07:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	90	23	434	0.208	89	0.0	0.3	10.402	B
B-A	252	63	579	0.436	249	0.0	0.8	10.833	B
C-A	516	129			516				
C-B	0	0	464	0.000	0	0.0	0.0	0.000	A
A-B	141	35			141				
A-C	523	131			523				

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	108	27	367	0.294	107	0.3	0.4	13.818	B
B-A	301	75	531	0.567	299	0.8	1.3	15.370	C
C-A	616	154			616				
C-B	0	0	443	0.000	0	0.0	0.0	0.000	A
A-B	168	42			168				
A-C	625	156			625				

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	132	33	236	0.559	129	0.4	1.2	32.695	D
B-A	369	92	455	0.811	360	1.3	3.6	34.923	D
C-A	754	189			754				
C-B	0	0	414	0.000	0	0.0	0.0	0.000	A
A-B	206	51			206				
A-C	765	191			765				

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	132	33	224	0.591	131	1.2	1.3	38.568	E
B-A	369	92	451	0.817	367	3.6	4.0	41.245	E
C-A	754	189			754				
C-B	0	0	414	0.000	0	0.0	0.0	0.000	A
A-B	206	51			206				
A-C	765	191			765				

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	108	27	356	0.303	111	1.3	0.4	14.928	B
B-A	301	75	529	0.569	312	4.0	1.4	17.285	C
C-A	616	154			616				
C-B	0	0	443	0.000	0	0.0	0.0	0.000	A
A-B	168	42			168				
A-C	625	156			625				

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	90	23	431	0.210	91	0.4	0.3	10.613	B
B-A	252	63	578	0.436	255	1.4	0.8	11.208	B
C-A	516	129			516				
C-B	0	0	464	0.000	0	0.0	0.0	0.000	A
A-B	141	35			141				
A-C	523	131			523				

2030 + Dev + Proposed, 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	Newmarket Road / A505	T-Junction	Two-way		1.39	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2030 + Dev + Proposed	PM	2014 PM	ONE HOUR	16:45	18:15	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 (Veh/hr)	Scaling Factor (%)
A - A505 East		ONE HOUR	✓	1061	100.000
B - Newmarket Road		ONE HOUR	✓	246	100.000
C - A505 West		ONE HOUR	✓	650	100.000

Origin-Destination Data

Demand (Veh/hr)

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
From	A - A505 East	0	431	630
	B - Newmarket Road	160	0	86
	C - A505 West	650	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A505 East	B - Newmarket Road	C - A505 West
From	A - A505 East	0	0	4
	B - Newmarket Road	1	0	0
	C - A505 West	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-C	0.22	10.76	0.3	B	79	118
B-A	0.36	11.56	0.6	B	147	220
C-A					596	895
C-B	0.00	0.00	0.0	A	0	0
A-B					395	593
A-C					578	867

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	65	16	511	0.127	64	0.0	0.1	8.055	A
B-A	120	30	579	0.208	119	0.0	0.3	7.809	A
C-A	489	122			489				
C-B	0	0	450	0.000	0	0.0	0.0	0.000	A
A-B	324	81			324				
A-C	474	119			474				

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	77	19	479	0.161	77	0.1	0.2	8.956	A
B-A	144	36	542	0.266	143	0.3	0.4	9.033	A
C-A	584	146			584				
C-B	0	0	426	0.000	0	0.0	0.0	0.000	A
A-B	387	97			387				
A-C	566	142			566				

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	95	24	430	0.220	94	0.2	0.3	10.719	B
B-A	176	44	488	0.361	175	0.4	0.6	11.502	B
C-A	716	179			716				
C-B	0	0	392	0.000	0	0.0	0.0	0.000	A
A-B	475	119			475				
A-C	694	173			694				

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	95	24	429	0.221	95	0.3	0.3	10.755	B
B-A	176	44	487	0.361	176	0.6	0.6	11.561	B
C-A	716	179			716				
C-B	0	0	392	0.000	0	0.0	0.0	0.000	A
A-B	475	119			475				
A-C	694	173			694				

17:45 - 18:00

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	77	19	478	0.162	78	0.3	0.2	8.993	A
B-A	144	36	542	0.266	145	0.6	0.4	9.088	A
C-A	584	146			584				
C-B	0	0	426	0.000	0	0.0	0.0	0.000	A
A-B	387	97			387				
A-C	566	142			566				

18:00 - 18:15

Stream	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-C	65	16	510	0.127	65	0.2	0.1	8.093	A
B-A	120	30	579	0.208	121	0.4	0.3	7.860	A
C-A	489	122			489				
C-B	0	0	450	0.000	0	0.0	0.0	0.000	A
A-B	324	81			324				
A-C	474	119			474				

Junctions 9										
ARCADY 9 - Roundabout Module										
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Filename: A1198-A505 Roundabout +URS Mitigation.j9

Path: M:\Projects\2023\23324 - Newmarket Road, Royston\07. Technical\07.02 Modelling\ARCADY

Report generation date: 23/09/2025 16:23:36

«A1198 /A505 Roundabout - 2030 + Dev + Proposed, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	AM					PM				
	Set ID	Queue (Veh)	Delay (min)	RFC	LOS	Set ID	Queue (Veh)	Delay (min)	RFC	LOS
	A1198 /A505 Roundabout - 2024									
1 - A1198 North	D1	2.0	0.14	0.67	A	D2	2.0	0.13	0.67	A
2 - A505 East		7.5	0.31	0.89	C		5.0	0.21	0.84	B
3 - A1198 South		1.7	0.13	0.64	A		1.3	0.11	0.56	A
4 - A505 West		10.9	0.41	0.93	C		3.0	0.13	0.75	A
	A1198 /A505 Roundabout - 2030									
1 - A1198 North	D3	2.6	0.18	0.73	B	D4	2.6	0.16	0.73	A
2 - A505 East		13.9	0.55	0.95	D		7.9	0.32	0.90	C
3 - A1198 South		2.2	0.16	0.69	A		1.6	0.13	0.62	A
4 - A505 West		24.1	0.83	0.99	E		3.9	0.16	0.80	A
	A1198 /A505 Roundabout - 2030 + Dev									
1 - A1198 North	D5	2.8	0.19	0.75	B	D6	2.8	0.17	0.74	A
2 - A505 East		19.5	0.74	0.98	E		8.8	0.35	0.91	C
3 - A1198 South		2.3	0.17	0.70	A		1.7	0.14	0.63	A
4 - A505 West		27.8	0.93	1.00	F		4.3	0.18	0.82	B
	A1198 /A505 Roundabout - 2030 + Dev + Proposed									
1 - A1198 North	D7	2.9	0.19	0.75	B	D8	3.0	0.17	0.76	B
2 - A505 East		19.9	0.75	0.98	E		9.3	0.38	0.91	C
3 - A1198 South		2.6	0.18	0.72	B		1.7	0.14	0.64	A
4 - A505 West		31.3	1.03	1.00	F		4.4	0.18	0.82	B

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	A505/ A1198 Roundabout
Location	
Site number	
Date	27/02/2015
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ODYSSEY-CE\dpsyllides
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	Veh	Veh	perHour	min	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (min)	Queue threshold (PCU)
5.75				0.85	0.60	20.00

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
AL	A1198 /A505 Roundabout	✓	100.000	100.000

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
D8	2030 + Dev + Proposed	PM	ONE HOUR	16:45	18:15	15	✓

A1198 /A505 Roundabout - 2030 + Dev + Proposed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	1 - A1198 North - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	3 - A1198 South - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (min)	Junction LOS
1	A505/A1198	Standard Roundabout		1, 2, 3, 4	0.24	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A1198 North	
2	A505 East	
3	A1198 South	
4	A505 West	

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 - A1198 North	5.20	8.30	35.0	22.0	75.0	34.0	
2 - A505 East	7.20	8.00	9.0	60.0	75.0	32.0	
3 - A1198 South	5.75	8.25	35.0	20.0	75.0	43.0	
4 - A505 West	7.10	8.00	12.0	45.0	75.0	25.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A1198 North	0.573	2286
2 - A505 East	0.603	2431
3 - A1198 South	0.560	2252
4 - A505 West	0.614	2477

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

Traffic Demand

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 (Veh/hr)	Scaling Factor (%)
1 - A1198 North		ONE HOUR	✓	961	100.000
2 - A505 East		ONE HOUR	✓	1436	100.000
3 - A1198 South		ONE HOUR	✓	698	100.000
4 - A505 West		ONE HOUR	✓	1359	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
From		1 - A1198 North	2 - A505 East	3 - A1198 South	4 - A505 West
	1 - A1198 North	2	230	277	452
	2 - A505 East	257	0	289	890
	3 - A1198 South	299	308	0	91
	4 - A505 West	327	779	204	49

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - A1198 North	2 - A505 East	3 - A1198 South	4 - A505 West
	1 - A1198 North	100	3	1	0
	2 - A505 East	2	0	1	3
	3 - A1198 South	1	1	0	0
	4 - A505 West	2	4	2	4

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A1198 North	0.76	0.17	3.0	B	882	1323
2 - A505 East	0.91	0.38	9.3	C	1318	1977
3 - A1198 South	0.64	0.14	1.7	A	640	961
4 - A505 West	0.82	0.18	4.4	B	1247	1871

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A1198 North	723	181	1005	1673	0.432	720	663	0.0	0.8	0.063	A
2 - A505 East	1081	270	738	1935	0.559	1076	988	0.0	1.3	0.069	A
3 - A1198 South	525	131	1237	1530	0.344	523	577	0.0	0.5	0.060	A
4 - A505 West	1023	256	649	2010	0.509	1019	1111	0.0	1.0	0.060	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A1198 North	864	216	1202	1559	0.554	862	794	0.8	1.2	0.086	A
2 - A505 East	1291	323	883	1849	0.698	1287	1181	1.3	2.3	0.106	A
3 - A1198 South	627	157	1479	1392	0.451	626	690	0.5	0.8	0.078	A
4 - A505 West	1222	305	777	1933	0.632	1219	1329	1.0	1.7	0.084	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A1198 North	1058	265	1466	1405	0.753	1051	966	1.2	2.9	0.167	A
2 - A505 East	1581	395	1076	1733	0.912	1557	1441	2.3	8.4	0.305	C
3 - A1198 South	769	192	1794	1215	0.633	765	839	0.8	1.7	0.132	A
4 - A505 West	1496	374	946	1831	0.817	1486	1613	1.7	4.2	0.169	B

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A1198 North	1058	265	1475	1400	0.756	1058	973	2.9	3.0	0.175	B
2 - A505 East	1581	395	1083	1729	0.914	1577	1449	8.4	9.3	0.375	C
3 - A1198 South	769	192	1813	1203	0.639	768	847	1.7	1.7	0.138	A
4 - A505 West	1496	374	953	1827	0.819	1496	1629	4.2	4.4	0.180	B

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A1198 North	864	216	1214	1552	0.557	871	805	3.0	1.3	0.089	A
2 - A505 East	1291	323	892	1843	0.700	1319	1193	9.3	2.4	0.120	A
3 - A1198 South	627	157	1509	1375	0.456	631	701	1.7	0.8	0.081	A
4 - A505 West	1222	305	787	1927	0.634	1232	1354	4.4	1.8	0.088	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A1198 North	723	181	1012	1669	0.433	726	668	1.3	0.8	0.064	A
2 - A505 East	1081	270	743	1932	0.560	1086	994	2.4	1.3	0.071	A
3 - A1198 South	525	131	1247	1524	0.345	527	582	0.8	0.5	0.060	A
4 - A505 West	1023	256	654	2008	0.510	1026	1120	1.8	1.0	0.061	A

Junctions 9									
ARCADY 9 - Roundabout Module									
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Filename: A10 Melbourne St Newmarket Rd Roundabout +URS Mitigation.j9
Path: M:\Projects\2023\23324 - Newmarket Road, Royston\07. Technical\07.02 Modelling\ARCADY
Report generation date: 23/09/2025 17:05:44

«(Default Analysis Set) - 2030 + Dev + Proposed, AM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

	AM					PM				
	Set ID	Queue (Veh)	Delay (min)	RFC	LOS	Set ID	Queue (Veh)	Delay (min)	RFC	LOS
	A1 - 2024									
1 - A10 North	D1	1.1	0.13	0.52	A	D2	1.0	0.12	0.50	A
2 - Newmarket Road		0.6	0.08	0.37	A		0.7	0.08	0.42	A
3 - A10 South		1.2	0.09	0.56	A		1.3	0.10	0.57	A
4 - Melbourne Street		1.5	0.14	0.60	A		1.3	0.14	0.57	A
	A1 - 2030									
1 - A10 North	D3	1.3	0.14	0.56	A	D4	1.1	0.13	0.54	A
2 - Newmarket Road		0.6	0.08	0.39	A		0.8	0.09	0.45	A
3 - A10 South		1.4	0.10	0.59	A		1.5	0.11	0.61	A
4 - Melbourne Street		1.8	0.17	0.65	A		1.6	0.15	0.62	A
	A1 - 2030 + Dev									
1 - A10 North	D5	1.4	0.15	0.59	A	D6	1.6	0.16	0.62	A
2 - Newmarket Road		0.9	0.09	0.46	A		0.9	0.10	0.48	A
3 - A10 South		1.6	0.11	0.61	A		1.7	0.12	0.63	A
4 - Melbourne Street		2.0	0.18	0.67	B		1.9	0.18	0.66	B
	A1 - 2030 + Dev + Proposed									
1 - A10 North	D7	1.6	0.17	0.62	B	D8	2.1	0.20	0.68	B
2 - Newmarket Road		0.9	0.10	0.48	A		1.1	0.11	0.53	A
3 - A10 South		2.5	0.15	0.71	A		2.0	0.13	0.67	A
4 - Melbourne Street		2.5	0.22	0.72	B		2.7	0.23	0.73	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	A10/ Newmarket Rd/ Melbourne Street Roundabout
Location	
Site number	
Date	27/02/2015
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ODYSSEY-CE\dpsyllides
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	Veh	Veh	perHour	min	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (min)	Queue threshold (PCU)
5.75				0.85	0.60	20.00

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	(Default Analysis Set)	✓	100.000	100.000

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
D7	2030 + Dev + Proposed	AM	ONE HOUR	07:30	09:00	15	✓

(Default Analysis Set) - 2030 + Dev + Proposed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (min)	Junction LOS
1	A10/Newmarket Rd/Melbourn St	Standard Roundabout		1, 2, 3, 4	0.16	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A10 North	
2	Newmarket Road	
3	A10 South	
4	Melbourne Street	

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 - A10 North	4.60	5.60	6.0	13.0	34.0	59.0	
2 - Newmarket Road	4.30	6.00	17.0	35.0	34.0	36.0	
3 - A10 South	4.40	6.50	19.5	20.0	34.0	34.0	
4 - Melbourne Street	4.20	5.30	7.0	22.0	34.0	28.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A10 North	0.551	1389
2 - Newmarket Road	0.652	1693
3 - A10 South	0.665	1781
4 - Melbourne Street	0.618	1511

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

Traffic Demand

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 (Veh/hr)	Scaling Factor (%)
1 - A10 North		ONE HOUR	✓	528	100.000
2 - Newmarket Road		ONE HOUR	✓	514	100.000
3 - A10 South		ONE HOUR	✓	916	100.000
4 - Melbourne Street		ONE HOUR	✓	631	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
From		1 - A10 North	2 - Newmarket Road	3 - A10 South	4 - Melbourne Street
	1 - A10 North	1	112	285	130
	2 - Newmarket Road	128	3	166	217
	3 - A10 South	428	209	0	279
	4 - Melbourne Street	160	199	272	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - A10 North	2 - Newmarket Road	3 - A10 South	4 - Melbourne Street
	1 - A10 North	0	1	6	1
	2 - Newmarket Road	0	0	0	1
	3 - A10 South	1	0	0	2
	4 - Melbourne Street	3	4	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A10 North	0.62	0.17	1.6	B	485	727
2 - Newmarket Road	0.48	0.10	0.9	A	472	707
3 - A10 South	0.71	0.15	2.5	A	841	1261
4 - Melbourne Street	0.72	0.22	2.5	B	579	869

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	398	99	511	1065	0.373	395	537	0.0	0.6	0.089	A
2 - Newmarket Road	387	97	515	1343	0.288	385	392	0.0	0.4	0.063	A
3 - A10 South	690	172	359	1524	0.452	686	541	0.0	0.8	0.071	A
4 - Melbourne Street	475	119	576	1131	0.420	472	469	0.0	0.7	0.091	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	475	119	612	1011	0.470	474	643	0.6	0.9	0.111	A
2 - Newmarket Road	462	116	617	1275	0.362	461	469	0.4	0.6	0.074	A
3 - A10 South	823	206	430	1477	0.557	822	648	0.8	1.2	0.091	A
4 - Melbourne Street	567	142	690	1061	0.534	566	562	0.7	1.1	0.121	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	581	145	747	938	0.619	578	786	0.9	1.6	0.165	A
2 - Newmarket Road	566	141	753	1184	0.478	565	573	0.6	0.9	0.097	A
3 - A10 South	1009	252	526	1414	0.713	1004	792	1.2	2.4	0.145	A
4 - Melbourne Street	695	174	843	968	0.718	690	687	1.1	2.4	0.212	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	581	145	752	936	0.621	581	789	1.6	1.6	0.169	B
2 - Newmarket Road	566	141	757	1182	0.479	566	576	0.9	0.9	0.097	A
3 - A10 South	1009	252	527	1413	0.714	1008	796	2.4	2.5	0.148	A
4 - Melbourne Street	695	174	847	966	0.719	694	689	2.4	2.5	0.221	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	475	119	619	1007	0.471	477	648	1.6	0.9	0.114	A
2 - Newmarket Road	462	116	623	1271	0.364	463	474	0.9	0.6	0.074	A
3 - A10 South	823	206	432	1476	0.558	828	654	2.5	1.3	0.093	A
4 - Melbourne Street	567	142	695	1058	0.536	573	565	2.5	1.2	0.125	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	398	99	516	1063	0.374	399	541	0.9	0.6	0.091	A
2 - Newmarket Road	387	97	520	1340	0.289	388	395	0.6	0.4	0.063	A
3 - A10 South	690	172	361	1523	0.453	691	546	1.3	0.8	0.072	A
4 - Melbourne Street	475	119	580	1128	0.421	477	472	1.2	0.7	0.092	A

Junctions 9				
ARCADY 9 - Roundabout Module				
Version: 9.5.1.7462 © Copyright TRL Limited, 2019				
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk				
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution				

Filename: A10- A 505 Roundabout + URS Mitigation.j9

Path: M:\Projects\2023\23324 - Newmarket Road, Royston\07. Technical\07.02 Modelling\ARCADY

Report generation date: 23/09/2025 16:01:38

- »(Default Analysis Set) - 2024, AM
- »(Default Analysis Set) - 2024, PM
- »(Default Analysis Set) - 2030, AM
- »(Default Analysis Set) - 2030, PM
- »(Default Analysis Set) - 2030 + Dev, AM
- »(Default Analysis Set) - 2030 + Dev, PM
- »(Default Analysis Set) - 2030 + Dev + Proposed, AM
- »(Default Analysis Set) - 2030 + Dev + Proposed, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (Veh)	Delay (min)	RFC	LOS	Set ID	Queue (Veh)	Delay (min)	RFC	LOS
	A1 - 2024									
1 - A10 North	D1	1.0	0.09	0.51	A	D2	2.0	0.13	0.67	A
2 - A505 East		1.8	0.13	0.65	A		1.4	0.11	0.58	A
3 - A10 South		1.2	0.12	0.54	A		0.9	0.10	0.48	A
4 - A505 West		3.2	0.13	0.77	A		2.0	0.09	0.67	A
	A1 - 2030									
1 - A10 North	D3	1.2	0.10	0.54	A	D4	2.5	0.16	0.71	A
2 - A505 East		2.2	0.15	0.69	A		1.6	0.13	0.62	A
3 - A10 South		1.4	0.13	0.58	A		1.1	0.11	0.52	A
4 - A505 West		4.1	0.16	0.81	A		2.3	0.10	0.70	A
	A1 - 2030 + Dev									
1 - A10 North	D5	1.2	0.10	0.55	A	D6	2.7	0.17	0.74	B
2 - A505 East		2.8	0.18	0.74	B		1.9	0.14	0.66	A
3 - A10 South		1.5	0.14	0.60	A		1.1	0.11	0.52	A
4 - A505 West		4.4	0.17	0.82	B		2.5	0.11	0.72	A
	A1 - 2030 + Dev + Proposed									
1 - A10 North	D7	1.3	0.10	0.56	A	D8	3.1	0.19	0.76	B
2 - A505 East		2.8	0.18	0.74	B		2.0	0.15	0.66	A
3 - A10 South		1.7	0.15	0.63	A		1.1	0.11	0.53	A
4 - A505 West		4.6	0.18	0.83	B		2.6	0.11	0.72	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	A405/ A10 Roundabout
Location	
Site number	
Date	24/02/2015
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ODYSSEY-CE\dpsyllides
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	Veh	Veh	perHour	min	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (min)	Queue threshold (PCU)
5.75				0.85	0.60	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	2024	AM	ONE HOUR	07:30	09:00	15	✓
D2	2024	PM	ONE HOUR	16:45	18:15	15	✓
D3	2030	AM	ONE HOUR	07:30	09:00	15	✓
D4	2030	PM	ONE HOUR	16:45	18:15	15	✓
D5	2030 + Dev	AM	ONE HOUR	07:30	09:00	15	✓
D6	2030 + Dev	PM	ONE HOUR	16:45	18:15	15	✓
D7	2030 + Dev + Proposed	AM	ONE HOUR	07:30	09:00	15	✓
D8	2030 + Dev + Proposed	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	(Default Analysis Set)	✓	100.000	100.000

(Default Analysis Set) - 2024, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (min)	Junction LOS
1	A505/A10	Standard Roundabout		1, 2, 3, 4	0.12	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A10 North	
2	A505 East	
3	A10 South	
4	A505 West	

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 - A10 North	4.00	6.50	24.0	60.0	90.0	20.0	
2 - A505 East	3.65	6.70	25.0	60.0	90.0	15.0	
3 - A10 South	4.30	6.80	17.0	22.0	90.0	35.0	
4 - A505 West	7.10	8.00	7.0	22.0	90.0	41.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A10 North	0.499	1900
2 - A505 East	0.506	1920
3 - A10 South	0.467	1795
4 - A505 West	0.529	2265

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	2024	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 (Veh/hr)	Scaling Factor (%)
1 - A10 North		ONE HOUR	✓	620	100.000
2 - A505 East		ONE HOUR	✓	787	100.000
3 - A10 South		ONE HOUR	✓	551	100.000
4 - A505 West		ONE HOUR	✓	1373	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
From	1 - A10 North	0	11	181	428
	2 - A505 East	31	0	67	689
	3 - A10 South	260	50	0	241
	4 - A505 West	543	616	211	3

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
From	1 - A10 North	0	18	1	4
	2 - A505 East	3	0	9	9
	3 - A10 South	3	10	0	3
	4 - A505 West	2	7	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A10 North	0.51	0.09	1.0	A	569	853
2 - A505 East	0.65	0.13	1.8	A	722	1083
3 - A10 South	0.54	0.12	1.2	A	506	758
4 - A505 West	0.77	0.13	3.2	A	1260	1890

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	467	117	660	1499	0.311	465	625	0.0	0.4	0.058	A
2 - A505 East	592	148	617	1469	0.403	590	508	0.0	0.7	0.068	A
3 - A10 South	415	104	863	1316	0.315	413	344	0.0	0.5	0.066	A
4 - A505 West	1034	258	256	2032	0.509	1030	1020	0.0	1.0	0.060	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	557	139	790	1432	0.389	557	748	0.4	0.6	0.068	A
2 - A505 East	707	177	739	1411	0.501	706	608	0.7	1.0	0.085	A
3 - A10 South	495	124	1033	1234	0.401	495	412	0.5	0.7	0.081	A
4 - A505 West	1234	309	306	2006	0.615	1232	1222	1.0	1.6	0.077	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	683	171	965	1342	0.509	681	915	0.6	1.0	0.091	A
2 - A505 East	867	217	904	1332	0.651	863	742	1.0	1.8	0.127	A
3 - A10 South	607	152	1263	1123	0.540	605	504	0.7	1.2	0.115	A
4 - A505 West	1512	378	374	1970	0.767	1505	1494	1.6	3.2	0.127	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	683	171	969	1340	0.509	683	918	1.0	1.0	0.091	A
2 - A505 East	867	217	906	1330	0.651	866	745	1.8	1.8	0.129	A
3 - A10 South	607	152	1267	1121	0.541	607	505	1.2	1.2	0.117	A
4 - A505 West	1512	378	375	1969	0.768	1511	1498	3.2	3.2	0.131	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	557	139	795	1429	0.390	559	753	1.0	0.6	0.069	A
2 - A505 East	707	177	742	1409	0.502	711	612	1.8	1.0	0.086	A
3 - A10 South	495	124	1039	1231	0.402	497	414	1.2	0.7	0.082	A
4 - A505 West	1234	309	308	2005	0.616	1241	1228	3.2	1.6	0.079	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	467	117	664	1497	0.312	468	629	0.6	0.5	0.058	A
2 - A505 East	592	148	621	1468	0.404	594	511	1.0	0.7	0.069	A
3 - A10 South	415	104	868	1313	0.316	416	346	0.7	0.5	0.067	A
4 - A505 West	1034	258	257	2031	0.509	1036	1027	1.6	1.0	0.060	A

(Default Analysis Set) - 2024, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (min)	Junction LOS
1	A505/A10	Standard Roundabout		1, 2, 3, 4	0.11	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	2024	PM	ONE HOUR	16:45	18:15	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 (Veh/hr)	Scaling Factor (%)
1 - A10 North		ONE HOUR	✓	825	100.000
2 - A505 East		ONE HOUR	✓	678	100.000
3 - A10 South		ONE HOUR	✓	521	100.000
4 - A505 West		ONE HOUR	✓	1230	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
From		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
	1 - A10 North	3	7	314	501
	2 - A505 East	14	0	76	588
	3 - A10 South	231	32	0	258
	4 - A505 West	355	660	215	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
	1 - A10 North	33	0	2	1
	2 - A505 East	0	0	1	4
	3 - A10 South	0	6	0	1
	4 - A505 West	1	5	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A10 North	0.67	0.13	2.0	A	757	1136
2 - A505 East	0.58	0.11	1.4	A	622	933
3 - A10 South	0.48	0.10	0.9	A	478	717
4 - A505 West	0.67	0.09	2.0	A	1129	1693

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	621	155	680	1524	0.408	618	452	0.0	0.7	0.066	A
2 - A505 East	510	128	774	1470	0.347	508	524	0.0	0.5	0.062	A
3 - A10 South	392	98	829	1385	0.283	391	454	0.0	0.4	0.060	A
4 - A505 West	926	232	210	2084	0.444	923	1010	0.0	0.8	0.052	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	742	185	814	1455	0.510	740	541	0.7	1.0	0.084	A
2 - A505 East	610	152	927	1395	0.437	609	628	0.5	0.8	0.076	A
3 - A10 South	468	117	993	1307	0.358	468	543	0.4	0.6	0.071	A
4 - A505 West	1106	276	251	2063	0.536	1104	1209	0.8	1.1	0.063	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	908	227	996	1362	0.667	905	662	1.0	2.0	0.130	A
2 - A505 East	746	187	1133	1292	0.578	744	768	0.8	1.3	0.109	A
3 - A10 South	574	143	1213	1203	0.477	572	664	0.6	0.9	0.095	A
4 - A505 West	1354	339	308	2033	0.666	1351	1478	1.1	2.0	0.087	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	908	227	999	1361	0.668	908	664	2.0	2.0	0.132	A
2 - A505 East	746	187	1137	1290	0.579	746	770	1.3	1.4	0.110	A
3 - A10 South	574	143	1218	1201	0.478	574	666	0.9	0.9	0.096	A
4 - A505 West	1354	339	308	2033	0.666	1354	1483	2.0	2.0	0.088	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	742	185	818	1454	0.510	745	544	2.0	1.1	0.085	A
2 - A505 East	610	152	933	1392	0.438	612	630	1.4	0.8	0.077	A
3 - A10 South	468	117	999	1305	0.359	470	546	0.9	0.6	0.072	A
4 - A505 West	1106	276	252	2062	0.536	1109	1216	2.0	1.2	0.063	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	621	155	684	1522	0.408	623	455	1.1	0.7	0.067	A
2 - A505 East	510	128	779	1468	0.348	511	527	0.8	0.5	0.063	A
3 - A10 South	392	98	834	1383	0.284	393	456	0.6	0.4	0.061	A
4 - A505 West	926	232	211	2083	0.444	927	1016	1.2	0.8	0.052	A

(Default Analysis Set) - 2030, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (min)	Junction LOS
1	A505/A10	Standard Roundabout		1, 2, 3, 4	0.14	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	2030	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 (Veh/hr)	Scaling Factor (%)
1 - A10 North		ONE HOUR	✓	651	100.000
2 - A505 East		ONE HOUR	✓	826	100.000
3 - A10 South		ONE HOUR	✓	578	100.000
4 - A505 West		ONE HOUR	✓	1440	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
From		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
	1 - A10 North	0	12	190	449
	2 - A505 East	33	0	70	723
	3 - A10 South	273	52	0	253
	4 - A505 West	570	646	221	3

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
	1 - A10 North	0	18	1	4
	2 - A505 East	3	0	9	9
	3 - A10 South	3	10	0	3
	4 - A505 West	2	7	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A10 North	0.54	0.10	1.2	A	597	896
2 - A505 East	0.69	0.15	2.2	A	758	1137
3 - A10 South	0.58	0.13	1.4	A	530	796
4 - A505 West	0.81	0.16	4.1	A	1321	1982

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	490	123	691	1483	0.331	488	657	0.0	0.5	0.060	A
2 - A505 East	622	155	647	1455	0.427	619	532	0.0	0.7	0.072	A
3 - A10 South	435	109	905	1295	0.336	433	361	0.0	0.5	0.069	A
4 - A505 West	1084	271	268	2026	0.535	1080	1070	0.0	1.1	0.063	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	585	146	827	1413	0.414	584	786	0.5	0.7	0.072	A
2 - A505 East	743	186	775	1394	0.533	741	637	0.7	1.1	0.092	A
3 - A10 South	520	130	1084	1209	0.430	519	432	0.5	0.7	0.087	A
4 - A505 West	1295	324	321	1998	0.648	1292	1281	1.1	1.8	0.085	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	717	179	1010	1319	0.543	715	960	0.7	1.2	0.099	A
2 - A505 East	909	227	947	1311	0.694	905	778	1.1	2.2	0.146	A
3 - A10 South	636	159	1325	1093	0.582	634	527	0.7	1.4	0.130	A
4 - A505 West	1585	396	393	1960	0.809	1577	1566	1.8	4.0	0.153	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	717	179	1015	1316	0.545	717	964	1.2	1.2	0.100	A
2 - A505 East	909	227	950	1309	0.695	909	782	2.2	2.2	0.150	A
3 - A10 South	636	159	1330	1091	0.583	636	530	1.4	1.4	0.132	A
4 - A505 West	1585	396	394	1959	0.809	1585	1572	4.0	4.1	0.160	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	585	146	835	1409	0.415	587	792	1.2	0.7	0.073	A
2 - A505 East	743	186	779	1392	0.534	747	643	2.2	1.2	0.094	A
3 - A10 South	520	130	1091	1206	0.431	522	435	1.4	0.8	0.088	A
4 - A505 West	1295	324	323	1997	0.648	1304	1290	4.1	1.9	0.088	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	490	123	696	1480	0.331	491	661	0.7	0.5	0.061	A
2 - A505 East	622	155	651	1453	0.428	623	536	1.2	0.8	0.072	A
3 - A10 South	435	109	912	1292	0.337	436	363	0.8	0.5	0.070	A
4 - A505 West	1084	271	270	2025	0.535	1087	1078	1.9	1.2	0.064	A

(Default Analysis Set) - 2030, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (min)	Junction LOS
1	A505/A10	Standard Roundabout		1, 2, 3, 4	0.12	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	2030	PM	ONE HOUR	16:45	18:15	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 (Veh/hr)	Scaling Factor (%)
1 - A10 North		ONE HOUR	✓	866	100.000
2 - A505 East		ONE HOUR	✓	712	100.000
3 - A10 South		ONE HOUR	✓	548	100.000
4 - A505 West		ONE HOUR	✓	1294	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
From		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
	1 - A10 North	3	7	330	526
	2 - A505 East	15	0	80	617
	3 - A10 South	243	34	0	271
	4 - A505 West	373	693	226	2

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
	1 - A10 North	33	0	2	1
	2 - A505 East	0	0	1	4
	3 - A10 South	0	6	0	1
	4 - A505 West	1	5	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A10 North	0.71	0.16	2.5	A	795	1192
2 - A505 East	0.62	0.13	1.6	A	653	980
3 - A10 South	0.52	0.11	1.1	A	503	754
4 - A505 West	0.70	0.10	2.3	A	1187	1781

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	652	163	716	1506	0.433	649	475	0.0	0.8	0.070	A
2 - A505 East	536	134	815	1450	0.370	534	551	0.0	0.6	0.065	A
3 - A10 South	413	103	872	1365	0.302	411	477	0.0	0.4	0.063	A
4 - A505 West	974	244	221	2078	0.469	971	1061	0.0	0.9	0.054	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	779	195	857	1433	0.543	777	569	0.8	1.2	0.091	A
2 - A505 East	640	160	975	1371	0.467	639	659	0.6	0.9	0.082	A
3 - A10 South	493	123	1043	1283	0.384	492	571	0.4	0.6	0.076	A
4 - A505 West	1163	291	265	2056	0.566	1162	1271	0.9	1.3	0.067	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	953	238	1048	1335	0.714	949	696	1.2	2.4	0.153	A
2 - A505 East	784	196	1191	1264	0.620	781	806	0.9	1.6	0.124	A
3 - A10 South	603	151	1275	1173	0.514	602	697	0.6	1.0	0.105	A
4 - A505 West	1425	356	324	2025	0.704	1421	1553	1.3	2.3	0.099	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	953	238	1051	1334	0.715	953	698	2.4	2.5	0.157	A
2 - A505 East	784	196	1197	1261	0.622	784	808	1.6	1.6	0.126	A
3 - A10 South	603	151	1280	1171	0.515	603	700	1.0	1.1	0.106	A
4 - A505 West	1425	356	325	2025	0.704	1425	1559	2.3	2.3	0.100	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	779	195	862	1431	0.544	784	572	2.5	1.2	0.093	A
2 - A505 East	640	160	983	1367	0.468	643	662	1.6	0.9	0.083	A
3 - A10 South	493	123	1051	1280	0.385	494	575	1.1	0.6	0.077	A
4 - A505 West	1163	291	266	2055	0.566	1167	1279	2.3	1.3	0.068	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	652	163	720	1504	0.434	654	478	1.2	0.8	0.071	A
2 - A505 East	536	134	820	1447	0.370	537	554	0.9	0.6	0.066	A
3 - A10 South	413	103	878	1362	0.303	413	480	0.6	0.4	0.063	A
4 - A505 West	974	244	223	2078	0.469	976	1069	1.3	0.9	0.055	A

(Default Analysis Set) - 2030 + Dev, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (min)	Junction LOS
1	A505/A10	Standard Roundabout		1, 2, 3, 4	0.15	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	2030 + Dev	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 (Veh/hr)	Scaling Factor (%)
1 - A10 North		ONE HOUR	✓	658	100.000
2 - A505 East		ONE HOUR	✓	872	100.000
3 - A10 South		ONE HOUR	✓	578	100.000
4 - A505 West		ONE HOUR	✓	1451	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
From		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
	1 - A10 North	0	12	197	449
	2 - A505 East	50	0	70	752
	3 - A10 South	273	52	0	253
	4 - A505 West	570	646	232	3

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
	1 - A10 North	0	18	1	4
	2 - A505 East	3	0	9	9
	3 - A10 South	3	10	0	3
	4 - A505 West	2	7	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A10 North	0.55	0.10	1.2	A	604	906
2 - A505 East	0.74	0.18	2.8	B	800	1200
3 - A10 South	0.60	0.14	1.5	A	530	796
4 - A505 West	0.82	0.17	4.4	B	1331	1997

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	495	124	699	1479	0.335	493	669	0.0	0.5	0.061	A
2 - A505 East	656	164	661	1450	0.453	653	532	0.0	0.8	0.075	A
3 - A10 South	435	109	940	1279	0.340	433	374	0.0	0.5	0.071	A
4 - A505 West	1092	273	281	2019	0.541	1088	1092	0.0	1.2	0.064	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	592	148	837	1408	0.420	591	801	0.5	0.7	0.073	A
2 - A505 East	784	196	791	1387	0.565	782	637	0.8	1.3	0.099	A
3 - A10 South	520	130	1125	1190	0.437	519	448	0.5	0.8	0.089	A
4 - A505 West	1304	326	336	1990	0.656	1302	1307	1.2	1.9	0.087	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	724	181	1021	1314	0.552	722	978	0.7	1.2	0.101	A
2 - A505 East	960	240	967	1303	0.737	954	777	1.3	2.7	0.170	B
3 - A10 South	636	159	1374	1070	0.595	634	547	0.8	1.4	0.137	A
4 - A505 West	1598	399	411	1951	0.819	1588	1597	1.9	4.3	0.161	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	724	181	1027	1311	0.553	724	983	1.2	1.2	0.102	A
2 - A505 East	960	240	970	1301	0.738	960	781	2.7	2.8	0.175	B
3 - A10 South	636	159	1380	1067	0.597	636	549	1.4	1.5	0.139	A
4 - A505 West	1598	399	413	1950	0.819	1597	1604	4.3	4.4	0.169	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	592	148	845	1404	0.421	593	808	1.2	0.7	0.074	A
2 - A505 East	784	196	796	1385	0.566	790	643	2.8	1.3	0.102	A
3 - A10 South	520	130	1134	1185	0.438	522	451	1.5	0.8	0.091	A
4 - A505 West	1304	326	339	1989	0.656	1314	1317	4.4	1.9	0.090	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	495	124	704	1476	0.336	496	674	0.7	0.5	0.061	A
2 - A505 East	656	164	665	1448	0.453	658	536	1.3	0.8	0.076	A
3 - A10 South	435	109	946	1276	0.341	436	377	0.8	0.5	0.072	A
4 - A505 West	1092	273	283	2018	0.541	1095	1100	1.9	1.2	0.065	A

(Default Analysis Set) - 2030 + Dev, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (min)	Junction LOS
1	A505/A10	Standard Roundabout		1, 2, 3, 4	0.13	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
D6	2030 + Dev	PM	ONE HOUR	16:45	18:15	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 (Veh/hr)	Scaling Factor (%)
1 - A10 North		ONE HOUR	✓	883	100.000
2 - A505 East		ONE HOUR	✓	738	100.000
3 - A10 South		ONE HOUR	✓	548	100.000
4 - A505 West		ONE HOUR	✓	1322	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
From	1 - A10 North	3	7	347	526
	2 - A505 East	25	0	80	633
	3 - A10 South	243	34	0	271
	4 - A505 West	373	693	254	2

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
From	1 - A10 North	33	0	2	1
	2 - A505 East	0	0	1	4
	3 - A10 South	0	6	0	1
	4 - A505 West	1	5	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A10 North	0.74	0.17	2.7	B	810	1215
2 - A505 East	0.66	0.14	1.9	A	677	1016
3 - A10 South	0.52	0.11	1.1	A	503	754
4 - A505 West	0.72	0.11	2.5	A	1213	1820

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	665	166	737	1495	0.445	662	483	0.0	0.8	0.072	A
2 - A505 East	556	139	848	1434	0.387	553	551	0.0	0.6	0.068	A
3 - A10 South	413	103	891	1356	0.304	411	510	0.0	0.4	0.063	A
4 - A505 West	995	249	229	2075	0.480	992	1073	0.0	0.9	0.055	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	794	198	882	1421	0.559	792	578	0.8	1.2	0.095	A
2 - A505 East	663	166	1015	1351	0.491	662	659	0.6	1.0	0.087	A
3 - A10 South	493	123	1067	1272	0.387	492	611	0.4	0.6	0.077	A
4 - A505 West	1188	297	274	2052	0.579	1187	1285	0.9	1.4	0.069	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	972	243	1079	1320	0.737	966	707	1.2	2.7	0.167	B
2 - A505 East	813	203	1240	1240	0.655	809	806	1.0	1.9	0.138	A
3 - A10 South	603	151	1302	1160	0.520	602	746	0.6	1.1	0.107	A
4 - A505 West	1456	364	335	2020	0.721	1451	1569	1.4	2.5	0.105	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	972	243	1082	1318	0.738	972	709	2.7	2.7	0.173	B
2 - A505 East	813	203	1246	1237	0.657	812	808	1.9	1.9	0.141	A
3 - A10 South	603	151	1309	1157	0.521	603	750	1.1	1.1	0.108	A
4 - A505 West	1456	364	336	2020	0.721	1455	1576	2.5	2.5	0.106	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	794	198	887	1418	0.560	800	581	2.7	1.3	0.098	A
2 - A505 East	663	166	1024	1347	0.493	667	662	1.9	1.0	0.089	A
3 - A10 South	493	123	1076	1268	0.389	494	616	1.1	0.6	0.078	A
4 - A505 West	1188	297	275	2051	0.579	1193	1295	2.5	1.4	0.070	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	665	166	741	1493	0.445	667	486	1.3	0.8	0.073	A
2 - A505 East	556	139	854	1431	0.388	557	554	1.0	0.6	0.069	A
3 - A10 South	413	103	898	1353	0.305	413	514	0.6	0.4	0.064	A
4 - A505 West	995	249	230	2074	0.480	997	1081	1.4	0.9	0.056	A

(Default Analysis Set) - 2030 + Dev + Proposed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (min)	Junction LOS
1	A505/A10	Standard Roundabout		1, 2, 3, 4	0.16	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
D7	2030 + Dev + Proposed	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 (Veh/hr)	Scaling Factor (%)
1 - A10 North		ONE HOUR	✓	667	100.000
2 - A505 East		ONE HOUR	✓	872	100.000
3 - A10 South		ONE HOUR	✓	611	100.000
4 - A505 West		ONE HOUR	✓	1451	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
From		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
	1 - A10 North	0	12	206	449
	2 - A505 East	50	0	70	752
	3 - A10 South	306	52	0	253
	4 - A505 West	570	646	232	3

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
	1 - A10 North	0	18	1	4
	2 - A505 East	3	0	9	9
	3 - A10 South	3	10	0	3
	4 - A505 West	2	7	4	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A10 North	0.56	0.10	1.3	A	612	918
2 - A505 East	0.74	0.18	2.8	B	800	1200
3 - A10 South	0.63	0.15	1.7	A	561	841
4 - A505 West	0.83	0.18	4.6	B	1331	1997

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	502	126	699	1479	0.339	500	694	0.0	0.5	0.061	A
2 - A505 East	656	164	667	1447	0.454	653	532	0.0	0.8	0.075	A
3 - A10 South	460	115	940	1279	0.360	458	381	0.0	0.6	0.073	A
4 - A505 West	1092	273	306	2006	0.544	1088	1092	0.0	1.2	0.065	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	600	150	837	1409	0.426	599	831	0.5	0.7	0.074	A
2 - A505 East	784	196	799	1384	0.567	782	637	0.8	1.3	0.099	A
3 - A10 South	549	137	1125	1190	0.462	548	456	0.6	0.8	0.093	A
4 - A505 West	1304	326	366	1975	0.661	1301	1307	1.2	1.9	0.089	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	734	184	1021	1314	0.559	732	1014	0.7	1.2	0.103	A
2 - A505 East	960	240	976	1298	0.740	954	777	1.3	2.7	0.172	B
3 - A10 South	673	168	1374	1070	0.629	670	557	0.8	1.6	0.149	A
4 - A505 West	1598	399	447	1932	0.827	1587	1597	1.9	4.5	0.169	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	734	184	1027	1311	0.560	734	1019	1.2	1.3	0.104	A
2 - A505 East	960	240	980	1296	0.741	960	781	2.7	2.8	0.178	B
3 - A10 South	673	168	1380	1067	0.631	673	559	1.6	1.7	0.152	A
4 - A505 West	1598	399	449	1931	0.827	1597	1604	4.5	4.6	0.179	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	600	150	845	1404	0.427	602	839	1.3	0.8	0.075	A
2 - A505 East	784	196	804	1381	0.568	790	643	2.8	1.3	0.102	A
3 - A10 South	549	137	1134	1186	0.463	553	459	1.7	0.9	0.095	A
4 - A505 West	1304	326	369	1973	0.661	1315	1318	4.6	2.0	0.093	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	502	126	704	1477	0.340	503	699	0.8	0.5	0.062	A
2 - A505 East	656	164	671	1445	0.454	658	536	1.3	0.8	0.076	A
3 - A10 South	460	115	947	1276	0.360	461	383	0.9	0.6	0.074	A
4 - A505 West	1092	273	308	2005	0.545	1095	1100	2.0	1.2	0.066	A

(Default Analysis Set) - 2030 + Dev + Proposed, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (min)	Junction LOS
1	A505/A10	Standard Roundabout		1, 2, 3, 4	0.14	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
D8	2030 + Dev + Proposed	PM	ONE HOUR	16:45	18:15	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 (Veh/hr)	Scaling Factor (%)
1 - A10 North		ONE HOUR	✓	909	100.000
2 - A505 East		ONE HOUR	✓	738	100.000
3 - A10 South		ONE HOUR	✓	559	100.000
4 - A505 West		ONE HOUR	✓	1322	100.000

Origin-Destination Data

Demand (Veh/hr)

	To				
		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
From	1 - A10 North	3	7	373	526
	2 - A505 East	25	0	80	633
	3 - A10 South	254	34	0	271
	4 - A505 West	373	693	254	2

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1 - A10 North	2 - A505 East	3 - A10 South	4 - A505 West
From	1 - A10 North	33	0	2	1
	2 - A505 East	0	0	1	4
	3 - A10 South	0	6	0	1
	4 - A505 West	1	5	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (min)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
1 - A10 North	0.76	0.19	3.1	B	834	1251
2 - A505 East	0.66	0.15	2.0	A	677	1016
3 - A10 South	0.53	0.11	1.1	A	513	769
4 - A505 West	0.72	0.11	2.6	A	1213	1820

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	684	171	737	1495	0.458	681	491	0.0	0.8	0.073	A
2 - A505 East	556	139	868	1424	0.390	553	551	0.0	0.6	0.069	A
3 - A10 South	421	105	891	1356	0.310	419	530	0.0	0.4	0.064	A
4 - A505 West	995	249	237	2071	0.481	992	1073	0.0	0.9	0.055	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	817	204	882	1421	0.575	815	588	0.8	1.3	0.099	A
2 - A505 East	663	166	1039	1340	0.495	662	659	0.6	1.0	0.088	A
3 - A10 South	503	126	1067	1273	0.395	502	634	0.4	0.6	0.078	A
4 - A505 West	1188	297	284	2047	0.581	1187	1285	0.9	1.4	0.070	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	1001	250	1079	1320	0.758	994	719	1.3	3.0	0.181	B
2 - A505 East	813	203	1267	1226	0.663	809	806	1.0	1.9	0.142	A
3 - A10 South	615	154	1302	1161	0.530	614	774	0.6	1.1	0.109	A
4 - A505 West	1456	364	347	2014	0.723	1451	1569	1.4	2.5	0.106	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	1001	250	1082	1318	0.759	1001	721	3.0	3.1	0.188	B
2 - A505 East	813	203	1275	1223	0.665	812	808	1.9	2.0	0.146	A
3 - A10 South	615	154	1309	1157	0.532	615	778	1.1	1.1	0.111	A
4 - A505 West	1456	364	348	2013	0.723	1455	1576	2.5	2.6	0.107	A

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	817	204	887	1418	0.576	824	591	3.1	1.4	0.102	A
2 - A505 East	663	166	1049	1335	0.497	667	662	2.0	1.0	0.090	A
3 - A10 South	503	126	1076	1268	0.396	504	640	1.1	0.7	0.079	A
4 - A505 West	1188	297	285	2046	0.581	1193	1295	2.6	1.4	0.071	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Junction Arrivals (Veh)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Throughput (exit side) (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (min)	Unsignalised level of service
1 - A10 North	684	171	741	1493	0.458	686	494	1.4	0.9	0.075	A
2 - A505 East	556	139	874	1421	0.391	557	554	1.0	0.6	0.070	A
3 - A10 South	421	105	898	1353	0.311	422	534	0.7	0.5	0.065	A
4 - A505 West	995	249	238	2070	0.481	997	1081	1.4	0.9	0.056	A