

Bassetlaw Local Plan

Bassetlaw Transport Study Addendum

SRN Technical Note

Bassetlaw District Council
November 2022

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Document Control

Document:	Bassetlaw Local Plan -SRN Technical Note
Project:	Bassetlaw Local Plan
Client:	Bassetlaw District Council
Job Number:	784-A102341
File Origin:	Bassetlaw Local Plan - SRN Technical Note - Nov2022 Draft.docx

Revision:	1	Status:	Final
Date:	November 2022		
Prepared by:	Alistair Gregory	Checked by:	Robert Holland
Approved By:	Alistair Gregory		
Description of revision:	For issue.		

Revision:		Status:	
Date:			
Prepared by:		Checked by:	
Approved By:			
Description of revision:			

Revision:		Status:	
Date:			
Prepared by:		Checked by:	
Approved By:			
Description of revision:			

Revision:		Status:	
Date:			
Prepared by:		Checked by:	
Approved By:			
Description of revision:			

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- Appendix C – Capacity Assessments
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1 INTRODUCTION

1.1 BACKGROUND

- 1.1.1 Following publication of the Bassetlaw Transport Study (BTS) in May 2022 and the Retford Transport Study (RTA) in July 2022 National Highways raised a few queries regarding potential implications for the A1 Trunk Road within Bassetlaw which forms part of the Strategic Road Network (SRN) for which they are responsible.
- 1.1.2 This Technical Note has been produced to summarise the transport implications of the proposed Bassetlaw Local Plan on the A1 Trunk Road within Bassetlaw to address the queries raised by National Highways. It draws together relevant information from the BTS and RTA and provides additional information as requested.

1.2 REPORT LAYOUT

- 1.2.1 The structure of the report is as follows:

- Chapter 2 summarises the issues raised by National Highways.
- Chapter 3 responds to a trip assignment query.
- Chapter 4 presents junction capacity assessment results.
- Chapter 5 presents a sensitivity test assessment.
- Chapter 5 summarises the report.

2 SUMMARY OF ISSUES RAISED

2.1 INTRODUCTION

2.1.1 This section of the report summarises the issues raised by National Highways regarding the potential implications of Local Plan traffic on the A1 Trunk Road within Bassetlaw. Copies of relevant correspondence can be found in **Appendix A**.

2.2 ISSUES RAISED

2.2.1 Initial comments on the May 2022 BTS were received from Eri Wong at National Highways in an email dated 8th July 2022. The following information was requested to address national Highways' queries:

- Outputs from the VISUM model to understand impacts on the SRN.
- Details of junction capacity assessments at all junctions on the SRN where material impacts are forecast.
- Details of all mitigation proposed at junctions on the SRN to enable further review.
- Clarification regarding details contained within the IDP report.

2.2.2 An online meeting was subsequently held between National Highways, their consultants AECOM, Bassetlaw District Council (BDC), and Tetra Tech on 12th October 2022 to discuss the points raised by Eri Wong and to agree the format and scope of information required.

2.2.3 It was agreed in the meeting that Tetra Tech would supply AECOM with full details of the VISUM transport model and supporting calculations undertaken for the BTS for review and AECOM would advise if any further information was required.

2.2.4 The modelling data was provided to AECOM on 19th October 2022 and following AECOM's review National Highways responded on 14th November 2022.

2.2.5 AECOM confirmed that the trip generation, trip distribution and VISUM modelling methodology was appropriate. AECOM identified a potential discrepancy where the total vehicle trips generated by the Apleyhead Employment Allocation (zone 1031) did not appear to have been all assigned onto the network. This is discussed in chapter 3 of this report.

2.2.6 AECOM identified material traffic impacts due to Local Plan development at the following three junctions on the A1 Trunk Road and requested junction capacity assessments for these locations. The assessments are presented in chapter 4 of this report.

- A1 / A620 / B6079 Retford Road interchange at Ranby – both T-Junctions.
- A1 / A57 / A614 / B6420 Apleyhead Interchange – both roundabouts.
- A1 / A57 / A638 / B1164 Markham Moor Interchange – both roundabouts.

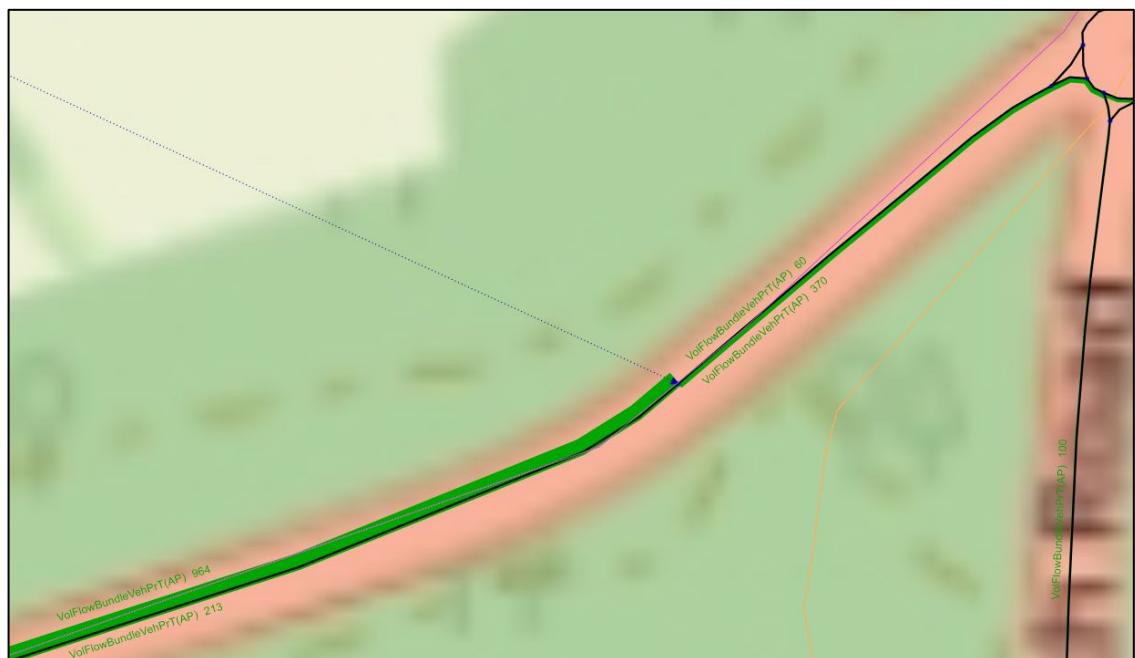
3 TRIP ASSIGNMENT QUERY

3.1 INTRODUCTION

- 3.1.1 As mentioned in the previous chapter, following their review of the VISUM model AECOM identified a potential discrepancy where the total vehicle trips generated by the Apleyhead Employment Allocation (zone 1031) did not appear to have all been assigned onto the network. The relevant extract from National Highways email of 14th November 2022 is reproduced below, a full copy can be found in **Appendix A**.

Discrepancies: There are some significant differences, which will need to be addressed by TetraTech, or if disputed, discussed further in a meeting. One example is the traffic demands at the new employment site proposed adjacent to the west of A1 Apleyhead junction, referred to as 'Apleyhead Junction, Worksop', and represented as Zone 1031 in the Origin-Destination matrices. The matrices developed in the distribution spreadsheet correctly account for the significant traffic generated by this development: 1,607 two-way vehicle trips in the AM peak, and 1,405 in the PM. The VISUM model however only assigns 430 in the AM, and 320 in the PM.

- 3.1.2 The flows referred to are only those between the Apleyhead Employment allocation site and the A1 junction (i.e. those to the east of the Apleyhead site). In the image below taken from the AM peak VISUM model there are $60+370=430$ two-way vehicle trips east of the allocation site, the remaining $964+213 = 1,177$ two-way vehicle trips are west of the site, giving a total of $430+1,177 = 1,607$ two-way vehicles. All flows are therefore present on the network.



- 3.1.3 Based on the Census Travel to Work distribution used in the BTS there is a greater proportion of the total employment trips travelling to/from the west (i.e. towards Worksop). This is shown on the plots attached in **Appendix B** for the Apleyhead Employment Allocation.

4 CAPACITY ASSESSMENTS

4.1 INTRODUCTION

4.1.1 As mentioned earlier AECOM identified material traffic impacts due to Local Plan development at the following three junctions on the A1 Trunk Road and requested junction capacity assessments for these locations.

- A1 / A620 / B6079 Retford Road interchange at Ranby – both T-Junctions.
- A1 / A57 / A614 / B6420 Apleyhead Interchange – both roundabouts.
- A1 / A57 / A638 / B1164 Markham Moor Interchange – both roundabouts.

4.1.2 This chapter presents the results of the traffic capacity assessments and describes any mitigation identified as being necessary.

4.2 ASSESSMENT YEARS

4.2.1 Capacity assessments have been undertaken at 2038 (end of Local Plan period) for the following scenarios:

- 2038 Reference Case (Base + Committed)
- 2038 Design Flows (Base + Committed + Local Plan Development)

4.3 TRAFFIC FLOWS

4.3.1 The traffic flows applied in this note differ slightly from the flows in the VISUM model provided to AECOM on 19th October 2022. The difference relates to the proposed housing allocation at Land South of Ordsall. In the previously supplied data this allocation was assessed with a total of 930 dwellings being delivered by the end of the Local Plan period (2038). The site promoter has since confirmed that full build-out of the site will be achievable by 2038 so the traffic flows have been updated to reflect a development of 1,250 dwellings at Land South of Ordsall.

4.3.2 The table prepared by AECOM summarising the increase in two-way traffic flows at each A1 junction due to Local Plan development has therefore been updated to reflect the amended flows and this is presented on the next page. The updated table demonstrates that material traffic flow increases are still forecast at the same three junctions onto the A1 as previously identified. This note therefore focusses on these locations.

Table 1 – Updated Two-Way Flow Increases due to Local Plan Development

Junction		AM	PM
A1 J34 Blyth Interchange	Western Roundabout	21	21
	Eastern Roundabout	46	24
A1 Apleyhead Interchange(J2)	Western Roundabout	630	479
	Eastern Roundabout	367	211
A1 Ranby Interchange (J1)	Northbound Slips	90	51
	Southbound Slips	67	67
A1 Elkesley Interchange	-	4	3
A1 Markham Moor Interchange (J5)	Western Roundabout	111	146
	Eastern Roundabout	291	200

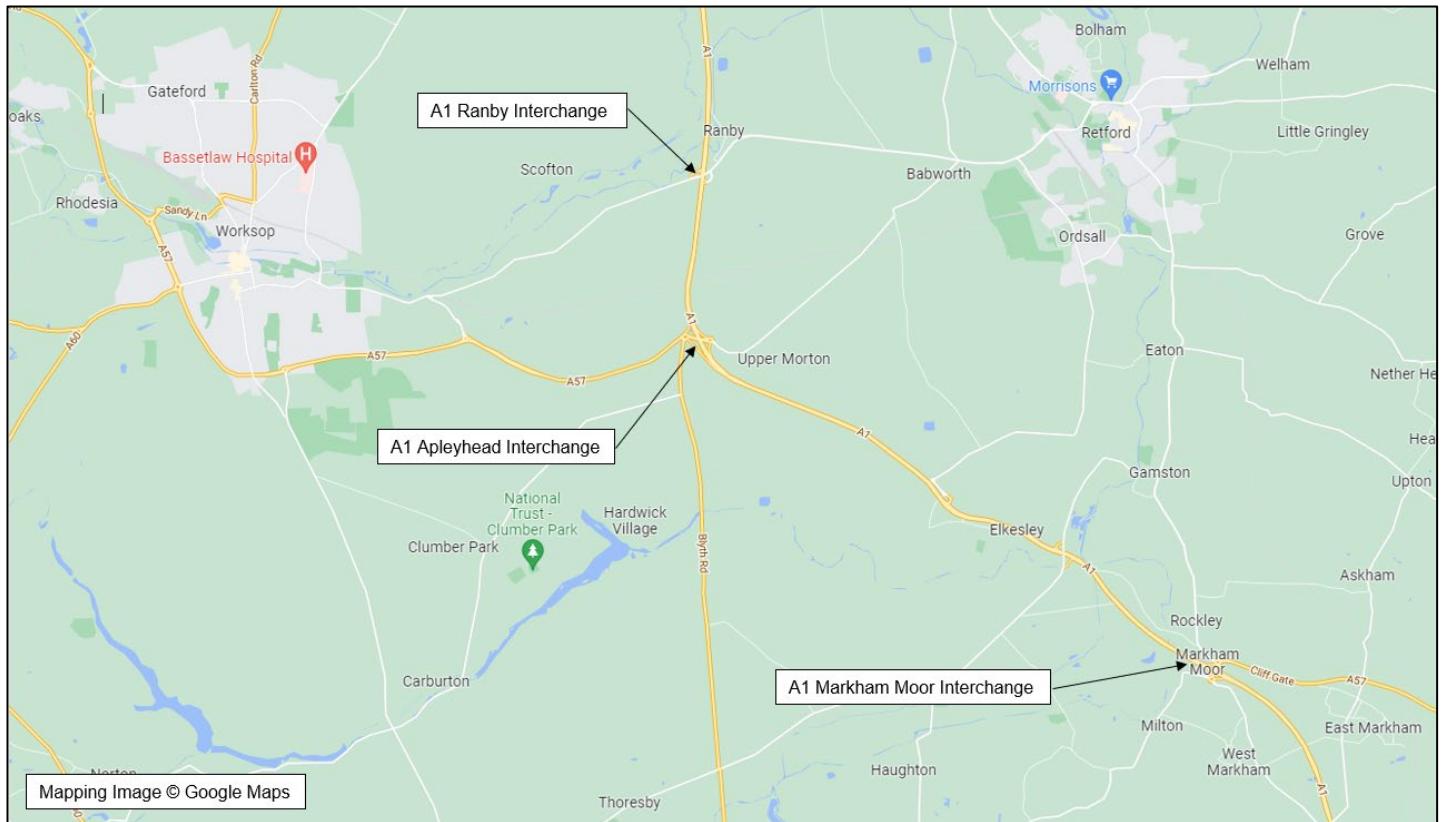
4.4 JUNCTION CAPACITY ASSESSMENTS

- 4.4.1 Assessments of priority junctions and roundabouts have been undertaken using the Junctions 9 computer programme, which is the ‘industry standard’ traffic modelling computer software package used for assessing the capacity of priority junctions and roundabouts.
- 4.4.2 A Ratio of Flow to Capacity (RFC) value below 0.85 indicates that a junction operates ‘within’ capacity. An RFC value between 0.85 and 1.00 indicates that there may be occasions during the period modelled when queues will develop, and delays occur. An RFC value greater than 1.00 indicates that a junction operates ‘above’ capacity.

4.5 CAPACITY ASSESSMENT RESULTS

- 4.5.1 Junction geometry plans and full capacity assessment outputs are presented in **Appendix C** summaries are provided on the following pages. The locations of the three A1 junctions are shown on **Figure 1** on the next page.

Figure 1 - Junction Locations



A1 / A620 / B6079 Retford Road Interchange (J1)

4.5.2 The A1 / A620 Retford Road Interchange at Ranby is a grade separated junction with priority T-junctions either side of the A1 trunk road connected by a bridge over the A1. The operation of the two existing priority T-Junctions has been assessed using the PICADY module of Junctions9 and the results are summarised in the following tables.

Table 2 – A1 Ranby Interchange Western T-Junction (J1A)

Movements	2038 Reference Case				2038 Design Flows			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Left and RT from Slip Road	0.13	0.1	0.13	0.2	0.14	0.2	0.17	0.2
Ahead & RT into slip Road	0.20	0.4	0.23	0.5	0.44	1.2	0.32	0.8

Table 3 – A1 Ranby Interchange Eastern T-Junction (J1B)

Movements	2038 Reference Case				2038 Design Flows			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
Left and RT from Slip Road	0.31	0.4	0.20	0.3	0.39	0.6	0.32	0.5
Ahead & RT into slip Road	0	0	0.02	0	0	0	0.02	0

- 4.5.3 Both priority junctions are forecast to operate within capacity at the end of the plan period with Local Plan development in place. Minimal queuing is forecast on the slip road arms of both junctions which will not interfere with A1 mainline traffic. No junction mitigation is therefore required.

A1 Apleyhead Interchange (J2)

- 4.5.4 The A1 Apleyhead Interchange is a grade separated junction with priority roundabouts either side of the A1 trunk road connected by a bridge over the A1. The operation of the two existing roundabout junctions has been assessed using the ARCADY module of Junctions9.
- 4.5.5 For the western roundabout the ARCADY geometry that has been applied for Arm D (A1 northbound diverge) reflects the useable carriageway width available for drivers between the existing carriageway markings on this approach (see **Image 1** below).

Image 1 – A1 Apleyhead Interchange Western Roundabout – Arm D



Image © Google

- 4.5.6 The ARCADY geometry used for Arm A (A57) reflects the balance of turning movements as there is a high proportion wanting to use the offside lane to turn right. To reflect this unequal lane usage the Arm A entry lanes have been modelled separately and the Arm A entry flows have been adjusted accordingly. The layout of Arm A is shown in **Image 2** on the next page.

Image 2 – A1 Apleyhead Interchange Western Roundabout – Arm A



Image © Google

- 4.5.7 The results from the ARCADY assessment of the existing roundabouts are summarised in the tables below. For the western roundabout results are presented for the A57 nearside and offside lane tests and for the other arms the worst performance is presented from these tests.

Table 4 – A1 Apleyhead Interchange Existing Western Roundabout (J2A)

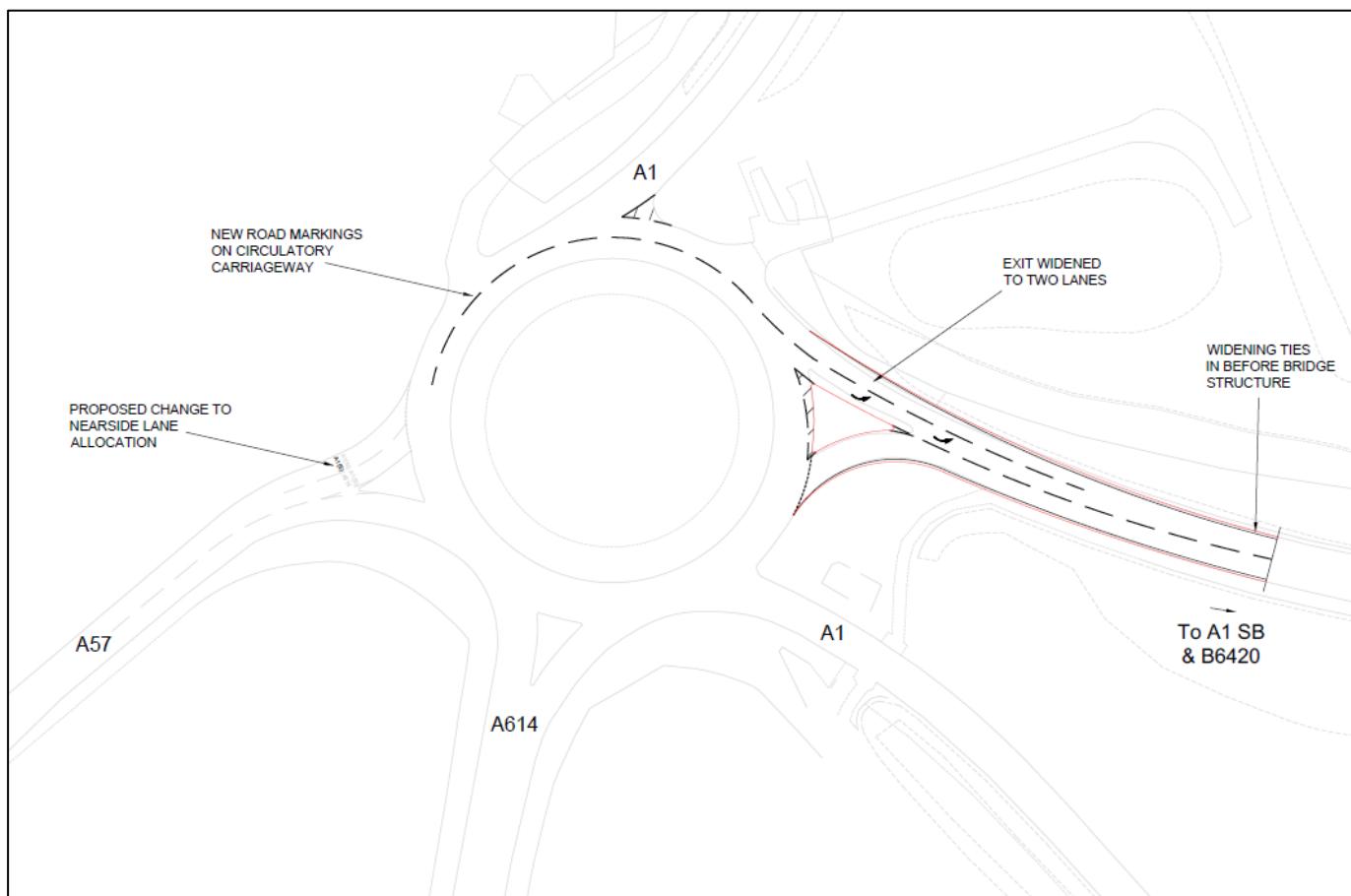
Arm	2038 Reference Case				2038 Design Flows			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A – A57 Nearside lane	0.10	0.1	0.14	0.2	0.14	0.2	0.29	0.4
A – A57 Offside lane	0.82	4.2	0.76	3.1	0.92	37.04	0.98	65.1
B - A1 NB Merge (exit only)	-	-	-	-	-	-	-	-
C - Overbridge	0.55	1.2	0.48	0.9	0.77	3.2	0.53	1.1
D - A1 NB Diverge	0.49	0.9	0.55	1.2	0.63	1.7	0.59	1.4
E - A614 Blyth Road	0.38	0.6	0.34	0.5	0.51	1.0	0.39	0.6

Table 5 – A1 Apleyhead Interchange Existing Eastern Roundabout (J2B)

Arm	2038 Reference Case				2038 Design Flows			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A - Overbridge	0.18	0.2	0.16	0.2	0.20	0.2	0.21	0.3
A - A1 SB Diverge	0.34	0.5	0.30	0.4	0.41	0.7	0.34	0.5
C – Mansfield Road	0.37	0.6	0.29	0.4	0.73	2.6	0.38	0.6
D – A1 SB Merge (exit only)	-	-	-	-	-	-	-	-

- 4.5.8 The eastern roundabout is forecast to operate satisfactorily at the end of the plan period with Local Plan development in place. However, the western roundabout is forecast to exceed operational capacity in the PM peak on the A57 arm (Arm A), where queuing is forecast in the offside lane. In practice the queueing on Arm A in the PM peak would be worse than is shown in results summary because the forecast queue in the offside lane would also block traffic in the nearside lane which would then add to the total queue length.
- 4.5.9 A potential mitigation scheme has therefore been tested which assumes that traffic can distribute equally across both entry lanes on Arm A (A57). This requires the lane markings on Arm A to be amended to A1(N) & A1(S) in the nearside lane and the markings in the offside lane remaining unchanged (A1(S) & A614). This also requires carriageway widening to provide a two lane exit from the roundabout towards the A1 Overbridge, and road markings introduced on the circulatory carriageway to designate two circulatory lanes. The potential mitigation scheme is shown in the image below and a full copy of the diagram is in **Appendix C**.

Image 3 – Possible Mitigation at the A1 Apleyhead Interchange Western Roundabout



4.5.10 The operation of the potential mitigation layout has been assessed using ARCADY and the results are summarised in the following table.

Table 6 – A1 Apleyhead Interchange Improved Western Roundabout (J2A)

Arm	2038 Reference Case				2038 Design Flows			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A – A57	0.51	1.0	0.51	1.0	0.59	1.4	0.71	2.4
B - A1 NB Merge (exit only)	-	-	-	-	-	-	-	-
C - Overbridge	0.55	1.2	0.48	0.9	0.77	3.2	0.53	1.1
D - A1 NB Diverge	0.49	0.9	0.55	1.2	0.63	1.7	0.59	1.4
E - A614 Blyth Road	0.38	0.6	0.34	0.5	0.51	1.0	0.39	0.6

4.5.11 The improved western roundabout is forecast to operate satisfactorily at the end of the plan period with Local Plan development in place, demonstrating that Local Plan traffic impacts can be mitigated through the implementation of a relatively modest highway improvement at this junction.

A1 Markham Moor Interchange (J5)

4.5.12 The A1 / A57 / A638 / B1164 Markham Moor Interchange is a grade separated junction with priority roundabouts either side of the A1 trunk road connected by a bridge over the A1. The operation of the two existing roundabout junctions has been assessed using the ARCADY module of Junctions9 and the results are summarised in the tables below.

Table 7 – A1 Markham Moor Interchange Northern Roundabout (J5A)

Arm	2038 Reference Case				2038 Design Flows			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A – Overbridge	0.24	0.3	0.29	0.4	0.27	0.4	0.35	0.5
B – A1 SB Diverge	0.40	0.7	0.43	0.8	0.41	0.7	0.44	0.8
C - A638	0.33	0.5	0.30	0.4	0.49	1.0	0.36	0.6
D – A57 Cliff Gate	0.40	0.7	0.39	0.6	0.41	0.7	0.40	0.7
E – A1 SB Merge (exit only)	-	-	-	-	-	-	-	-

Table 8 – A1 Markham Moor Interchange Southern Roundabout (J5B)

Arm	2038 Reference Case				2038 Design Flows			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A - Overbridge	0.44	0.8	0.44	0.8	0.45	0.8	0.48	0.9
B - A1 NB Diverge	0.14	0.2	0.18	0.2	0.14	0.2	0.20	0.3
C – B1164 Gt North Road	0.29	0.4	0.30	0.4	0.37	0.6	0.39	0.6
D – Main Street	0.21	0.3	0.20	0.3	0.22	0.3	0.22	0.3
E – A1 NB Merge (exit only)	-	-	-	-	-	-	-	-

- 4.5.13 Both roundabouts are forecast to operate within capacity at the end of the plan period with Local Plan development in place. Minimal queuing is forecast on the slip road arms of both junctions which will not interfere with A1 mainline traffic. No junction mitigation is therefore required.

Merge / Diverge Assessments

- 4.5.14 Merge / diverge assessments in accordance with CD122 of the Design Manual for Roads and Bridges have also been undertaken for the three A1 junctions considered in this note. Details can be found in **Appendix C**. The assessments determine whether the existing merge / diverge facilities are appropriate to accommodate forecast traffic flows to the end of the Local Plan period. The assessment results are summarised in the table below.

Table 9 – Merge / Diverge Assessment Results

Junction	Merge / Diverge Types Required															
	2038 Reference Case								2038 Design Flows							
	NB Diverge		NB Merge		SB Diverge		SB Merge		NB Diverge		NB Merge		SB Diverge		SB Merge	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
A1 Ranby Interchange (J1)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
A1 Apleyhead Interchange (J2)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
A1 Markham Moor Interchange (J5)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

- 4.5.15 At the A1 Ranby Interchange (J1) all existing merge / diverge facilities are Type A. The assessment is forecasting Type A facilities in all scenarios, so the existing facilities are appropriate to accommodate forecast flows. Type A facilities are shown in the extracts from CD122 below.

Figure 3.14a Layout A option 1 - taper merge

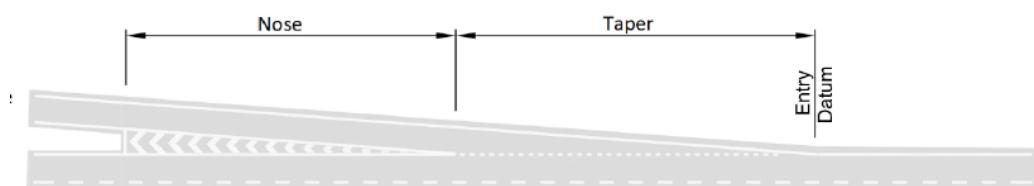
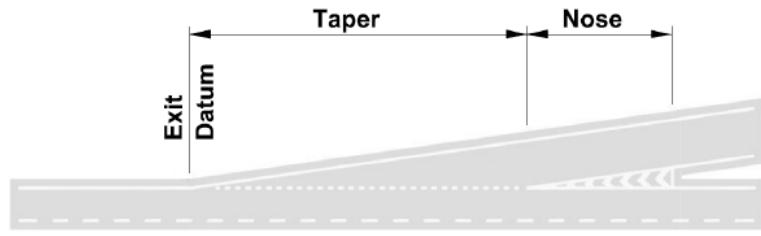


Figure 3.30a Layout A option 1 - taper diverge



- 4.5.16 At the A1 Apleyhead Interchange (J2) all existing merge / diverge facilities are Type A. The assessment is forecasting Type D facilities with a lane gain from one to two lanes. However, the A1 mainline is already two lanes in both directions at this location so the existing Type A merge / diverge facilities are appropriate.
- 4.5.17 At the A1 Markham Moor Interchange (J5) all existing merge / diverge facilities are Type A. The assessment is forecasting Type D facilities with a lane gain from one to two lanes. However, the A1 mainline is already two lanes in both directions at this location so the existing Type A merge / diverge facilities are appropriate.
- 4.5.18 Based on the findings of the assessment it is concluded that the existing merge / diverge facilities are capable of accommodating forecast traffic flows to the end of the Local Plan period at all locations without the need for any improvements.

5 APLEYHEAD EMPLOYMENT ALLOCATION SENSITIVITY TEST

5.1 INTRODUCTION

5.1.1 When the Bassetlaw Transport Study (BTS) was produced there were no details available regarding how the Apleyhead Employment Allocation may be developed. The trip generation calculations presented in the BTS for this site were based on a development floor area that had been estimated from the gross site area, which was then assumed to be split equally between B1/B2/B8 employment land-uses. As a result the BTS trip generation for this site was very robust.

5.2 DEVELOPMENT DETAILS

5.2.1 The site promoters have recently provided details of the development being considered for the Apleyhead Employment Allocation and a summary is below. The development is expected to be fully constructed and occupied before the end of the Local Plan period (i.e. before 2038).

- 352,140 sqm gross floor area (GFA) B8 Storage use
- 88,035 sqm GFA B2 General Industrial use
- 440,175 sqm GFA total floor area

5.2.2 Details of the development trip generation, trip distribution, and trip assignment have been supplied by the site promoter's consultant and details can be found in **Appendix D**. We are informed that these details have already been agreed with National Highways and Nottinghamshire County Council (NCC).

5.3 SENSITIVITY TEST METHODOLOGY

5.3.1 A sensitivity test has therefore been undertaken to reflect these details for the Apleyhead Employment allocation to determine the implications for the A1 Apleyhead Interchange. The methodology used is summarised as follows.

- Step 1 – development traffic flows to/from the Apleyhead allocation site, as assumed for the BTS, have been isolated and removed from the network.
- Step 2 – development traffic flows supplied by the site promoter's consultant have been added onto the network to create sensitivity test design flows.
- Step 3 – the ARCADY assessments for the A1 Apleyhead Interchange roundabouts have been re-run using the sensitivity test flows.

5.4 SENSITIVITY TEST CAPACITY ASSESSMENTS

A1 Apleyhead Interchange (J2)

- 5.4.1 The operation of the possible improvement at the A1 Apleyhead Interchange western roundabout and the existing eastern roundabout has been assessed using ARCADY, applying the sensitivity test flows described above. The results are summarised in the following tables.

Table 10 – A1 Apleyhead Interchange Improved Western Roundabout (J2A) – Sensitivity Test

Arm	2038 Reference Case				2038 Design Flows			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A – A57	0.51	1.0	0.51	1.0	0.65	1.9	0.74	2.7
B - A1 NB Merge (exit only)	-	-	-	-	-	-	-	-
C - Overbridge	0.55	1.2	0.48	0.9	0.75	2.9	0.54	1.2
D - A1 NB Diverge	0.49	0.9	0.55	1.2	0.71	2.4	0.63	1.7
E - A614 Blyth Road	0.38	0.6	0.34	0.5	0.52	1.1	0.39	0.6

Table 11 – A1 Apleyhead Interchange Existing Eastern Roundabout (J2B) – Sensitivity Test

Arm	2038 Reference Case				2038 Design Flows			
	AM		PM		AM		PM	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q
A - Overbridge	0.18	0.2	0.16	0.2	0.21	0.3	0.21	0.3
A - A1 SB Diverge	0.34	0.5	0.30	0.4	0.47	0.9	0.34	0.5
C – Mansfield Road	0.37	0.6	0.29	0.4	0.64	1.8	0.37	0.6
D – A1 SB Merge (exit only)	-	-	-	-	-	-	-	-

- 5.4.2 Both the improved western roundabout and the existing eastern roundabout are forecast to operate satisfactorily at the end of the plan period with Local Plan development in place using the sensitivity test flows, demonstrating that Local Plan traffic impacts can be mitigated through the implementation of a relatively modest highway improvement at the western roundabout.

6 SUMMARY

6.1 SUMMARY

- 6.1.1 This Technical Note has been produced to summarise the transport implications of the proposed Bassetlaw Local Plan on the A1 Trunk Road within Bassetlaw to address the queries raised by National Highways. It draws together relevant information from the BTS and RTA and provides additional information as requested.
- 6.1.2 National Highways' consultant AECOM requested junction capacity assessments for the following three junctions onto the A1 Trunk Road.
- A1 / A620 / B6079 Retford Road interchange at Ranby – both T-Junctions.
 - A1 / A57 / A614 / B6420 Apleyhead Interchange – both roundabouts.
 - A1 / A57 / A638 / B1164 Markham Moor Interchange – both roundabouts.
- 6.1.3 The traffic flows applied in this note differ slightly from the flows in the VISUM model provided to AECOM. The difference relates to the proposed housing allocation at Land South of Ordsall where the traffic flows have been updated to reflect a development of 1,250 dwellings instead of the previously assumed 930 dwellings. Impacts on the A1 have been re-checked and there is no change to the junctions requiring assessment.
- 6.1.4 Capacity assessments have been undertaken at 2038 (end of Local Plan period) for the following scenarios:
- 2038 Reference Case (Base + Committed)
 - 2038 Design Flows (Base + Committed + Local Plan Development)
- 6.1.5 At the A1 Ranby Interchange both existing priority junctions are forecast to operate within capacity at the end of the plan period with Local Plan development in place. Minimal queuing is forecast on the slip road arms of both junctions which will not interfere with A1 mainline traffic. No mitigation is therefore required.
- 6.1.6 At the A1 Apleyhead Interchange the eastern roundabout is forecast to operate satisfactorily at the end of the plan period with Local Plan development in place. No mitigation is therefore required.
- 6.1.7 The A1 Apleyhead western roundabout is forecast to exceed operational capacity at the end of the plan period with Local Plan development in place in the PM peak on the A57 arm (Arm A). A possible mitigation scheme has therefore been identified and tested and the improved western roundabout operates satisfactorily at the end of the plan period with Local Plan development in place.

- 6.1.8 The possible mitigation at the western roundabout of the A1 Apleyhead Interchange comprises carriageway widening to provide a two lane exit from the roundabout towards the over-bridge to the A1(S) / B6420, amended lane allocations on the A57 entry arm, and the introduction of circulatory carriageway markings between the A57 and over-bridge arms (see **Appendix C**).
- 6.1.1 At the A1 Markham Moor Interchange both existing roundabouts are forecast to operate within capacity at the end of the plan period with Local Plan development in place. Minimal queuing is forecast on the slip road arms of both junctions which will not interfere with A1 mainline traffic. No mitigation is therefore required.
- 6.1.2 Merge / diverge calculations have been undertaken for the three A1 junctions assessed in this note. Based on the findings of the assessment it is concluded that the existing merge / diverge facilities are capable of accommodating forecast traffic flows to the end of the Local Plan period at all locations without the need for any improvements.
- 6.1.3 Sensitivity test flows have been prepared that reflect the emerging development details for the Apleyhead Employment Allocation to determine any implications for the A1 Apleyhead Interchange.
- 6.1.4 The operation of the existing A1 Apleyhead eastern roundabout and the possible mitigation scheme identified for the A1 Apleyhead western roundabout have been assessed using the sensitivity test flows. This demonstrates that at the end of the Local Plan period both the improved western roundabout and the existing eastern roundabout are forecast to operate satisfactorily with Local Plan development in place using the sensitivity test flows.
- 6.1.5 It can therefore be concluded that relatively modest highway improvements are required to the A1 Apleyhead Interchange western roundabout to mitigate Local Plan traffic impacts to the end of the Local Plan period (2038).
- 6.1.6 The possible improvements shown in **Image 3** on page 9 (and in **Appendix C**) are preliminary in nature and will be subject to detailed design. However, it is anticipated that the improvements shown can be delivered wholly within the existing adopted public highway without impacting on the A1 overbridge structure. No significant constraints to delivery are therefore anticipated.

APPENDICES

APPENDIX A – EMAIL CORRESPONDENCE

From: Luke Brown
To: Gregory, Alistair
Subject: FW: BTS Update
Date: 12 October 2022 11:46:26

Hi Alistair,

This was the email from Eri about the outstanding issues.

Could discuss these at the meeting.

L

From: Townend, Catherine <Catherine.Townend@nationalhighways.co.uk>
Sent: 12 October 2022 10:56

To: Townend, Catherine <Catherine.Townend@nationalhighways.co.uk>

Subject: BTS Update

From: Wong, Eri <Eri.Wong@nationalhighways.co.uk>

Sent: 08 July 2022 13:12

To: Luke Brown <Luke.Brown@bassetlaw.gov.uk>

Cc: Karen Johnson <Karen.Johnson@bassetlaw.gov.uk>; Freek, Steve <Steve.Freek@nationalhighways.co.uk>; Townend, Catherine <Catherine.Townend@nationalhighways.co.uk>; Law, Daniel <Daniel.Law@aecom.com>

Subject: RE: BTS Update

Dear Karen/Luke,

Thank you for your time earlier this week discussing the Local Plan and the links you sent across for the specific documents.

As requested, please find below a summary of the issues which remain outstanding and which we consider are necessary for us to be able to fully understand and agree to the impacts of the Local Plan and its transport evidence base:

- Our primary concern in relation to the proposed Local Plan sites will be the impact at the A1 Apleyhead junction. There are several elements to this which are:
 - o Cumulative impact arising from the Ordsall South and the strategic employment site allocations
 - o Re-routeing impacts as a result of the substantial measures which are proposed for the A57, which may draw additional traffic via the Apleyhead junction. Given the interaction between the A1 and any improvements on the A57, we strongly recommend that a joint discussion is had with Nottinghamshire County Council to ensure consistency of approach and demonstrate collaborative working.
- This will require outputs from the VISUM model which we understand is being utilised and which have not yet received. Given the complexity of how this may be best presented, we consider that a discussion with your transport consultants may be beneficial to avoid abortive work.
- Wider impacts on the A1:
 - o The Bassetlaw Transport Study identified those links and junctions on the highway network which are expected to become 'stressed'. It is assumed that the A1 and its junctions have not been detailed (other than the Apleyhead junction) as they are anticipated to not become stressed. We would require the full outputs of the operational analysis of the A1 and its junctions to understand the impact on them, regardless of whether or not they become stressed.
 - o Following understanding of the scale of the cumulative and re-routeing impacts identified above, it may become necessary to consider the adjacent links/junctions to the north and south of Apleyhead
- Appropriateness of mitigation currently proposed:
 - o The above points must first be addressed prior to us being able to agree to the general principles of a mitigation scheme. This is to ensure that the scheme being proposed and tested takes into account the correct level of traffic demand.
 - o We have now received the LinSig modelling which is used to look at the operational impact of the Apleyhead junction and there are a number of modelling parameters which will require resolution. We consider that a discussion with your transport consultants would be beneficial for this. Furthermore, the assessment currently only looks at the westernmost roundabout of the dumbbell arrangement. As the overbridge is expect to operate at or close to capacity in the 'with growth' scenario (subject to the review of the aforementioned VISUM data to better understand flows here) we also consider that the eastern dumbbell should be assessed for operational impacts.
- Securing infrastructure
 - o Some clarity is required in terms of the IDP. Improvements to Apleyhead appear in several locations within the IDP and with different costs and delivery timescales. It is unclear if this is intended to be phase delivery of mitigation, or different mitigation options, etc.
 - o I am still unable to locate the CIL list. As discussed on the phone, we have found that securing mitigation on the SRN via CIL presents significant risks to delivery which may result in delays at the development management stage.

I hope this provides some further guidance and clarity on the requirements so that we can agree on a robust transport evidence base. Please feel free to contact me should you require any further clarifications and we look forward to hearing from you on the progression of the Local Plan.

Regards,

Eri

Eri Wong BEng(Hons) MCIHT
Spatial Planning Manager – Midlands
Operations Directorate
National Highways | Stirling House | Lakeside Court | Osier Drive | Annesley | NG15 0DS
Mob: +44 (0) 7739 970995
Web: www.nationalhighways.co.uk

From: [Colclough, John](#)
To: Catherine.Townend@nationalhighways.co.uk; Daniel.Law@aecom.com
Cc: [Gregory, Alistair](#)
Subject: Bassettlaw Transport Study - Trip Generation & Distribution
Date: 19 October 2022 09:25:40
Attachments: [Bassetlaw Data Package - Oct22.zip](#)
[image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)

Catherine/Daniel

Please find attached the spreadsheets containing the trip generation and distribution calculations for the Bassettlaw Transport Study along with the VISUM model that assigned (all or nothing assignment) onto the network.

The four files contained in the zip file are outlined below.

LocalPlan_TripGeneration_20220422.xlsx – This contains the local plan sites and their trip generation.

Ext_Committed_Trip_Generation_20210726.xlsx – This contains the trip generation for committed developments from neighbouring authorities and identification of proportions that would pass through the district.

Distribution_Matrices_LP_and_IntCom_20220422_Apr22Update.xlsx – This distributes the trip generation based upon the census journey to work distribution. It also includes the committed sites within Bassettlaw.

TransportStudyUpdate_20220426_LP_GVremoved.ver – This is the VISUM (version 20) model file with the assigned matrices from the file above.

The distribution spreadsheet draws data from the two (committed and local plan) trip generation spreadsheets.

If you have any queries then please let me know, Alistair is currently on leave and will return next week.

Regards

John Colclough BSc MCIHT
Associate

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From: Luke Brown
To: Gregory, Alistair
Cc: Karen Johnson; Holland, Robert; Colclough, John
Subject: FW: Bassetlaw Transport Study - Trip Generation & Distribution
Date: 14 November 2022 09:02:53
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[RF_Bassetlaw_transport_evidence_review.msg](#)
[ACOM VISUM review - A1 Cordon Demands.xlsx](#)

Hi Alistair,

Please see the comments from National Highways regarding the BTS. It seems there are 3 junctions along the A1 that they need more information on.

We can hopefully discuss this in the meeting this morning and see how (if) we can resolve these items.

Many thanks,

Luke

From: Townend, Catherine <Catherine.Townend@nationalhighways.co.uk>
Sent: 14 November 2022 08:55
To: Luke Brown <Luke.Brown@bassetlaw.gov.uk>
Subject: Bassetlaw Transport Study - Trip Generation & Distribution

External Message - Be aware that the sender of this email originates from outside of the Council. Please be cautious when opening links or attachments in email

Good morning Luke,

Please see below comment from Aecom on the modelling review. There are some areas which require clarification or further work. We would be grateful if you could share these comments with Tectra Tech.

We are happy to meet with yourselves and Tectra Tech if a discussion on these points would assist.

Kind regards
Catherine

From: Law, Daniel <Daniel.Law@aecom.com>
Sent: 13 November 2022 17:14
To: Townend, Catherine <Catherine.Townend@nationalhighways.co.uk>
Cc: HE instructions <midlandsspa.europe@aecom.com>
Subject: RE: Bassetlaw Transport Study - Trip Generation & Distribution

Hi Catherine,

I've prepared the below comments following our review of the traffic modelling data provided by TetraTech in October: this comprised traffic generation and distribution spreadsheets for the Local Plan growth, and a VISUM model showing how this growth has been assigned to the highway network.

Allocated sites and trip rates

From review of the traffic generation spreadsheets, we are content that all of the Local Plan allocations have been included, as have the relevant nearby committed developments. From comparison of these spreadsheets against the TRICS database, the trip rates adopted are appropriate.

Distribution matrices

We have reviewed the traffic distribution spreadsheet to understand the methodology for developing the 2038 Local Plan growth AM & PM reference case traffic matrices. We are content that these Origin-Destination matrices have been developed appropriately for distributing the development traffic demands onto the highway network.

VISUM review

As we already know from discussion with TetraTech, the VISUM model has not been used to assess network performance or identify capacity constraints, but purely as a distribution model to assign traffic onto the highway network (taken from the above distribution spreadsheet). Review of this should allow the impacts at the SRN junctions to be quantified. The first step with our VISUM model review therefore was to ensure that the matrices developed in the traffic distribution spreadsheet matched those in the VISUM model.

Discrepancies: There are some significant differences, which will need to be addressed by TetraTech, or if disputed, discussed further in a meeting. One example is the traffic demands at the new employment site proposed adjacent to the west of A1 Apleyhead junction, referred to as 'Apleyhead Junction, Worksop', and represented as Zone 1031 in the Origin-Destination matrices.

The matrices developed in the distribution spreadsheet correctly account for the significant traffic generated by this development: 1,607 two-way vehicle trips in the AM peak, and 1,405 in the PM. The VISUM model however only assigns 430 in the AM, and 320 in the PM.

In spite of the above, we have reviewed the VISUM model and consider that based on the scale of traffic impacts on the SRN, impacts at the following A1 junctions should be investigated in more detail (the attached spreadsheet evidences these impacts):

- **Both roundabouts at the A1 Apleyhead junction:** In the AM peak, over 600 vehicles impacting the western roundabout, and over 300 impacting the eastern. ARCADY assessment shall be sufficient initially.
- **Both slips serving the A1 / Retford Road junction:** In the AM peak, c. 65-70 vehicles impacting each slip road. PICADY assessment shall be sufficient initially.
- **Both roundabouts at the A1 Markham Moor junction:** Over 130 vehicles impacting the western roundabout in the PM, and 250 impacting the eastern roundabout in the AM. ARCADY assessment shall be sufficient initially.

This scope of junctions requiring further assessment could widen once the above discrepancy has been addressed.

Capacity assessments

Following the VISUM distribution exercise, TetraTech carried out standalone junction assessments, as presented in the Bassetlaw Transport Study (BTS). This includes assessment of the western roundabout of the A1 Apleyhead junction, but none of the others listed above.

Before any further standalone junction modelling is carried out on these junctions to determine mitigation needs, the underlying base traffic data shall need to be updated to provide more accurate assessments, as acknowledged by TetraTech in the BTS. AADT flows have been adopted to represent base traffic data, with capacity calculated using the DfT Congestion Reference Flow (CRF) method: representing AADT flows on a link as a percentage of the link's DMRB capacity. Admittedly by TetraTech, this is a 'simple' and 'high level' approach, and although appropriate as a first step to develop a general understanding of the location of mitigation requirements, the mitigation schemes proposed are based on a very high level assessment and therefore require refinement through more accurate traffic modelling.

Next steps

Regarding the Statement of Common Ground (SoCG), if it has been adopted by all parties, the progress of the Local Plan should not be delayed by these outstanding items. The SoCG states that National Highways shall continue to support BDC with the refinement of the BTS' modelling evidence, and both parties shall work together to identify the most suitable infrastructure improvements, and update the IDP accordingly.

Regards,

Daniel Law, BEng (Hons) MCIHT
Principal Consultant, Transportation
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From: Colclough, John <John.Colclough@tetrach.com>
Sent: 19 October 2022 09:26
To: Catherine.Townend@nationalhighways.co.uk; Law, Daniel <Daniel.Law@aecom.com>
Cc: Gregory, Alistair <Alistair.Gregory@tetrach.com>
Subject: Bassetlaw Transport Study - Trip Generation & Distribution

Catherine/Daniel

Please find attached the spreadsheets containing the trip generation and distribution calculations for the Bassetlaw Transport Study along with the VISUM model that assigned (all or nothing assignment) onto the network.

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If you have any queries then please let me know, Alistair is currently on leave and will return next week.

Regards

John Colclough BSc MCIHT

Associate

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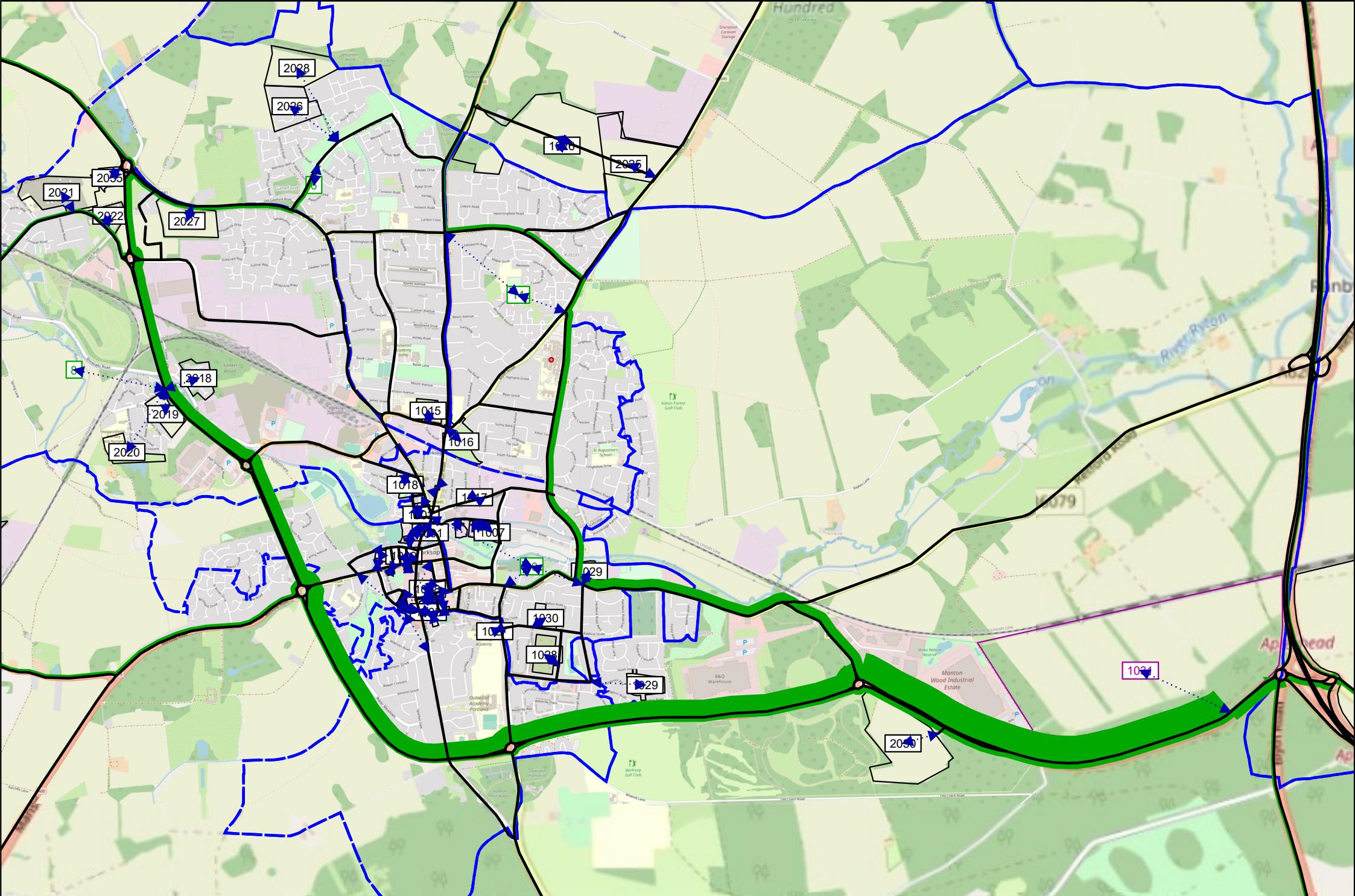
Luke Brown
Neighbourhood Planning Officer
Bassetlaw District Council Queens Buildings, Worksop, Nottinghamshire, S80 2AH
W: www.bassetlaw.gov.uk

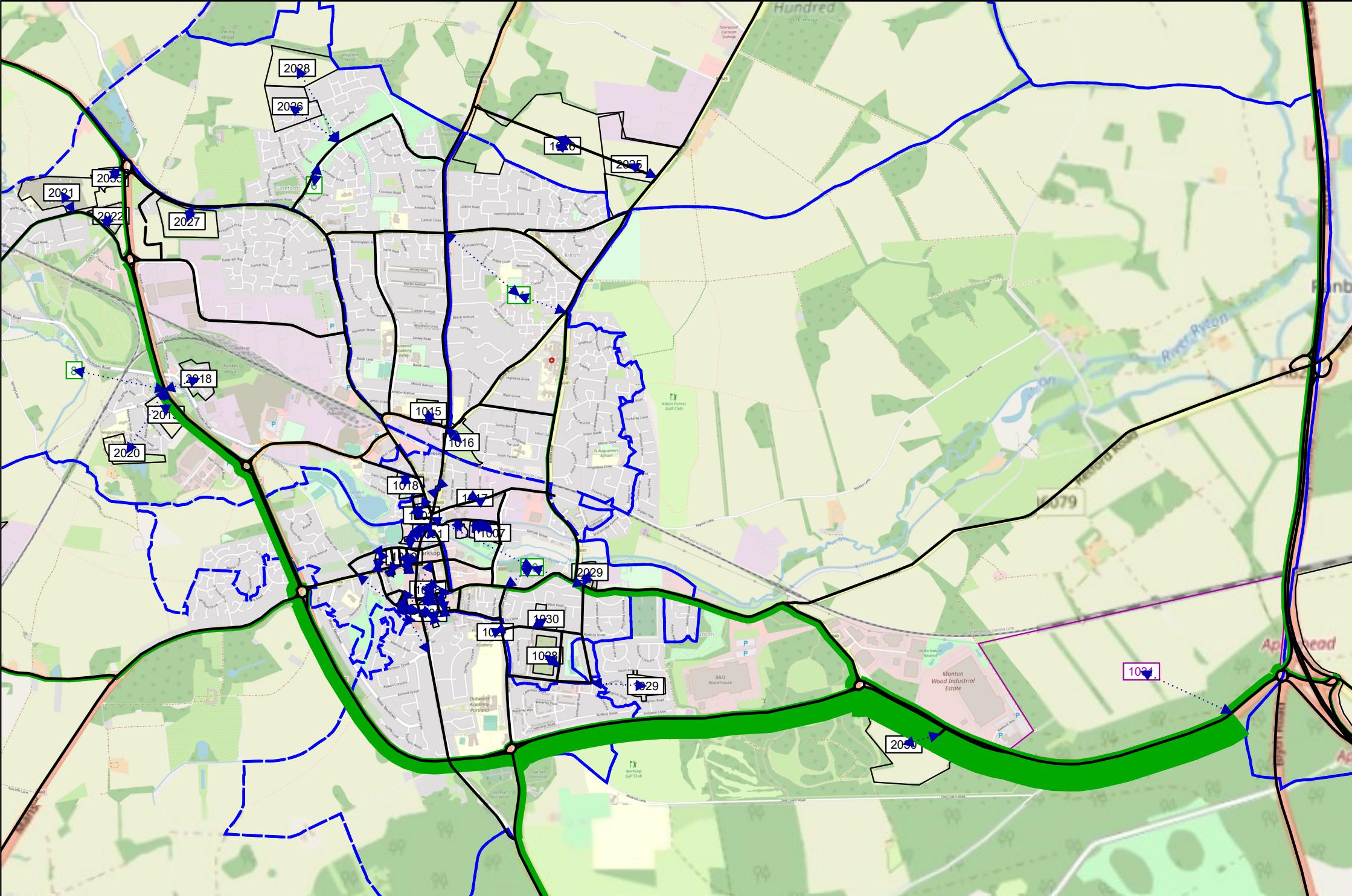
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APPENDIX B – APLEYHEAD TRIP ALLOCATIONS

Apleyhead Allocation Trip Routes
(Apleyhead only)





APPENDIX C – CAPACITY ASSESSMENTS

Traffic Flows

2038 Base+Committed Flows

Retford Road (w-arm)
north-bound slip for A1
Retford Road (e-arm)

Junction 1A - AM				
A	B	C	D	E
A	0	17	387	
B	8	0	70	
C	363	83	0	

Retford Road (w-arm)
north-bound slip for A1
Retford Road (e-arm)

Junction 1A - PM				
A	B	C	D	E
A	0	37	387	
B	15	0	61	
C	372	93	0	

Retford Road (e-arm)
south-bound slip for A1
Retford Road (w-arm)

Junction 1B - AM				
A	B	C	D	E
A	0	25	419	
B	79	0	57	
C	505	0	0	

Retford Road (e-arm)
south-bound slip for A1
Retford Road (w-arm)

Junction 1B - PM				
A	B	C	D	E
A	0	53	475	
B	53	0	30	
C	450	7	0	

A57
north-bound on-slip for A1
over-bridge
north-bound off-slip for A1
Blyth Road

Junction 2A - AM				
A	B	C	D	E
A	2	95	712	0
B	0	0	0	0
C	284	2	0	0
D	507	6	4	0
E	72	348	149	0

A57
north-bound on-slip for A1
over-bridge
north-bound off-slip for A1
Blyth Road

Junction 2A - PM				
A	B	C	D	E
A	5	136	653	0
B	0	0	0	0
C	184	9	0	0
D	602	4	9	0
E	56	308	149	0

over-bridge
south-bound off-slip for A1
Mansfield Road
south-bound on-slip for A1

Junction 2B - AM				
A	B	C	D	E
A	2	0	212	657
B	507	0	1	6
C	304	0	0	6
D	0	0	0	0

over-bridge
south-bound off-slip for A1
Mansfield Road
south-bound on-slip for A1

Junction 2B - PM				
A	B	C	D	E
A	3	0	249	558
B	458	0	3	0
C	259	0	0	8
D	0	0	0	0

over-bridge
south-bound off-slip for A1
A638
A57 Cliff Gate
south-bound on-slip for A1

Junction 5A - AM				
A	B	C	D	E
A	2	0	261	26
B	74	0	17	339
C	126	0	0	270
D	430	0	98	32
E	0	0	0	99
				0

over-bridge
south-bound off-slip for A1
A638
A57 Cliff Gate
south-bound on-slip for A1

Junction 5A - PM				
A	B	C	D	E
A	2	0	356	22
B	101	0	10	386
C	117	0	0	237
D	411	0	145	15
E	0	0	0	65
				0

over-bridge
north-bound off-slip for A1
Great North Road
Main Street
north-bound on-slip for A1

Junction 5B - AM				
A	B	C	D	E
A	0	0	163	44
B	119	0	1	26
C	173	0	0	178
D	50	0	8	121
E	0	0	0	0

over-bridge
north-bound off-slip for A1
Great North Road
Main Street
north-bound on-slip for A1

Junction 5B - PM				
A	B	C	D	E
A	0	0	162	59
B	176	0	4	32
C	205	0	1	143
D	52	0	16	0
E	0	0	0	104
				0

2038 Base+Committed+Local Plan Flows

Retford Road (w-arm)
north-bound slip for A1
Retford Road (e-arm)

Junction 1A - AM				
A	B	C	D	E
A	0	17	420	
B	8	0	75	
C	428	167	0	

Retford Road (w-arm)
north-bound slip for A1
Retford Road (e-arm)

Junction 1A - PM				
A	B	C	D	E
A	0	37	435	
B	15	0	84	
C	410	122	0	

Retford Road (e-arm)
south-bound slip for A1
Retford Road (w-arm)

Junction 1B - AM				
A	B	C	D	E
A	0	25	568	
B	92	0	57	
C	543	0	0	

Retford Road (e-arm)
south-bound slip for A1
Retford Road (w-arm)

Junction 1B - PM				
A	B	C	D	E
A	0	53	541	
B	87	0	30	
C	521	7	0	

A57
north-bound on-slip for A1
over-bridge
north-bound off-slip for A1
Blyth Road

Junction 2A - AM				
A	B	C	D	E
A	2	126	802	0
B	0	0	0	0
C	536	2	0	0
D	577	6	4	0
E	172	348	164	0

A57
north-bound on-slip for A1
over-bridge
north-bound off-slip for A1
Blyth Road

Junction 2A - PM				
A	B	C	D	E
A	5	268	841	0
B	0	0	0	0
C	233	9	0	0
D	629	4	9	0
E	72	308	190	0

over-bridge
south-bound off-slip for A1
Mansfield Road
south-bound on-slip for A1

Junction 2B - AM				
A	B	C	D	E
A	2	0	255	719
B	591	0	1	6
C	546	0	0	6
D	0	0	0	0

over-bridge
south-bound off-slip for A1
Mansfield Road
south-bound on-slip for A1

Junction 2B - PM				
A	B	C	D	E
A	3	0	385	651
B	472	0	3	0
C	319	0	0	8
D	0	0	0	0

over-bridge
south-bound off-slip for A1
A638
A57 Cliff Gate
south-bound on-slip for A1

Junction 5A - AM				
A	B	C	D	E
A	2	0	305	26
B	78	0	17	88
C	131	0	0	483
D	435	0	103	99
E	0	0	0	0

over-bridge
south-bound off-slip for A1
A638
A57 Cliff Gate
south-bound on-slip for A1

Junction 5A - PM				
A	B	C	D	E
A	2	0	439	22
B	111	0	10	66
C	131	0	0	310
D	412	0	157	65
E	0	0	0	0

over-bridge
north-bound off-slip for A1
Great North Road
Main Street
north-bound on-slip for A1

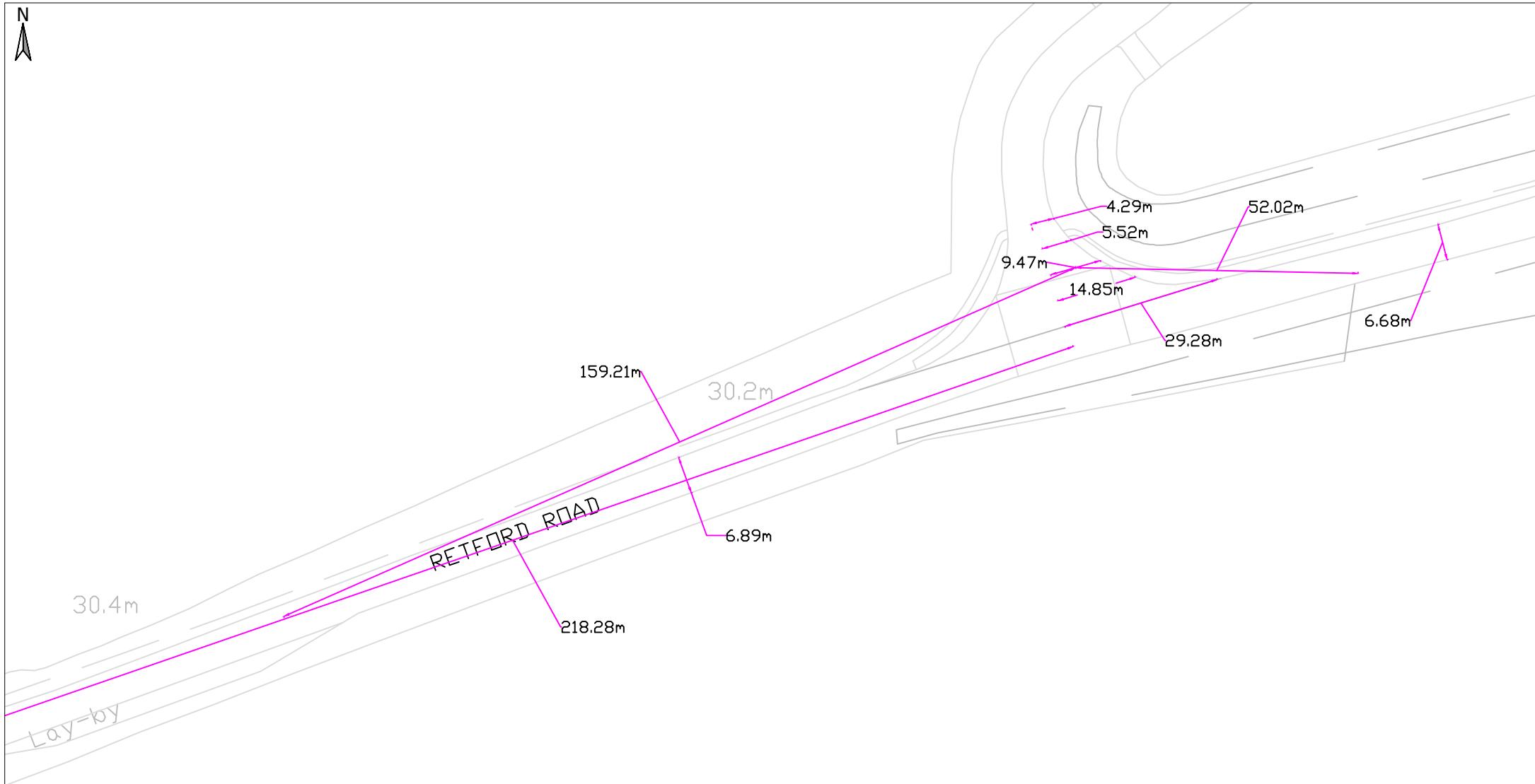
Junction 5B - AM				
A	B	C	D	E
A	0	0	171	44
B	128	0	1	48
C	208	0	0	231
D	50	0	8	121
E	0	0	0	0

over-bridge
north-bound off-slip for A1
Great North Road
Main Street
north-bound on-slip for A1

Junction 5B - PM				
A	B	C	D	E
A	0	0	185	59
B	200	0	4	50
C	264	0	1	181
D	52	0	16	104
E	0	0	0	0

A1 Ranby Interchange (J1)

N



Junction 1A

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»2038 Base + Committed, AM

»2038 Base + Committed, PM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2038 Base + Committed										
Stream B-AC	D15	0.1	6.12	0.13	A	D16	0.2	6.58	0.13	A
Stream C-AB		0.4	5.29	0.20	A		0.5	5.47	0.23	A
2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)										
Stream B-AC	D23	0.2	6.44	0.14	A	D24	0.2	7.00	0.17	A
Stream C-AB		1.2	7.17	0.44	A		0.8	6.07	0.32	A

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	J1A B6079 Retford Road_Unnamed Road Access to A1 N
Location	Retford
Site number	
Date	21/07/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	B023665
Enumerator	TT\LAUREN.WILKES
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D15	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15
D16	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.33	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	B6079 Retford Road W		Major
B	Unnamed Road_Access to A1 north		Minor
C	B6079 Retford Road E		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - B6079 Retford Road E	6.79			218.3	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Unnamed Road_Access to A1 north	One lane	4.86	52	159

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	680	0.120	0.303	0.190	0.432
B-C	859	0.127	0.321	-	-
C-B	700	0.262	0.262	-	-

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)
D15	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - B6079 Retford Road W		✓	404	100.000
B - Unnamed Road_Access to A1 north		✓	78	100.000
C - B6079 Retford Road E		✓	446	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - B6079 Retford Road W	B - Unnamed Road_Access to A1 north	C - B6079 Retford Road E	Total
A - B6079 Retford Road W	0	17	387	387
B - Unnamed Road_Access to A1 north	8	0	70	70
C - B6079 Retford Road E	363	83	0	83

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	A - B6079 Retford Road W	B - Unnamed Road_Access to A1 north	C - B6079 Retford Road E	Total
A - B6079 Retford Road W	0	0	0	0
B - Unnamed Road_Access to A1 north	0	0	0	0
C - B6079 Retford Road E	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.13	6.12	0.1	A
C-AB	0.20	5.29	0.4	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	727	0.081	58	0.1	5.383	A
C-AB	95	800	0.119	94	0.2	5.101	A
C-A	241			241			
A-B	13			13			
A-C	291			291			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	70	705	0.099	70	0.1	5.671	A
C-AB	124	822	0.151	124	0.3	5.161	A
C-A	277			277			
A-B	15			15			
A-C	348			348			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	86	674	0.127	86	0.1	6.119	A
C-AB	172	854	0.202	172	0.4	5.281	A
C-A	319			319			
A-B	19			19			
A-C	426			426			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	86	674	0.127	86	0.1	6.122	A
C-AB	173	854	0.202	173	0.4	5.292	A
C-A	318			318			
A-B	19			19			
A-C	426			426			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	70	705	0.099	70	0.1	5.676	A
C-AB	124	822	0.151	125	0.3	5.173	A
C-A	277			277			
A-B	15			15			
A-C	348			348			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	59	727	0.081	59	0.1	5.389	A
C-AB	95	800	0.119	96	0.2	5.118	A
C-A	240			240			
A-B	13			13			
A-C	291			291			

2038 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.44	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)
D16	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - B6079 Retford Road W		✓	424	100.000
B - Unnamed Road_Access to A1 north		✓	76	100.000
C - B6079 Retford Road E		✓	465	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - B6079 Retford Road W	B - Unnamed Road_Access to A1 north	C - B6079 Retford Road E	
A - B6079 Retford Road W	0	37	387	
B - Unnamed Road_Access to A1 north	15	0	61	
C - B6079 Retford Road E	372	93	0	

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	A - B6079 Retford Road W	B - Unnamed Road_Access to A1 north	C - B6079 Retford Road E	
A - B6079 Retford Road W	0	0	0	
B - Unnamed Road_Access to A1 north	0	0	0	
C - B6079 Retford Road E	0	0	0	

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.13	6.58	0.2	A
C-AB	0.23	5.47	0.5	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	57	692	0.083	57	0.1	5.663	A
C-AB	108	801	0.134	107	0.2	5.185	A
C-A	242			242			
A-B	28			28			
A-C	291			291			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	68	667	0.102	68	0.1	6.013	A
C-AB	141	824	0.171	141	0.3	5.279	A
C-A	277			277			
A-B	33			33			
A-C	348			348			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	84	631	0.133	84	0.2	6.577	A
C-AB	197	856	0.230	196	0.5	5.462	A
C-A	315			315			
A-B	41			41			
A-C	426			426			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	84	631	0.133	84	0.2	6.580	A
C-AB	197	857	0.230	197	0.5	5.473	A
C-A	315			315			
A-B	41			41			
A-C	426			426			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	68	667	0.102	68	0.1	6.018	A
C-AB	142	824	0.172	142	0.3	5.294	A
C-A	276			276			
A-B	33			33			
A-C	348			348			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	57	692	0.083	57	0.1	5.672	A
C-AB	108	801	0.135	108	0.2	5.206	A
C-A	242			242			
A-B	28			28			
A-C	291			291			

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		2.52	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)
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - B6079 Retford Road W		✓	437	100.000
B - Unnamed Road_Access to A1 north		✓	83	100.000
C - B6079 Retford Road E		✓	595	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - B6079 Retford Road W	B - Unnamed Road_Access to A1 north	C - B6079 Retford Road E	
A - B6079 Retford Road W	0	17	420	
B - Unnamed Road_Access to A1 north	8	0	75	
C - B6079 Retford Road E	428	167	0	

Vehicle Mix

Heavy Vehicle Percentages

From	To		
	A - B6079 Retford Road W	B - Unnamed Road_Access to A1 north	C - B6079 Retford Road E
A - B6079 Retford Road W	0	0	0
B - Unnamed Road_Access to A1 north	0	0	0
C - B6079 Retford Road E	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.14	6.44	0.2	A
C-AB	0.44	7.17	1.2	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	62	713	0.088	62	0.1	5.527	A
C-AB	206	826	0.249	204	0.5	5.779	A
C-A	242			242			
A-B	13			13			
A-C	316			316			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	75	687	0.109	75	0.1	5.875	A
C-AB	274	855	0.321	273	0.7	6.200	A
C-A	261			261			
A-B	15			15			
A-C	378			378			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	91	650	0.141	91	0.2	6.440	A
C-AB	390	896	0.435	388	1.2	7.110	A
C-A	265			265			
A-B	19			19			
A-C	462			462			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	91	650	0.141	91	0.2	6.445	A
C-AB	391	897	0.436	391	1.2	7.167	A
C-A	264			264			
A-B	19			19			
A-C	462			462			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	75	687	0.109	75	0.1	5.880	A
C-AB	275	856	0.321	277	0.7	6.258	A
C-A	260			260			
A-B	15			15			
A-C	378			378			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	62	713	0.088	63	0.1	5.537	A
C-AB	207	827	0.250	208	0.5	5.836	A
C-A	241			241			
A-B	13			13			
A-C	316			316			

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.88	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)
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - B6079 Retford Road W		✓	472	100.000
B - Unnamed Road_Access to A1 north		✓	99	100.000
C - B6079 Retford Road E		✓	532	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - B6079 Retford Road W	B - Unnamed Road_Access to A1 north	C - B6079 Retford Road E	
A - B6079 Retford Road W	0	37	435	
B - Unnamed Road_Access to A1 north	15	0	84	
C - B6079 Retford Road E	410	122	0	

Vehicle Mix

Heavy Vehicle Percentages

From		To		
		A - B6079 Retford Road W	B - Unnamed Road_Access to A1 north	C - B6079 Retford Road E
	A - B6079 Retford Road W	0	0	0
	B - Unnamed Road_Access to A1 north	0	0	0
	C - B6079 Retford Road E	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.17	7.00	0.2	A
C-AB	0.32	6.07	0.8	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	75	691	0.108	74	0.1	5.835	A
C-AB	148	812	0.183	147	0.3	5.411	A
C-A	252			252			
A-B	28			28			
A-C	327			327			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	89	663	0.134	89	0.2	6.268	A
C-AB	197	837	0.235	196	0.5	5.619	A
C-A	282			282			
A-B	33			33			
A-C	391			391			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	109	623	0.175	109	0.2	6.997	A
C-AB	279	875	0.319	278	0.8	6.043	A
C-A	307			307			
A-B	41			41			
A-C	479			479			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	109	623	0.175	109	0.2	7.004	A
C-AB	280	875	0.319	279	0.8	6.066	A
C-A	306			306			
A-B	41			41			
A-C	479			479			

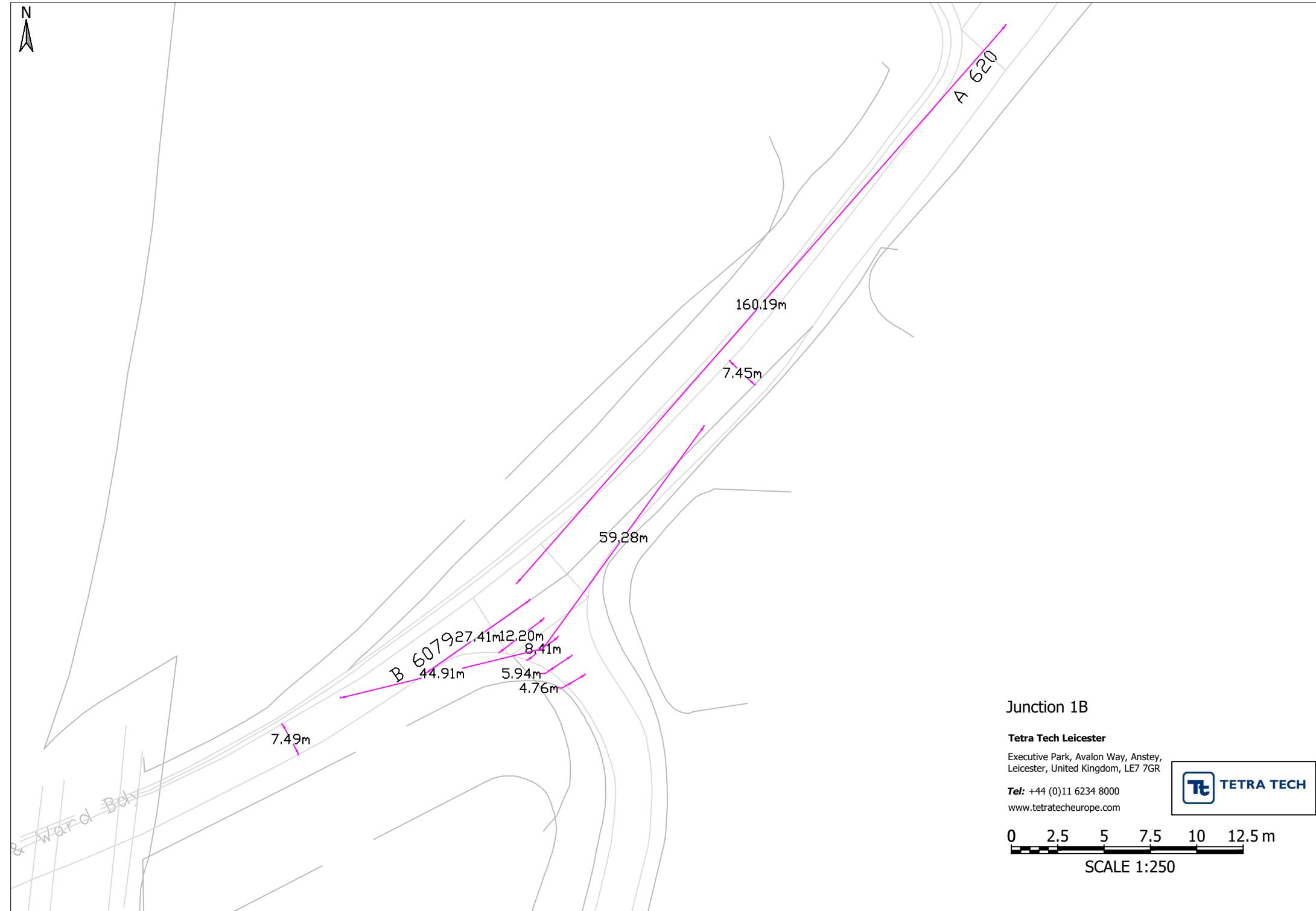
17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	89	663	0.134	89	0.2	6.280	A
C-AB	197	838	0.235	198	0.5	5.648	A
C-A	281			281			
A-B	33			33			
A-C	391			391			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	75	691	0.108	75	0.1	5.845	A
C-AB	149	812	0.183	150	0.3	5.445	A
C-A	252			252			
A-B	28			28			
A-C	327			327			

N



Junctions 9	
PICADY 9 - Priority Intersection Module	
Version: 9.5.1.7462	
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Filename: J1B Ranby.j9

Path: N:\Projects\B023665 - Ordsall, Retford\06 - Calculations\06 - Capacity Assessments\Nov 2022\for National Highways Technical Note\J1 - Ranby

Report generation date: 18/11/2022 09:47:08

»2038 Base + Committed, AM

»2038 Base + Committed, PM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2038 Base + Committed										
Stream B-AC	D15	0.4	10.90	0.31	B	D16	0.3	9.96	0.20	A
Stream C-AB		0.0	0.00	0.00	A		0.0	4.54	0.02	A
2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)										
Stream B-AC	D23	0.6	14.11	0.39	B	D24	0.5	13.27	0.32	B
Stream C-AB		0.0	0.00	0.00	A		0.0	4.39	0.02	A

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	J1B A620 Retford Road_ Unnamed Road Access to A1 S
Location	Retford
Site number	
Date	21/07/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	B023665
Enumerator	TT\LAUREN.WILKES
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D15	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15
D16	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.37	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A620 Retford Road E		Major
B	Unnamed Road_Access to A1 South		Minor
C	A620 Retford Road W		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - A620 Retford Road W	7.47			160.2	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Unnamed Road_Access to A1 South	One lane	4.95	45	59

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	623	0.106	0.269	0.169	0.384
B-C	790	0.113	0.287	-	-
C-B	667	0.242	0.242	-	-

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)
D15	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A620 Retford Road E		✓	444	100.000
B - Unnamed Road_Access to A1 South		✓	136	100.000
C - A620 Retford Road W		✓	505	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To		
	A - A620 Retford Road E	B - Unnamed Road_Access to A1 South	C - A620 Retford Road W
A - A620 Retford Road E	0	25	419
B - Unnamed Road_Access to A1 South	79	0	57
C - A620 Retford Road W	505	0	0

Vehicle Mix

Heavy Vehicle Percentages

From	To		
	A - A620 Retford Road E	B - Unnamed Road_Access to A1 South	C - A620 Retford Road W
A - A620 Retford Road E	0	0	0
B - Unnamed Road_Access to A1 South	0	0	0
C - A620 Retford Road W	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.31	10.90	0.4	B
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	102	546	0.187	101	0.2	8.076	A
C-AB	0	586	0.000	0	0.0	0.000	A
C-A	380			380			
A-B	19			19			
A-C	315			315			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	122	519	0.236	122	0.3	9.057	A
C-AB	0	570	0.000	0	0.0	0.000	A
C-A	454			454			
A-B	22			22			
A-C	377			377			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	150	480	0.312	149	0.4	10.860	B
C-AB	0	549	0.000	0	0.0	0.000	A
C-A	556			556			
A-B	28			28			
A-C	461			461			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	150	480	0.312	150	0.4	10.896	B
C-AB	0	549	0.000	0	0.0	0.000	A
C-A	556			556			
A-B	28			28			
A-C	461			461			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	122	519	0.236	123	0.3	9.105	A
C-AB	0	570	0.000	0	0.0	0.000	A
C-A	454			454			
A-B	22			22			
A-C	377			377			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	102	546	0.187	103	0.2	8.121	A
C-AB	0	586	0.000	0	0.0	0.000	A
C-A	380			380			
A-B	19			19			
A-C	315			315			

2038 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.83	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)
D16	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A620 Retford Road E		✓	528	100.000
B - Unnamed Road_Access to A1 South		✓	83	100.000
C - A620 Retford Road W		✓	457	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - A620 Retford Road E	B - Unnamed Road_Access to A1 South	C - A620 Retford Road W	
A - A620 Retford Road E	0	53	475	
B - Unnamed Road_Access to A1 South	53	0	30	
C - A620 Retford Road W	450	7	0	

Vehicle Mix

Heavy Vehicle Percentages

From	To			
	A - A620 Retford Road E	B - Unnamed Road_Access to A1 South	C - A620 Retford Road W	
A - A620 Retford Road E	0	0	0	
B - Unnamed Road_Access to A1 South	0	0	0	
C - A620 Retford Road W	0	0	0	

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.20	9.96	0.3	A
C-AB	0.02	4.54	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	62	525	0.119	62	0.1	7.771	A
C-AB	9	802	0.011	9	0.0	4.540	A
C-A	335			335			
A-B	40			40			
A-C	358			358			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	75	495	0.151	74	0.2	8.560	A
C-AB	12	832	0.015	12	0.0	4.388	A
C-A	399			399			
A-B	48			48			
A-C	427			427			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	91	453	0.202	91	0.2	9.940	A
C-AB	18	877	0.020	18	0.0	4.190	A
C-A	485			485			
A-B	58			58			
A-C	523			523			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	91	453	0.202	91	0.3	9.956	A
C-AB	18	877	0.020	18	0.0	4.192	A
C-A	485			485			
A-B	58			58			
A-C	523			523			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	75	495	0.151	75	0.2	8.580	A
C-AB	12	832	0.015	12	0.0	4.389	A
C-A	399			399			
A-B	48			48			
A-C	427			427			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	62	525	0.119	63	0.1	7.795	A
C-AB	9	802	0.011	9	0.0	4.540	A
C-A	335			335			
A-B	40			40			
A-C	358			358			

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.64	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)
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A620 Retford Road E		✓	593	100.000
B - Unnamed Road_Access to A1 South		✓	149	100.000
C - A620 Retford Road W		✓	543	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - A620 Retford Road E	B - Unnamed Road_Access to A1 South	C - A620 Retford Road W	
A - A620 Retford Road E	0	25	568	
B - Unnamed Road_Access to A1 South	92	0	57	
C - A620 Retford Road W	543	0	0	

Vehicle Mix

Heavy Vehicle Percentages

From		To		
		A - A620 Retford Road E	B - Unnamed Road_Access to A1 South	C - A620 Retford Road W
	A - A620 Retford Road E	0	0	0
	B - Unnamed Road_Access to A1 South	0	0	0
	C - A620 Retford Road W	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.39	14.11	0.6	B
C-AB	0.00	0.00	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	112	503	0.223	111	0.3	9.148	A
C-AB	0	559	0.000	0	0.0	0.000	A
C-A	409			409			
A-B	19			19			
A-C	428			428			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	134	468	0.286	134	0.4	10.736	B
C-AB	0	538	0.000	0	0.0	0.000	A
C-A	488			488			
A-B	22			22			
A-C	511			511			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	164	419	0.391	163	0.6	14.014	B
C-AB	0	509	0.000	0	0.0	0.000	A
C-A	598			598			
A-B	28			28			
A-C	625			625			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	164	419	0.391	164	0.6	14.110	B
C-AB	0	509	0.000	0	0.0	0.000	A
C-A	598			598			
A-B	28			28			
A-C	625			625			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	134	468	0.286	135	0.4	10.824	B
C-AB	0	538	0.000	0	0.0	0.000	A
C-A	488			488			
A-B	22			22			
A-C	511			511			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	112	503	0.223	113	0.3	9.222	A
C-AB	0	559	0.000	0	0.0	0.000	A
C-A	409			409			
A-B	19			19			
A-C	428			428			

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	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	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A620 Retford Road E		✓	594	100.000
B - Unnamed Road_Access to A1 South		✓	117	100.000
C - A620 Retford Road W		✓	528	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To			
	A - A620 Retford Road E	B - Unnamed Road_Access to A1 South	C - A620 Retford Road W	
A - A620 Retford Road E	0	53	541	
B - Unnamed Road_Access to A1 South	87	0	30	
C - A620 Retford Road W	521	7	0	

Vehicle Mix

Heavy Vehicle Percentages

From		To		
		A - A620 Retford Road E	B - Unnamed Road_Access to A1 South	C - A620 Retford Road W
	A - A620 Retford Road E	0	0	0
	B - Unnamed Road_Access to A1 South	0	0	0
	C - A620 Retford Road W	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.32	13.27	0.5	B
C-AB	0.02	4.39	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment
16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	88	484	0.182	87	0.2	9.062	A
C-AB	10	829	0.012	10	0.0	4.394	A
C-A	388			388			
A-B	40			40			
A-C	407			407			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	105	449	0.234	105	0.3	10.460	B
C-AB	14	866	0.016	14	0.0	4.223	A
C-A	461			461			
A-B	48			48			
A-C	486			486			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	129	400	0.322	128	0.5	13.210	B
C-AB	21	920	0.022	20	0.0	4.001	A
C-A	561			561			
A-B	58			58			
A-C	596			596			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	129	400	0.322	129	0.5	13.270	B
C-AB	21	920	0.022	21	0.0	4.002	A
C-A	561			561			
A-B	58			58			
A-C	596			596			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	105	449	0.234	106	0.3	10.516	B
C-AB	14	866	0.016	14	0.0	4.223	A
C-A	461			461			
A-B	48			48			
A-C	486			486			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	88	484	0.182	88	0.2	9.118	A
C-AB	10	829	0.012	10	0.0	4.394	A
C-A	387			387			
A-B	40			40			
A-C	407			407			

A1 Apleyhead Interchange (J2) Existing Junction Layouts

N

4.92m

46.03m

R32.35m

8.45m

53°m

20°m

17.54m

R28.97m

Ø69.61m

3.76m

5.20m

B 6420

Junction 2B

Tetra Tech Leicester

Executive Park, Avalon Way, Anstey,
Leicester, United Kingdom, LE7 7GR

Tel: +44 (0)11 6234 8000

www.tetratecheurope.com



0 250 500 750 1000 1250 mm

SCALE 1:25

Junctions 9									
ARCADY 9 - Roundabout Module									
Version: 9.5.1.7462									
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Filename: J2B Apleyhead.j9

Path: N:\Projects\B023665 - Ordsall, Retford\06 - Calculations\06 - Capacity Assessments\Nov 2022\for National Highways Technical Note\J2 - Apleyhead\01 - Existing

Report generation date: 18/11/2022 09:57:33

»2038 Base + Committed, AM

»2038 Base + Committed, PM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2038 Base + Committed										
A - Road over A1 West (Entry Only)	D3	0.2	0.81	0.18	A	D4	0.2	0.79	0.16	A
B - A1 Slip Road North (Entry Only)		0.5	3.30	0.34	A		0.4	3.03	0.30	A
C - Mansfield Road		0.6	6.25	0.37	A		0.4	5.09	0.29	A
2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)										
A - Road over A1 West (Entry Only)	D11	0.2	0.83	0.20	A	D12	0.3	0.84	0.21	A
B - A1 Slip Road North (Entry Only)		0.7	3.86	0.41	A		0.5	3.50	0.34	A
C - Mansfield Road		2.6	15.58	0.73	C		0.6	6.18	0.38	A

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	J2B Mansfield Road_A1
Location	Retford
Site number	
Date	16/11/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	B023665
Enumerator	TTI\LAUREN.WILKES
Description	A and B - Entry Only D and E - Exit Only All flows will exit at C, D or E and not pass arm A Potential to increase the capacity of arm A as drivers know they are unopposed and do not slow down on the approach to check for circulatory traffic. No geometry measurement for Arm A as there is no give way line.

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15
D4	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15
D11	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15
D12	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A - Road over A1 West (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	B - A1 Slip Road North (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	2.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Road over A1 West (Entry Only)	
B	A1 Slip Road North (Entry Only)	
C	Mansfield Road	
D	A1 South Slip Road (Exit Only)	
E	Road Over A1 West (Exit Only)	

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
A - Road over A1 West (Entry Only)	3.75	16.00	999.0	999.0	69.6	0.0	
B - A1 Slip Road North (Entry Only)	4.92	8.45	46.0	32.4	69.6	53.0	
C - Mansfield Road	3.76	5.20	17.5	29.0	69.6	20.0	
D - A1 South Slip Road (Exit Only)							✓
E - Road Over A1 West (Exit Only)							✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - Road over A1 West (Entry Only)	1.131	5424
B - A1 Slip Road North (Entry Only)	0.573	2206
C - Mansfield Road	0.497	1559
D - A1 South Slip Road (Exit Only)		
E - Road Over A1 West (Exit Only)		

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)
D3	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Road over A1 West (Entry Only)		✓	871	100.000
B - A1 Slip Road North (Entry Only)		✓	514	100.000
C - Mansfield Road		✓	310	100.000
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	2	0	212	657	0
	B - A1 Slip Road North (Entry Only)	507	0	1	6	0
	C - Mansfield Road	304	0	0	6	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

From		To				
		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	0	0	0	0	0
	B - A1 Slip Road North (Entry Only)	0	0	0	0	0
	C - Mansfield Road	0	0	0	0	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Road over A1 West (Entry Only)	0.18	0.81	0.2	A
B - A1 Slip Road North (Entry Only)	0.34	3.30	0.5	A
C - Mansfield Road	0.37	6.25	0.6	A
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	656	0	5424	0.121	655	0.1	0.754	A
B - A1 Slip Road North (Entry Only)	387	655	1831	0.211	386	0.3	2.490	A
C - Mansfield Road	233	881	1121	0.208	232	0.3	4.047	A
D - A1 South Slip Road (Exit Only)		610						
E - Road Over A1 West (Exit Only)		610						

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	783	0	5424	0.144	783	0.2	0.775	A
B - A1 Slip Road North (Entry Only)	462	783	1758	0.263	462	0.4	2.777	A
C - Mansfield Road	279	1053	1035	0.269	278	0.4	4.752	A
D - A1 South Slip Road (Exit Only)		730						
E - Road Over A1 West (Exit Only)		730						

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	959	0	5424	0.177	959	0.2	0.805	A
B - A1 Slip Road North (Entry Only)	566	959	1657	0.342	565	0.5	3.296	A
C - Mansfield Road	341	1290	918	0.372	340	0.6	6.225	A
D - A1 South Slip Road (Exit Only)		894						
E - Road Over A1 West (Exit Only)		894						

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	959	0	5424	0.177	959	0.2	0.805	A
B - A1 Slip Road North (Entry Only)	566	959	1657	0.342	566	0.5	3.299	A
C - Mansfield Road	341	1290	918	0.372	341	0.6	6.246	A
D - A1 South Slip Road (Exit Only)		895						
E - Road Over A1 West (Exit Only)		895						

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	783	0	5424	0.144	783	0.2	0.777	A
B - A1 Slip Road North (Entry Only)	462	783	1758	0.263	463	0.4	2.781	A
C - Mansfield Road	279	1054	1035	0.269	280	0.4	4.771	A
D - A1 South Slip Road (Exit Only)		732						
E - Road Over A1 West (Exit Only)		732						

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	656	0	5424	0.121	656	0.1	0.754	A
B - A1 Slip Road North (Entry Only)	387	656	1830	0.211	387	0.3	2.496	A
C - Mansfield Road	233	883	1120	0.208	234	0.3	4.064	A
D - A1 South Slip Road (Exit Only)		613						
E - Road Over A1 West (Exit Only)		613						

2038 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A - Road over A1 West (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	B - A1 Slip Road North (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	2.21	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Road over A1 West (Entry Only)		✓	810	100.000
B - A1 Slip Road North (Entry Only)		✓	461	100.000
C - Mansfield Road		✓	267	100.000
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	3	0	249	558	0
	B - A1 Slip Road North (Entry Only)	458	0	3	0	0
	C - Mansfield Road	259	0	0	8	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	0	0	0	0	0
	B - A1 Slip Road North (Entry Only)	0	0	0	0	0
	C - Mansfield Road	0	0	0	0	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Road over A1 West (Entry Only)	0.16	0.79	0.2	A
B - A1 Slip Road North (Entry Only)	0.30	3.03	0.4	A
C - Mansfield Road	0.29	5.09	0.4	A
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	610	0	5424	0.112	609	0.1	0.747	A
B - A1 Slip Road North (Entry Only)	347	609	1857	0.187	346	0.2	2.381	A
C - Mansfield Road	201	766	1178	0.171	200	0.2	3.677	A
D - A1 South Slip Road (Exit Only)		540						
E - Road Over A1 West (Exit Only)		540						

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	728	0	5424	0.134	728	0.2	0.766	A
B - A1 Slip Road North (Entry Only)	414	728	1789	0.232	414	0.3	2.618	A
C - Mansfield Road	240	916	1104	0.217	240	0.3	4.165	A
D - A1 South Slip Road (Exit Only)		647						
E - Road Over A1 West (Exit Only)		647						

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	892	0	5424	0.164	892	0.2	0.793	A
B - A1 Slip Road North (Entry Only)	508	892	1695	0.299	507	0.4	3.027	A
C - Mansfield Road	294	1121	1002	0.294	293	0.4	5.080	A
D - A1 South Slip Road (Exit Only)		792						
E - Road Over A1 West (Exit Only)		792						

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	892	0	5424	0.164	892	0.2	0.793	A
B - A1 Slip Road North (Entry Only)	508	892	1695	0.299	508	0.4	3.030	A
C - Mansfield Road	294	1122	1001	0.294	294	0.4	5.089	A
D - A1 South Slip Road (Exit Only)		793						
E - Road Over A1 West (Exit Only)		793						

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	728	0	5424	0.134	728	0.2	0.768	A
B - A1 Slip Road North (Entry Only)	414	728	1789	0.232	415	0.3	2.620	A
C - Mansfield Road	240	917	1103	0.218	241	0.3	4.176	A
D - A1 South Slip Road (Exit Only)		648						
E - Road Over A1 West (Exit Only)		648						

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	610	0	5424	0.112	610	0.1	0.749	A
B - A1 Slip Road North (Entry Only)	347	610	1857	0.187	347	0.2	2.385	A
C - Mansfield Road	201	768	1177	0.171	201	0.2	3.688	A
D - A1 South Slip Road (Exit Only)		543						
E - Road Over A1 West (Exit Only)		543						

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A - Road over A1 West (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	B - A1 Slip Road North (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	5.51	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)
D11	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Road over A1 West (Entry Only)		✓	976	100.000
B - A1 Slip Road North (Entry Only)		✓	598	100.000
C - Mansfield Road		✓	552	100.000
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	2	0	255	719	0
	B - A1 Slip Road North (Entry Only)	591	0	1	6	0
	C - Mansfield Road	546	0	0	6	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	0	0	0	0	0
	B - A1 Slip Road North (Entry Only)	0	0	0	0	0
	C - Mansfield Road	0	0	0	0	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Road over A1 West (Entry Only)	0.20	0.83	0.2	A
B - A1 Slip Road North (Entry Only)	0.41	3.86	0.7	A
C - Mansfield Road	0.73	15.58	2.6	C
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	735	0	5424	0.135	734	0.2	0.767	A
B - A1 Slip Road North (Entry Only)	450	734	1786	0.252	449	0.3	2.691	A
C - Mansfield Road	416	990	1067	0.390	413	0.6	5.487	A
D - A1 South Slip Road (Exit Only)		854						
E - Road Over A1 West (Exit Only)		854						

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	877	0	5424	0.162	877	0.2	0.791	A
B - A1 Slip Road North (Entry Only)	538	877	1704	0.316	537	0.5	3.084	A
C - Mansfield Road	496	1184	970	0.511	495	1.0	7.541	A
D - A1 South Slip Road (Exit Only)		1022						
E - Road Over A1 West (Exit Only)		1022						

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	1075	0	5424	0.198	1074	0.2	0.826	A
B - A1 Slip Road North (Entry Only)	658	1074	1591	0.414	657	0.7	3.853	A
C - Mansfield Road	608	1450	838	0.725	602	2.5	14.877	B
D - A1 South Slip Road (Exit Only)		1247						
E - Road Over A1 West (Exit Only)		1247						

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	1075	0	5424	0.198	1075	0.2	0.826	A
B - A1 Slip Road North (Entry Only)	658	1075	1591	0.414	658	0.7	3.861	A
C - Mansfield Road	608	1451	838	0.726	607	2.6	15.581	C
D - A1 South Slip Road (Exit Only)		1254						
E - Road Over A1 West (Exit Only)		1254						

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	877	0	5424	0.162	878	0.2	0.791	A
B - A1 Slip Road North (Entry Only)	538	878	1703	0.316	539	0.5	3.092	A
C - Mansfield Road	496	1186	969	0.512	502	1.1	7.799	A
D - A1 South Slip Road (Exit Only)		1031						
E - Road Over A1 West (Exit Only)		1031						

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	735	0	5424	0.135	735	0.2	0.769	A
B - A1 Slip Road North (Entry Only)	450	735	1785	0.252	451	0.3	2.700	A
C - Mansfield Road	416	993	1065	0.390	417	0.6	5.567	A
D - A1 South Slip Road (Exit Only)		860						
E - Road Over A1 West (Exit Only)		860						

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A - Road over A1 West (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	B - A1 Slip Road North (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	2.47	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)
D12	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Road over A1 West (Entry Only)		✓	1039	100.000
B - A1 Slip Road North (Entry Only)		✓	475	100.000
C - Mansfield Road		✓	327	100.000
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	3	0	385	651	0
	B - A1 Slip Road North (Entry Only)	472	0	3	0	0
	C - Mansfield Road	319	0	0	8	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	0	0	0	0	0
	B - A1 Slip Road North (Entry Only)	0	0	0	0	0
	C - Mansfield Road	0	0	0	0	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Road over A1 West (Entry Only)	0.21	0.84	0.3	A
B - A1 Slip Road North (Entry Only)	0.34	3.50	0.5	A
C - Mansfield Road	0.38	6.18	0.6	A
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	782	0	5424	0.144	782	0.2	0.774	A
B - A1 Slip Road North (Entry Only)	358	782	1758	0.203	357	0.3	2.567	A
C - Mansfield Road	246	846	1138	0.216	245	0.3	4.025	A
D - A1 South Slip Road (Exit Only)		596						
E - Road Over A1 West (Exit Only)		596						

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	934	0	5424	0.172	934	0.2	0.801	A
B - A1 Slip Road North (Entry Only)	427	934	1671	0.256	427	0.3	2.892	A
C - Mansfield Road	294	1012	1056	0.278	294	0.4	4.719	A
D - A1 South Slip Road (Exit Only)		713						
E - Road Over A1 West (Exit Only)		713						

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	1144	0	5424	0.211	1144	0.3	0.840	A
B - A1 Slip Road North (Entry Only)	523	1144	1551	0.337	522	0.5	3.497	A
C - Mansfield Road	360	1239	943	0.382	359	0.6	6.145	A
D - A1 South Slip Road (Exit Only)		873						
E - Road Over A1 West (Exit Only)		873						

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	1144	0	5424	0.211	1144	0.3	0.840	A
B - A1 Slip Road North (Entry Only)	523	1144	1551	0.337	523	0.5	3.501	A
C - Mansfield Road	360	1240	943	0.382	360	0.6	6.177	A
D - A1 South Slip Road (Exit Only)		874						
E - Road Over A1 West (Exit Only)		874						

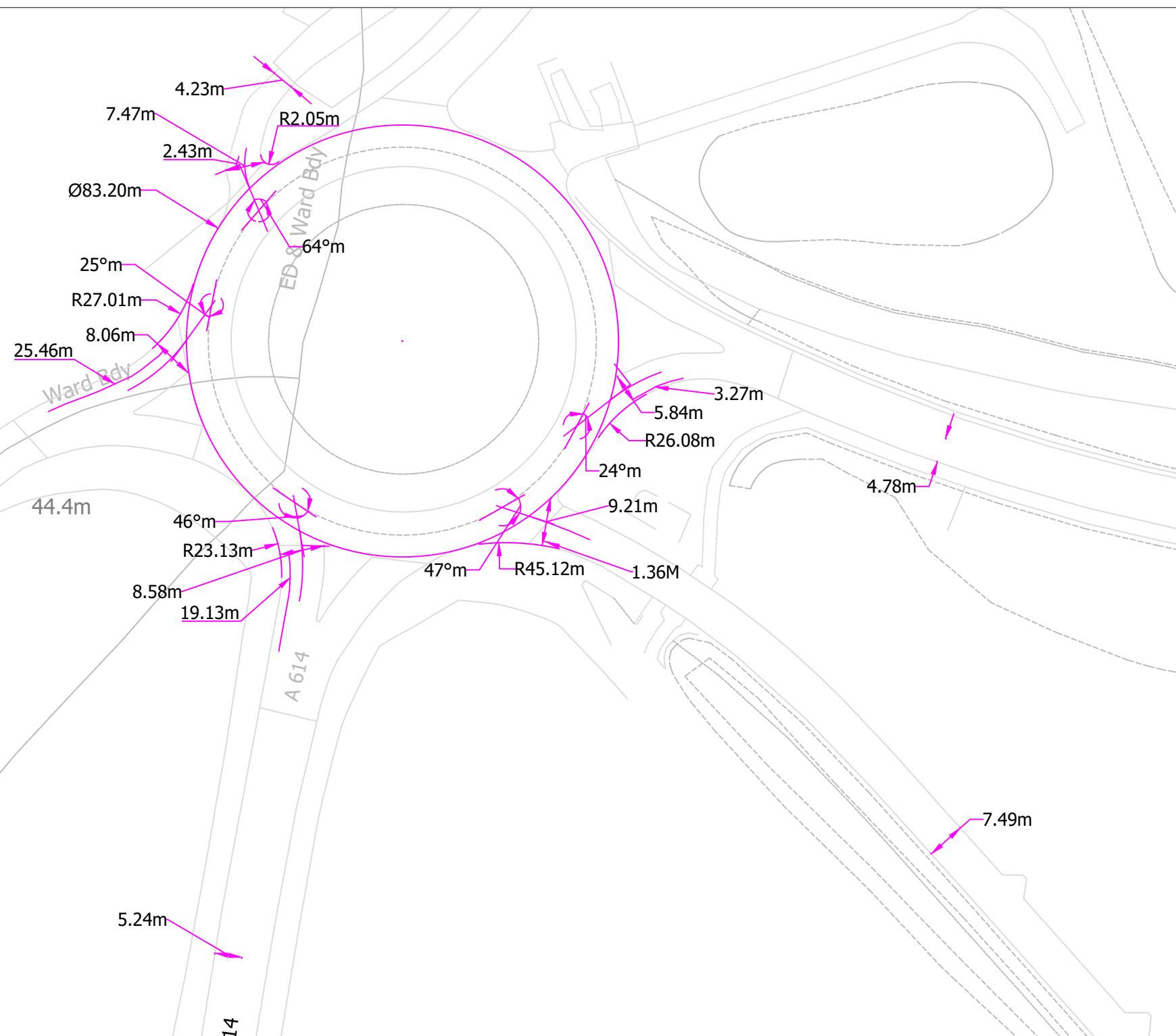
17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	934	0	5424	0.172	934	0.2	0.801	A
B - A1 Slip Road North (Entry Only)	427	934	1671	0.256	428	0.3	2.896	A
C - Mansfield Road	294	1013	1055	0.279	295	0.4	4.740	A
D - A1 South Slip Road (Exit Only)		715						
E - Road Over A1 West (Exit Only)		715						

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	782	0	5424	0.144	782	0.2	0.777	A
B - A1 Slip Road North (Entry Only)	358	782	1758	0.203	358	0.3	2.571	A
C - Mansfield Road	246	848	1137	0.216	247	0.3	4.043	A
D - A1 South Slip Road (Exit Only)		599						
E - Road Over A1 West (Exit Only)		599						

N



Junction 2A

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0 250 500 750 1000 1250 mm

SCALE 1:25

Junctions 9									
ARCADY 9 - Roundabout Module									
Version: 9.5.1.7462									
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Filename: J2A Apleyhead_A57NS.j9

Path: N:\Projects\B023665 - Ordsall, Retford\06 - Calculations\06 - Capacity Assessments\Nov 2022\for National Highways Technical Note\J2 - Apleyhead\01 - Existing

Report generation date: 19/11/2022 16:54:12

»2038 Base + Committed, AM

»2038 Base + Committed, PM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2038 Base + Committed										
A - A57	D15	0.1	3.89	0.10	A	D16	0.2	4.03	0.14	A
C - Road Across A1 (East)		1.2	4.69	0.54	A		0.9	4.07	0.47	A
D - Slip Road from Worksop Road (Entry Only)		0.9	5.47	0.48	A		1.1	5.90	0.53	A
E - Blyth Road		0.6	3.45	0.37	A		0.5	3.26	0.34	A
2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)										
A - A57	D23	0.2	4.07	0.14	A	D24	0.4	4.94	0.29	A
C - Road Across A1 (East)		3.0	8.78	0.75	A		1.1	4.49	0.52	A
D - Slip Road from Worksop Road (Entry Only)		1.6	8.58	0.62	A		1.3	6.62	0.57	A
E - Blyth Road		1.0	4.90	0.51	A		0.6	3.61	0.39	A

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	J2A Apleyhead Interchange
Location	Retford
Site number	
Date	20/07/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	B023665
Enumerator	TTLAUREN.WILKES
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D15	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15
D16	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	4.51	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A57	
B	A1 Slip Road (Exit Only)	
C	Road Across A1 (East)	
D	Slip Road from Worksop Road (Entry Only)	
E	Blyth Road	

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
A - A57	4.03	4.03	0.0	27.0	83.2	25.0	
B - A1 Slip Road (Exit Only)							✓
C - Road Across A1 (East)	4.78	5.84	3.3	26.0	83.2	24.0	
D - Slip Road from Worksop Road (Entry Only)	5.30	7.30	1.4	45.1	83.2	47.0	
E - Blyth Road	5.24	8.58	19.1	23.1	83.2	46.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - A57	0.408	1258
B - A1 Slip Road (Exit Only)		
C - Road Across A1 (East)	0.467	1658
D - Slip Road from Worksop Road (Entry Only)	0.452	1658
E - Blyth Road	0.517	2128

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)
D15	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	95	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	809	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	542	100.000
E - Blyth Road		✓	569	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	95	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	284	2	0	0	523
	D - Slip Road from Worksop Road (Entry Only)	507	6	4	0	25
	E - Blyth Road	72	348	149	0	0

Vehicle Mix

Heavy Vehicle Percentages

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.10	3.89	0.1	A
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.54	4.69	1.2	A
D - Slip Road from Worksop Road (Entry Only)	0.48	5.47	0.9	A
E - Blyth Road	0.37	3.45	0.6	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	72	382	1102	0.065	71	0.1	3.493	A
B - A1 Slip Road (Exit Only)		115						
C - Road Across A1 (East)	609	0	1658	0.367	607	0.6	3.419	A
D - Slip Road from Worksop Road (Entry Only)	408	607	1383	0.295	406	0.4	3.679	A
E - Blyth Road	428	602	1816	0.236	427	0.3	2.589	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	85	457	1071	0.080	85	0.1	3.651	A
B - A1 Slip Road (Exit Only)		137						
C - Road Across A1 (East)	727	0	1658	0.439	726	0.8	3.863	A
D - Slip Road from Worksop Road (Entry Only)	487	726	1329	0.367	487	0.6	4.271	A
E - Blyth Road	512	721	1755	0.291	511	0.4	2.894	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	105	560	1029	0.102	104	0.1	3.892	A
B - A1 Slip Road (Exit Only)		168						
C - Road Across A1 (East)	891	0	1658	0.537	889	1.1	4.675	A
D - Slip Road from Worksop Road (Entry Only)	597	889	1255	0.475	595	0.9	5.444	A
E - Blyth Road	626	882	1672	0.375	626	0.6	3.441	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	105	560	1029	0.102	105	0.1	3.893	A
B - A1 Slip Road (Exit Only)		168						
C - Road Across A1 (East)	891	0	1658	0.537	891	1.2	4.693	A
D - Slip Road from Worksop Road (Entry Only)	597	891	1255	0.476	597	0.9	5.471	A
E - Blyth Road	626	884	1671	0.375	626	0.6	3.446	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	85	458	1071	0.080	86	0.1	3.653	A
B - A1 Slip Road (Exit Only)		138						
C - Road Across A1 (East)	727	0	1658	0.439	729	0.8	3.883	A
D - Slip Road from Worksop Road (Entry Only)	487	729	1328	0.367	489	0.6	4.296	A
E - Blyth Road	512	724	1754	0.292	512	0.4	2.901	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	72	384	1101	0.065	72	0.1	3.498	A
B - A1 Slip Road (Exit Only)		115						
C - Road Across A1 (East)	609	0	1658	0.367	610	0.6	3.440	A
D - Slip Road from Worksop Road (Entry Only)	408	610	1382	0.295	409	0.4	3.701	A
E - Blyth Road	428	605	1815	0.236	429	0.3	2.597	A

2038 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	4.44	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)
D16	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	136	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	703	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	633	100.000
E - Blyth Road		✓	513	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	136	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	184	9	0	0	510
	D - Slip Road from Worksop Road (Entry Only)	602	4	9	0	18
	E - Blyth Road	56	308	149	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.14	4.03	0.2	A
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.47	4.07	0.9	A
D - Slip Road from Worksop Road (Entry Only)	0.53	5.90	1.1	A
E - Blyth Road	0.34	3.26	0.5	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	102	360	1111	0.092	102	0.1	3.565	A
B - A1 Slip Road (Exit Only)		119						
C - Road Across A1 (East)	529	0	1658	0.319	527	0.5	3.179	A
D - Slip Road from Worksop Road (Entry Only)	477	527	1419	0.336	475	0.5	3.803	A
E - Blyth Road	386	606	1815	0.213	385	0.3	2.518	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	122	430	1082	0.113	122	0.1	3.749	A
B - A1 Slip Road (Exit Only)		142						
C - Road Across A1 (East)	632	0	1658	0.381	631	0.6	3.506	A
D - Slip Road from Worksop Road (Entry Only)	569	631	1372	0.415	568	0.7	4.474	A
E - Blyth Road	461	725	1753	0.263	461	0.4	2.786	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	150	527	1043	0.144	150	0.2	4.030	A
B - A1 Slip Road (Exit Only)		174						
C - Road Across A1 (East)	774	0	1658	0.467	773	0.9	4.066	A
D - Slip Road from Worksop Road (Entry Only)	697	773	1308	0.533	695	1.1	5.859	A
E - Blyth Road	565	888	1669	0.338	564	0.5	3.257	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	150	527	1043	0.144	150	0.2	4.032	A
B - A1 Slip Road (Exit Only)		174						
C - Road Across A1 (East)	774	0	1658	0.467	774	0.9	4.073	A
D - Slip Road from Worksop Road (Entry Only)	697	774	1307	0.533	697	1.1	5.895	A
E - Blyth Road	565	890	1668	0.339	565	0.5	3.262	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	122	431	1082	0.113	122	0.1	3.755	A
B - A1 Slip Road (Exit Only)		142						
C - Road Across A1 (East)	632	0	1658	0.381	633	0.6	3.516	A
D - Slip Road from Worksop Road (Entry Only)	569	633	1371	0.415	571	0.7	4.507	A
E - Blyth Road	461	728	1751	0.263	462	0.4	2.794	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	102	361	1110	0.092	102	0.1	3.571	A
B - A1 Slip Road (Exit Only)		119						
C - Road Across A1 (East)	529	0	1658	0.319	530	0.5	3.195	A
D - Slip Road from Worksop Road (Entry Only)	477	530	1418	0.336	477	0.5	3.832	A
E - Blyth Road	386	609	1813	0.213	387	0.3	2.526	A

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	7.46	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)
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	126	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	1134	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	612	100.000
E - Blyth Road		✓	684	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	126	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	536	2	0	0	596
	D - Slip Road from Worksop Road (Entry Only)	577	6	4	0	25
	E - Blyth Road	172	348	164	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.14	4.07	0.2	A
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.75	8.78	3.0	A
D - Slip Road from Worksop Road (Entry Only)	0.62	8.58	1.6	A
E - Blyth Road	0.51	4.90	1.0	A

Main Results for each time segment
07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	95	393	1097	0.086	94	0.1	3.590	A
B - A1 Slip Road (Exit Only)		126						
C - Road Across A1 (East)	854	0	1658	0.515	850	1.1	4.432	A
D - Slip Road from Worksop Road (Entry Only)	461	850	1273	0.362	458	0.6	4.408	A
E - Blyth Road	515	843	1692	0.304	513	0.4	3.050	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	113	471	1066	0.106	113	0.1	3.778	A
B - A1 Slip Road (Exit Only)		151						
C - Road Across A1 (East)	1019	0	1658	0.615	1017	1.6	5.605	A
D - Slip Road from Worksop Road (Entry Only)	550	1017	1197	0.459	549	0.8	5.544	A
E - Blyth Road	615	1009	1606	0.383	614	0.6	3.628	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	139	576	1023	0.136	139	0.2	4.071	A
B - A1 Slip Road (Exit Only)		185						
C - Road Across A1 (East)	1249	0	1658	0.753	1243	2.9	8.571	A
D - Slip Road from Worksop Road (Entry Only)	674	1243	1095	0.615	671	1.6	8.427	A
E - Blyth Road	753	1233	1490	0.505	752	1.0	4.864	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	139	577	1022	0.136	139	0.2	4.073	A
B - A1 Slip Road (Exit Only)		185						
C - Road Across A1 (East)	1249	0	1658	0.753	1248	3.0	8.783	A
D - Slip Road from Worksop Road (Entry Only)	674	1248	1093	0.617	674	1.6	8.584	A
E - Blyth Road	753	1238	1488	0.506	753	1.0	4.900	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	113	472	1065	0.106	113	0.1	3.782	A
B - A1 Slip Road (Exit Only)		151						
C - Road Across A1 (East)	1019	0	1658	0.615	1025	1.6	5.737	A
D - Slip Road from Worksop Road (Entry Only)	550	1025	1194	0.461	553	0.9	5.643	A
E - Blyth Road	615	1017	1602	0.384	616	0.6	3.657	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	95	395	1097	0.087	95	0.1	3.593	A
B - A1 Slip Road (Exit Only)		127						
C - Road Across A1 (East)	854	0	1658	0.515	856	1.1	4.502	A
D - Slip Road from Worksop Road (Entry Only)	461	856	1270	0.363	462	0.6	4.458	A
E - Blyth Road	515	849	1689	0.305	516	0.4	3.072	A

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	4.94	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)
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	268	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	777	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	660	100.000
E - Blyth Road		✓	570	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	268	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	233	9	0	0	535
	D - Slip Road from Worksop Road (Entry Only)	629	4	9	0	18
	E - Blyth Road	72	308	190	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.29	4.94	0.4	A
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.52	4.49	1.1	A
D - Slip Road from Worksop Road (Entry Only)	0.57	6.62	1.3	A
E - Blyth Road	0.39	3.61	0.6	A

Main Results for each time segment
16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	202	390	1098	0.184	201	0.2	4.006	A
B - A1 Slip Road (Exit Only)		149						
C - Road Across A1 (East)	585	0	1658	0.353	583	0.5	3.342	A
D - Slip Road from Worksop Road (Entry Only)	497	583	1394	0.356	495	0.6	3.993	A
E - Blyth Road	429	663	1785	0.240	428	0.3	2.650	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	241	467	1067	0.226	241	0.3	4.355	A
B - A1 Slip Road (Exit Only)		179						
C - Road Across A1 (East)	699	0	1658	0.421	698	0.7	3.749	A
D - Slip Road from Worksop Road (Entry Only)	593	698	1342	0.442	592	0.8	4.796	A
E - Blyth Road	512	794	1718	0.298	512	0.4	2.986	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	295	572	1024	0.288	295	0.4	4.929	A
B - A1 Slip Road (Exit Only)		219						
C - Road Across A1 (East)	855	0	1658	0.516	854	1.1	4.473	A
D - Slip Road from Worksop Road (Entry Only)	727	854	1271	0.572	725	1.3	6.561	A
E - Blyth Road	628	971	1626	0.386	627	0.6	3.599	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	295	573	1024	0.288	295	0.4	4.937	A
B - A1 Slip Road (Exit Only)		219						
C - Road Across A1 (East)	855	0	1658	0.516	855	1.1	4.487	A
D - Slip Road from Worksop Road (Entry Only)	727	855	1271	0.572	727	1.3	6.617	A
E - Blyth Road	628	973	1625	0.386	628	0.6	3.609	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	241	468	1067	0.226	241	0.3	4.363	A
B - A1 Slip Road (Exit Only)		179						
C - Road Across A1 (East)	699	0	1658	0.421	700	0.7	3.762	A
D - Slip Road from Worksop Road (Entry Only)	593	700	1341	0.442	595	0.8	4.841	A
E - Blyth Road	512	797	1716	0.299	513	0.4	2.997	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	202	392	1098	0.184	202	0.2	4.021	A
B - A1 Slip Road (Exit Only)		150						
C - Road Across A1 (East)	585	0	1658	0.353	586	0.5	3.362	A
D - Slip Road from Worksop Road (Entry Only)	497	586	1393	0.357	498	0.6	4.028	A
E - Blyth Road	429	667	1783	0.241	430	0.3	2.660	A

Junctions 9									
ARCADY 9 - Roundabout Module									
Version: 9.5.1.7462									
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Filename: J2A Apleyhead_A57OS.j9

Path: N:\Projects\B023665 - Ordsall, Retford\06 - Calculations\06 - Capacity Assessments\Nov 2022\for National Highways Technical Note\J2 - Apleyhead\01 - Existing

Report generation date: 19/11/2022 16:53:21

»2038 Base + Committed, AM

»2038 Base + Committed, PM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2038 Base + Committed										
A - A57	D15	4.2	18.68	0.82	C	D16	3.1	14.52	0.76	B
C - Road Across A1 (East)		1.2	4.86	0.55	A		0.9	4.25	0.48	A
D - Slip Road from Worksop Road (Entry Only)		0.9	5.69	0.49	A		1.2	6.25	0.55	A
E - Blyth Road		0.6	3.45	0.38	A		0.5	3.27	0.34	A
2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)										
A - A57	D23	9.0	37.04	0.92	E	D24	17.5	65.10	0.98	F
C - Road Across A1 (East)		3.2	9.36	0.77	A		1.1	4.69	0.53	A
D - Slip Road from Worksop Road (Entry Only)		1.7	9.12	0.63	A		1.4	7.06	0.59	A
E - Blyth Road		1.0	4.91	0.51	A		0.6	3.62	0.39	A

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	J2A Apleyhead Interchange
Location	Retford
Site number	
Date	20/07/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	B023665
Enumerator	TTLAUREN.WILKES
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D15	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15
D16	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	8.65	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A57	
B	A1 Slip Road (Exit Only)	
C	Road Across A1 (East)	
D	Slip Road from Worksop Road (Entry Only)	
E	Blyth Road	

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
A - A57	4.03	4.03	0.0	27.0	83.2	25.0	
B - A1 Slip Road (Exit Only)							✓
C - Road Across A1 (East)	4.78	5.84	3.3	26.0	83.2	24.0	
D - Slip Road from Worksop Road (Entry Only)	5.30	7.30	1.4	45.1	83.2	47.0	
E - Blyth Road	5.24	8.58	19.1	23.1	83.2	46.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - A57	0.408	1258
B - A1 Slip Road (Exit Only)		
C - Road Across A1 (East)	0.467	1658
D - Slip Road from Worksop Road (Entry Only)	0.452	1658
E - Blyth Road	0.517	2128

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)
D15	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	762	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	809	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	542	100.000
E - Blyth Road		✓	569	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	2	0	712	0	48
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	284	2	0	0	523
	D - Slip Road from Worksop Road (Entry Only)	507	6	4	0	25
	E - Blyth Road	72	348	149	0	0

Vehicle Mix

Heavy Vehicle Percentages

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.82	18.68	4.2	C
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.55	4.86	1.2	A
D - Slip Road from Worksop Road (Entry Only)	0.49	5.69	0.9	A
E - Blyth Road	0.38	3.45	0.6	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	574	382	1102	0.521	569	1.1	6.709	A
B - A1 Slip Road (Exit Only)		684						
C - Road Across A1 (East)	609	37	1640	0.371	607	0.6	3.476	A
D - Slip Road from Worksop Road (Entry Only)	408	644	1366	0.299	406	0.4	3.744	A
E - Blyth Road	428	604	1816	0.236	427	0.3	2.590	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	685	457	1071	0.640	682	1.7	9.197	A
B - A1 Slip Road (Exit Only)		820						
C - Road Across A1 (East)	727	45	1637	0.444	726	0.8	3.951	A
D - Slip Road from Worksop Road (Entry Only)	487	771	1309	0.372	487	0.6	4.375	A
E - Blyth Road	512	723	1754	0.292	511	0.4	2.896	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	839	560	1029	0.815	830	4.0	17.301	C
B - A1 Slip Road (Exit Only)		998						
C - Road Across A1 (East)	891	54	1632	0.546	889	1.2	4.835	A
D - Slip Road from Worksop Road (Entry Only)	597	944	1231	0.485	595	0.9	5.653	A
E - Blyth Road	626	884	1671	0.375	626	0.6	3.444	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	839	560	1029	0.815	838	4.2	18.676	C
B - A1 Slip Road (Exit Only)		1007						
C - Road Across A1 (East)	891	55	1632	0.546	891	1.2	4.856	A
D - Slip Road from Worksop Road (Entry Only)	597	946	1230	0.485	597	0.9	5.686	A
E - Blyth Road	626	886	1670	0.375	626	0.6	3.450	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	685	458	1071	0.640	694	1.8	9.797	A
B - A1 Slip Road (Exit Only)		832						
C - Road Across A1 (East)	727	46	1636	0.444	729	0.8	3.974	A
D - Slip Road from Worksop Road (Entry Only)	487	774	1307	0.373	489	0.6	4.404	A
E - Blyth Road	512	726	1753	0.292	512	0.4	2.903	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	574	384	1101	0.521	577	1.1	6.898	A
B - A1 Slip Road (Exit Only)		692						
C - Road Across A1 (East)	609	38	1640	0.371	610	0.6	3.499	A
D - Slip Road from Worksop Road (Entry Only)	408	648	1365	0.299	409	0.4	3.770	A
E - Blyth Road	428	607	1814	0.236	429	0.3	2.601	A

2038 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	7.43	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)
D16	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	723	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	703	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	633	100.000
E - Blyth Road		✓	513	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	5	0	653	0	65
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	184	9	0	0	510
	D - Slip Road from Worksop Road (Entry Only)	602	4	9	0	18
	E - Blyth Road	56	308	149	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.76	14.52	3.1	B
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.48	4.25	0.9	A
D - Slip Road from Worksop Road (Entry Only)	0.55	6.25	1.2	A
E - Blyth Road	0.34	3.27	0.5	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	544	360	1111	0.490	541	0.9	6.270	A
B - A1 Slip Road (Exit Only)		659						
C - Road Across A1 (East)	529	52	1633	0.324	527	0.5	3.250	A
D - Slip Road from Worksop Road (Entry Only)	477	580	1395	0.342	474	0.5	3.900	A
E - Blyth Road	386	610	1813	0.213	385	0.3	2.521	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	650	430	1082	0.601	648	1.5	8.249	A
B - A1 Slip Road (Exit Only)		790						
C - Road Across A1 (East)	632	63	1628	0.388	631	0.6	3.609	A
D - Slip Road from Worksop Road (Entry Only)	569	694	1344	0.424	568	0.7	4.638	A
E - Blyth Road	461	730	1750	0.263	461	0.4	2.791	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	796	527	1043	0.763	790	3.0	13.892	B
B - A1 Slip Road (Exit Only)		964						
C - Road Across A1 (East)	774	76	1622	0.477	773	0.9	4.235	A
D - Slip Road from Worksop Road (Entry Only)	697	849	1273	0.547	695	1.2	6.205	A
E - Blyth Road	565	893	1666	0.339	564	0.5	3.265	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	796	527	1043	0.764	796	3.1	14.524	B
B - A1 Slip Road (Exit Only)		970						
C - Road Across A1 (East)	774	77	1622	0.477	774	0.9	4.246	A
D - Slip Road from Worksop Road (Entry Only)	697	851	1273	0.548	697	1.2	6.252	A
E - Blyth Road	565	895	1665	0.339	565	0.5	3.271	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	650	431	1082	0.601	656	1.5	8.582	A
B - A1 Slip Road (Exit Only)		799						
C - Road Across A1 (East)	632	64	1628	0.388	633	0.6	3.621	A
D - Slip Road from Worksop Road (Entry Only)	569	697	1343	0.424	571	0.7	4.676	A
E - Blyth Road	461	733	1749	0.264	462	0.4	2.797	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	544	361	1110	0.490	547	1.0	6.409	A
B - A1 Slip Road (Exit Only)		666						
C - Road Across A1 (East)	529	53	1633	0.324	530	0.5	3.264	A
D - Slip Road from Worksop Road (Entry Only)	477	583	1394	0.342	477	0.5	3.931	A
E - Blyth Road	386	613	1811	0.213	387	0.3	2.529	A

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	15.57	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	852	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	1134	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	612	100.000
E - Blyth Road		✓	684	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	2	0	802	0	48
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	536	2	0	0	596
	D - Slip Road from Worksop Road (Entry Only)	577	6	4	0	25
	E - Blyth Road	172	348	164	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.92	37.04	9.0	E
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.77	9.36	3.2	A
D - Slip Road from Worksop Road (Entry Only)	0.63	9.12	1.7	A
E - Blyth Road	0.51	4.91	1.0	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	641	393	1097	0.585	636	1.4	7.714	A
B - A1 Slip Road (Exit Only)		762						
C - Road Across A1 (East)	854	37	1640	0.521	849	1.1	4.528	A
D - Slip Road from Worksop Road (Entry Only)	461	887	1256	0.367	458	0.6	4.499	A
E - Blyth Road	515	844	1691	0.304	513	0.4	3.052	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	766	470	1066	0.719	762	2.4	11.671	B
B - A1 Slip Road (Exit Only)		913						
C - Road Across A1 (East)	1019	45	1637	0.623	1017	1.6	5.789	A
D - Slip Road from Worksop Road (Entry Only)	550	1062	1177	0.467	549	0.9	5.720	A
E - Blyth Road	615	1011	1605	0.383	614	0.6	3.631	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	938	576	1023	0.917	916	7.9	29.164	D
B - A1 Slip Road (Exit Only)		1101						
C - Road Across A1 (East)	1249	54	1633	0.765	1243	3.1	9.091	A
D - Slip Road from Worksop Road (Entry Only)	674	1296	1071	0.629	671	1.7	8.920	A
E - Blyth Road	753	1235	1489	0.506	752	1.0	4.869	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	938	577	1022	0.918	934	9.0	37.040	E
B - A1 Slip Road (Exit Only)		1119						
C - Road Across A1 (East)	1249	55	1632	0.765	1248	3.2	9.362	A
D - Slip Road from Worksop Road (Entry Only)	674	1303	1068	0.631	674	1.7	9.121	A
E - Blyth Road	753	1241	1486	0.507	753	1.0	4.908	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	766	472	1065	0.719	791	2.7	14.252	B
B - A1 Slip Road (Exit Only)		943						
C - Road Across A1 (East)	1019	46	1636	0.623	1025	1.7	5.953	A
D - Slip Road from Worksop Road (Entry Only)	550	1072	1173	0.469	553	0.9	5.840	A
E - Blyth Road	615	1019	1601	0.384	616	0.6	3.661	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	641	395	1097	0.585	646	1.4	8.083	A
B - A1 Slip Road (Exit Only)		773						
C - Road Across A1 (East)	854	38	1640	0.521	856	1.1	4.607	A
D - Slip Road from Worksop Road (Entry Only)	461	894	1253	0.368	462	0.6	4.558	A
E - Blyth Road	515	851	1688	0.305	516	0.4	3.074	A

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	23.88	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	911	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	777	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	660	100.000
E - Blyth Road		✓	570	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	5	0	841	0	65
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	233	9	0	0	535
	D - Slip Road from Worksop Road (Entry Only)	629	4	9	0	18
	E - Blyth Road	72	308	190	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.98	65.10	17.5	F
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.53	4.69	1.1	A
D - Slip Road from Worksop Road (Entry Only)	0.59	7.06	1.4	A
E - Blyth Road	0.39	3.62	0.6	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	686	390	1098	0.624	679	1.6	8.465	A
B - A1 Slip Road (Exit Only)		829						
C - Road Across A1 (East)	585	52	1633	0.358	583	0.6	3.419	A
D - Slip Road from Worksop Road (Entry Only)	497	635	1370	0.363	495	0.6	4.099	A
E - Blyth Road	429	666	1783	0.241	428	0.3	2.653	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	819	467	1067	0.767	813	3.1	13.845	B
B - A1 Slip Road (Exit Only)		992						
C - Road Across A1 (East)	699	62	1628	0.429	698	0.7	3.864	A
D - Slip Road from Worksop Road (Entry Only)	593	760	1314	0.452	592	0.8	4.983	A
E - Blyth Road	512	798	1715	0.299	512	0.4	2.992	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	1003	572	1024	0.979	962	13.3	42.362	E
B - A1 Slip Road (Exit Only)		1181						
C - Road Across A1 (East)	855	74	1623	0.527	854	1.1	4.672	A
D - Slip Road from Worksop Road (Entry Only)	727	928	1238	0.587	724	1.4	6.979	A
E - Blyth Road	628	976	1623	0.387	627	0.6	3.608	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	1003	573	1024	0.979	986	17.5	65.097	F
B - A1 Slip Road (Exit Only)		1205						
C - Road Across A1 (East)	855	76	1622	0.527	855	1.1	4.694	A
D - Slip Road from Worksop Road (Entry Only)	727	931	1236	0.588	727	1.4	7.059	A
E - Blyth Road	628	979	1622	0.387	628	0.6	3.619	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	819	468	1067	0.768	875	3.6	23.277	C
B - A1 Slip Road (Exit Only)		1054						
C - Road Across A1 (East)	699	67	1626	0.430	700	0.8	3.891	A
D - Slip Road from Worksop Road (Entry Only)	593	767	1311	0.453	596	0.8	5.052	A
E - Blyth Road	512	802	1713	0.299	513	0.4	3.004	A

18:00 - 18:15

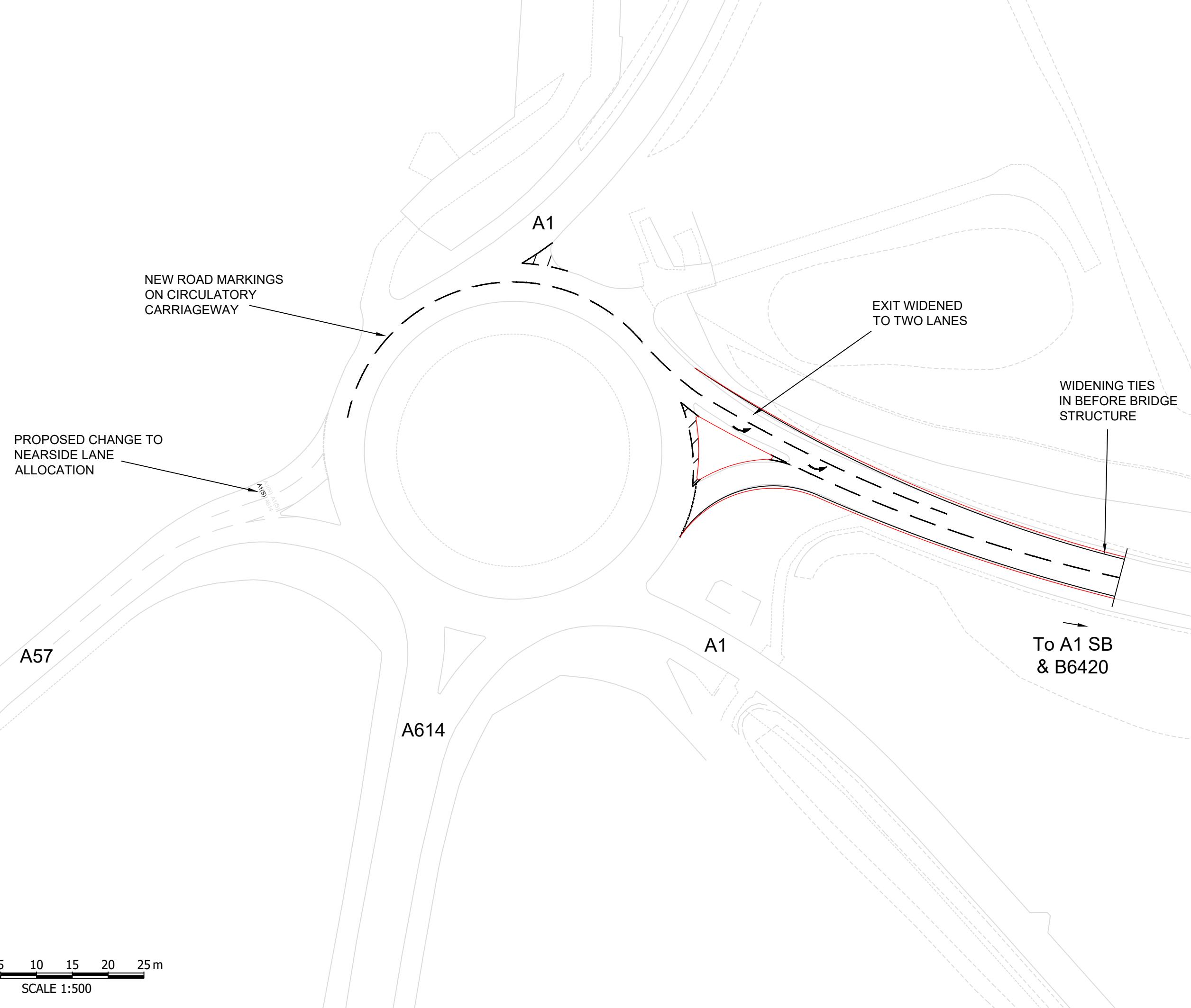
Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	686	392	1098	0.625	693	1.7	9.057	A
B - A1 Slip Road (Exit Only)		843						
C - Road Across A1 (East)	585	53	1633	0.358	586	0.6	3.442	A
D - Slip Road from Worksop Road (Entry Only)	497	639	1369	0.363	498	0.6	4.139	A
E - Blyth Road	429	671	1781	0.241	430	0.3	2.664	A

A1 Apleyhead Interchange (J2) Improved Western Roundabout

N

Key

- Proposed Kerblines
- Proposed Road Markings

**PRELIMINARY ISSUE**

P01	PRELIMINARY FIRST ISSUE	20.11.2022	NJ RJH ASG

Document Control

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Client

BASSETLAW DISTRICT COUNCIL

Project Name
Bassetlaw Local Plan Transport Study
SRN Technical Note

Sheet Title
Possible Mitigation at the A1 Apleyhead
Interchange Western Roundabout

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A3	Suitability
B023665	NJ	Nov '22	RJH	Nov '22	ASG	Nov '22	NTS	SO

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B023665 - TTE - 00 - ZZ - DR - O - SK1							P01

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TTE_MT_v1

Junctions 9									
ARCADY 9 - Roundabout Module									
Version: 9.5.1.7462									
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Filename: J2A Apleyhead_Mitigation.j9

Path: N:\Projects\B023665 - Ordsall, Retford\06 - Calculations\06 - Capacity Assessments\Nov 2022\for National Highways Technical Note\J2 - Apleyhead\02 - Mitigation

Report generation date: 19/11/2022 18:02:27

»2038 Base + Committed, AM

»2038 Base + Committed, PM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2038 Base + Committed										
A - A57	D15	1.0	4.00	0.51	A	D16	1.0	3.93	0.51	A
C - Road Across A1 (East)		1.2	4.86	0.55	A		0.9	4.25	0.48	A
D - Slip Road from Worksop Road (Entry Only)		0.9	5.69	0.49	A		1.2	6.25	0.55	A
E - Blyth Road		0.6	3.45	0.38	A		0.5	3.27	0.34	A
2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)										
A - A57	D23	1.4	4.75	0.59	A	D24	2.4	6.68	0.71	A
C - Road Across A1 (East)		3.2	9.37	0.77	A		1.1	4.70	0.53	A
D - Slip Road from Worksop Road (Entry Only)		1.7	9.12	0.63	A		1.4	7.07	0.59	A
E - Blyth Road		1.0	4.91	0.51	A		0.6	3.62	0.39	A

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	J2A Apleyhead Interchange
Location	Retford
Site number	
Date	20/07/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	B023665
Enumerator	TTLAUREN.WILKES
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D15	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15
D16	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	4.47	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A57	
B	A1 Slip Road (Exit Only)	
C	Road Across A1 (East)	
D	Slip Road from Worksop Road (Entry Only)	
E	Blyth Road	

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
A - A57	4.33	8.06	25.5	27.0	83.2	25.0	
B - A1 Slip Road (Exit Only)							✓
C - Road Across A1 (East)	4.78	5.84	3.3	26.0	83.2	24.0	
D - Slip Road from Worksop Road (Entry Only)	5.30	7.30	1.4	45.1	83.2	47.0	
E - Blyth Road	5.24	8.58	19.1	23.1	83.2	46.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - A57	0.536	2144
B - A1 Slip Road (Exit Only)		
C - Road Across A1 (East)	0.467	1658
D - Slip Road from Worksop Road (Entry Only)	0.452	1658
E - Blyth Road	0.517	2128

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)
D15	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	857	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	809	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	542	100.000
E - Blyth Road		✓	569	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	2	95	712	0	48
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	284	2	0	0	523
	D - Slip Road from Worksop Road (Entry Only)	507	6	4	0	25
	E - Blyth Road	72	348	149	0	0

Vehicle Mix

Heavy Vehicle Percentages

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.51	4.00	1.0	A
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.55	4.86	1.2	A
D - Slip Road from Worksop Road (Entry Only)	0.49	5.69	0.9	A
E - Blyth Road	0.38	3.45	0.6	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	645	382	1939	0.333	643	0.5	2.775	A
B - A1 Slip Road (Exit Only)		687						
C - Road Across A1 (East)	609	38	1640	0.371	607	0.6	3.477	A
D - Slip Road from Worksop Road (Entry Only)	408	644	1366	0.299	406	0.4	3.744	A
E - Blyth Road	428	604	1816	0.236	427	0.3	2.590	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	770	457	1899	0.406	770	0.7	3.187	A
B - A1 Slip Road (Exit Only)		822						
C - Road Across A1 (East)	727	45	1637	0.444	726	0.8	3.952	A
D - Slip Road from Worksop Road (Entry Only)	487	771	1309	0.372	487	0.6	4.375	A
E - Blyth Road	512	723	1754	0.292	511	0.4	2.896	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	944	560	1844	0.512	942	1.0	3.986	A
B - A1 Slip Road (Exit Only)		1006						
C - Road Across A1 (East)	891	55	1632	0.546	891	1.2	4.837	A
D - Slip Road from Worksop Road (Entry Only)	597	944	1231	0.485	595	0.9	5.655	A
E - Blyth Road	626	884	1671	0.375	626	0.6	3.444	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	944	560	1843	0.512	944	1.0	4.000	A
B - A1 Slip Road (Exit Only)		1007						
C - Road Across A1 (East)	891	55	1632	0.546	891	1.2	4.856	A
D - Slip Road from Worksop Road (Entry Only)	597	946	1230	0.485	597	0.9	5.686	A
E - Blyth Road	626	886	1670	0.375	626	0.6	3.450	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	770	458	1898	0.406	772	0.7	3.202	A
B - A1 Slip Road (Exit Only)		824						
C - Road Across A1 (East)	727	45	1637	0.444	729	0.8	3.972	A
D - Slip Road from Worksop Road (Entry Only)	487	774	1308	0.373	489	0.6	4.402	A
E - Blyth Road	512	726	1753	0.292	512	0.4	2.903	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	645	384	1938	0.333	646	0.5	2.789	A
B - A1 Slip Road (Exit Only)		690						
C - Road Across A1 (East)	609	38	1640	0.371	610	0.6	3.496	A
D - Slip Road from Worksop Road (Entry Only)	408	648	1365	0.299	409	0.4	3.767	A
E - Blyth Road	428	607	1814	0.236	429	0.3	2.601	A

2038 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	4.43	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)
D16	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	859	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	703	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	633	100.000
E - Blyth Road		✓	513	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	5	136	653	0	65
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	184	9	0	0	510
	D - Slip Road from Worksop Road (Entry Only)	602	4	9	0	18
	E - Blyth Road	56	308	149	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.51	3.93	1.0	A
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.48	4.25	0.9	A
D - Slip Road from Worksop Road (Entry Only)	0.55	6.25	1.2	A
E - Blyth Road	0.34	3.27	0.5	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	647	360	1951	0.331	645	0.5	2.752	A
B - A1 Slip Road (Exit Only)		661						
C - Road Across A1 (East)	529	53	1633	0.324	527	0.5	3.250	A
D - Slip Road from Worksop Road (Entry Only)	477	580	1395	0.342	474	0.5	3.901	A
E - Blyth Road	386	610	1813	0.213	385	0.3	2.521	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	772	430	1913	0.404	772	0.7	3.152	A
B - A1 Slip Road (Exit Only)		791						
C - Road Across A1 (East)	632	63	1628	0.388	631	0.6	3.609	A
D - Slip Road from Worksop Road (Entry Only)	569	694	1344	0.424	568	0.7	4.638	A
E - Blyth Road	461	730	1750	0.263	461	0.4	2.791	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	946	527	1861	0.508	944	1.0	3.920	A
B - A1 Slip Road (Exit Only)		969						
C - Road Across A1 (East)	774	77	1622	0.477	773	0.9	4.236	A
D - Slip Road from Worksop Road (Entry Only)	697	850	1273	0.547	695	1.2	6.207	A
E - Blyth Road	565	893	1666	0.339	564	0.5	3.265	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	946	527	1861	0.508	946	1.0	3.932	A
B - A1 Slip Road (Exit Only)		970						
C - Road Across A1 (East)	774	77	1622	0.477	774	0.9	4.246	A
D - Slip Road from Worksop Road (Entry Only)	697	851	1273	0.548	697	1.2	6.252	A
E - Blyth Road	565	895	1665	0.339	565	0.5	3.271	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	772	431	1913	0.404	774	0.7	3.166	A
B - A1 Slip Road (Exit Only)		793						
C - Road Across A1 (East)	632	63	1628	0.388	633	0.6	3.620	A
D - Slip Road from Worksop Road (Entry Only)	569	696	1343	0.424	571	0.7	4.676	A
E - Blyth Road	461	733	1749	0.264	462	0.4	2.800	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	647	361	1950	0.332	647	0.5	2.766	A
B - A1 Slip Road (Exit Only)		664						
C - Road Across A1 (East)	529	53	1633	0.324	530	0.5	3.267	A
D - Slip Road from Worksop Road (Entry Only)	477	583	1394	0.342	477	0.5	3.930	A
E - Blyth Road	386	613	1811	0.213	387	0.3	2.529	A

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	7.10	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)
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	978	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	1134	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	612	100.000
E - Blyth Road		✓	684	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	2	126	802	0	48
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	536	2	0	0	596
	D - Slip Road from Worksop Road (Entry Only)	577	6	4	0	25
	E - Blyth Road	172	348	164	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.59	4.75	1.4	A
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.77	9.37	3.2	A
D - Slip Road from Worksop Road (Entry Only)	0.63	9.12	1.7	A
E - Blyth Road	0.51	4.91	1.0	A

Main Results for each time segment
07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	736	393	1933	0.381	734	0.6	2.995	A
B - A1 Slip Road (Exit Only)		765						
C - Road Across A1 (East)	854	38	1640	0.521	849	1.1	4.529	A
D - Slip Road from Worksop Road (Entry Only)	461	887	1256	0.367	458	0.6	4.499	A
E - Blyth Road	515	844	1691	0.304	513	0.4	3.052	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	879	470	1892	0.465	878	0.9	3.549	A
B - A1 Slip Road (Exit Only)		916						
C - Road Across A1 (East)	1019	45	1637	0.623	1017	1.6	5.790	A
D - Slip Road from Worksop Road (Entry Only)	550	1062	1177	0.467	549	0.9	5.721	A
E - Blyth Road	615	1011	1605	0.383	614	0.6	3.631	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	1077	576	1835	0.587	1075	1.4	4.720	A
B - A1 Slip Road (Exit Only)		1121						
C - Road Across A1 (East)	1249	55	1632	0.765	1243	3.1	9.104	A
D - Slip Road from Worksop Road (Entry Only)	674	1297	1071	0.629	671	1.7	8.930	A
E - Blyth Road	753	1235	1489	0.506	752	1.0	4.869	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	1077	577	1834	0.587	1077	1.4	4.750	A
B - A1 Slip Road (Exit Only)		1123						
C - Road Across A1 (East)	1249	55	1632	0.765	1248	3.2	9.367	A
D - Slip Road from Worksop Road (Entry Only)	674	1303	1068	0.631	674	1.7	9.124	A
E - Blyth Road	753	1241	1486	0.507	753	1.0	4.908	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	879	472	1891	0.465	881	0.9	3.576	A
B - A1 Slip Road (Exit Only)		919						
C - Road Across A1 (East)	1019	45	1637	0.623	1025	1.7	5.946	A
D - Slip Road from Worksop Road (Entry Only)	550	1071	1173	0.469	553	0.9	5.835	A
E - Blyth Road	615	1019	1601	0.384	616	0.6	3.664	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	736	395	1932	0.381	737	0.6	3.015	A
B - A1 Slip Road (Exit Only)		769						
C - Road Across A1 (East)	854	38	1640	0.521	856	1.1	4.607	A
D - Slip Road from Worksop Road (Entry Only)	461	894	1253	0.368	462	0.6	4.555	A
E - Blyth Road	515	851	1688	0.305	516	0.4	3.074	A

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	5.73	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)
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	1179	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	777	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	660	100.000
E - Blyth Road		✓	570	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	5	268	841	0	65
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	233	9	0	0	535
	D - Slip Road from Worksop Road (Entry Only)	629	4	9	0	18
	E - Blyth Road	72	308	190	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.71	6.68	2.4	A
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.53	4.70	1.1	A
D - Slip Road from Worksop Road (Entry Only)	0.59	7.07	1.4	A
E - Blyth Road	0.39	3.62	0.6	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	888	390	1935	0.459	884	0.8	3.416	A
B - A1 Slip Road (Exit Only)		833						
C - Road Across A1 (East)	585	52	1633	0.358	583	0.6	3.420	A
D - Slip Road from Worksop Road (Entry Only)	497	635	1370	0.363	495	0.6	4.100	A
E - Blyth Road	429	666	1783	0.241	428	0.3	2.653	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	1060	467	1893	0.560	1058	1.3	4.301	A
B - A1 Slip Road (Exit Only)		996						
C - Road Across A1 (East)	699	63	1628	0.429	698	0.7	3.865	A
D - Slip Road from Worksop Road (Entry Only)	593	761	1314	0.452	592	0.8	4.984	A
E - Blyth Road	512	798	1715	0.299	512	0.4	2.992	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	1298	572	1837	0.707	1294	2.4	6.572	A
B - A1 Slip Road (Exit Only)		1218						
C - Road Across A1 (East)	855	77	1622	0.528	854	1.1	4.681	A
D - Slip Road from Worksop Road (Entry Only)	727	931	1237	0.588	724	1.4	6.996	A
E - Blyth Road	628	976	1623	0.387	627	0.6	3.609	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	1298	573	1837	0.707	1298	2.4	6.676	A
B - A1 Slip Road (Exit Only)		1222						
C - Road Across A1 (East)	855	77	1622	0.528	855	1.1	4.698	A
D - Slip Road from Worksop Road (Entry Only)	727	933	1236	0.588	727	1.4	7.067	A
E - Blyth Road	628	979	1622	0.387	628	0.6	3.620	A

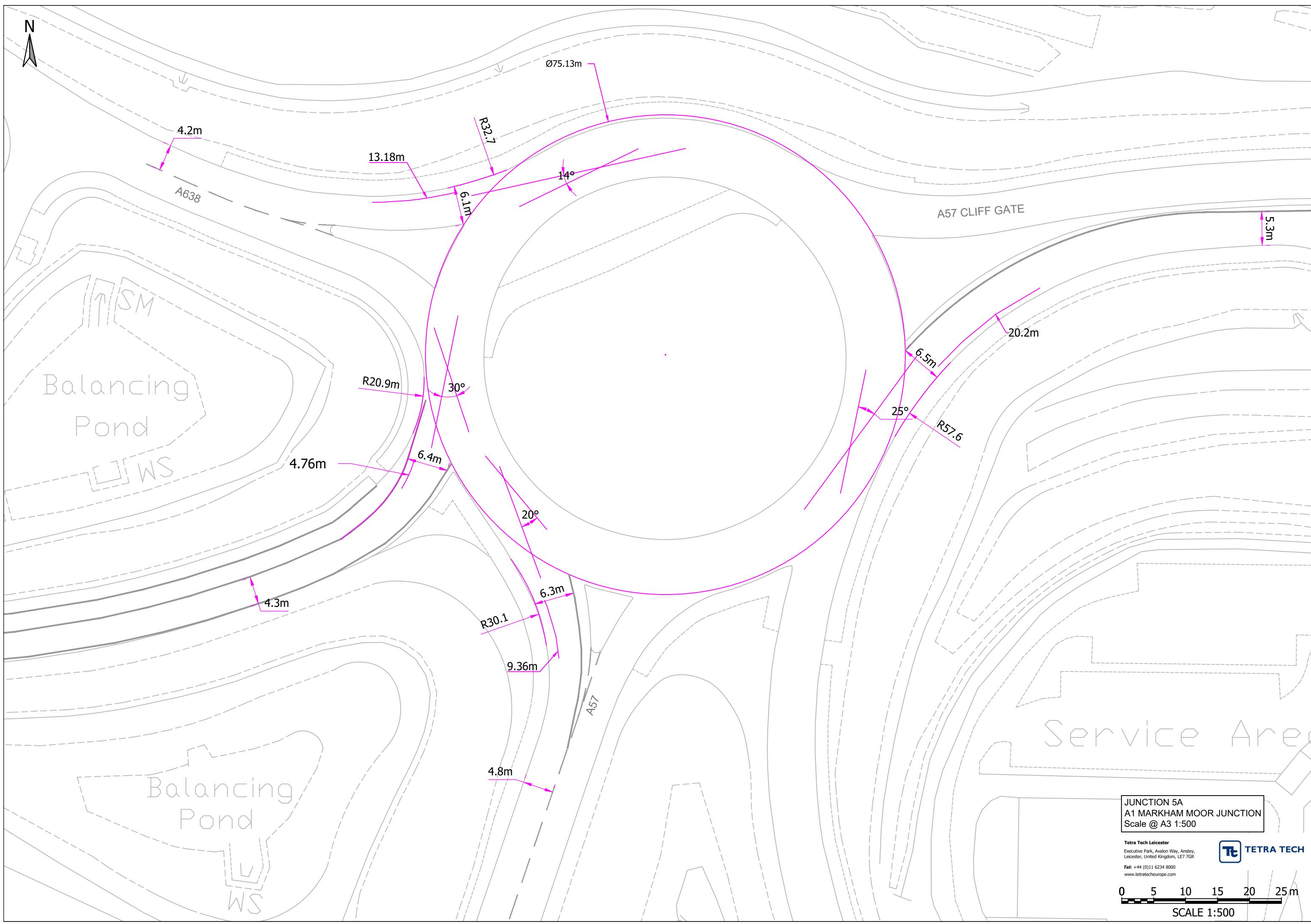
17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	1060	468	1893	0.560	1064	1.3	4.369	A
B - A1 Slip Road (Exit Only)		1002						
C - Road Across A1 (East)	699	63	1628	0.429	700	0.8	3.885	A
D - Slip Road from Worksop Road (Entry Only)	593	763	1312	0.452	596	0.8	5.040	A
E - Blyth Road	512	802	1713	0.299	513	0.4	3.003	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	888	392	1934	0.459	889	0.9	3.454	A
B - A1 Slip Road (Exit Only)		837						
C - Road Across A1 (East)	585	53	1633	0.358	586	0.6	3.442	A
D - Slip Road from Worksop Road (Entry Only)	497	639	1369	0.363	498	0.6	4.138	A
E - Blyth Road	429	671	1781	0.241	430	0.3	2.666	A

A1 Markham Moor Interchange (J5)



Junctions 9											
ARCADY 9 - Roundabout Module											
Version: 9.5.1.7462											© Copyright TRL Limited, 2019
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Filename: J5A Markham Moor.j9

Path: N:\Projects\B023665 - Ordsall, Retford\06 - Calculations\06 - Capacity Assessments\Nov 2022\for National Highways Technical Note\J5 - Markham Moor

Report generation date: 18/11/2022 10:02:39

»2038 Base + Committed, AM

»2038 Base + Committed, PM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Summary of junction performance

	AM						PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
2038 Base + Committed												
A - A57	D15	0.3	2.86	0.24	A	103 % [B - Entry only]	D16	0.4	3.06	0.29	A	98 % [B - Entry only]
B - Entry only		0.7	4.29	0.40	A			0.8	4.38	0.43	A	
C - A638		0.5	3.38	0.33	A			0.4	3.17	0.30	A	
D - Cliff Gate		0.7	3.27	0.40	A			0.6	3.22	0.39	A	
2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)												
A - A57	D23	0.4	3.00	0.27	A	73 % [C - A638]	D24	0.5	3.35	0.35	A	94 % [B - Entry only]
B - Entry only		0.7	4.36	0.41	A			0.8	4.48	0.44	A	
C - A638		1.0	4.46	0.49	A			0.6	3.50	0.36	A	
D - Cliff Gate		0.7	3.35	0.41	A			0.7	3.31	0.40	A	

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. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	21/07/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	TTNASSER.JAMILI
Description	

Units

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

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D15	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15
D16	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		E, A, B, C, D	3.49	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	103	B - Entry only

Arms

Arms

Arm	Name	Description
E	Exit Only	
A	A57	
B	Entry only	
C	A638	
D	Cliff Gate	

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
E - Exit Only							✓
A - A57	4.80	6.30	9.4	30.1	75.1	20.0	
B - Entry only	4.30	6.40	4.8	20.9	75.1	30.0	
C - A638	4.20	6.10	13.2	32.7	75.1	14.0	
D - Cliff Gate	5.30	6.50	20.2	57.6	75.1	25.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
E - Exit Only		
A - A57	0.519	1845
B - Entry only	0.467	1570
C - A638	0.517	1791
D - Cliff Gate	0.543	2006

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)
D15	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
E - Exit Only				
A - A57		✓	361	100.000
B - Entry only		✓	518	100.000
C - A638		✓	478	100.000
D - Cliff Gate		✓	659	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		E - Exit Only	A - A57	B - Entry only	C - A638	D - Cliff Gate
		E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Exit Only	2	0	261	26	72
	A - A57	74	0	17	339	88
	B - Entry only	126	0	0	82	270
	C - A638	430	0	98	32	99
	D - Cliff Gate					

Vehicle Mix

Heavy Vehicle Percentages

From		To					
		E - Exit Only	A - A57	B - Entry only	C - A638	D - Cliff Gate	
		E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Exit Only	0	0	0	0	0	0
	A - A57	0	0	0	0	0	0
	B - Entry only	0	0	0	0	0	0
	C - A638	0	0	0	0	0	0
	D - Cliff Gate	0	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
E - Exit Only				
A - A57	0.24	2.86	0.3	A
B - Entry only	0.40	4.29	0.7	A
C - A638	0.33	3.38	0.5	A
D - Cliff Gate	0.40	3.27	0.7	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		246						
A - A57	272	246	1717	0.158	271	0.2	2.489	A
B - Entry only	390	235	1460	0.267	389	0.4	3.354	A
C - A638	360	264	1654	0.218	359	0.3	2.776	A
D - Cliff Gate	496	226	1883	0.264	495	0.4	2.591	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		295						
A - A57	325	295	1691	0.192	324	0.2	2.633	A
B - Entry only	466	281	1439	0.324	465	0.5	3.695	A
C - A638	430	316	1627	0.264	429	0.4	3.005	A
D - Cliff Gate	592	270	1859	0.319	592	0.5	2.842	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		361						
A - A57	397	361	1657	0.240	397	0.3	2.857	A
B - Entry only	570	344	1409	0.405	570	0.7	4.283	A
C - A638	526	387	1591	0.331	526	0.5	3.378	A
D - Cliff Gate	726	331	1826	0.397	725	0.7	3.269	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		361						
A - A57	397	361	1657	0.240	397	0.3	2.857	A
B - Entry only	570	345	1409	0.405	570	0.7	4.291	A
C - A638	526	388	1591	0.331	526	0.5	3.381	A
D - Cliff Gate	726	331	1826	0.397	726	0.7	3.272	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		295						
A - A57	325	295	1691	0.192	325	0.2	2.634	A
B - Entry only	466	282	1439	0.324	466	0.5	3.705	A
C - A638	430	317	1627	0.264	430	0.4	3.008	A
D - Cliff Gate	592	271	1858	0.319	593	0.5	2.848	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		247						
A - A57	272	247	1716	0.158	272	0.2	2.492	A
B - Entry only	390	236	1460	0.267	390	0.4	3.369	A
C - A638	360	265	1654	0.218	360	0.3	2.783	A
D - Cliff Gate	496	227	1882	0.264	497	0.4	2.600	A

2038 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		E, A, B, C, D	3.49	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	98	B - Entry only

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)
D16	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
E - Exit Only				
A - A57		✓	441	100.000
B - Entry only		✓	563	100.000
C - A638		✓	439	100.000
D - Cliff Gate		✓	636	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To					
		E - Exit Only	A - A57	B - Entry only	C - A638	D - Cliff Gate	
	E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	
	A - A57	2	0	356	22	61	
	B - Entry only	101	0	10	386	66	
	C - A638	117	0	0	85	237	
	D - Cliff Gate	411	0	145	15	65	

Vehicle Mix

Heavy Vehicle Percentages

	To					
		E - Exit Only	A - A57	B - Entry only	C - A638	D - Cliff Gate
From	E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	A - A57	0	0	0	0	0
	B - Entry only	0	0	0	0	0
	C - A638	0	0	0	0	0
	D - Cliff Gate	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
E - Exit Only				
A - A57	0.29	3.06	0.4	A
B - Entry only	0.43	4.38	0.8	A
C - A638	0.30	3.17	0.4	A
D - Cliff Gate	0.39	3.22	0.6	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		240						
A - A57	332	240	1720	0.193	331	0.2	2.591	A
B - Entry only	424	188	1482	0.286	422	0.4	3.391	A
C - A638	331	229	1673	0.198	330	0.2	2.679	A
D - Cliff Gate	479	236	1877	0.255	477	0.3	2.569	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		287						
A - A57	396	287	1695	0.234	396	0.3	2.771	A
B - Entry only	506	225	1465	0.345	506	0.5	3.749	A
C - A638	395	274	1649	0.239	394	0.3	2.868	A
D - Cliff Gate	572	283	1852	0.309	571	0.4	2.811	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		352						
A - A57	486	352	1662	0.292	485	0.4	3.060	A
B - Entry only	620	275	1442	0.430	619	0.7	4.371	A
C - A638	483	335	1617	0.299	483	0.4	3.171	A
D - Cliff Gate	700	346	1817	0.385	700	0.6	3.219	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		352						
A - A57	486	352	1662	0.292	486	0.4	3.060	A
B - Entry only	620	275	1442	0.430	620	0.8	4.380	A
C - A638	483	336	1617	0.299	483	0.4	3.174	A
D - Cliff Gate	700	347	1817	0.385	700	0.6	3.222	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		288						
A - A57	396	288	1695	0.234	397	0.3	2.773	A
B - Entry only	506	225	1465	0.345	507	0.5	3.763	A
C - A638	395	275	1649	0.239	395	0.3	2.873	A
D - Cliff Gate	572	284	1852	0.309	572	0.4	2.817	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		241						
A - A57	332	241	1719	0.193	332	0.2	2.597	A
B - Entry only	424	188	1482	0.286	424	0.4	3.404	A
C - A638	331	230	1672	0.198	331	0.2	2.684	A
D - Cliff Gate	479	237	1877	0.255	479	0.3	2.578	A

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		E, A, B, C, D	3.86	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	73	C - A638

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)
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
E - Exit Only				
A - A57		✓	405	100.000
B - Entry only		✓	524	100.000
C - A638		✓	710	100.000
D - Cliff Gate		✓	669	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To					
	E - Exit Only	A - A57	B - Entry only	C - A638	D - Cliff Gate	
E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	
A - A57	2	0	305	26	72	
B - Entry only	78	0	17	341	88	
C - A638	131	0	0	96	483	
D - Cliff Gate	435	0	103	32	99	

Vehicle Mix

Heavy Vehicle Percentages

	To					
		E - Exit Only	A - A57	B - Entry only	C - A638	D - Cliff Gate
E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
A - A57	0	0	0	0	0	0
B - Entry only	0	0	0	0	0	0
C - A638	0	0	0	0	0	0
D - Cliff Gate	0	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
E - Exit Only				
A - A57	0.27	3.00	0.4	A
B - Entry only	0.41	4.36	0.7	A
C - A638	0.49	4.46	1.0	A
D - Cliff Gate	0.41	3.35	0.7	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		260						
A - A57	305	260	1709	0.178	304	0.2	2.560	A
B - Entry only	394	245	1455	0.271	393	0.4	3.384	A
C - A638	535	267	1653	0.323	533	0.5	3.208	A
D - Cliff Gate	504	243	1874	0.269	502	0.4	2.623	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		312						
A - A57	364	312	1683	0.216	364	0.3	2.729	A
B - Entry only	471	294	1433	0.329	471	0.5	3.738	A
C - A638	638	320	1626	0.393	638	0.6	3.642	A
D - Cliff Gate	601	291	1847	0.326	601	0.5	2.888	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		382						
A - A57	446	382	1646	0.271	446	0.4	2.998	A
B - Entry only	577	360	1402	0.411	576	0.7	4.353	A
C - A638	782	391	1588	0.492	780	1.0	4.447	A
D - Cliff Gate	737	356	1812	0.406	736	0.7	3.343	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		382						
A - A57	446	382	1646	0.271	446	0.4	2.998	A
B - Entry only	577	360	1402	0.412	577	0.7	4.362	A
C - A638	782	392	1588	0.492	782	1.0	4.463	A
D - Cliff Gate	737	357	1812	0.407	737	0.7	3.347	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		312						
A - A57	364	312	1682	0.216	364	0.3	2.734	A
B - Entry only	471	294	1433	0.329	472	0.5	3.749	A
C - A638	638	321	1625	0.393	640	0.7	3.656	A
D - Cliff Gate	601	292	1847	0.326	602	0.5	2.895	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		262						
A - A57	305	262	1709	0.178	305	0.2	2.566	A
B - Entry only	394	246	1455	0.271	395	0.4	3.396	A
C - A638	535	268	1652	0.324	535	0.5	3.226	A
D - Cliff Gate	504	244	1873	0.269	504	0.4	2.632	A

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		E, A, B, C, D	3.66	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	94	B - Entry only

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)
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
E - Exit Only				
A - A57		✓	524	100.000
B - Entry only		✓	577	100.000
C - A638		✓	530	100.000
D - Cliff Gate		✓	649	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To					
	E - Exit Only	A - A57	B - Entry only	C - A638	D - Cliff Gate	
E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	
A - A57	2	0	439	22	61	
B - Entry only	111	0	10	390	66	
C - A638	131	0	0	89	310	
D - Cliff Gate	412	0	157	15	65	

Vehicle Mix

Heavy Vehicle Percentages

	To					
		E - Exit Only	A - A57	B - Entry only	C - A638	D - Cliff Gate
E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
A - A57	0	0	0	0	0	0
B - Entry only	0	0	0	0	0	0
C - A638	0	0	0	0	0	0
D - Cliff Gate	0	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
E - Exit Only				
A - A57	0.35	3.35	0.5	A
B - Entry only	0.44	4.48	0.8	A
C - A638	0.36	3.50	0.6	A
D - Cliff Gate	0.40	3.31	0.7	A

Main Results for each time segment
16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		252						
A - A57	394	252	1714	0.230	393	0.3	2.724	A
B - Entry only	434	191	1481	0.293	433	0.4	3.423	A
C - A638	399	236	1669	0.239	398	0.3	2.830	A
D - Cliff Gate	489	257	1866	0.262	487	0.4	2.609	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		302						
A - A57	471	302	1688	0.279	471	0.4	2.958	A
B - Entry only	519	228	1464	0.354	518	0.5	3.806	A
C - A638	476	283	1645	0.290	476	0.4	3.081	A
D - Cliff Gate	583	308	1838	0.317	583	0.5	2.868	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		370						
A - A57	577	370	1653	0.349	576	0.5	3.343	A
B - Entry only	635	279	1440	0.441	634	0.8	4.464	A
C - A638	584	346	1612	0.362	583	0.6	3.497	A
D - Cliff Gate	715	377	1801	0.397	714	0.7	3.311	A

17:30 - 17:45

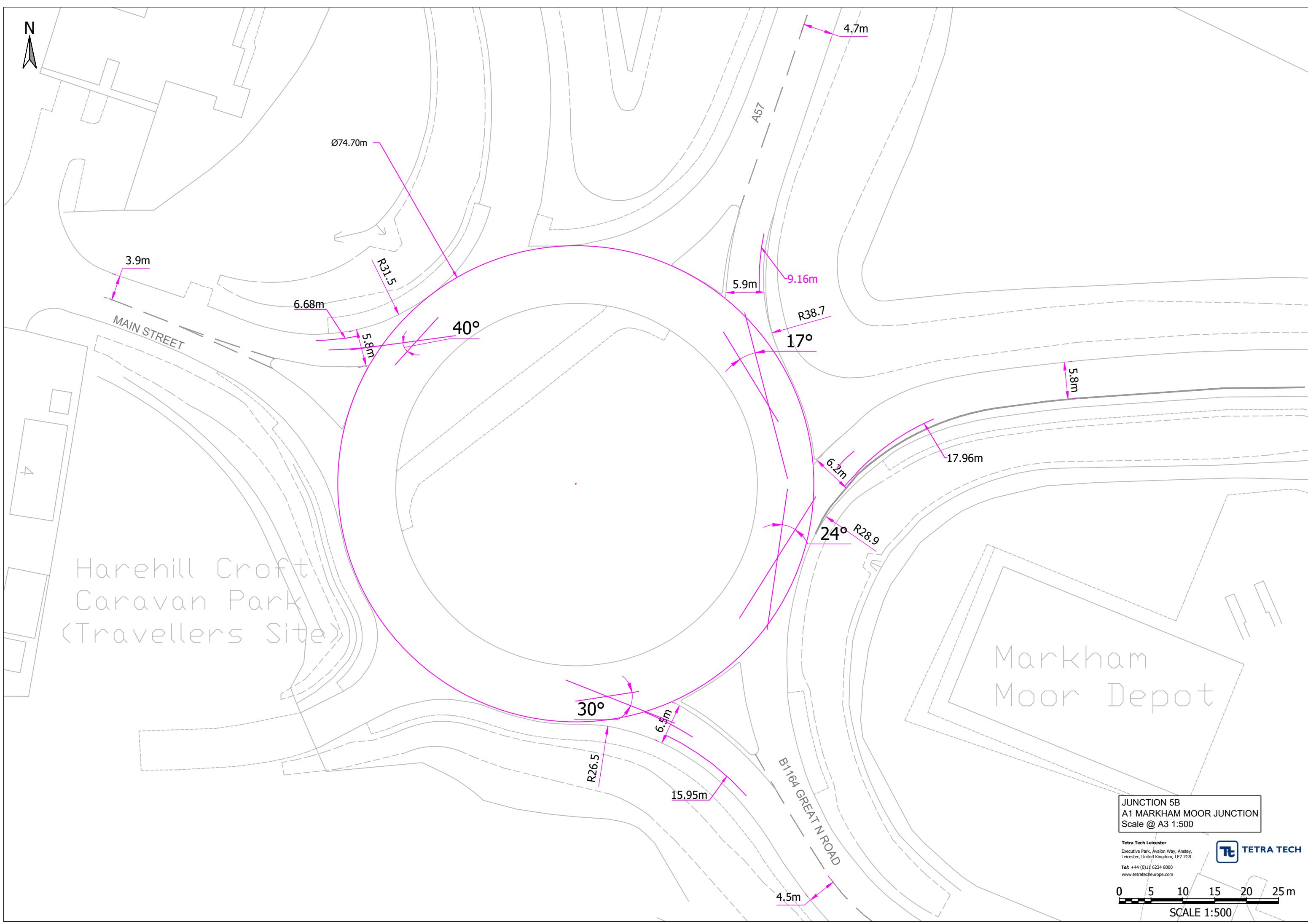
Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		370						
A - A57	577	370	1652	0.349	577	0.5	3.346	A
B - Entry only	635	280	1440	0.441	635	0.8	4.475	A
C - A638	584	347	1612	0.362	584	0.6	3.500	A
D - Cliff Gate	715	378	1800	0.397	715	0.7	3.314	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		302						
A - A57	471	302	1687	0.279	472	0.4	2.961	A
B - Entry only	519	229	1463	0.354	520	0.6	3.820	A
C - A638	476	284	1644	0.290	477	0.4	3.085	A
D - Cliff Gate	583	309	1838	0.317	584	0.5	2.875	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
E - Exit Only		253						
A - A57	394	253	1713	0.230	395	0.3	2.733	A
B - Entry only	434	191	1481	0.293	435	0.4	3.446	A
C - A638	399	237	1668	0.239	399	0.3	2.840	A
D - Cliff Gate	489	258	1865	0.262	489	0.4	2.618	A



Junctions 9											
ARCADY 9 - Roundabout Module											
Version: 9.5.1.7462											
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Filename: J5B Markham Moor.j9

Path: N:\Projects\B023665 - Ordsall, Retford\06 - Calculations\06 - Capacity Assessments\Nov 2022\for National Highways Technical Note\J5 - Markham Moor

Report generation date: 18/11/2022 10:06:33

»2038 Base + Committed, AM

»2038 Base + Committed, PM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Summary of junction performance

	AM						PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
2038 Base + Committed												
B - Entry only from A1	D15	0.2	2.67	0.14	A	91 % [A - A57]	D16	0.2	2.82	0.18	A	82 % [A - A57]
C - Great N Road		0.4	3.77	0.29	A			0.4	3.90	0.30	A	
D - Main Street		0.3	4.76	0.21	A			0.3	4.86	0.20	A	
A - A57		0.8	4.01	0.44	A			0.8	4.21	0.44	A	
2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)												
B - Entry only from A1	D23	0.2	2.70	0.14	A	78 % [C - Great N Road]	D24	0.3	2.91	0.20	A	68 % [C - Great N Road]
C - Great N Road		0.6	4.26	0.37	A			0.6	4.56	0.39	A	
D - Main Street		0.3	5.09	0.22	A			0.3	5.29	0.22	A	
A - A57		0.8	4.19	0.45	A			0.9	4.61	0.48	A	

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. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	21/07/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	TTNASSER.JAMILI
Description	

Units

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

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
	✓	Delay	0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D15	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15
D16	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		B, C, D, E, A	3.85	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	91	A - A57

Arms

Arms

Arm	Name	Description
B	Entry only from A1	
C	Great N Road	
D	Main Street	
E	Exit Only	
A	A57	

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
B - Entry only from A1	5.80	6.20	18.0	28.9	74.7	24.0	
C - Great N Road	4.50	6.50	16.0	26.5	74.7	30.0	
D - Main Street	3.90	5.80	6.7	31.5	74.7	40.0	
E - Exit Only							✓
A - A57	4.70	5.90	9.2	38.7	74.7	17.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
B - Entry only from A1	0.532	1938
C - Great N Road	0.508	1818
D - Main Street	0.447	1458
E - Exit Only		
A - A57	0.518	1796

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)
D15	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
B - Entry only from A1		✓	194	100.000
C - Great N Road		✓	359	100.000
D - Main Street		✓	180	100.000
E - Exit Only				
A - A57		✓	634	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		B - Entry only from A1	C - Great N Road	D - Main Street	E - Exit Only	A - A57
	B - Entry only from A1	119	0	1	26	48
	C - Great N Road	173	0	0	8	178
	D - Main Street	50	0	8	1	121
	E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	A - A57	0	0	163	44	427

Vehicle Mix

Heavy Vehicle Percentages

From		To				
		B - Entry only from A1	C - Great N Road	D - Main Street	E - Exit Only	A - A57
	B - Entry only from A1	0	0	0	0	0
	C - Great N Road	0	0	0	0	0
	D - Main Street	0	0	0	0	0
	E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	A - A57	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B - Entry only from A1	0.14	2.67	0.2	A
C - Great N Road	0.29	3.77	0.4	A
D - Main Street	0.21	4.76	0.3	A
E - Exit Only				
A - A57	0.44	4.01	0.8	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	146	482	1682	0.087	146	0.1	2.344	A
C - Great N Road	270	627	1499	0.180	269	0.2	2.927	A
D - Main Street	136	768	1115	0.122	135	0.1	3.671	A
E - Exit Only		843						
A - A57	477	263	1660	0.288	476	0.4	3.036	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	174	577	1631	0.107	174	0.1	2.470	A
C - Great N Road	323	751	1436	0.225	322	0.3	3.232	A
D - Main Street	162	919	1048	0.154	162	0.2	4.062	A
E - Exit Only		1010						
A - A57	570	314	1633	0.349	569	0.5	3.382	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	214	706	1562	0.137	213	0.2	2.668	A
C - Great N Road	395	919	1351	0.293	395	0.4	3.764	A
D - Main Street	198	1125	955	0.207	198	0.3	4.749	A
E - Exit Only		1236						
A - A57	698	385	1597	0.437	697	0.8	3.998	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	214	707	1562	0.137	214	0.2	2.669	A
C - Great N Road	395	920	1350	0.293	395	0.4	3.769	A
D - Main Street	198	1126	955	0.208	198	0.3	4.756	A
E - Exit Only		1238						
A - A57	698	385	1596	0.437	698	0.8	4.007	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	174	578	1630	0.107	175	0.1	2.474	A
C - Great N Road	323	753	1435	0.225	323	0.3	3.237	A
D - Main Street	162	921	1047	0.155	162	0.2	4.072	A
E - Exit Only		1012						
A - A57	570	315	1633	0.349	571	0.5	3.395	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	146	484	1680	0.087	146	0.1	2.347	A
C - Great N Road	270	630	1498	0.180	271	0.2	2.934	A
D - Main Street	136	771	1114	0.122	136	0.1	3.683	A
E - Exit Only		847						
A - A57	477	264	1659	0.288	478	0.4	3.050	A

2038 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		B, C, D, E, A	3.95	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	82	A - A57

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)
D16	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
B - Entry only from A1		✓	262	100.000
C - Great N Road		✓	356	100.000
D - Main Street		✓	172	100.000
E - Exit Only				
A - A57		✓	622	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To					
	B - Entry only from A1	C - Great N Road	D - Main Street	E - Exit Only	A - A57	
B - Entry only from A1	176	0	4	32	50	
C - Great N Road	205	0	1	7	143	
D - Main Street	52	0	16	0	104	
E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	
A - A57	0	0	162	59	401	

Vehicle Mix

Heavy Vehicle Percentages

	To					
	B - Entry only from A1	C - Great N Road	D - Main Street	E - Exit Only	A - A57	
From	0	0	0	0	0	
B - Entry only from A1	0	0	0	0	0	
C - Great N Road	0	0	0	0	0	
D - Main Street	0	0	0	0	0	
E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	
A - A57	0	0	0	0	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B - Entry only from A1	0.18	2.82	0.2	A
C - Great N Road	0.30	3.90	0.4	A
D - Main Street	0.20	4.86	0.3	A
E - Exit Only				
A - A57	0.44	4.21	0.8	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	197	479	1683	0.117	197	0.1	2.422	A
C - Great N Road	268	675	1475	0.182	267	0.2	2.980	A
D - Main Street	129	805	1098	0.118	129	0.1	3.711	A
E - Exit Only		861						
A - A57	468	337	1621	0.289	467	0.4	3.113	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	236	573	1633	0.144	235	0.2	2.575	A
C - Great N Road	320	808	1407	0.227	320	0.3	3.311	A
D - Main Street	155	964	1028	0.150	154	0.2	4.122	A
E - Exit Only		1030						
A - A57	559	403	1587	0.352	559	0.5	3.498	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	288	701	1565	0.184	288	0.2	2.819	A
C - Great N Road	392	990	1315	0.298	391	0.4	3.897	A
D - Main Street	189	1180	931	0.203	189	0.3	4.850	A
E - Exit Only		1261						
A - A57	685	494	1540	0.445	684	0.8	4.198	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalled level of service
B - Entry only from A1	288	702	1564	0.184	288	0.2	2.821	A
C - Great N Road	392	991	1314	0.298	392	0.4	3.902	A
D - Main Street	189	1181	930	0.204	189	0.3	4.858	A
E - Exit Only		1263						
A - A57	685	494	1540	0.445	685	0.8	4.209	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalled level of service
B - Entry only from A1	236	575	1632	0.144	236	0.2	2.579	A
C - Great N Road	320	810	1406	0.228	321	0.3	3.317	A
D - Main Street	155	966	1026	0.151	155	0.2	4.133	A
E - Exit Only		1033						
A - A57	559	404	1587	0.352	560	0.5	3.512	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalled level of service
B - Entry only from A1	197	481	1682	0.117	197	0.1	2.426	A
C - Great N Road	268	678	1473	0.182	268	0.2	2.988	A
D - Main Street	129	809	1097	0.118	130	0.1	3.721	A
E - Exit Only		864						
A - A57	468	338	1621	0.289	469	0.4	3.128	A

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		B, C, D, E, A	4.12	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	78	C - Great N Road

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)
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
B - Entry only from A1		✓	203	100.000
C - Great N Road		✓	447	100.000
D - Main Street		✓	180	100.000
E - Exit Only				
A - A57		✓	647	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To					
		B - Entry only from A1	C - Great N Road	D - Main Street	E - Exit Only	A - A57
B - Entry only from A1		128	0	1	26	48
C - Great N Road		208	0	0	8	231
D - Main Street		50	0	8	1	121
E - Exit Only		Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
A - A57		0	0	171	44	432

Vehicle Mix

Heavy Vehicle Percentages

	To					
	B - Entry only from A1	C - Great N Road	D - Main Street	E - Exit Only	A - A57	
From						
B - Entry only from A1	0	0	0	0	0	
C - Great N Road	0	0	0	0	0	
D - Main Street	0	0	0	0	0	
E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	
A - A57	0	0	0	0	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B - Entry only from A1	0.14	2.70	0.2	A
C - Great N Road	0.37	4.26	0.6	A
D - Main Street	0.22	5.09	0.3	A
E - Exit Only				
A - A57	0.45	4.19	0.8	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	153	491	1676	0.091	152	0.1	2.362	A
C - Great N Road	337	644	1491	0.226	335	0.3	3.113	A
D - Main Street	136	844	1081	0.125	135	0.1	3.803	A
E - Exit Only		920						
A - A57	487	296	1643	0.297	485	0.4	3.107	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	182	588	1625	0.112	182	0.1	2.495	A
C - Great N Road	402	771	1426	0.282	401	0.4	3.511	A
D - Main Street	162	1010	1007	0.161	162	0.2	4.259	A
E - Exit Only		1101						
A - A57	582	354	1613	0.361	581	0.6	3.488	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	224	720	1555	0.144	223	0.2	2.703	A
C - Great N Road	492	943	1338	0.368	491	0.6	4.247	A
D - Main Street	198	1237	905	0.219	198	0.3	5.085	A
E - Exit Only		1348						
A - A57	712	433	1572	0.453	711	0.8	4.179	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalled level of service
B - Entry only from A1	224	721	1554	0.144	224	0.2	2.704	A
C - Great N Road	492	945	1338	0.368	492	0.6	4.257	A
D - Main Street	198	1239	905	0.219	198	0.3	5.094	A
E - Exit Only		1350						
A - A57	712	434	1571	0.453	712	0.8	4.191	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalled level of service
B - Entry only from A1	182	590	1624	0.112	183	0.1	2.499	A
C - Great N Road	402	773	1425	0.282	403	0.4	3.524	A
D - Main Street	162	1013	1006	0.161	162	0.2	4.270	A
E - Exit Only		1104						
A - A57	582	355	1612	0.361	583	0.6	3.499	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalled level of service
B - Entry only from A1	153	494	1675	0.091	153	0.1	2.364	A
C - Great N Road	337	647	1489	0.226	337	0.3	3.124	A
D - Main Street	136	848	1079	0.126	136	0.1	3.818	A
E - Exit Only		924						
A - A57	487	297	1642	0.297	488	0.4	3.121	A

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		B, C, D, E, A	4.36	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	68	C - Great N Road

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)
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall)	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
B - Entry only from A1		✓	286	100.000
C - Great N Road		✓	453	100.000
D - Main Street		✓	172	100.000
E - Exit Only				
A - A57		✓	646	100.000

Origin-Destination Data

Demand (PCU/hr)

From	To					
		B - Entry only from A1	C - Great N Road	D - Main Street	E - Exit Only	A - A57
B - Entry only from A1	200	0	4	32	50	
C - Great N Road	264	0	1	7	181	
D - Main Street	52	0	16	0	104	
E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	
A - A57	0	0	185	59	402	

Vehicle Mix

Heavy Vehicle Percentages

From	To					
	B - Entry only from A1	C - Great N Road	D - Main Street	E - Exit Only	A - A57	
B - Entry only from A1	0	0	0	0	0	
C - Great N Road	0	0	0	0	0	
D - Main Street	0	0	0	0	0	
E - Exit Only	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only	
A - A57	0	0	0	0	0	

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B - Entry only from A1	0.20	2.91	0.3	A
C - Great N Road	0.39	4.56	0.6	A
D - Main Street	0.22	5.29	0.3	A
E - Exit Only				
A - A57	0.48	4.61	0.9	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	215	497	1674	0.129	215	0.1	2.466	A
C - Great N Road	341	711	1456	0.234	340	0.3	3.222	A
D - Main Street	129	897	1058	0.122	129	0.1	3.874	A
E - Exit Only		952						
A - A57	486	399	1589	0.306	485	0.4	3.253	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	257	594	1622	0.159	257	0.2	2.637	A
C - Great N Road	407	851	1385	0.294	407	0.4	3.677	A
D - Main Street	155	1073	979	0.158	154	0.2	4.366	A
E - Exit Only		1140						
A - A57	581	478	1548	0.375	580	0.6	3.716	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B - Entry only from A1	315	728	1551	0.203	315	0.3	2.912	A
C - Great N Road	499	1042	1288	0.387	498	0.6	4.550	A
D - Main Street	189	1314	871	0.217	189	0.3	5.275	A
E - Exit Only		1395						
A - A57	711	585	1493	0.476	710	0.9	4.590	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalled level of service
B - Entry only from A1	315	729	1550	0.203	315	0.3	2.913	A
C - Great N Road	499	1044	1287	0.387	499	0.6	4.564	A
D - Main Street	189	1316	870	0.218	189	0.3	5.286	A
E - Exit Only		1397						
A - A57	711	586	1493	0.477	711	0.9	4.606	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalled level of service
B - Entry only from A1	257	596	1621	0.159	257	0.2	2.642	A
C - Great N Road	407	854	1384	0.294	408	0.4	3.694	A
D - Main Street	155	1076	977	0.158	155	0.2	4.381	A
E - Exit Only		1143						
A - A57	581	479	1548	0.375	582	0.6	3.730	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalled level of service
B - Entry only from A1	215	499	1672	0.129	215	0.1	2.470	A
C - Great N Road	341	715	1455	0.234	341	0.3	3.237	A
D - Main Street	129	901	1056	0.123	130	0.1	3.889	A
E - Exit Only		957						
A - A57	486	401	1588	0.306	487	0.4	3.272	A

Sensitivity Test Traffic Flows

Base + Committed + Local Plan Sensitivity Test Flows
(Changing Apleyhead to developer flows)

A57
 north-bound on-slip for A1
 over-bridge
 north-bound off-slip for A1
 Blyth Road

Junction 2A - AM					
	A	B	C	D	E
A	2	152	853	0	81
B	0	0	0	0	0
C	498	2	0	0	596
D	656	6	4	0	25
E	183	348	164	0	0

A57
 north-bound on-slip for A1
 over-bridge
 north-bound off-slip for A1
 Blyth Road

Junction 2A - PM					
	A	B	C	D	E
A	5	246	822	0	154
B	0	0	0	0	0
C	228	9	0	0	535
D	653	4	9	0	18
E	71	308	190	0	0

over-bridge
 south-bound off-slip for A1
 Mansfield Road
 south-bound on-slip for A1

Junction 2B - AM				
	A	B	C	D
A	2	0	249	778
B	656	0	1	6
C	444	0	0	6
D	0	0	0	0

over-bridge
 south-bound off-slip for A1
 Mansfield Road
 south-bound on-slip for A1

Junction 2B - PM				
	A	B	C	D
A	3	0	348	669
B	485	0	3	0
C	301	0	0	8
D	0	0	0	0

Sensitivity Test
A1 Apleyhead Interchange (J2)
Existing Eastern Roundabout
Improved Western Roundabout

Junctions 9	
ARCADY 9 - Roundabout Module	
Version: 9.5.1.7462 © Copyright TRL Limited, 2019	
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Filename: J2A Apleyhead_Mitigation_SensTest.j9

Path: N:\Projects\B023665 - Ordsall, Retford\06 - Calculations\06 - Capacity Assessments\Nov 2022\for National Highways Technical Note\J2 - Apleyhead\03 - Sensitivity Test

Report generation date: 19/11/2022 18:37:38

»2038 Base + Committed, AM

»2038 Base + Committed, PM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test, AM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2038 Base + Committed										
A - A57	D3	1.0	4.00	0.51	A	D4	1.0	3.93	0.51	A
C - Road Across A1 (East)		1.2	4.86	0.55	A		0.9	4.25	0.48	A
D - Slip Road from Worksop Road (Entry Only)		0.9	5.69	0.49	A		1.2	6.25	0.55	A
E - Blyth Road		0.6	3.45	0.38	A		0.5	3.27	0.34	A
2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test										
A - A57	D23	1.9	5.65	0.65	A	D24	2.7	7.40	0.74	A
C - Road Across A1 (East)		2.9	8.80	0.75	A		1.2	4.96	0.54	A
D - Slip Road from Worksop Road (Entry Only)		2.4	11.59	0.71	B		1.7	8.16	0.63	A
E - Blyth Road		1.1	5.16	0.52	A		0.6	3.66	0.39	A

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	J2A Apleyhead Interchange
Location	Retford
Site number	
Date	20/07/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	B023665
Enumerator	TTLAUREN.WILKES
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15
D4	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test	AM	ONE HOUR	07:45	09:15	15
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	4.47	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A57	
B	A1 Slip Road (Exit Only)	
C	Road Across A1 (East)	
D	Slip Road from Worksop Road (Entry Only)	
E	Blyth Road	

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
A - A57	4.33	8.06	25.5	27.0	83.2	25.0	
B - A1 Slip Road (Exit Only)							✓
C - Road Across A1 (East)	4.78	5.84	3.3	26.0	83.2	24.0	
D - Slip Road from Worksop Road (Entry Only)	5.30	7.30	1.4	45.1	83.2	47.0	
E - Blyth Road	5.24	8.58	19.1	23.1	83.2	46.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - A57	0.536	2144
B - A1 Slip Road (Exit Only)		
C - Road Across A1 (East)	0.467	1658
D - Slip Road from Worksop Road (Entry Only)	0.452	1658
E - Blyth Road	0.517	2128

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)
D3	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	857	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	809	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	542	100.000
E - Blyth Road		✓	569	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	2	95	712	0	48
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	284	2	0	0	523
	D - Slip Road from Worksop Road (Entry Only)	507	6	4	0	25
	E - Blyth Road	72	348	149	0	0

Vehicle Mix

Heavy Vehicle Percentages

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.51	4.00	1.0	A
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.55	4.86	1.2	A
D - Slip Road from Worksop Road (Entry Only)	0.49	5.69	0.9	A
E - Blyth Road	0.38	3.45	0.6	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	645	382	1939	0.333	643	0.5	2.775	A
B - A1 Slip Road (Exit Only)		687						
C - Road Across A1 (East)	609	38	1640	0.371	607	0.6	3.477	A
D - Slip Road from Worksop Road (Entry Only)	408	644	1366	0.299	406	0.4	3.744	A
E - Blyth Road	428	604	1816	0.236	427	0.3	2.590	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	770	457	1899	0.406	770	0.7	3.187	A
B - A1 Slip Road (Exit Only)		822						
C - Road Across A1 (East)	727	45	1637	0.444	726	0.8	3.952	A
D - Slip Road from Worksop Road (Entry Only)	487	771	1309	0.372	487	0.6	4.375	A
E - Blyth Road	512	723	1754	0.292	511	0.4	2.896	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	944	560	1844	0.512	942	1.0	3.986	A
B - A1 Slip Road (Exit Only)		1006						
C - Road Across A1 (East)	891	55	1632	0.546	891	1.2	4.837	A
D - Slip Road from Worksop Road (Entry Only)	597	944	1231	0.485	595	0.9	5.655	A
E - Blyth Road	626	884	1671	0.375	626	0.6	3.444	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	944	560	1843	0.512	944	1.0	4.000	A
B - A1 Slip Road (Exit Only)		1007						
C - Road Across A1 (East)	891	55	1632	0.546	891	1.2	4.856	A
D - Slip Road from Worksop Road (Entry Only)	597	946	1230	0.485	597	0.9	5.686	A
E - Blyth Road	626	886	1670	0.375	626	0.6	3.450	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	770	458	1898	0.406	772	0.7	3.202	A
B - A1 Slip Road (Exit Only)		824						
C - Road Across A1 (East)	727	45	1637	0.444	729	0.8	3.972	A
D - Slip Road from Worksop Road (Entry Only)	487	774	1308	0.373	489	0.6	4.402	A
E - Blyth Road	512	726	1753	0.292	512	0.4	2.903	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	645	384	1938	0.333	646	0.5	2.789	A
B - A1 Slip Road (Exit Only)		690						
C - Road Across A1 (East)	609	38	1640	0.371	610	0.6	3.496	A
D - Slip Road from Worksop Road (Entry Only)	408	648	1365	0.299	409	0.4	3.767	A
E - Blyth Road	428	607	1814	0.236	429	0.3	2.601	A

2038 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	4.43	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	859	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	703	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	633	100.000
E - Blyth Road		✓	513	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	5	136	653	0	65
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	184	9	0	0	510
	D - Slip Road from Worksop Road (Entry Only)	602	4	9	0	18
	E - Blyth Road	56	308	149	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.51	3.93	1.0	A
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.48	4.25	0.9	A
D - Slip Road from Worksop Road (Entry Only)	0.55	6.25	1.2	A
E - Blyth Road	0.34	3.27	0.5	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	647	360	1951	0.331	645	0.5	2.752	A
B - A1 Slip Road (Exit Only)		661						
C - Road Across A1 (East)	529	53	1633	0.324	527	0.5	3.250	A
D - Slip Road from Worksop Road (Entry Only)	477	580	1395	0.342	474	0.5	3.901	A
E - Blyth Road	386	610	1813	0.213	385	0.3	2.521	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	772	430	1913	0.404	772	0.7	3.152	A
B - A1 Slip Road (Exit Only)		791						
C - Road Across A1 (East)	632	63	1628	0.388	631	0.6	3.609	A
D - Slip Road from Worksop Road (Entry Only)	569	694	1344	0.424	568	0.7	4.638	A
E - Blyth Road	461	730	1750	0.263	461	0.4	2.791	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	946	527	1861	0.508	944	1.0	3.920	A
B - A1 Slip Road (Exit Only)		969						
C - Road Across A1 (East)	774	77	1622	0.477	773	0.9	4.236	A
D - Slip Road from Worksop Road (Entry Only)	697	850	1273	0.547	695	1.2	6.207	A
E - Blyth Road	565	893	1666	0.339	564	0.5	3.265	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	946	527	1861	0.508	946	1.0	3.932	A
B - A1 Slip Road (Exit Only)		970						
C - Road Across A1 (East)	774	77	1622	0.477	774	0.9	4.246	A
D - Slip Road from Worksop Road (Entry Only)	697	851	1273	0.548	697	1.2	6.252	A
E - Blyth Road	565	895	1665	0.339	565	0.5	3.271	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	772	431	1913	0.404	774	0.7	3.166	A
B - A1 Slip Road (Exit Only)		793						
C - Road Across A1 (East)	632	63	1628	0.388	633	0.6	3.620	A
D - Slip Road from Worksop Road (Entry Only)	569	696	1343	0.424	571	0.7	4.676	A
E - Blyth Road	461	733	1749	0.264	462	0.4	2.800	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	647	361	1950	0.332	647	0.5	2.766	A
B - A1 Slip Road (Exit Only)		664						
C - Road Across A1 (East)	529	53	1633	0.324	530	0.5	3.267	A
D - Slip Road from Worksop Road (Entry Only)	477	583	1394	0.342	477	0.5	3.930	A
E - Blyth Road	386	613	1811	0.213	387	0.3	2.529	A

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	7.67	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)
D23	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	1088	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	1096	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	691	100.000
E - Blyth Road		✓	695	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	2	152	853	0	81
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	498	2	0	0	596
	D - Slip Road from Worksop Road (Entry Only)	656	6	4	0	25
	E - Blyth Road	183	348	164	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.65	5.65	1.9	A
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.75	8.80	2.9	A
D - Slip Road from Worksop Road (Entry Only)	0.71	11.59	2.4	B
E - Blyth Road	0.52	5.16	1.1	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	819	393	1933	0.424	816	0.7	3.215	A
B - A1 Slip Road (Exit Only)		828						
C - Road Across A1 (East)	825	62	1629	0.507	821	1.0	4.436	A
D - Slip Road from Worksop Road (Entry Only)	520	883	1258	0.414	517	0.7	4.842	A
E - Blyth Road	523	875	1676	0.312	521	0.5	3.119	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	978	470	1892	0.517	977	1.1	3.929	A
B - A1 Slip Road (Exit Only)		991						
C - Road Across A1 (East)	985	75	1623	0.607	983	1.5	5.610	A
D - Slip Road from Worksop Road (Entry Only)	621	1058	1179	0.527	620	1.1	6.416	A
E - Blyth Road	625	1048	1586	0.394	624	0.6	3.737	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	1198	576	1835	0.653	1195	1.8	5.593	A
B - A1 Slip Road (Exit Only)		1212						
C - Road Across A1 (East)	1207	91	1615	0.747	1201	2.9	8.591	A
D - Slip Road from Worksop Road (Entry Only)	761	1293	1073	0.709	756	2.3	11.182	B
E - Blyth Road	765	1279	1467	0.522	763	1.1	5.106	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	1198	577	1834	0.653	1198	1.9	5.652	A
B - A1 Slip Road (Exit Only)		1215						
C - Road Across A1 (East)	1207	91	1615	0.747	1207	2.9	8.801	A
D - Slip Road from Worksop Road (Entry Only)	761	1298	1070	0.711	761	2.4	11.594	B
E - Blyth Road	765	1286	1463	0.523	765	1.1	5.157	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	978	472	1891	0.517	981	1.1	3.973	A
B - A1 Slip Road (Exit Only)		996						
C - Road Across A1 (East)	985	75	1623	0.607	991	1.6	5.744	A
D - Slip Road from Worksop Road (Entry Only)	621	1065	1176	0.528	626	1.1	6.610	A
E - Blyth Road	625	1057	1581	0.395	627	0.7	3.776	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	819	395	1932	0.424	820	0.7	3.244	A
B - A1 Slip Road (Exit Only)		833						
C - Road Across A1 (East)	825	63	1628	0.507	827	1.0	4.505	A
D - Slip Road from Worksop Road (Entry Only)	520	890	1255	0.414	522	0.7	4.921	A
E - Blyth Road	523	882	1672	0.313	524	0.5	3.137	A

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	6.32	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)
D24	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A57		✓	1227	100.000
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)		✓	772	100.000
D - Slip Road from Worksop Road (Entry Only)		✓	684	100.000
E - Blyth Road		✓	569	100.000

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	5	246	822	0	154
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	228	9	0	0	535
	D - Slip Road from Worksop Road (Entry Only)	653	4	9	0	18
	E - Blyth Road	71	308	190	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - A57	B - A1 Slip Road (Exit Only)	C - Road Across A1 (East)	D - Slip Road from Worksop Road (Entry Only)	E - Blyth Road
	A - A57	0	0	0	0	0
	B - A1 Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	C - Road Across A1 (East)	0	0	0	0	0
	D - Slip Road from Worksop Road (Entry Only)	0	0	0	0	0
	E - Blyth Road	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - A57	0.74	7.40	2.7	A
B - A1 Slip Road (Exit Only)				
C - Road Across A1 (East)	0.54	4.96	1.2	A
D - Slip Road from Worksop Road (Entry Only)	0.63	8.16	1.7	A
E - Blyth Road	0.39	3.66	0.6	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	924	390	1935	0.477	920	0.9	3.535	A
B - A1 Slip Road (Exit Only)		885						
C - Road Across A1 (East)	581	119	1602	0.363	579	0.6	3.512	A
D - Slip Road from Worksop Road (Entry Only)	515	698	1342	0.384	512	0.6	4.327	A
E - Blyth Road	428	680	1776	0.241	427	0.3	2.666	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	1103	467	1893	0.583	1101	1.4	4.533	A
B - A1 Slip Road (Exit Only)		1059						
C - Road Across A1 (East)	694	143	1591	0.436	693	0.8	4.006	A
D - Slip Road from Worksop Road (Entry Only)	615	836	1279	0.481	614	0.9	5.397	A
E - Blyth Road	512	815	1706	0.300	511	0.4	3.011	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	1351	572	1837	0.735	1346	2.7	7.245	A
B - A1 Slip Road (Exit Only)		1295						
C - Road Across A1 (East)	850	174	1576	0.539	848	1.2	4.934	A
D - Slip Road from Worksop Road (Entry Only)	753	1023	1195	0.630	750	1.7	8.039	A
E - Blyth Road	626	996	1613	0.388	626	0.6	3.643	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	1351	573	1837	0.735	1351	2.7	7.399	A
B - A1 Slip Road (Exit Only)		1299						
C - Road Across A1 (East)	850	175	1576	0.539	850	1.2	4.958	A
D - Slip Road from Worksop Road (Entry Only)	753	1025	1194	0.631	753	1.7	8.161	A
E - Blyth Road	626	1000	1611	0.389	626	0.6	3.655	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	1103	468	1893	0.583	1108	1.4	4.619	A
B - A1 Slip Road (Exit Only)		1065						
C - Road Across A1 (East)	694	144	1591	0.436	696	0.8	4.030	A
D - Slip Road from Worksop Road (Entry Only)	615	839	1278	0.481	618	0.9	5.479	A
E - Blyth Road	512	820	1704	0.300	512	0.4	3.024	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A57	924	392	1934	0.478	926	0.9	3.577	A
B - A1 Slip Road (Exit Only)		890						
C - Road Across A1 (East)	581	120	1602	0.363	582	0.6	3.532	A
D - Slip Road from Worksop Road (Entry Only)	515	702	1340	0.384	516	0.6	4.377	A
E - Blyth Road	428	685	1774	0.242	429	0.3	2.679	A

Junctions 9	
ARCADY 9 - Roundabout Module	
Version: 9.5.1.7462 © Copyright TRL Limited, 2019	
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Filename: J2B Apleyhead_SensTest.j9

Path: N:\Projects\B023665 - Ordsall, Retford\06 - Calculations\06 - Capacity Assessments\Nov 2022\for National Highways Technical Note\J2 - Apleyhead\03 - Sensitivity Test

Report generation date: 19/11/2022 18:30:53

»2038 Base + Committed, AM

»2038 Base + Committed, PM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test, AM

»2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2038 Base + Committed										
A - Road over A1 West (Entry Only)	D3	0.2	0.81	0.18	A	D4	0.2	0.79	0.16	A
B - A1 Slip Road North (Entry Only)		0.5	3.30	0.34	A		0.4	3.03	0.30	A
C - Mansfield Road		0.6	6.25	0.37	A		0.4	5.09	0.29	A
2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test										
A - Road over A1 West (Entry Only)	D11	0.3	0.84	0.21	A	D12	0.3	0.84	0.21	A
B - A1 Slip Road North (Entry Only)		0.9	4.35	0.47	A		0.5	3.51	0.34	A
C - Mansfield Road		1.8	13.09	0.64	B		0.6	6.15	0.37	A

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	J2B Mansfield Road_A1
Location	Retford
Site number	
Date	16/11/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	B023665
Enumerator	TTI\LAUREN.WILKES
Description	A and B - Entry Only D and E - Exit Only All flows will exit at C, D or E and not pass arm A Potential to increase the capacity of arm A as drivers know they are unopposed and do not slow down on the approach to check for circulatory traffic. No geometry measurement for Arm A as there is no give way line.

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15
D4	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15
D11	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test	AM	ONE HOUR	07:45	09:15	15
D12	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2038 Base + Committed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A - Road over A1 West (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	B - A1 Slip Road North (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	2.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Road over A1 West (Entry Only)	
B	A1 Slip Road North (Entry Only)	
C	Mansfield Road	
D	A1 South Slip Road (Exit Only)	
E	Road Over A1 West (Exit Only)	

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
A - Road over A1 West (Entry Only)	3.75	16.00	999.0	999.0	69.6	0.0	
B - A1 Slip Road North (Entry Only)	4.92	8.45	46.0	32.4	69.6	53.0	
C - Mansfield Road	3.76	5.20	17.5	29.0	69.6	20.0	
D - A1 South Slip Road (Exit Only)							✓
E - Road Over A1 West (Exit Only)							✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - Road over A1 West (Entry Only)	1.131	5424
B - A1 Slip Road North (Entry Only)	0.573	2206
C - Mansfield Road	0.497	1559
D - A1 South Slip Road (Exit Only)		
E - Road Over A1 West (Exit Only)		

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)
D3	2038 Base + Committed	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Road over A1 West (Entry Only)		✓	871	100.000
B - A1 Slip Road North (Entry Only)		✓	514	100.000
C - Mansfield Road		✓	310	100.000
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	2	0	212	657	0
	B - A1 Slip Road North (Entry Only)	507	0	1	6	0
	C - Mansfield Road	304	0	0	6	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

From		To				
		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	0	0	0	0	0
	B - A1 Slip Road North (Entry Only)	0	0	0	0	0
	C - Mansfield Road	0	0	0	0	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Road over A1 West (Entry Only)	0.18	0.81	0.2	A
B - A1 Slip Road North (Entry Only)	0.34	3.30	0.5	A
C - Mansfield Road	0.37	6.25	0.6	A
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	656	0	5424	0.121	655	0.1	0.754	A
B - A1 Slip Road North (Entry Only)	387	655	1831	0.211	386	0.3	2.490	A
C - Mansfield Road	233	881	1121	0.208	232	0.3	4.047	A
D - A1 South Slip Road (Exit Only)		610						
E - Road Over A1 West (Exit Only)		610						

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	783	0	5424	0.144	783	0.2	0.775	A
B - A1 Slip Road North (Entry Only)	462	783	1758	0.263	462	0.4	2.777	A
C - Mansfield Road	279	1053	1035	0.269	278	0.4	4.752	A
D - A1 South Slip Road (Exit Only)		730						
E - Road Over A1 West (Exit Only)		730						

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	959	0	5424	0.177	959	0.2	0.805	A
B - A1 Slip Road North (Entry Only)	566	959	1657	0.342	565	0.5	3.296	A
C - Mansfield Road	341	1290	918	0.372	340	0.6	6.225	A
D - A1 South Slip Road (Exit Only)		894						
E - Road Over A1 West (Exit Only)		894						

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	959	0	5424	0.177	959	0.2	0.805	A
B - A1 Slip Road North (Entry Only)	566	959	1657	0.342	566	0.5	3.299	A
C - Mansfield Road	341	1290	918	0.372	341	0.6	6.246	A
D - A1 South Slip Road (Exit Only)		895						
E - Road Over A1 West (Exit Only)		895						

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	783	0	5424	0.144	783	0.2	0.777	A
B - A1 Slip Road North (Entry Only)	462	783	1758	0.263	463	0.4	2.781	A
C - Mansfield Road	279	1054	1035	0.269	280	0.4	4.771	A
D - A1 South Slip Road (Exit Only)		732						
E - Road Over A1 West (Exit Only)		732						

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	656	0	5424	0.121	656	0.1	0.754	A
B - A1 Slip Road North (Entry Only)	387	656	1830	0.211	387	0.3	2.496	A
C - Mansfield Road	233	883	1120	0.208	234	0.3	4.064	A
D - A1 South Slip Road (Exit Only)		613						
E - Road Over A1 West (Exit Only)		613						

2038 Base + Committed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A - Road over A1 West (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	B - A1 Slip Road North (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	2.21	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2038 Base + Committed	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Road over A1 West (Entry Only)		✓	810	100.000
B - A1 Slip Road North (Entry Only)		✓	461	100.000
C - Mansfield Road		✓	267	100.000
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Origin-Destination Data

Demand (PCU/hr)

From		To				
		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	3	0	249	558	0
	B - A1 Slip Road North (Entry Only)	458	0	3	0	0
	C - Mansfield Road	259	0	0	8	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	0	0	0	0	0
	B - A1 Slip Road North (Entry Only)	0	0	0	0	0
	C - Mansfield Road	0	0	0	0	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Road over A1 West (Entry Only)	0.16	0.79	0.2	A
B - A1 Slip Road North (Entry Only)	0.30	3.03	0.4	A
C - Mansfield Road	0.29	5.09	0.4	A
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	610	0	5424	0.112	609	0.1	0.747	A
B - A1 Slip Road North (Entry Only)	347	609	1857	0.187	346	0.2	2.381	A
C - Mansfield Road	201	766	1178	0.171	200	0.2	3.677	A
D - A1 South Slip Road (Exit Only)		540						
E - Road Over A1 West (Exit Only)		540						

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	728	0	5424	0.134	728	0.2	0.766	A
B - A1 Slip Road North (Entry Only)	414	728	1789	0.232	414	0.3	2.618	A
C - Mansfield Road	240	916	1104	0.217	240	0.3	4.165	A
D - A1 South Slip Road (Exit Only)		647						
E - Road Over A1 West (Exit Only)		647						

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	892	0	5424	0.164	892	0.2	0.793	A
B - A1 Slip Road North (Entry Only)	508	892	1695	0.299	507	0.4	3.027	A
C - Mansfield Road	294	1121	1002	0.294	293	0.4	5.080	A
D - A1 South Slip Road (Exit Only)		792						
E - Road Over A1 West (Exit Only)		792						

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	892	0	5424	0.164	892	0.2	0.793	A
B - A1 Slip Road North (Entry Only)	508	892	1695	0.299	508	0.4	3.030	A
C - Mansfield Road	294	1122	1001	0.294	294	0.4	5.089	A
D - A1 South Slip Road (Exit Only)		793						
E - Road Over A1 West (Exit Only)		793						

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	728	0	5424	0.134	728	0.2	0.768	A
B - A1 Slip Road North (Entry Only)	414	728	1789	0.232	415	0.3	2.620	A
C - Mansfield Road	240	917	1103	0.218	241	0.3	4.176	A
D - A1 South Slip Road (Exit Only)		648						
E - Road Over A1 West (Exit Only)		648						

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	610	0	5424	0.112	610	0.1	0.749	A
B - A1 Slip Road North (Entry Only)	347	610	1857	0.187	347	0.2	2.385	A
C - Mansfield Road	201	768	1177	0.171	201	0.2	3.688	A
D - A1 South Slip Road (Exit Only)		543						
E - Road Over A1 West (Exit Only)		543						

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A - Road over A1 West (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	B - A1 Slip Road North (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	4.50	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)
D11	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Road over A1 West (Entry Only)		✓	1029	100.000
B - A1 Slip Road North (Entry Only)		✓	663	100.000
C - Mansfield Road		✓	450	100.000
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Origin-Destination Data

Demand (PCU/hr)

		To				
From		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	2	0	249	778	0
	B - A1 Slip Road North (Entry Only)	656	0	1	6	0
	C - Mansfield Road	444	0	0	6	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	0	0	0	0	0
	B - A1 Slip Road North (Entry Only)	0	0	0	0	0
	C - Mansfield Road	0	0	0	0	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Road over A1 West (Entry Only)	0.21	0.84	0.3	A
B - A1 Slip Road North (Entry Only)	0.47	4.35	0.9	A
C - Mansfield Road	0.64	13.09	1.8	B
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	775	0	5424	0.143	774	0.2	0.773	A
B - A1 Slip Road North (Entry Only)	499	774	1763	0.283	498	0.4	2.841	A
C - Mansfield Road	339	1084	1020	0.332	337	0.5	5.252	A
D - A1 South Slip Road (Exit Only)		826						
E - Road Over A1 West (Exit Only)		826						

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	925	0	5424	0.171	925	0.2	0.799	A
B - A1 Slip Road North (Entry Only)	596	925	1676	0.356	595	0.5	3.328	A
C - Mansfield Road	405	1296	915	0.442	403	0.8	7.021	A
D - A1 South Slip Road (Exit Only)		989						
E - Road Over A1 West (Exit Only)		989						

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	1133	0	5424	0.209	1133	0.3	0.838	A
B - A1 Slip Road North (Entry Only)	730	1133	1557	0.469	729	0.9	4.336	A
C - Mansfield Road	495	1586	771	0.643	492	1.7	12.735	B
D - A1 South Slip Road (Exit Only)		1208						
E - Road Over A1 West (Exit Only)		1208						

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	1133	0	5424	0.209	1133	0.3	0.838	A
B - A1 Slip Road North (Entry Only)	730	1133	1557	0.469	730	0.9	4.351	A
C - Mansfield Road	495	1588	770	0.644	495	1.8	13.095	B
D - A1 South Slip Road (Exit Only)		1213						
E - Road Over A1 West (Exit Only)		1213						

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	925	0	5424	0.171	925	0.2	0.802	A
B - A1 Slip Road North (Entry Only)	596	925	1676	0.356	597	0.6	3.339	A
C - Mansfield Road	405	1298	914	0.443	408	0.8	7.173	A
D - A1 South Slip Road (Exit Only)		996						
E - Road Over A1 West (Exit Only)		996						

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	775	0	5424	0.143	775	0.2	0.773	A
B - A1 Slip Road North (Entry Only)	499	775	1762	0.283	500	0.4	2.854	A
C - Mansfield Road	339	1086	1019	0.332	340	0.5	5.312	A
D - A1 South Slip Road (Exit Only)		831						
E - Road Over A1 West (Exit Only)		831						

2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A - Road over A1 West (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	B - A1 Slip Road North (Entry Only) - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		A, B, C, D, E	2.46	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)
D12	2038 Base + Committed + Local Plan (1,250 dwellings LS Ordsall) - Sensitivity Test	PM	ONE HOUR	16:45	18:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Road over A1 West (Entry Only)		✓	1020	100.000
B - A1 Slip Road North (Entry Only)		✓	488	100.000
C - Mansfield Road		✓	309	100.000
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Origin-Destination Data

Demand (PCU/hr)

		To				
From		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	3	0	348	669	0
	B - A1 Slip Road North (Entry Only)	485	0	3	0	0
	C - Mansfield Road	301	0	0	8	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To				
From		A - Road over A1 West (Entry Only)	B - A1 Slip Road North (Entry Only)	C - Mansfield Road	D - A1 South Slip Road (Exit Only)	E - Road Over A1 West (Exit Only)
	A - Road over A1 West (Entry Only)	0	0	0	0	0
	B - A1 Slip Road North (Entry Only)	0	0	0	0	0
	C - Mansfield Road	0	0	0	0	0
	D - A1 South Slip Road (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	E - Road Over A1 West (Exit Only)	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
A - Road over A1 West (Entry Only)	0.21	0.84	0.3	A
B - A1 Slip Road North (Entry Only)	0.34	3.51	0.5	A
C - Mansfield Road	0.37	6.15	0.6	A
D - A1 South Slip Road (Exit Only)				
E - Road Over A1 West (Exit Only)				

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	768	0	5424	0.142	767	0.2	0.772	A
B - A1 Slip Road North (Entry Only)	367	767	1767	0.208	366	0.3	2.570	A
C - Mansfield Road	233	870	1127	0.206	232	0.3	4.018	A
D - A1 South Slip Road (Exit Only)		592						
E - Road Over A1 West (Exit Only)		592						

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	917	0	5424	0.169	917	0.2	0.798	A
B - A1 Slip Road North (Entry Only)	439	917	1681	0.261	438	0.4	2.897	A
C - Mansfield Road	278	1040	1042	0.267	277	0.4	4.705	A
D - A1 South Slip Road (Exit Only)		709						
E - Road Over A1 West (Exit Only)		709						

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	1123	0	5424	0.207	1123	0.3	0.836	A
B - A1 Slip Road North (Entry Only)	537	1123	1563	0.344	537	0.5	3.505	A
C - Mansfield Road	340	1273	926	0.367	339	0.6	6.125	A
D - A1 South Slip Road (Exit Only)		867						
E - Road Over A1 West (Exit Only)		867						

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	1123	0	5424	0.207	1123	0.3	0.836	A
B - A1 Slip Road North (Entry Only)	537	1123	1563	0.344	537	0.5	3.508	A
C - Mansfield Road	340	1274	926	0.367	340	0.6	6.147	A
D - A1 South Slip Road (Exit Only)		869						
E - Road Over A1 West (Exit Only)		869						

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	917	0	5424	0.169	917	0.2	0.798	A
B - A1 Slip Road North (Entry Only)	439	917	1681	0.261	439	0.4	2.903	A
C - Mansfield Road	278	1041	1042	0.267	279	0.4	4.723	A
D - A1 South Slip Road (Exit Only)		711						
E - Road Over A1 West (Exit Only)		711						

18:00 - 18:15

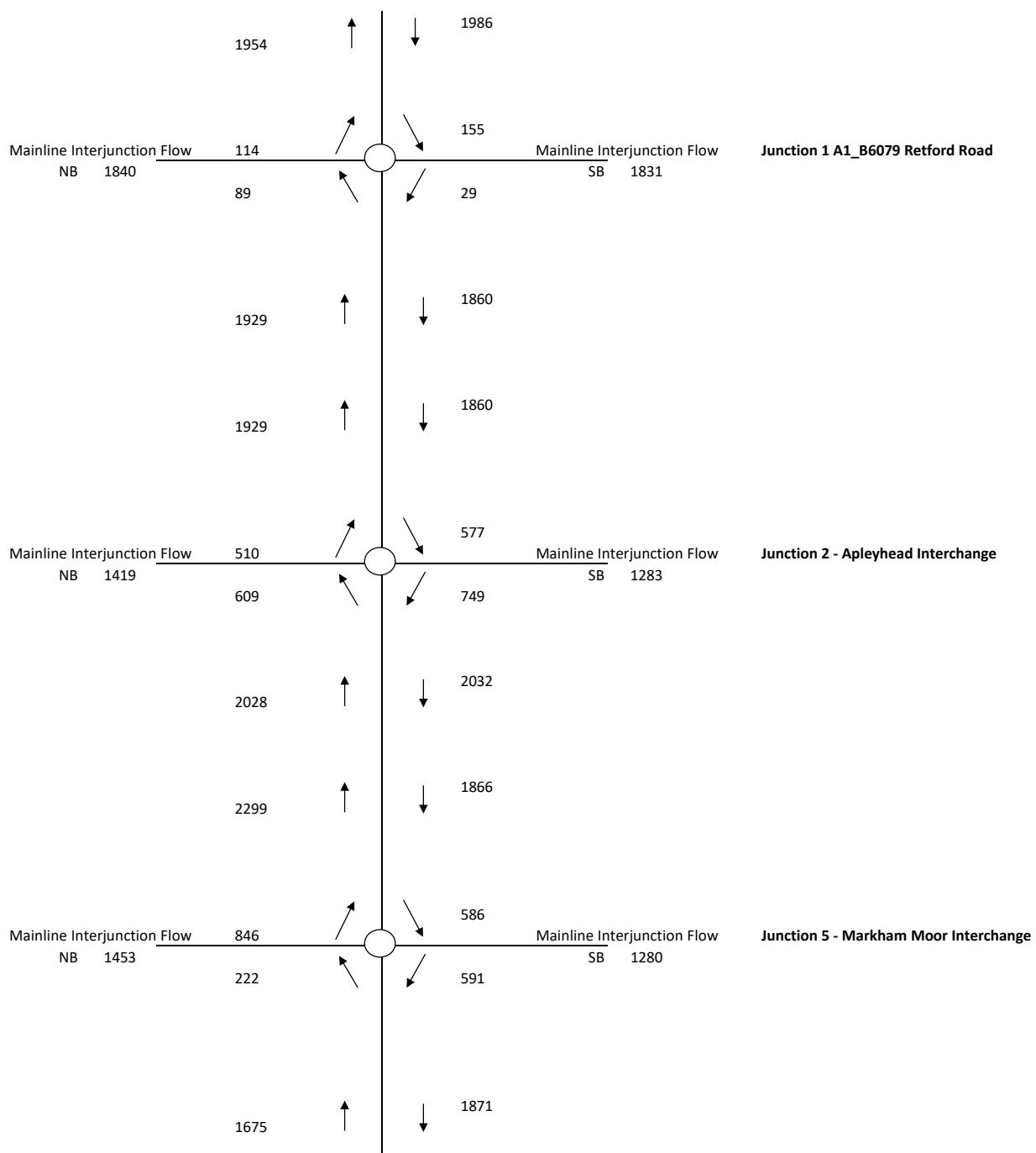
Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - Road over A1 West (Entry Only)	768	0	5424	0.142	768	0.2	0.772	A
B - A1 Slip Road North (Entry Only)	367	768	1766	0.208	368	0.3	2.574	A
C - Mansfield Road	233	872	1126	0.207	233	0.3	4.035	A
D - A1 South Slip Road (Exit Only)		595						
E - Road Over A1 West (Exit Only)		595						

Merge / Diverge Assessments

Merge / Diverge Flows

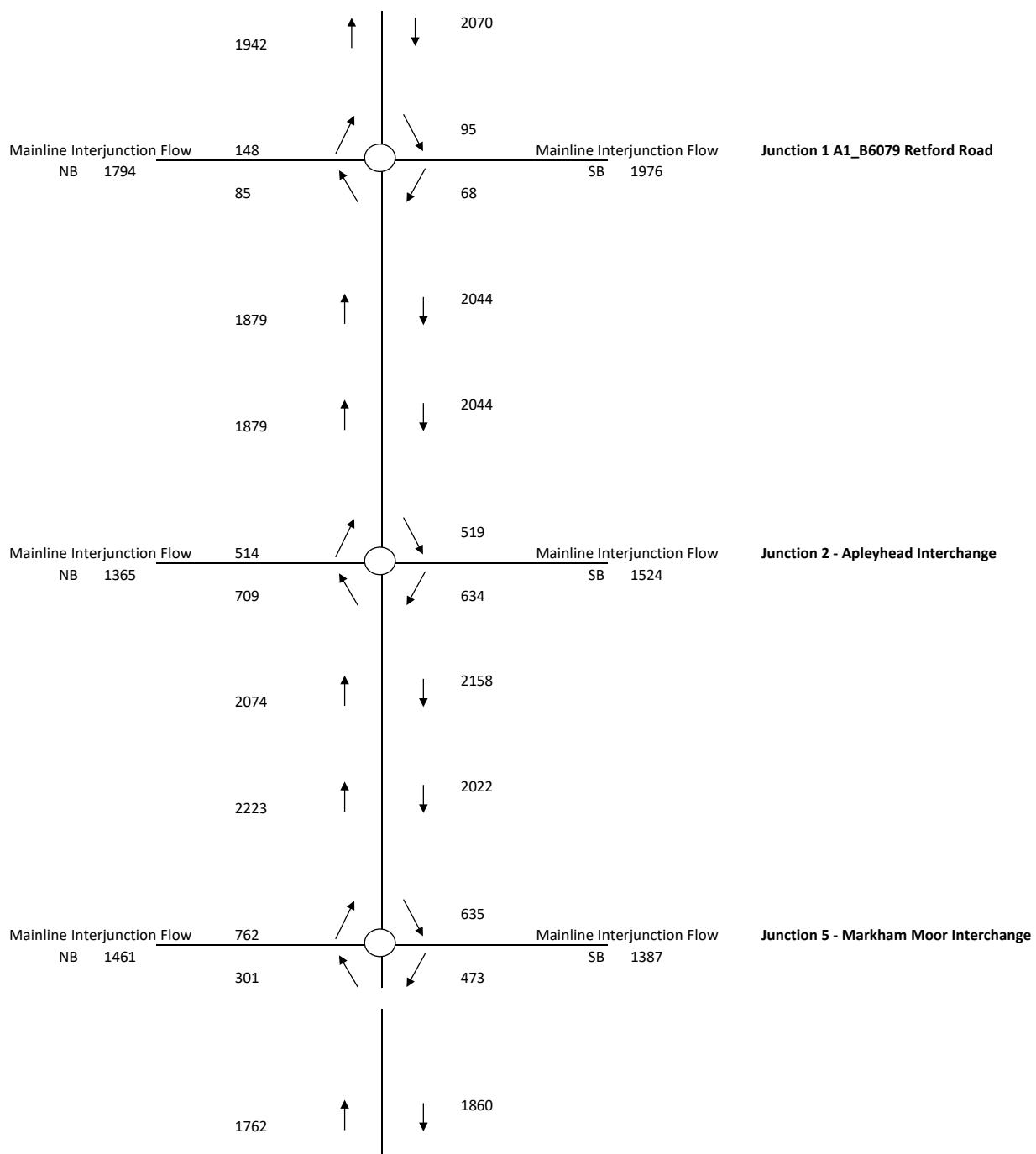
Merge / Diverge Flows - 2038 Base + Committed AM

Note - slip road flows unavailable in vehicles so merge/diverge assessment has been undertaken using PCUs (slip roads) and vehicles (mainline).



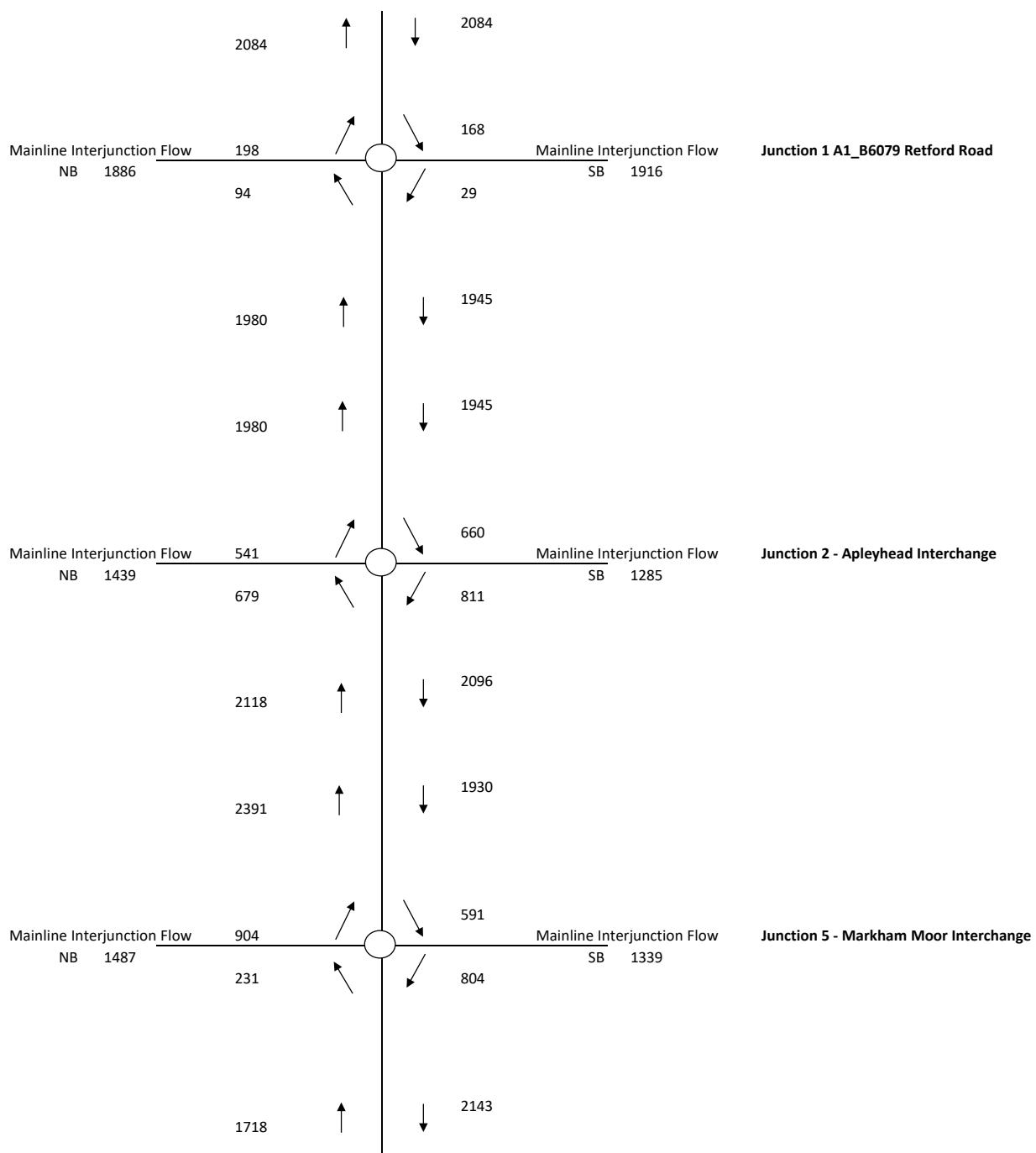
Merge / Diverge Flows - 2038 Base + Committed PM

Note - slip road flows unavailable in vehicles so merge/diverge assessment has been undertaken using PCUs (slip roads) and vehicles (mainline).



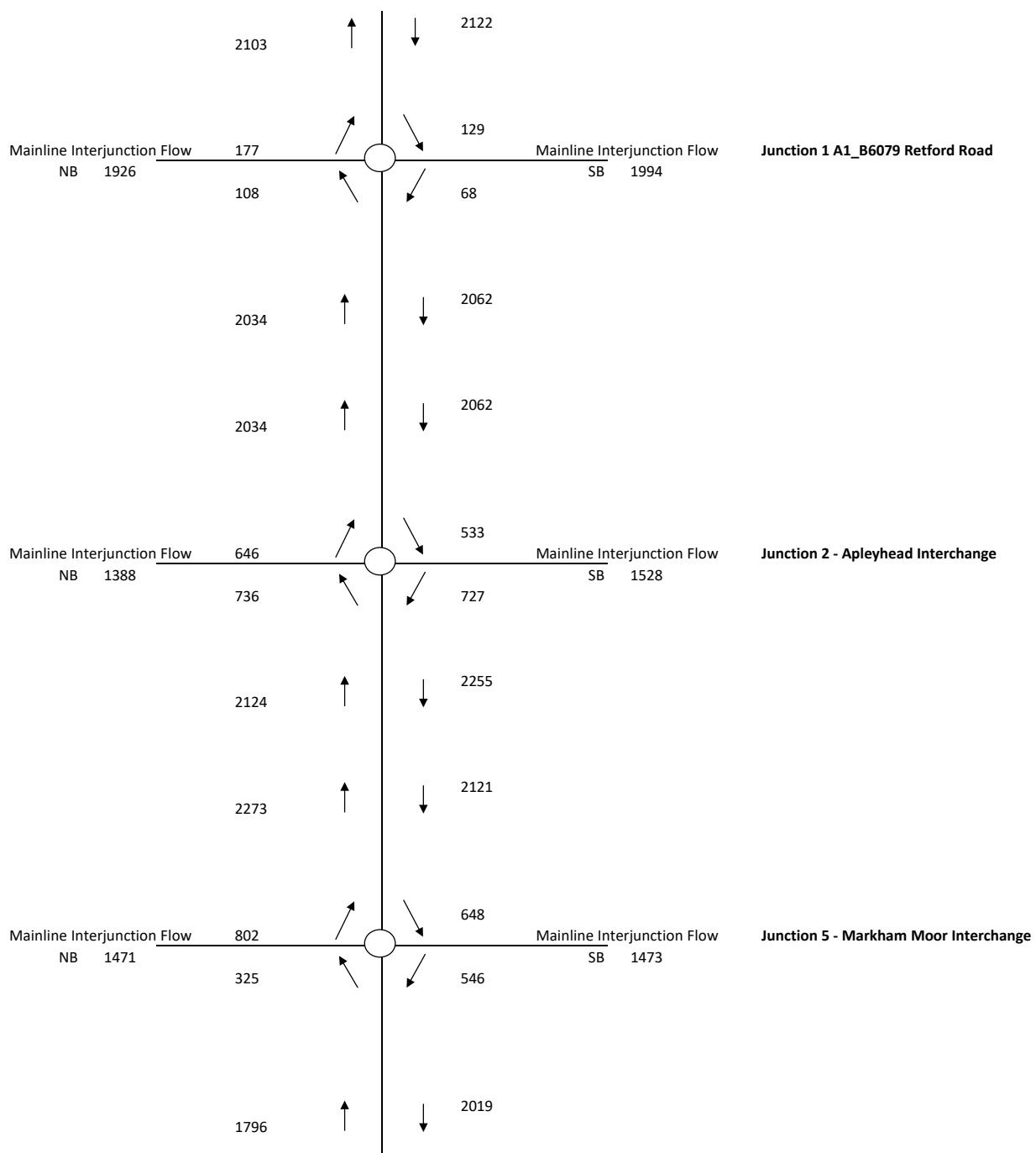
Merge / Diverge Flows - 2038 Base + Committed + Local Plan AM

Note - slip road flows unavailable in vehicles so merge/diverge assessment has been undertaken using PCUs (slip roads) and vehicles (mainline).

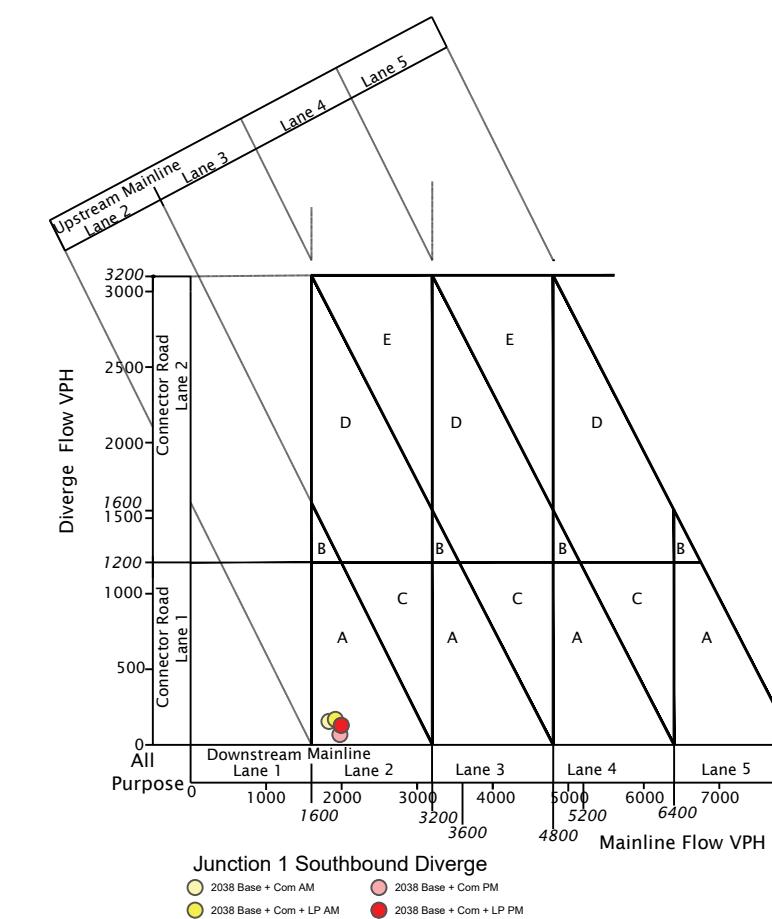
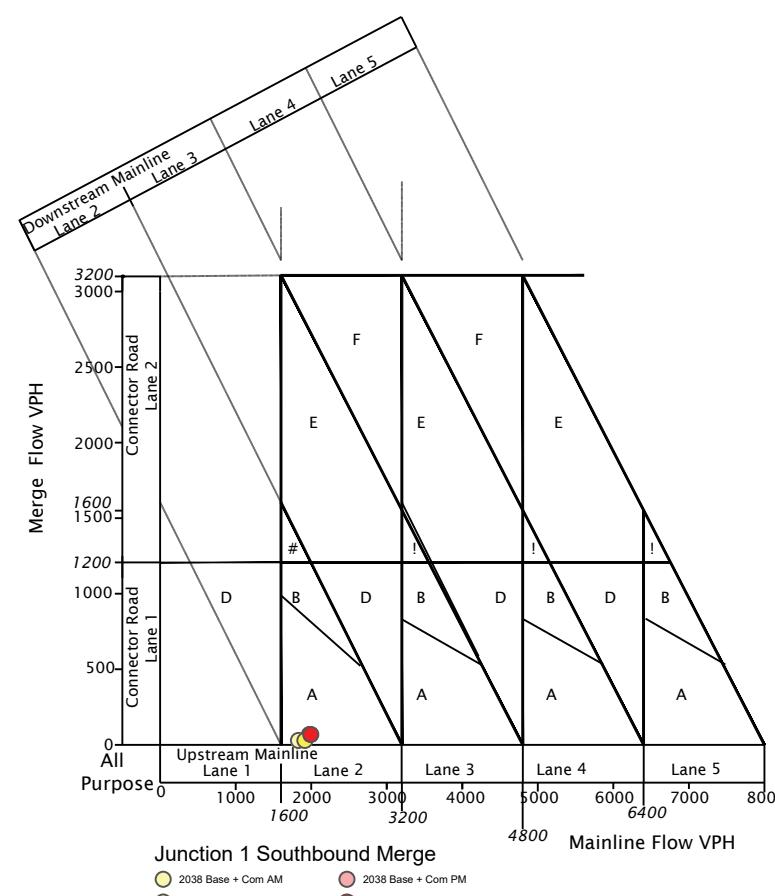
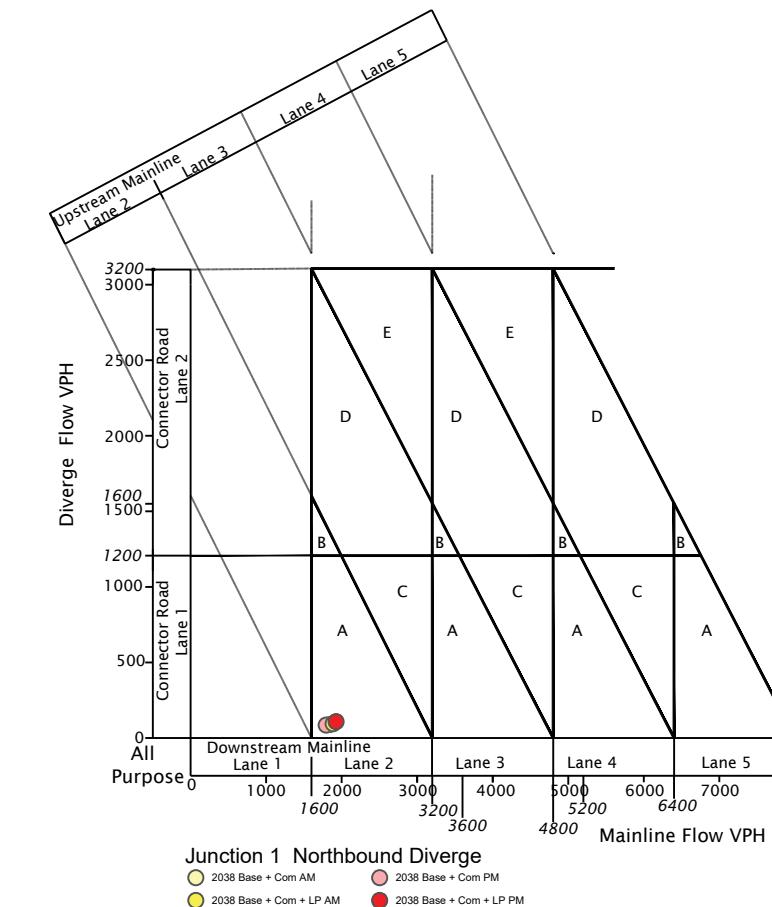
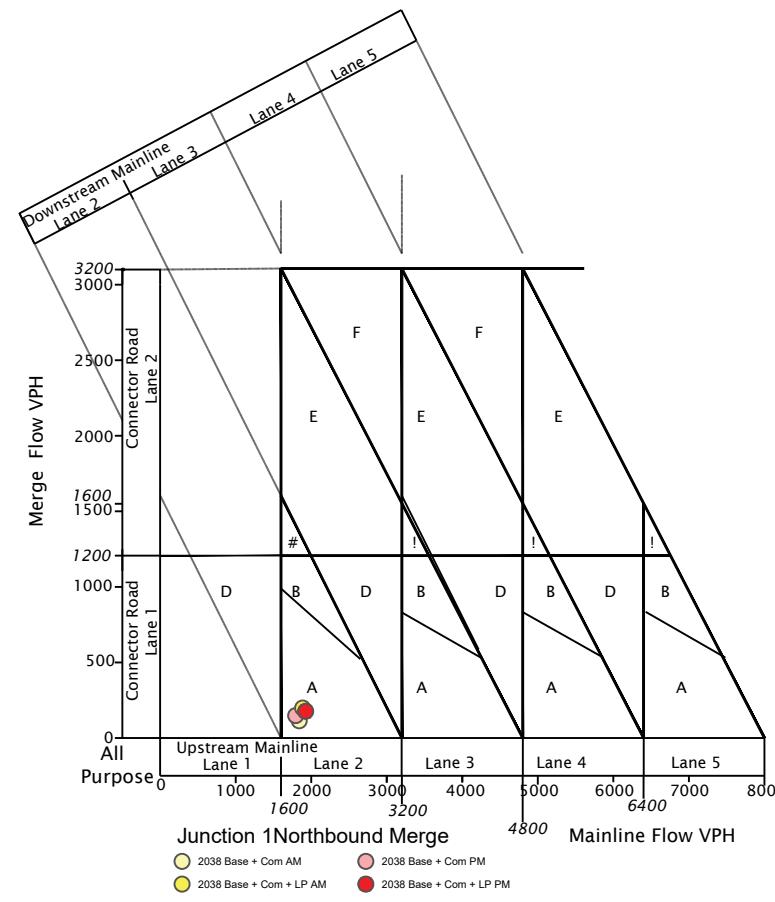


Merge / Diverge Flows - 2038 Base + Committed + Local Plan PM

Note - slip road flows unavailable in vehicles so merge/diverge assessment has been undertaken using PCUs (slip roads) and vehicles (mainline).



Merge / Diverge Diagrams



PRELIMINARY ISSUE

P01	PRELIMINARY FIRST ISSUE	21.11.2022	LP	AG	AG
Rev	Description	Date	Dm	Ck	App

Document Control

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BASSETLAW DISTRICT COUNCIL

Project Name
Bassetlaw Local Plan Transport Study
SRN Technical Note

Sheet Title
CD122 Merge-Diverge Assessments
Junction 1

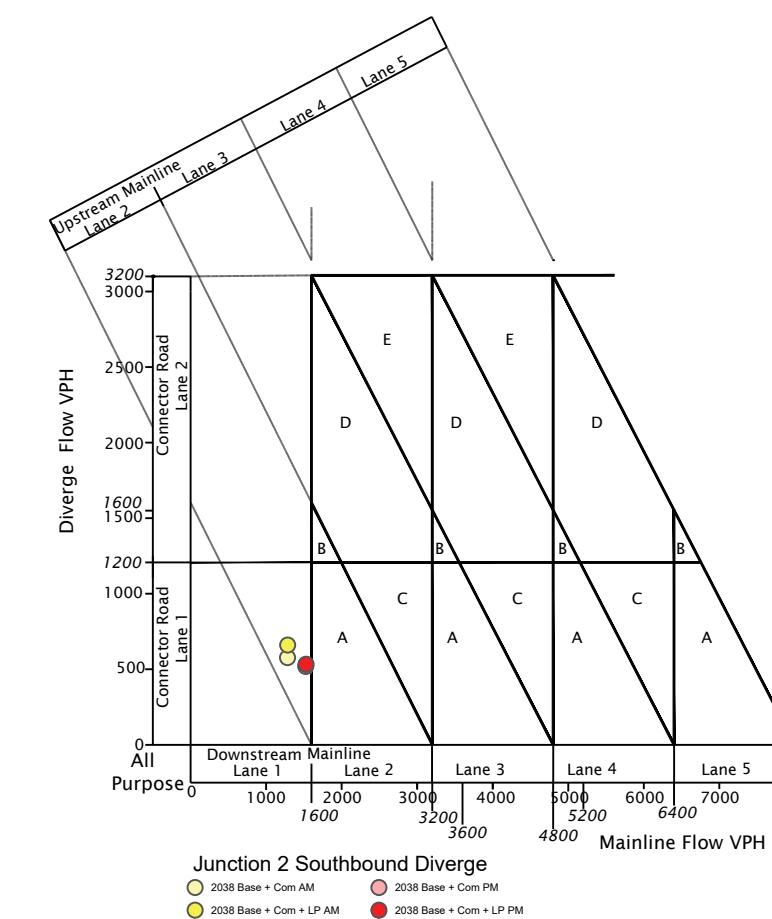
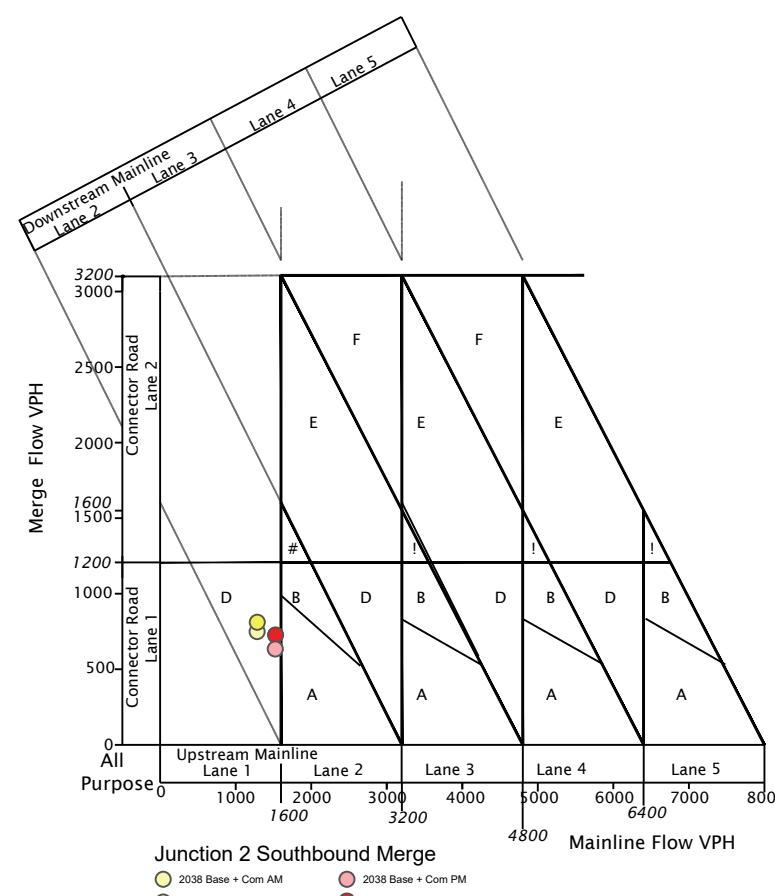
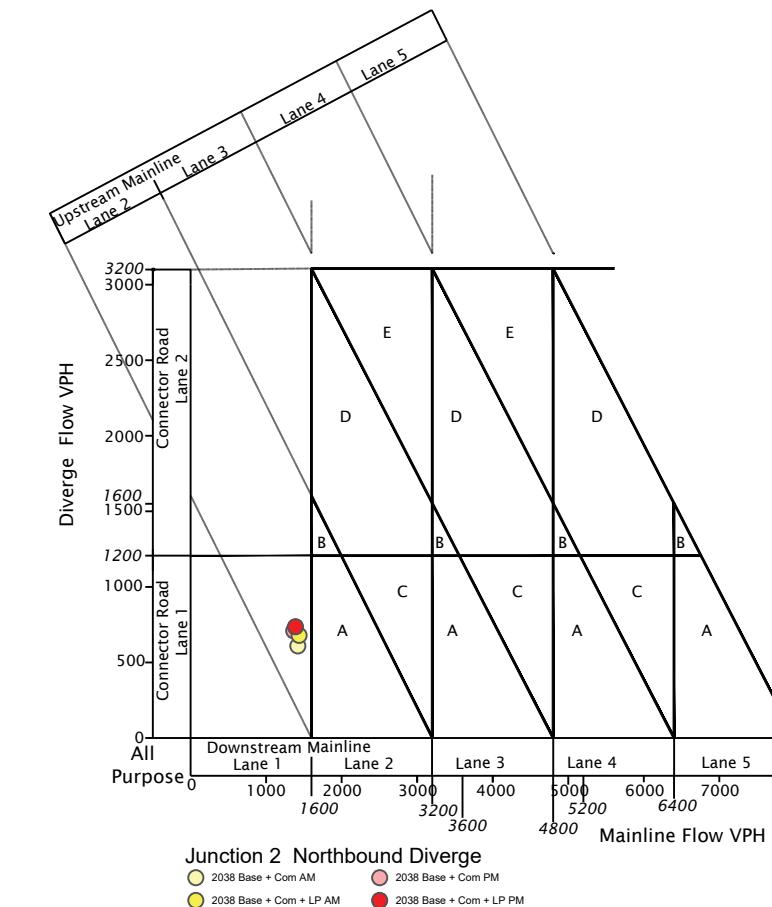
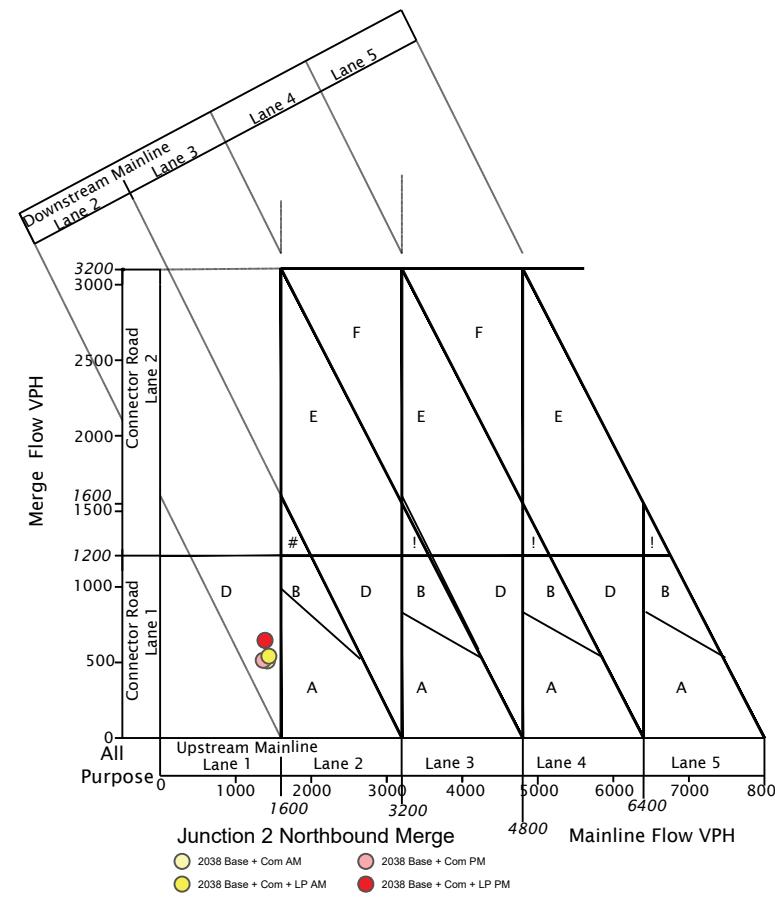
TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A3	Suitability
B023665	LP	Nov '22 AG	AG	Nov '22	PRJ01	O	As Shown	SO

Client Project Number Originator Volume/System Level/Location Type/Code Role Number Revision

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BASSETLAW DISTRICT COUNCIL

Project Name
Bassetlaw Local Plan Transport Study
SRN Technical Note

Sheet Title
CD122 Merge-Diverge Assessments
Junction 2

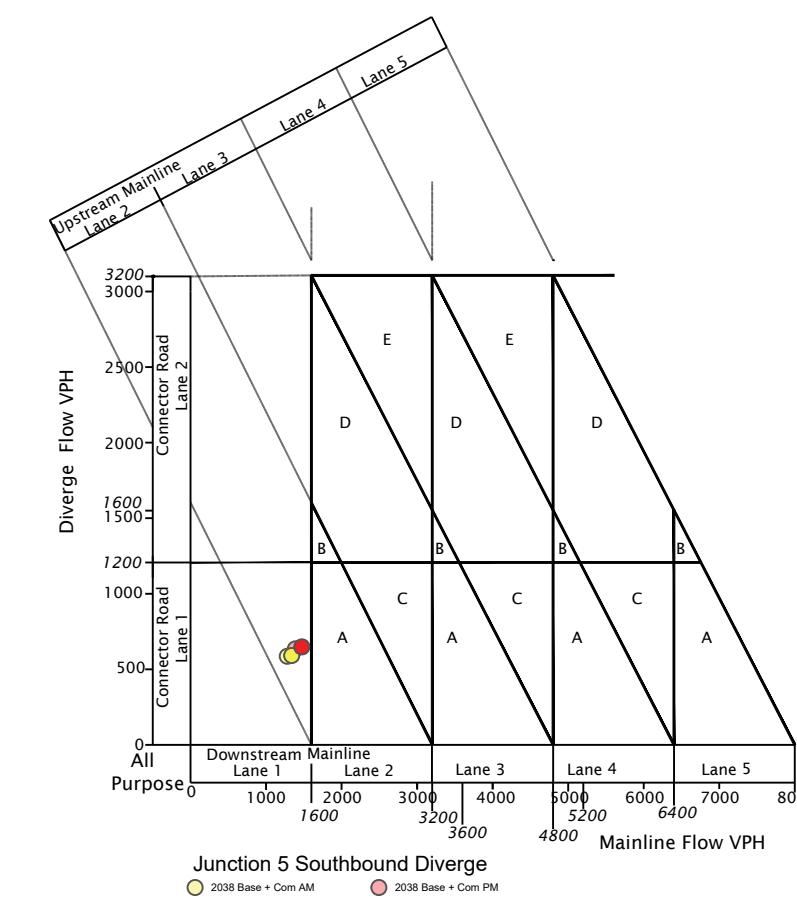
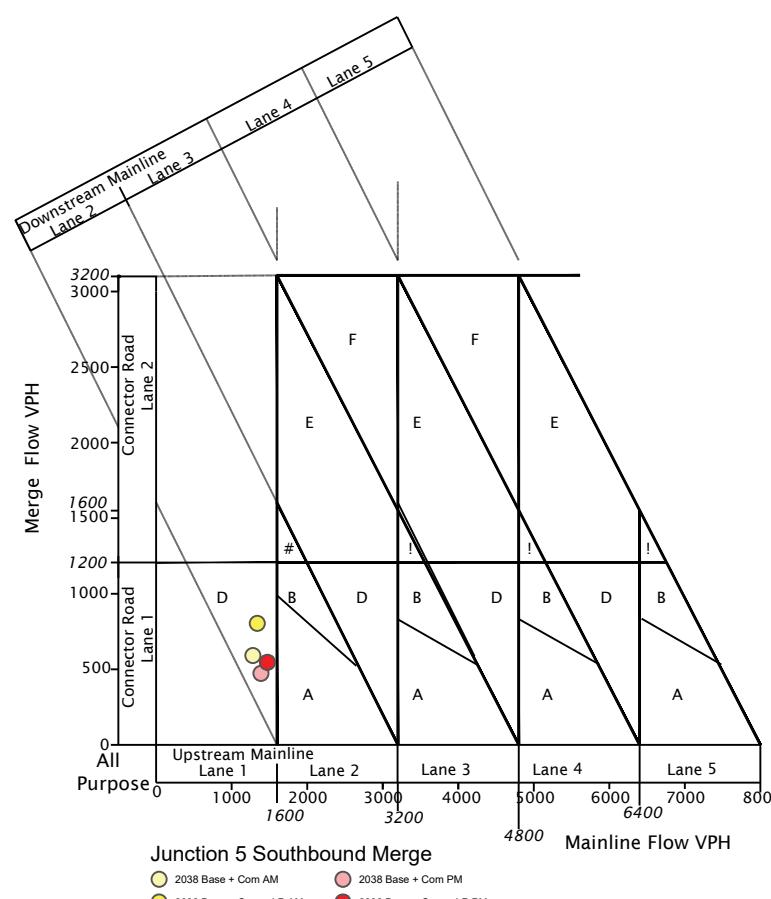
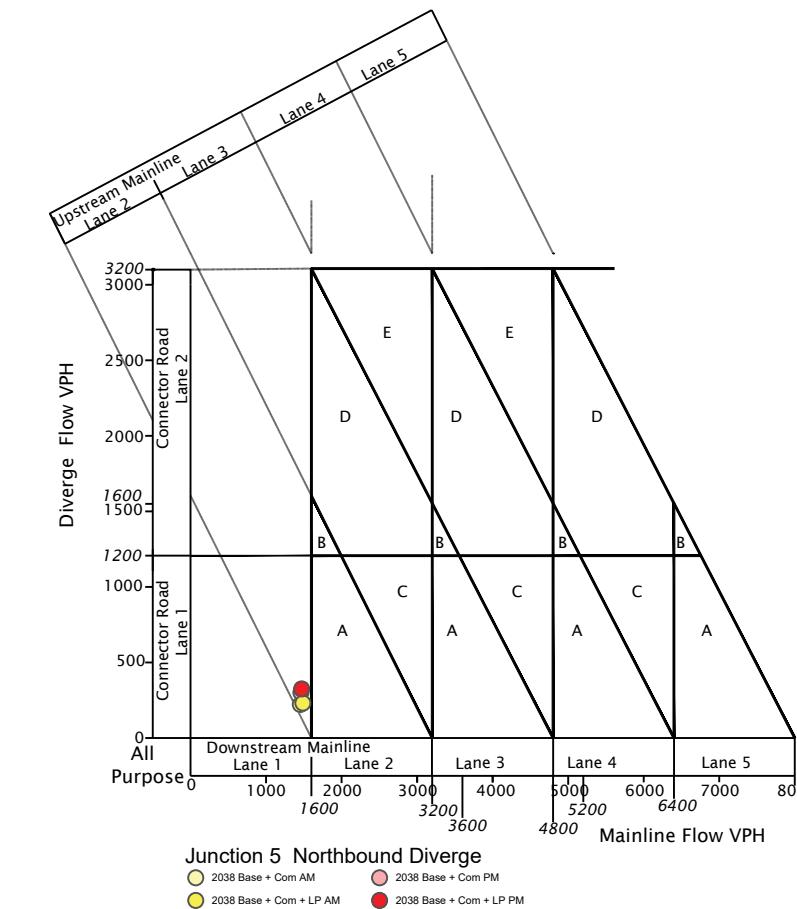
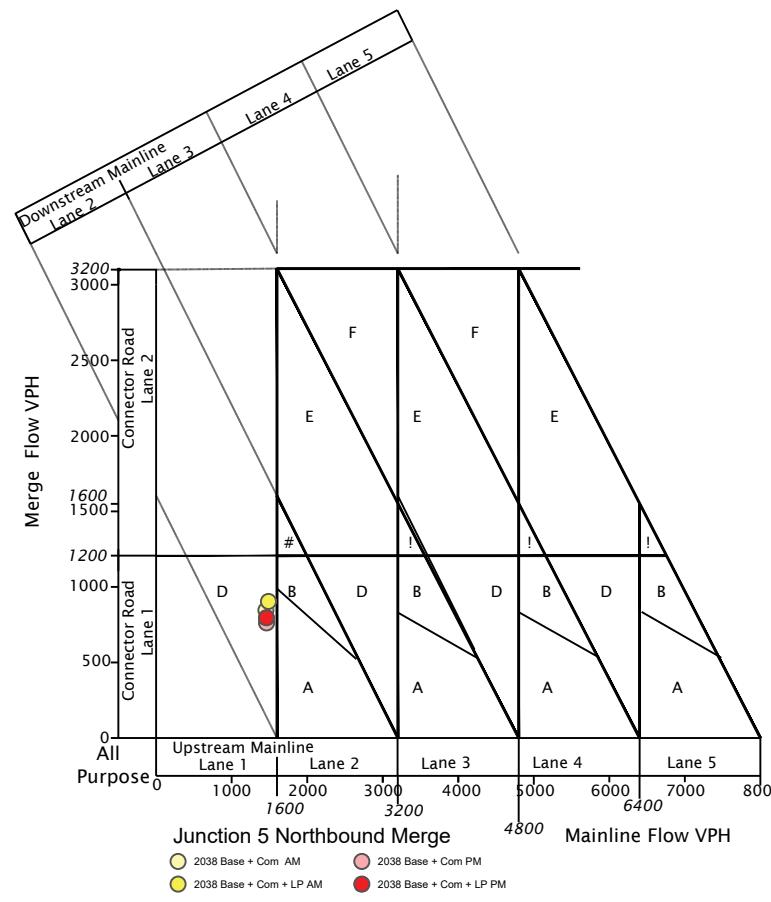
TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A3	Suitability
B023665	LP	Nov '22 AG	AG	Nov '22	PRJ01	O	SO	

Client Project Number Originator Volume/System Level/Location Type/Code Role Number Revision

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P01 PRELIMINARY FIRST ISSUE		21.11.2022	LP	AG	AG
Rev	Description	Date	Dra	Chk	App
Document Control					
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Client	BASSETLAW DISTRICT COUNCIL				
Project Name	Bassetlaw Local Plan Transport Study				
SRN Technical Note					
Sheet Title	CD122 Merge-Diverge Assessments				
	Junction 5				
TTE Project Number	B023665	Drawn By	Date	Checked By	Date
		LP	Nov '22	AG	Nov '22
					As Shown
					SO
Client Project Number	PRJ01	Originator	Volume/System Level/Location	Type/Code	Role
	- TTE -	00 - ZZ - DR - O - 00001			Revision
	P01				

APPENDIX D – APLEYHEAD EMPLOYMENT ALLOCATION

From: Paul Irwin
To: Gregory, Alistair
Cc: Colclough, John; Holland, Robert; Luke.Brown@bassetlaw.gov.uk; Graeme Matthews; Nick Pleasant
Subject: Fwd: FW: Bassetlaw Local Plan - Apleyhead transport assessment
Date: 17 November 2022 13:49:55
Attachments: image001.png
image002.png
image003.png
image004.png
image006.png
image002.png
[2022-11-17 Figures 41,42,53 & 54.pdf](#)

You don't often get email from paul.irwin@foreconsulting.co.uk. [Learn why this is important](#)

Alistair,
Yes, all good thanks. Our response to each of the points you have requested is set out below.
Hopefully this gives you the information you need.

If you have any questions on this please let us know. My colleague Graeme has prepared the attached and below and can hopefully quickly answer any further queries.

Regards,
Paul

From: Gregory, Alistair <Alistair.Gregory@tetrach.com>
Sent: 16 November 2022 15:20
To: Paul Irwin <paul.irwin@foreconsulting.co.uk>
Cc: Nick Pleasant <nick.pleasant@bartonwillmore.co.uk>; Graeme Matthews <graeme.matthews@foreconsulting.co.uk>; Luke Brown <Luke.Brown@bassetlaw.gov.uk>; Holland, Robert <Robert.Holland@tetrach.com>; Colclough, John <John.Colclough@tetrach.com>
Subject: RE: Bassetlaw Local Plan - Apleyhead transport assessment

Hi Paul

Thanks for your email. I'm good thanks, hope you are too.

We're keen to undertake a sensitivity test of likely impacts on the A57 because we appreciate that the appraisal in the Bassetlaw Transport Study is very robust.

Luke has provided us with a copy of your response to Matter 13 which includes your appraisal for the Apleyhead employment allocation as an appendix.

Would it be possible to provide us with the following information so we can do a bit of further testing?

- Proposed floor areas by use-class (best estimates if not fixed yet)

Assessments to date are based on a total development for up to 4,738,000 sqft (440,175 sqm). The Site is likely to be primarily used for B8 (storage and distribution) uses, however flexibility is required to respond to potential market demand meaning an element of B2 uses are also envisaged. Thus, assessments to date are based on 80% (352,140 sqm) B8 storage and distribution use and 20% (88,035 sqm) B2 general industry use.

- Proposed build out rate (best estimate if unknown)

Assessments to date based on the proposed development being fully built out by 2030 with the first phase of 48,908 sqm built out by 2023 (this might now slip to 2024).

- Any trip rates that you've agreed with NCC

The predicted vehicle trip rates (see Table 1 below) that we have used to assess the development proposal were provided to us by National Highways (NH) as part of the scoping process and were accepted by/agreed with NCC Highways.

Table 1: Vehicle Trip Rates (per 100 sqm)

Vehicle Type	Weekday AM Peak Hour (0730-0830)			Weekday PM Peak Hour (1630-1730)		
	Arr.	Dep.	Total	Arr.	Dep.	Total
B8 Storage and Distribution						
Car/LGV	0.140	0.042	0.182	0.022	0.112	0.134
HGV	0.030	0.020	0.050	0.010	0.016	0.026
Total	0.170	0.062	0.232	0.032	0.128	0.160
B2 General Industry						
Car/LGV	0.265	0.050	0.315	0.018	0.233	0.251
HGV	0.005	0.010	0.015	0.000	0.000	0.000
Total	0.270	0.060	0.330	0.018	0.233	0.251

The resulting vehicle trip generations are presented in Table 2 below and include a 5% reduction to the car/LGV traffic flows to account for Travel Plan mode share targets.

Table 2: Vehicle Trip Generation (With 5% Travel Plan reduction applied to Car/LGV trips)

Vehicle Type	Weekday AM Peak Hour (0730-0830)			Weekday PM Peak Hour (1630-1730)		
	Arr.	Dep.	Total	Arr.	Dep.	Total
B8 Storage and Distribution (352,140 sqm)						
Car/LGV	468	141	609	74	375	448
HGV	106	70	176	35	56	92
Total	574	211	785	109	431	540
B2 General Industry (88,035 sqm)						
Car/LGV	222	42	263	15	195	210
HGV	4	9	13	0	0	0
Total	226	51	277	15	195	210
Site Total (440,175 sqm)						
Car/LGV	690	182	872	89	570	658
HGV	110	79	189	35	56	92
Total	800	262	1,062	124	626	750

Note: Vehicle trips rounded to the nearest whole number.

At the request of NCC Highways, HGV trips generated by the proposed development have been converted to Passenger Car Unit (PCU) values. The size of HGV vehicles visiting the Site will vary and as such a conversion factor of 2.0 has been used.

Table 3: PCU Trip Generation (HGV trips converted to PCU using a factor of 2.0)

Vehicle Type	Weekday AM Peak Hour (0730-0830)			Weekday PM Peak Hour (1630-1730)		
	Arr.	Dep.	Total	Arr.	Dep.	Total
B8 Storage and Distribution (352,140 sqm)						
Car/LGV	468	141	609	74	375	448
HGV	211	141	352	70	113	183
Total	680	281	961	144	487	631
B2 General Industry (88,035 sqm)						
Car/LGV	222	42	263	15	195	210
HGV	9	18	26	0	0	0
Total	230	59	290	15	195	210
Site Total (440,175 sqm)						
Car/LGV	690	182	872	89	570	658
HGV	220	158	379	70	113	183
Total	910	341	1,251	159	682	841

Note: Vehicle trips rounded to the nearest whole number.

- AM / PM peak hour directional flows on the A57 (VPH and PCU) for the proposed development

The car / LGV trip distribution associated with the Site has been reviewed and agreed with NH as part of the scoping dialogue. It has been estimated based on the 2011 Census dataset, “WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)”. The destination of travel to work for people who work in Bassetlaw 014 (E02005848) Middle Layer Super Output Area (MSOA) has been considered, this being the area in which the Site is located. It should be noted that the methodology is likely to provide a realistic estimate of the trip distribution since the MSOA includes the adjacent Wilko and B&Q distribution centres which are likely to have similar travel to work characteristics as the proposed development Site. Destinations have been broken down into MSOAs for Doncaster, Rotherham, Bolsover, Mansfield, Newark and Sherwood and Bassetlaw; for all other destinations, the local authority district has been used. The following modes of travel have been considered: “Driving a car or van”; “Taxi”; and “Motorcycle, scooter or moped”. The number of vehicle trips to each MSOA / local authority district has been expressed as a percentage of the total and then assigned to routes on the highway network to give the vehicle trip distribution to and from the proposed development. Where a choice of routes is available, the proportion of trips using each route has been split to reflect the likely preferred choice of travel time and distance during each assessment period. The agreed car / LGV trip distribution for the proposed development is summarised in Table 4 below and illustrated on Figure 41 (attached).

Table 4: Car / LGV Trip Distribution

Ref.	Route	Vehicle Trip Distribution
1	A1 (North)	15.6%
2	B6420 Mansfield Road	3.7%
3	A1 (South)	7.9%
4	A614 Blyth Road	15.0%
5	B6034 Netherton Road	2.0%
6	A57	19.5%
7	Netherton Road	12.1%
8	Retford Road	5.9%
9	High Hoe Road	18.4%
Total		100.0%

At the request of NCC Highways, a separate vehicle trip distribution has been established for HGVs. A review of the surveyed HGV turning movements at the A57 / B6040 roundabout has been undertaken to establish the percentage split of eastbound and westbound HGV movements along the A57 within the immediate vicinity of the Site. This percentage split has been used to estimate HGV movements turning to and from the Site's proposed new access onto the A57. The HGV movements have been split at Apleyhead Interchange based on the percentage of surveyed HGV movements to and from the A1 (north), A1 (south) and the A614 Blyth Road arms. It is reasonable to assume that HGV movements crossing the bridge link would route to and from the A1. This methodology is considered to be representative of the likely directional split of HGV movements to / from the proposed development and the HGV trip distribution for the proposed development is summarised in Table 5 below and Figure 42 (attached).

Table 5: HGV Trip Distribution

Ref.	Route	Vehicle Trip Distribution
1	A1 (North)	18.2%
3	A1 (South)	38.0%
4	A614 Blyth Road (South)	3.3%
6	A57	40.4%
Total		100.0%

- AM / PM peak hour turning movements at the A1 Apleyhead Interchange (VPH and PCU) for the proposed development

The total development flows (pcus) for the Weekday AM and PM peak hours are shown on Figures 53 and 54 (attached).

- Any proposals / assumptions regarding sustainable travel measures and resultant vehicle trip reductions.

As above, 5% reduction to the car/LGV traffic flows to account for Travel Plan mode share targets.

Any information that you can share with us would be most welcome, so we can ensure our calculations align more closely with the developer's emerging proposals.

A quick response would be very helpful as we're working to tight deadlines.

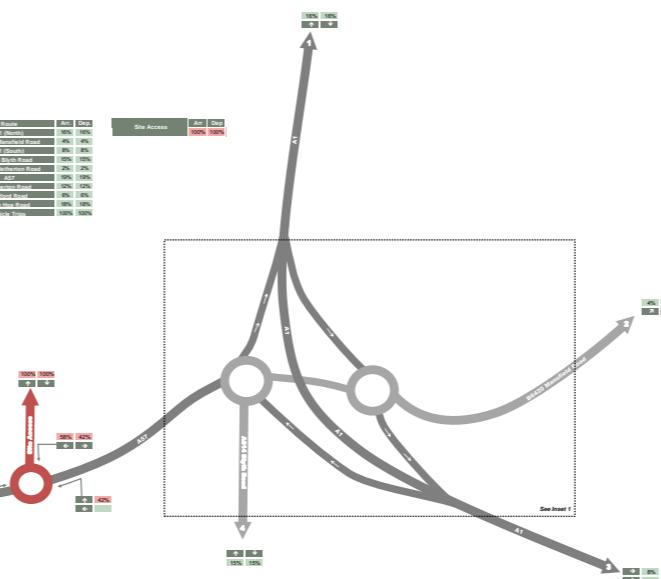
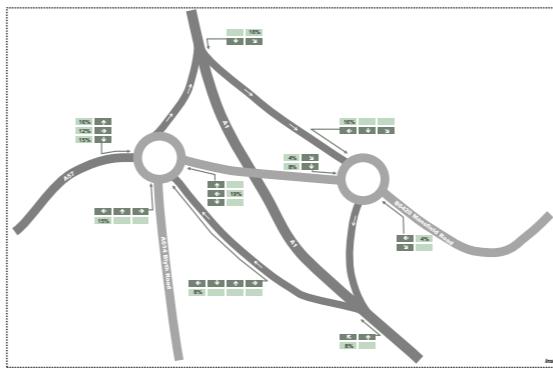
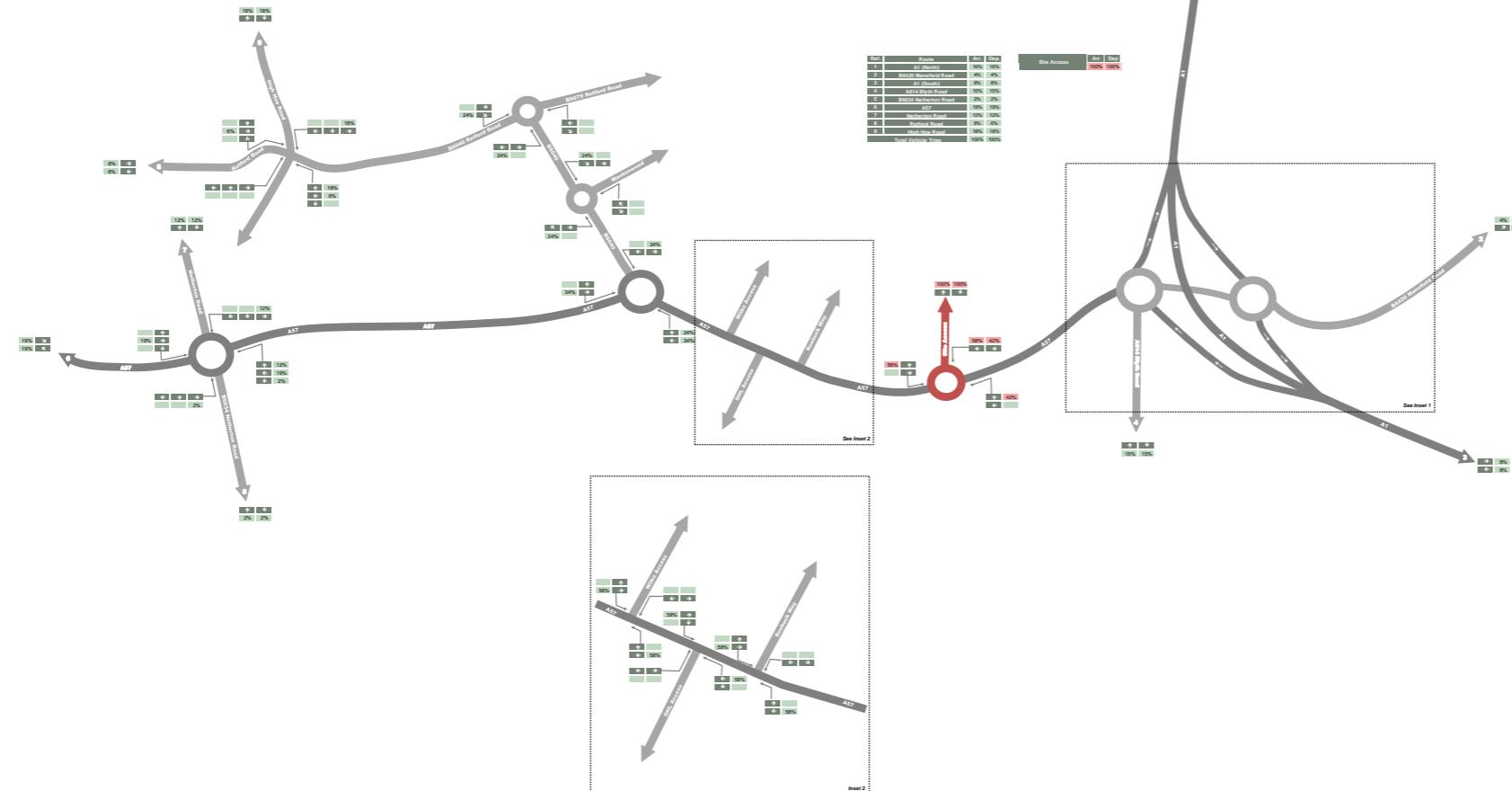
Regards

Alistair Gregory
Head of Transport - Midlands

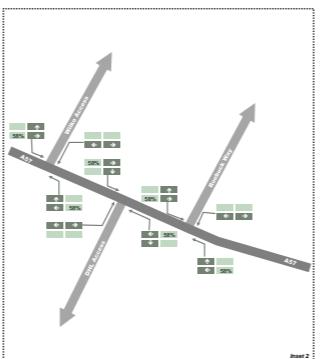
Tetra Tech

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See Inset 2



See Inset 1

Key:

→ Primary Road

→ Secondary Road

→ Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Trip Distribution.

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Client:
Caddick Developments Ltd

Project:
Proposed Employment Site on Land at Osberton

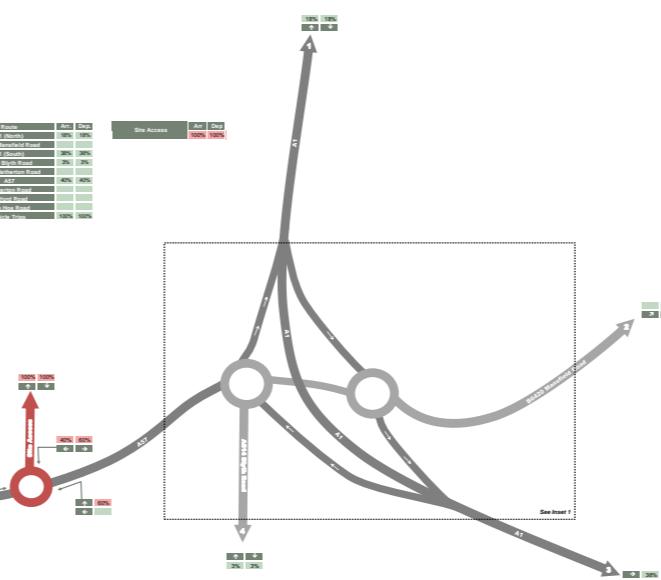
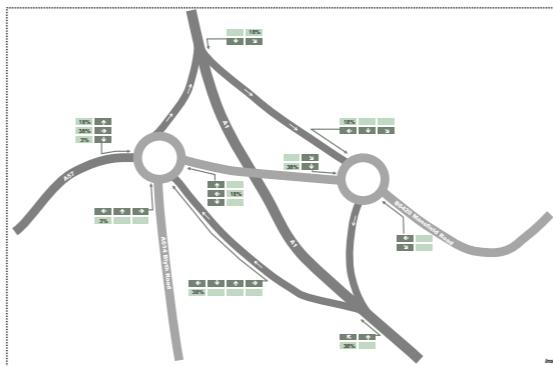
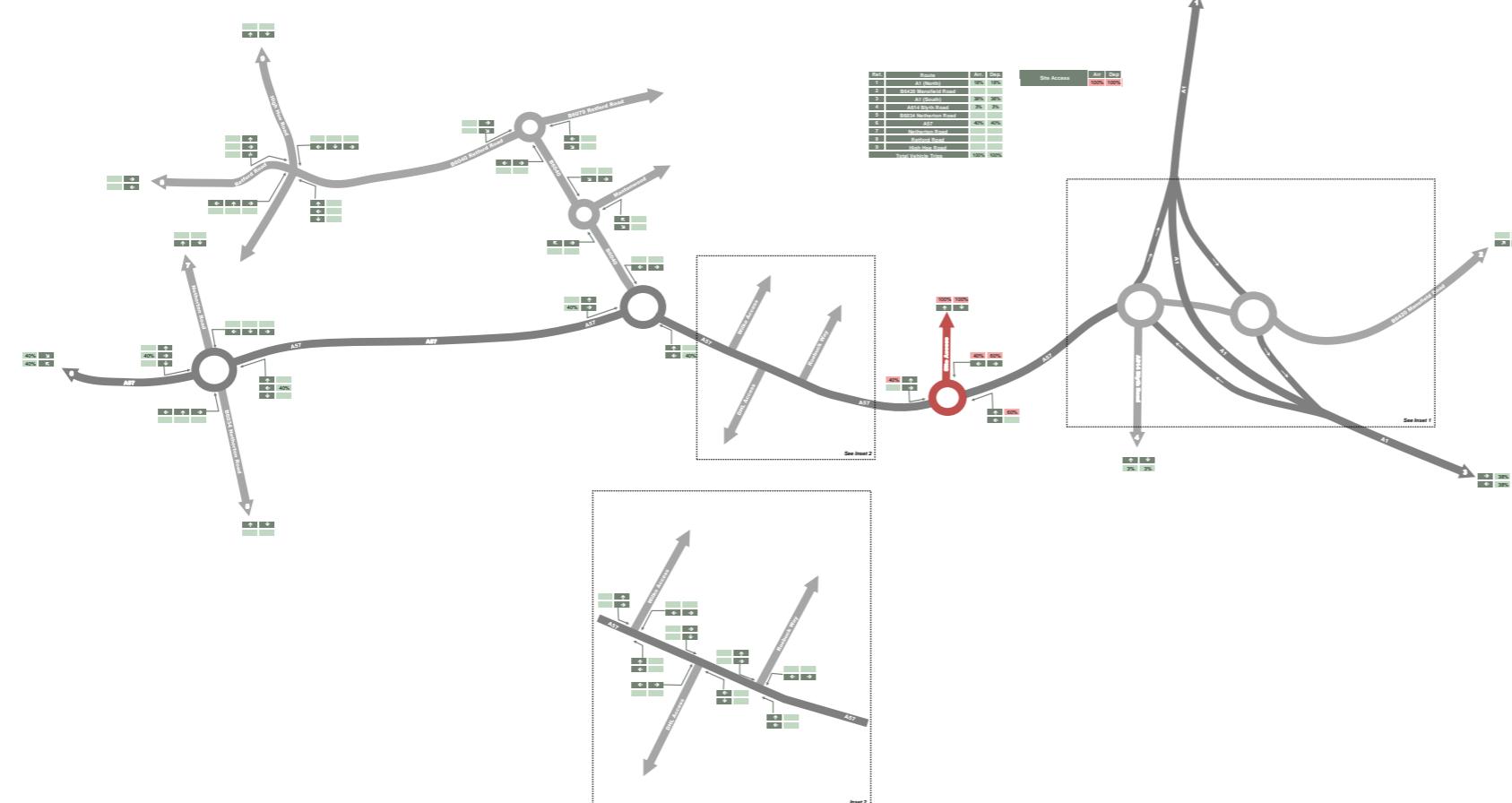
Figure Title:
Vehicle Trip Distribution (Car/LGV)

Scale:
Not to scale

Figure Status:
Issue

Job Number:
5080

Figure Number:
Figure 41



Route	A1	A596	A57
1	1000	1000	
2	8500	1000	
3	200	1000	
4	200	1000	
5	200	1000	
6	200	1000	
7	200	1000	
8	200	1000	
9	200	1000	
Total Vehicle Trips	1000	1000	

Key:

Primary Road

Secondary Road

Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Trip Distribution.

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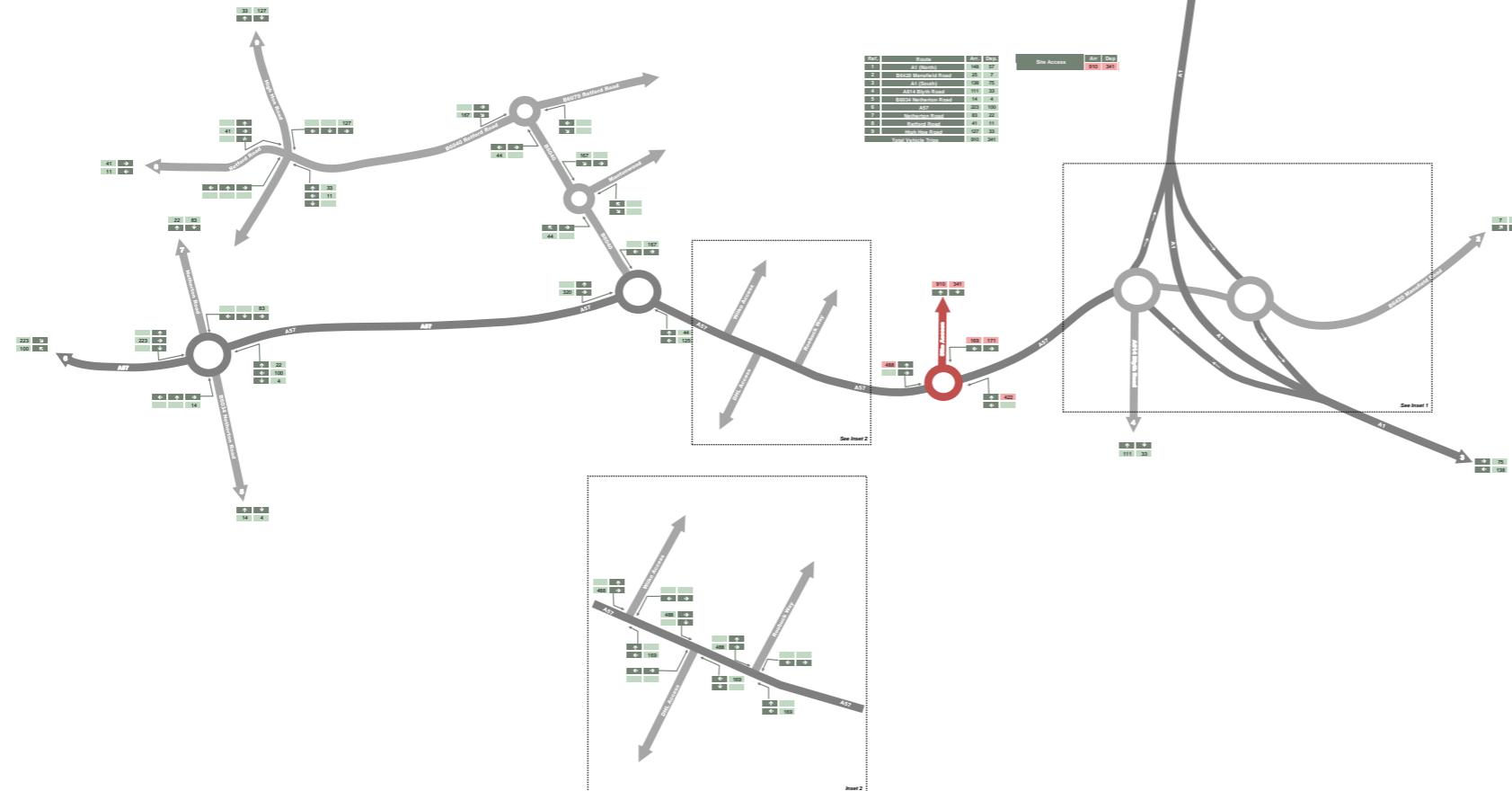
Figure Title:
Vehicle Trip Distribution (HGV)

Scale:
Not to scale

Figure Status:
Issue

Job Number:
5080

Figure Number:
Figure 42



Key:

Primary Road

Secondary Road

Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Trip Distribution.

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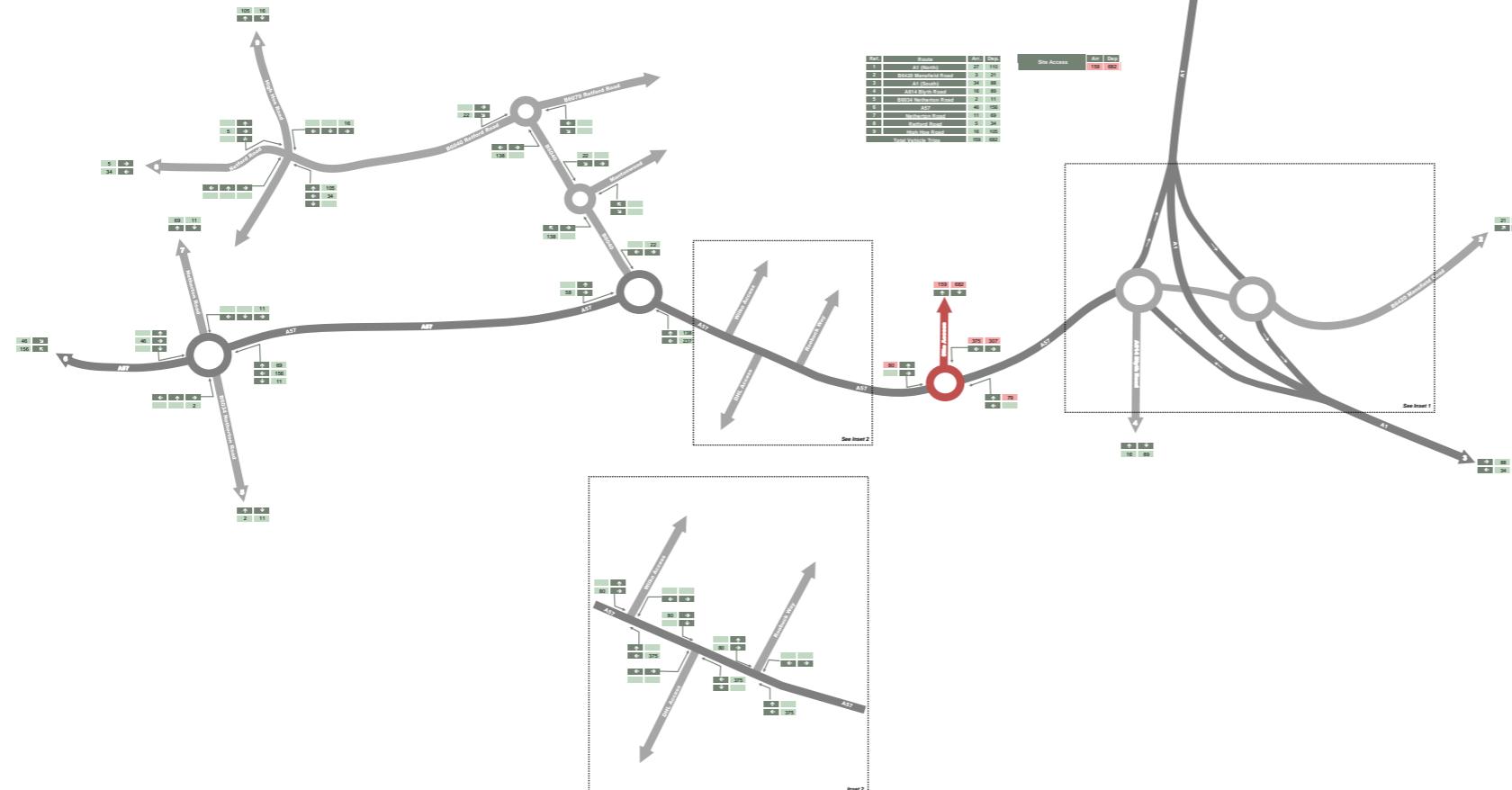
Figure Title:
2030/2037 Development Traffic Flows (Total) - AM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
5080

Figure Number:
Figure 53



Key:

Primary Road

Secondary Road

Proposed Site Access

Note: The number in each arrowhead relates to the route reference used in the Trip Distribution.

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Figure Title:
2030/2037 Development Traffic Flows (Total) - PM Peak Hour

Scale:
Not to scale

Figure Status:
Issue

Job Number:
5080

Figure Number:
Figure 54