PROPOSED ALDI FOODSTORE

HOSTMOOR AVENUE, MARCH

TN06 – RESPONSE TO PRE-APPLICATION COMMENTS

23RD FEBRUARY 2021

1.0 Introduction

1.1 Connect Consultants Limited is a firm of transport planning and highway design consultants who have been instructed in relation to the proposed new discount foodstore on Hostmoor Avenue in March, Cambridgeshire.

1.2 During pre-application discussions, Cambridgeshire County Council (CCC), acting as the Local Highway Authority (LHA), provided comments in the form of a consultation document, dated 11th February 2021, in relation to the Connect Technical Note 'TN04 - Traffic Signal Junction Capacity Assessment' (dated 12th November 2020)

1.3 This technical note provides additional information in respect of matters raised by CCC in their pre-app consultation response which primarily concerns the signal scheme of the A141 / Hostmoor Avenue Junction proposed by Connect.

1.4 The comments made by CCC are highlighted in blue and the associated Connect responses are shown in black.

2.0 LHA Comments and Connect Response

General Comments

2.1 LHA comment 1:-

> *"The McDonalds access as indicated on the flow diagram is very close to the A141. These stores have been shown to cause great disruption to the network due to queuing back, this has been especially an issue during the recent Covid times. The right turn from Hostmoor Avenue into the McDonalds could experience queueing on Hostmoor Avenue going back onto the A141."*

2.2 It is unlikely that the proposed signal junction would cause severe queueing as a result of vehicles turning right into McDonald's from Hostmoor Avenue for the following reasons.

2.3 Firstly, there is already queuing on Hostmoor Avenue on the approach to the A141 junction, so the fact that queues will form at the proposed traffic signals will be immaterial, and the situations with and without the signal junction are similar. Any issues with queues forming at the McDonald's access are a function of the access position, and its relationship to A141.

2.4 Secondly, should visitors turn right into the McDonald's site and there is slow-moving traffic on Hostmoor Avenue westbound, there is the tendency for drivers to allow right turn manoeuvres to happen. If necessary, a keep clear marking could be provided, as a means to overcome the issues created by the McDonalds access. Alternatively, drivers have the option of performing a U-turn at the Tesco Roundabout and accessing the site left in, and the highway authority could require this as part of the McDonalds application.

2.5 LHA comment 2:-

> *"The flow diagrams only show a left turn from Hostmoor Avenue and not a right turn. This looks to only indicate what the flows would be with the new signals, so have the existing right turn flows been transferred to the left? The developer should provide a comparison of the existing turning movements at this junction in the peak periods with the anticipated future turning movements at this junction to determine the number of existing right turn movements from Hostmoor Avenue which will be re-routed to turn left to then U-turn at roundabout as part of this signal scheme. I am aware of some drivers currently turning left out of Hostmoor Avenue to U-turn at the roundabout as this is safer and easier in peak times than turning right out of the junction."*

2.6 The existing layout of the A141/Hostmoor Avenue junction prohibits right-turn movements from Hostmoor Avenue onto the A141. This is indicated by two right-turn prohibited traffic signs on the approach, as shown on the Google Streetview image below at Figure 2.1. Right turns will continue to be prohibited for the proposed signal scheme.

Figure 2.1 – Screenshot of Hostmoor Avenue Approach

2.7 LHA comment 3:-

> *"General proposal layout - Somebody leaving Hostmoor and wanting to head north up the A141 are going to be forced out left. The suggestion is that they will then use the roundabout to U-turn. If this is the chosen option, to prevent drivers from coming out left and then performing a dangerous manoeuvre to turn immediately right after the island and approach the northbound lane to the signals to avoid U-turning at the roundabout, then an island would be required connecting all the way to the roundabout, with a barrier to stop people driving over the central kerb. A Safety Audit is likely required at the planning application stage to assess the safety of this junction design."*

2.8 The existing restriction of left-turns only from Hostmoor Avenue to the A141 will be retained for the proposed signal layout. The curved nature of the approach lane, as well as the existing signage making clear that right turns are prohibited, ensures that illegal right-turn manoeuvres will unlikely be a regular occurrence.

2.9 Therefore, Connect deem it unnecessary constructing a barrier on the carriageway to physically prohibit U-turns because there have been no existing tendencies reported for this movement to justify such an action.

2.10 LHA comment 4:-

> *"The forced left turn also complicates any future expansion into the land opposite which would require a fourth arm. If a fourth arm was added to the junction in the future, the junction would likely be heavily over capacity. It would be better to access development on the land opposite from another location."*

2.11 The proposed signal scheme is designed with the intended exclusion of the Westry Retail Park development, which will be served by a future roundabout.

2.12 LHA comment 5:-

> *"At a basic level it looks like the right turn has been taken away from Hostmoor Avenue because if left in the design then the signals would need another stage, leading to the junction being over capacity."*

2.13 There is no permitted right-turn in the existing layout so it has not been taken away but rather retained as existing.

2.14 LHA comment 6:-

> *"Evidence would be required to determine whether the additional Hostmoor Traffic U-turning at the roundabout below would cause capacity issues at such roundabout."*

2.15 As the turning movements will be as existing, there is no impact at the roundabout resulting from signalising the junction. The net traffic effect of the proposed development on U-turn movements on the A141 (north) approach at Peas Hill Roundabout are assessed as negligible, with only 3, 5 and 9 additional trips during the AM, PM and Saturday peak hours respectively. These are indicated on diagrams of the net development trips at Appendix 1.

Linsig Data

2.16 The Linsig tests have been revised in response to the feedback provided by CCC below, the results of which are set out in the next section.

2.17 LHA comment 7:-

> *"The inter-greens in the Linsig matrix do not match reality, all vehicles ones are 5, all pedestrians 9."*

2.18 The intergreen values have been revised based on the advice provided in Traffic Advisory Leaflet 1/06.

2.19 LHA comment 8:-

> *"Of note is that the northbound approach to the signals will always be green as there are no conflicts, OK we have this on the A10."*

2.20 Noted.

2.21 LHA comment 9:-

> *There is a problem with the staging. Pedestrian phases D and E are shown as not running in any stage. There would need to be an agreement on how often they need to run per hour in the model but not running at all is incorrect.*

2.22 The incorporation a green man pedestrian phase would be beneficial for pedestrian accessibility to the KFC and Cobblestones pub north of the junction, as well as to a number of residential dwellings. However, in this instance the crossing is not expected to be called regularly, and was excluded from the model. It has been included in revised modelling.

2.23 LHA comment 10:-

> *"The model has information about the right turn being gap accepting in one place and fully signalled in another, gap accepting is not acceptable."*

2.24 The A141 northbound right-turn lane includes storage in front of the stopline to reflect the design of the proposed junction, which is modelled to give way to A141 southbound traffic should the A141 northbound and A141 southbound phases run simultaneously. However, the junction is modelled such that the A141 northbound right-turn phase follows the A141 southbound phase, which means that the give way function does not activate.

2.25 LHA comment 11:-

> *"In para 2.2 there is a comment that 100% "represents a situation where a link is operating at its theoretical capacity". Whilst this is correct, at 100% in a model, there will be times when the network in practice would be overloaded. For this reason, we require a max 90% of capacity, to give 10% reserve capacity to cope with the high/lows of any peak period."*

2.26 The revised modelling results are reported in the next section.

2.27 LHA comment 12:-

> *"The model appears to only model 2021 base, with development, plus McDonalds. Why is there no model indicating growth to a future year? By not including background growth to a future year scenario, the junction capacity looks better than what will actually occur in the future."*

2.28 The revised Linsig has also been assessed for the 2026 future year (application year plus five years) as well as 2021.

2.29 LHA comment 13:-

> *"The lane width information inputted into the lane saturation flows looks wrong. On the southbound arm they have declared a 5m lane. It might be 5m at the stop line but as you get back up the link it narrows, in practice greatly reducing the saturation flow of the important link. Comparing this with other links I'd suggest the sat flow would go down from the 2082 to about 1990 vehicles per hour."*

2.30 The revised signal junction layout includes separate left-turn and ahead lanes for the A141 southbound approach which results in adjustments to the saturation flows.

3.0 Revised Linsig Tests

3.1 The Connect Technical Note 'TN04 – Traffic Signal Junction Capacity Assessment' (12th November 2020) tested the operation of the A141 / Hostmoor Avenue Junction based on an alternative layout proposed by Connect where all approaches are signal-controlled.

3.2 In TN04, the proposed layout of the junction was assessed using the Linsig (version 3) computer program based on the 2021 base year scenarios with McDonald's and Aldi traffic.

3.3 Some of the modelling parameters used are explained in the previous section. Traffic flow inputs for the tests undertaken for TN04 have been used for this assessment, which includes assessed McDonald's traffic. The model is based on a 90s cycle time. The assessment now includes 2021 and 2026.

3.4 The model includes the pedestrian phases on Hostmoor Avenue being called every cycle.

3.5 The results of the Linsig tests for the proposed signal layout, based on the surveyed peak hours, are shown at Table 3.1 below. The Linsig model outputs are provided at Appendix 2 and a drawing of the proposed signal layout is shown at Appendix 3.

Table 3.1 – A141/Hostmoor Avenue Junction: Proposed Signal Layout

Junction Approach	AM 08:00-09:00		PM 16:45-17:45		SAT 11:30-12:30	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
2021 Base + McDonald's + Aldi						
Hostmoor Avenue Left	52.2%	7.3	88.7%	17.5	78.7%	17.4
A141 Northbound Ahead	40.7%	0.3	47.5%	0.5	35.2%	0.3
A141 Northbound Right	78.5%	9.2	77.4%	9.3	69.6%	12.1
A141 Southbound Ahead Left	80.9 : 80.9%	19.5	88.9 : 88.9%	24.5	79.9 : 79.9%	13.9
2026 Base + McDonald's + Aldi						
Hostmoor Avenue Left	55.8%	7.9	95.5%	22.8	87.0%	21.7
A141 Northbound Ahead	44.1%	0.4	51.5%	0.5	38.7%	0.3
A141 Northbound Right	84.1%	10.6	83.2%	10.7	77.4%	14.2
A141 Southbound Ahead Left	87.6 : 87.6%	23.7	96.5 : 96.5%	33.9	85.1 : 85.1%	16.3

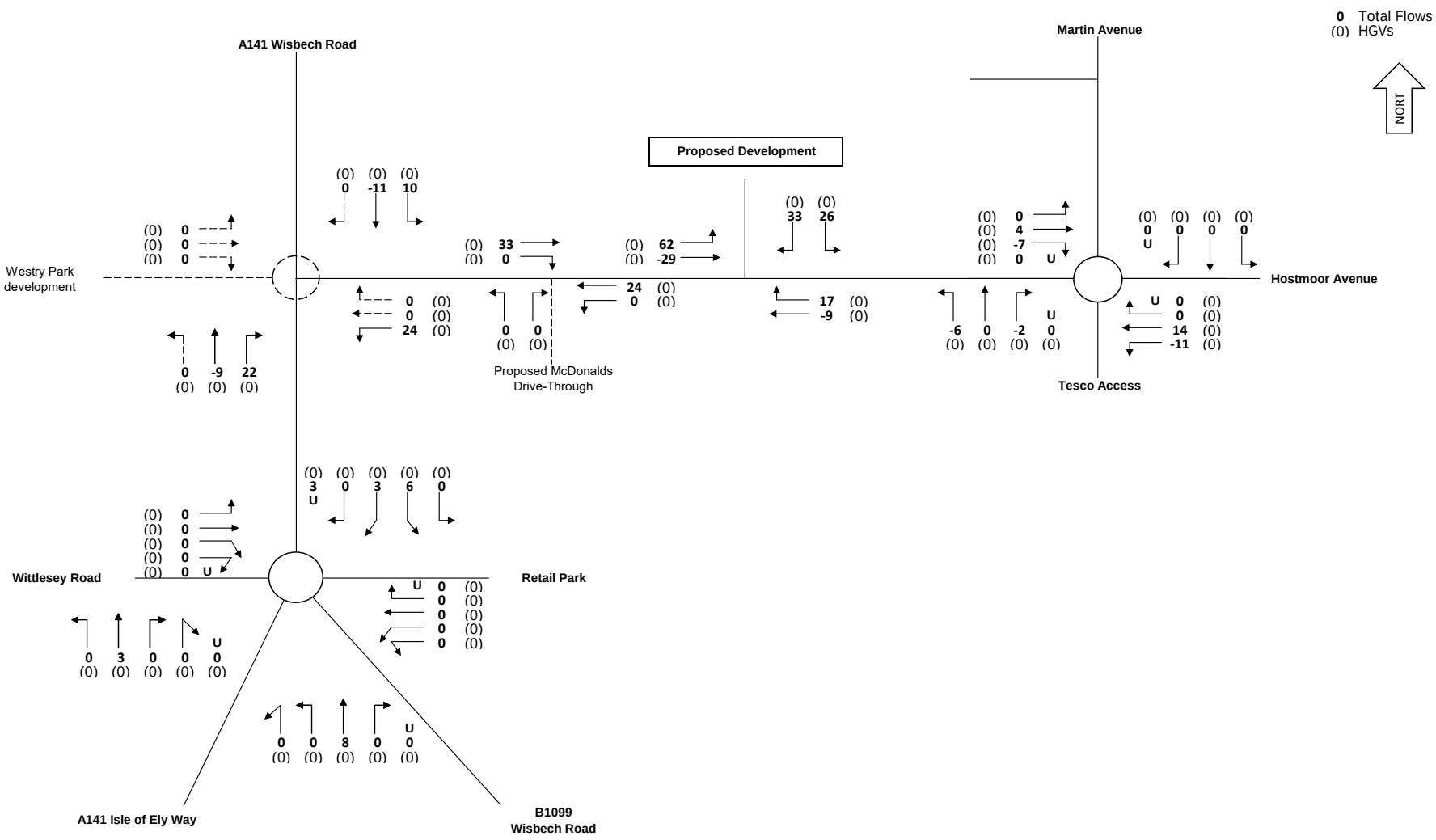
3.6 The Linsig model has been run on a three-stage sequence, Stage 2 of which includes the Hostmoor Avenue eastbound pedestrian crossing being called every cycle. In practice, it is expected that there will be a relatively low frequency of pedestrian calls for the crossing, perhaps once in every fourth cycle as an estimate. Therefore, the majority of cycles are likely to operate on a two-stage sequence, which could result in the junction potentially operating with more efficiency.

4.0 Conclusions

4.1 CCC have raised comments in relation to the Linsig tests undertaken for the proposed signalised layout of the A141 / Hostmoor Avenue Junction in TN04.

4.2 The Linsig tests have been revised in response to the comments and the results indicate that the Hostmoor Avenue and A141 southbound arms approach capacity during the PM peak hour, but overall the proposed signal layout remains within theoretical capacity.

Appendix 1 – Net Development Trips

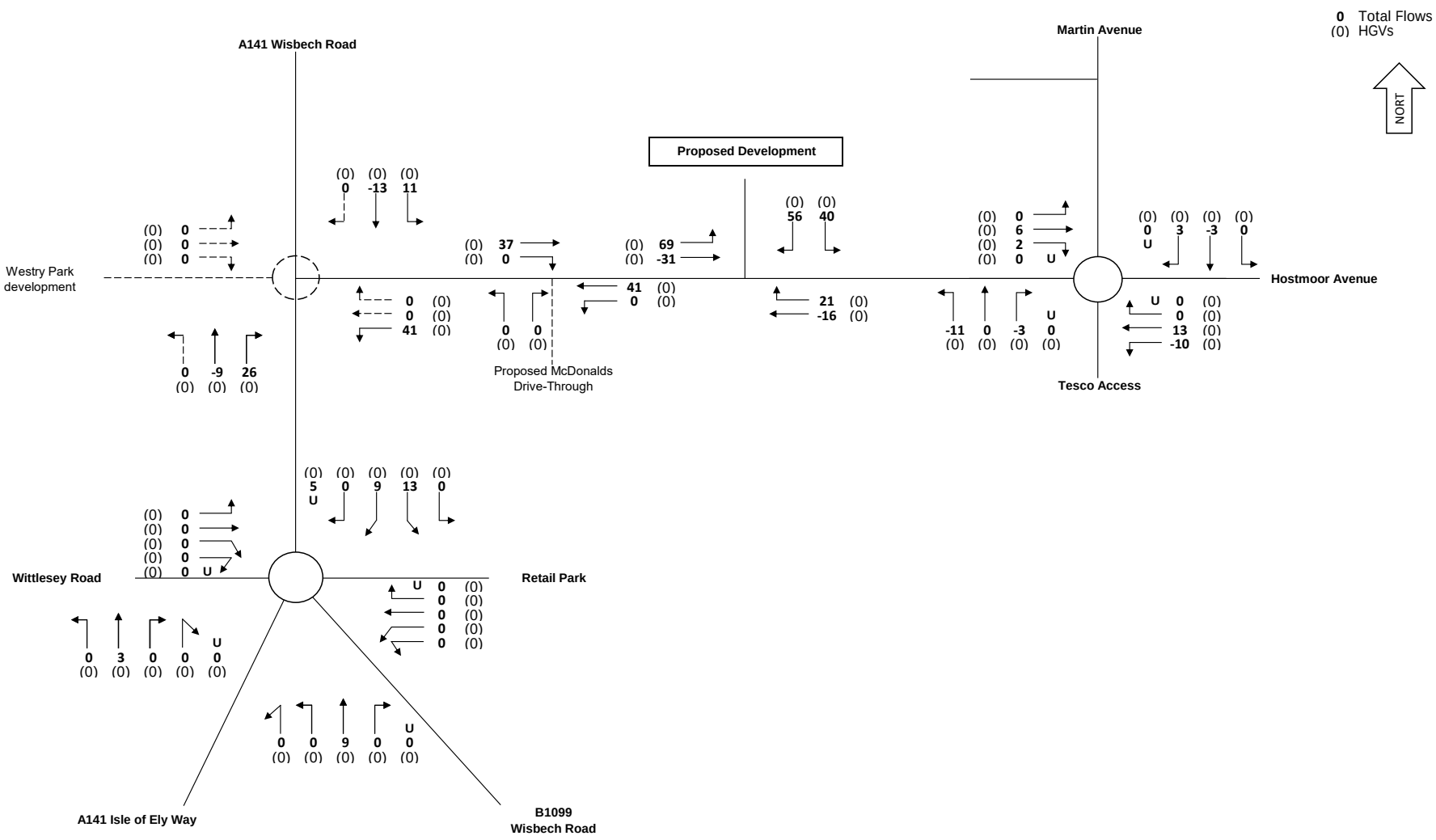


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

AM Peak 08:00-09:00

Proposed Aldi (scenario without Westry Retail Park) - Net Traffic Effect

connect CONSULTANTS

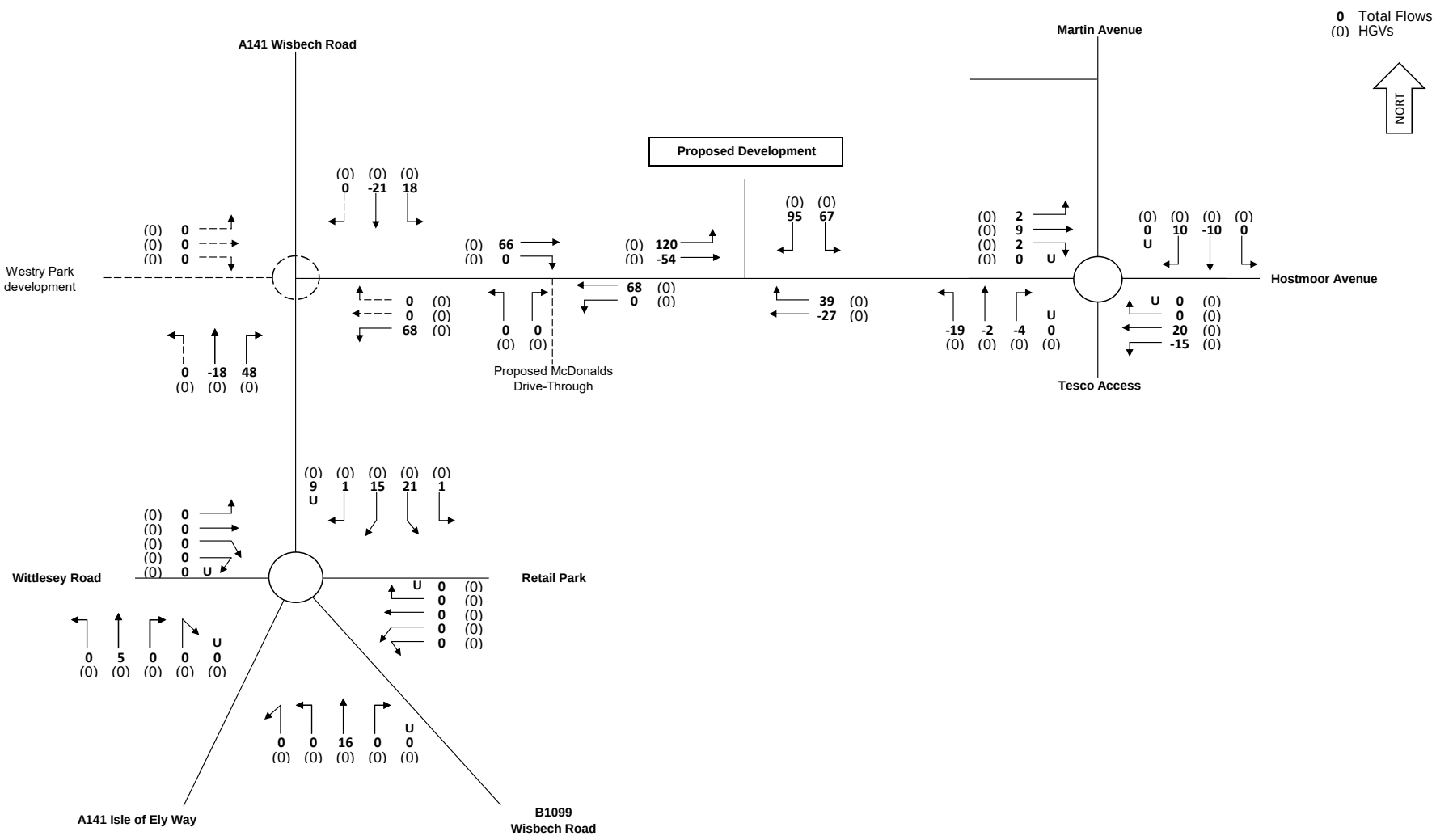


PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

PM Peak 16:45-17:45

Proposed Aldi (scenario without Westry Retail Park) - Net Traffic Effect

connect CONSULTANTS



PROPOSED ALDI STORE, HOSTMOOR AVENUE, MARCH

Sat Peak 11:30-12:30

Proposed Aldi (scenario without Westry Retail Park) - Net Traffic Effect

connect CONSULTANTS

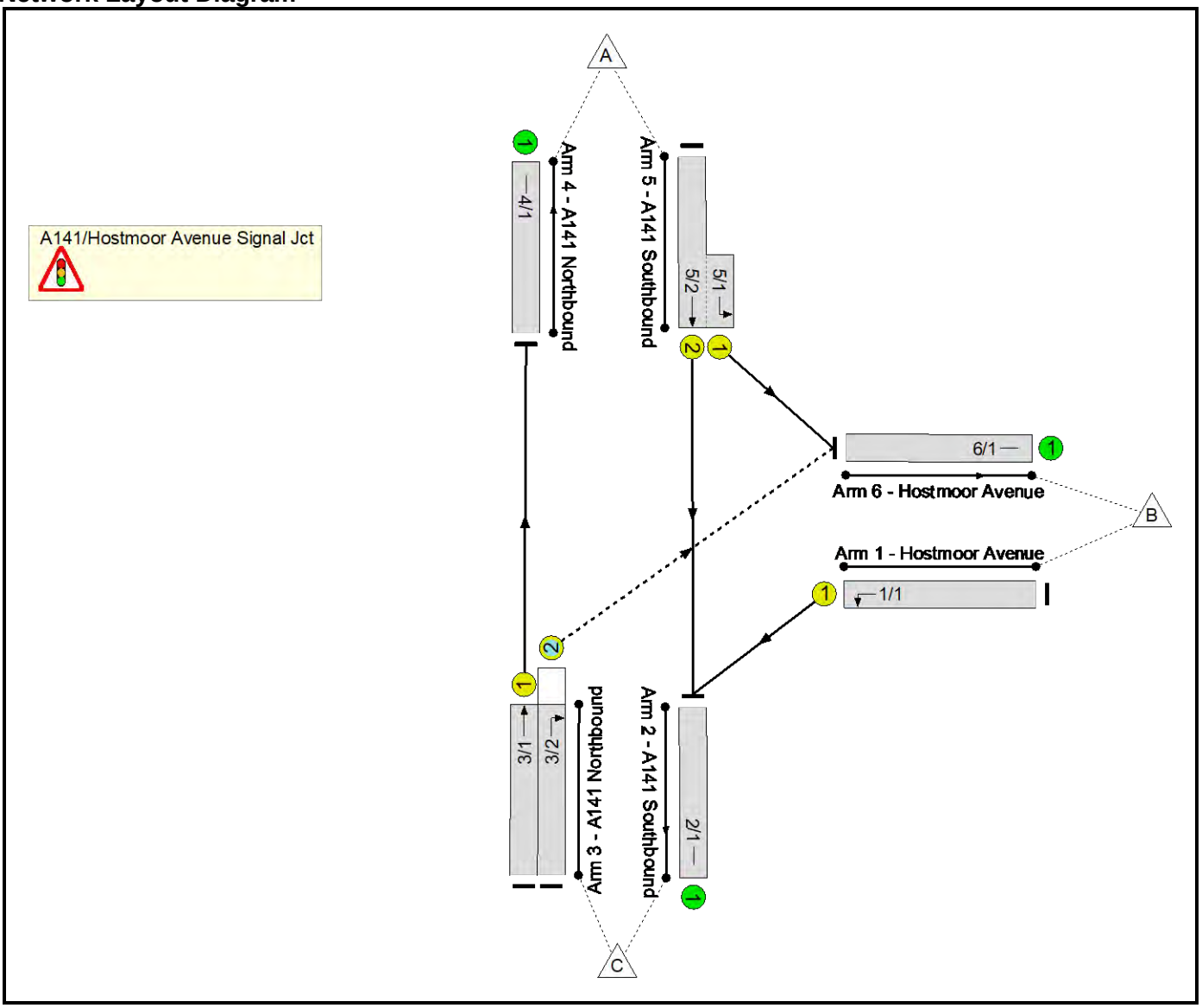
Appendix 2 – Linsig Outputs

Full Input Data And Results

User and Project Details

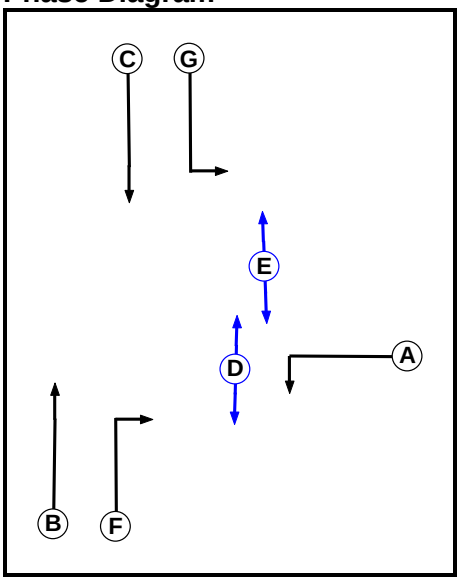
Project:	**Hostmoor Avenue, March**
Title:	**Proposed Signal Scheme**
Location:	
Additional detail:	
File name:	20210219 A141.Hostmoor Avenue signal jct.lsg3x
Author:	Connect Consultants Limited
Company:	
Address:	

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

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

Phase Intergreens Matrix

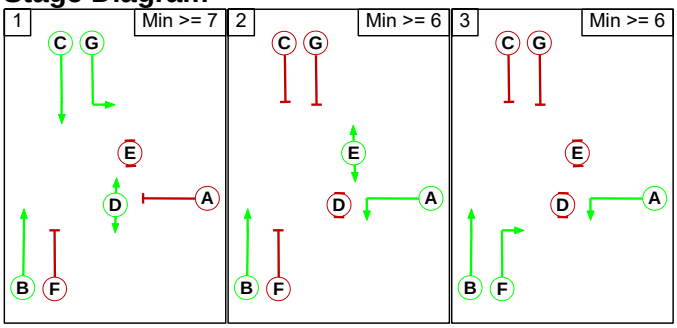
		Starting Phase						
		A	B	C	D	E	F	G
Terminating Phase	A		-	5	5	-	-	-
	B	-		-	-	-	-	-
	C	6	-		-	-	5	-
	D	5	-	-		-	-	-
	E	-	-	-	-		7	7
	F	-	-	5	-	7		5
	G	-	-	-	-	5	5	

Phases in Stage

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

Full Input Data And Results

Stage Diagram



Phase Delays

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

Prohibited Stage Change

	To Stage			
		1	2	3
From Stage	1		6	6
	2	7		7
	3	5	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: A141/Hostmoor Avenue Signal Jct											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
3/2 (A141 Northbound)	6/1 (Right)	1439	0	5/2	1.09	All	2.00	-	0.50	2	2.00
				5/1	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: A141/Hostmoor Avenue Signal Jct												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Hostmoor Avenue)	U	A	2	3	60.0	Geom	-	4.22	0.00	Y	Arm 2 Left	13.94
2/1 (A141 Southbound)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (A141 Northbound)	U	B	2	3	60.0	Geom	-	3.59	0.00	Y	Arm 4 Ahead	Inf
3/2 (A141 Northbound)	O	F	2	3	15.8	Geom	-	3.65	0.00	N	Arm 6 Right	13.94
4/1 (A141 Northbound)	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (A141 Southbound)	U	G	2	3	4.0	Geom	-	3.15	0.00	Y	Arm 6 Left	17.97
5/2 (A141 Southbound)	U	C	2	3	60.0	Geom	-	3.15	0.00	N	Arm 2 Ahead	Inf
6/1 (Hostmoor Avenue)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2021 Base + Aldi, AM'	08:00	09:00	01:00	
2: '2021 Base + Aldi, PM'	16:45	17:45	01:00	
3: '2021 Base + Aldi, SAT'	11:30	12:30	01:00	
4: '2026 Base + Aldi, AM'	08:00	09:00	01:00	
5: '2026 Base + Aldi, PM'	16:45	17:45	01:00	
6: '2026 Base + Aldi, SAT'	11:30	12:30	01:00	

Scenario 1: '2021 Base + McD + Aldi, AM' (FG1: '2021 Base + Aldi, AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	173	745	918
	B	0	0	341	341
	C	804	317	0	1121
	Tot.	804	490	1086	2380

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2021 Base + McD + Aldi, AM
Junction: A141/Hostmoor Avenue Signal Jct	
1/1	341
2/1	1086
3/1	804
3/2	317
4/1	804
5/1 (short)	173
5/2 (with short)	918(In) 745(Out)
6/1	490

Lane Saturation Flows

Junction: A141/Hostmoor Avenue Signal Jct								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Hostmoor Avenue)	4.22	0.00	Y	Arm 2 Left	13.94	100.0 %	1839	1839
2/1 (A141 Southbound Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (A141 Northbound)	3.59	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1974	1974
3/2 (A141 Northbound)	3.65	0.00	N	Arm 6 Right	13.94	100.0 %	1914	1914
4/1 (A141 Northbound Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A141 Southbound)	3.15	0.00	Y	Arm 6 Left	17.97	100.0 %	1781	1781
5/2 (A141 Southbound)	3.15	0.00	N	Arm 2 Ahead	Inf	100.0 %	2070	2070
6/1 (Hostmoor Avenue Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2021 Base + McD + Aldi, PM' (FG2: '2021 Base + Aldi, PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	201	789	990
	B	0	0	598	598
	C	937	329	0	1266
	Tot.	937	530	1387	2854

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2021 Base + McD + Aldi, PM
Junction: A141/Hostmoor Avenue Signal Jct	
1/1	598
2/1	1387
3/1	937
3/2	329
4/1	937
5/1 (short)	201
5/2 (with short)	990(In) 789(Out)
6/1	530

Lane Saturation Flows

Junction: A141/Hostmoor Avenue Signal Jct								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Hostmoor Avenue)	4.22	0.00	Y	Arm 2 Left	13.94	100.0 %	1839	1839
2/1 (A141 Southbound Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (A141 Northbound)	3.59	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1974	1974
3/2 (A141 Northbound)	3.65	0.00	N	Arm 6 Right	13.94	100.0 %	1914	1914
4/1 (A141 Northbound Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A141 Southbound)	3.15	0.00	Y	Arm 6 Left	17.97	100.0 %	1781	1781
5/2 (A141 Southbound)	3.15	0.00	N	Arm 2 Ahead	Inf	100.0 %	2070	2070
6/1 (Hostmoor Avenue Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2021 Base + McD + Aldi, SAT' (FG3: '2021 Base + Aldi, SAT', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	184	436	620
	B	0	0	788	788
	C	695	533	0	1228
	Tot.	695	717	1224	2636

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2021 Base + McD + Aldi, SAT
Junction: A141/Hostmoor Avenue Signal Jct	
1/1	788
2/1	1224
3/1	695
3/2	533
4/1	695
5/1 (short)	184
5/2 (with short)	620(In) 436(Out)
6/1	717

Lane Saturation Flows

Junction: A141/Hostmoor Avenue Signal Jct								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Hostmoor Avenue)	4.22	0.00	Y	Arm 2 Left	13.94	100.0 %	1839	1839
2/1 (A141 Southbound Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (A141 Northbound)	3.59	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1974	1974
3/2 (A141 Northbound)	3.65	0.00	N	Arm 6 Right	13.94	100.0 %	1914	1914
4/1 (A141 Northbound Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A141 Southbound)	3.15	0.00	Y	Arm 6 Left	17.97	100.0 %	1781	1781
5/2 (A141 Southbound)	3.15	0.00	N	Arm 2 Ahead	Inf	100.0 %	2070	2070
6/1 (Hostmoor Avenue Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2026 Base + McD + Aldi, AM' (FG4: '2026 Base + Aldi, AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	186	808	994
	B	0	0	365	365
	C	871	340	0	1211
	Tot.	871	526	1173	2570

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: 2026 Base + McD + Aldi, AM
Junction: A141/Hostmoor Avenue Signal Jct	
1/1	365
2/1	1173
3/1	871
3/2	340
4/1	871
5/1 (short)	186
5/2 (with short)	994(In) 808(Out)
6/1	526

Lane Saturation Flows

Junction: A141/Hostmoor Avenue Signal Jct								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Hostmoor Avenue)	4.22	0.00	Y	Arm 2 Left	13.94	100.0 %	1839	1839
2/1 (A141 Southbound Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (A141 Northbound)	3.59	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1974	1974
3/2 (A141 Northbound)	3.65	0.00	N	Arm 6 Right	13.94	100.0 %	1914	1914
4/1 (A141 Northbound Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A141 Southbound)	3.15	0.00	Y	Arm 6 Left	17.97	100.0 %	1781	1781
5/2 (A141 Southbound)	3.15	0.00	N	Arm 2 Ahead	Inf	100.0 %	2070	2070
6/1 (Hostmoor Avenue Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2026 Base + McD + Aldi, PM' (FG5: '2026 Base + Aldi, PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	216	858	1074
	B	0	0	644	644
	C	1017	354	0	1371
	Tot.	1017	570	1502	3089

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2026 Base + McD + Aldi, PM
Junction: A141/Hostmoor Avenue Signal Jct	
1/1	644
2/1	1502
3/1	1017
3/2	354
4/1	1017
5/1 (short)	216
5/2 (with short)	1074(In) 858(Out)
6/1	570

Lane Saturation Flows

Junction: A141/Hostmoor Avenue Signal Jct								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Hostmoor Avenue)	4.22	0.00	Y	Arm 2 Left	13.94	100.0 %	1839	1839
2/1 (A141 Southbound Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (A141 Northbound)	3.59	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1974	1974
3/2 (A141 Northbound)	3.65	0.00	N	Arm 6 Right	13.94	100.0 %	1914	1914
4/1 (A141 Northbound Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A141 Southbound)	3.15	0.00	Y	Arm 6 Left	17.97	100.0 %	1781	1781
5/2 (A141 Southbound)	3.15	0.00	N	Arm 2 Ahead	Inf	100.0 %	2070	2070
6/1 (Hostmoor Avenue Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2026 Base + McD + Aldi, SAT' (FG6: '2026 Base + Aldi, SAT', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	198	480	678
	B	0	0	853	853
	C	763	576	0	1339
	Tot.	763	774	1333	2870

Full Input Data And Results

Traffic Lane Flows

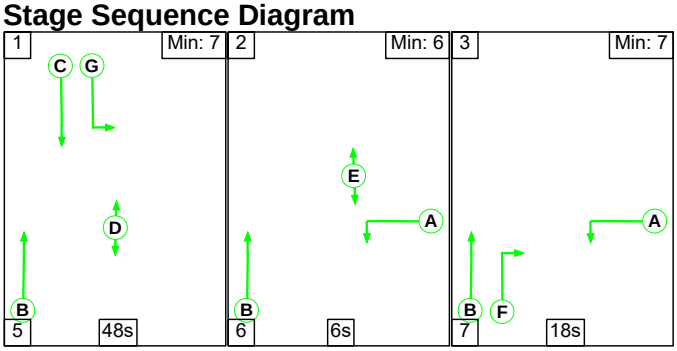
Lane	Scenario 6: 2026 Base + McD + Aldi, SAT
Junction: A141/Hostmoor Avenue Signal Jct	
1/1	853
2/1	1333
3/1	763
3/2	576
4/1	763
5/1 (short)	198
5/2 (with short)	678(In) 480(Out)
6/1	774

Lane Saturation Flows

Junction: A141/Hostmoor Avenue Signal Jct								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Hostmoor Avenue)	4.22	0.00	Y	Arm 2 Left	13.94	100.0 %	1839	1839
2/1 (A141 Southbound Lane 1)	Infinite Saturation Flow						Inf	Inf
3/1 (A141 Northbound)	3.59	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1974	1974
3/2 (A141 Northbound)	3.65	0.00	N	Arm 6 Right	13.94	100.0 %	1914	1914
4/1 (A141 Northbound Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A141 Southbound)	3.15	0.00	Y	Arm 6 Left	17.97	100.0 %	1781	1781
5/2 (A141 Southbound)	3.15	0.00	N	Arm 2 Ahead	Inf	100.0 %	2070	2070
6/1 (Hostmoor Avenue Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2021 Base + McD + Aldi, AM' (FG1: '2021 Base + Aldi, AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

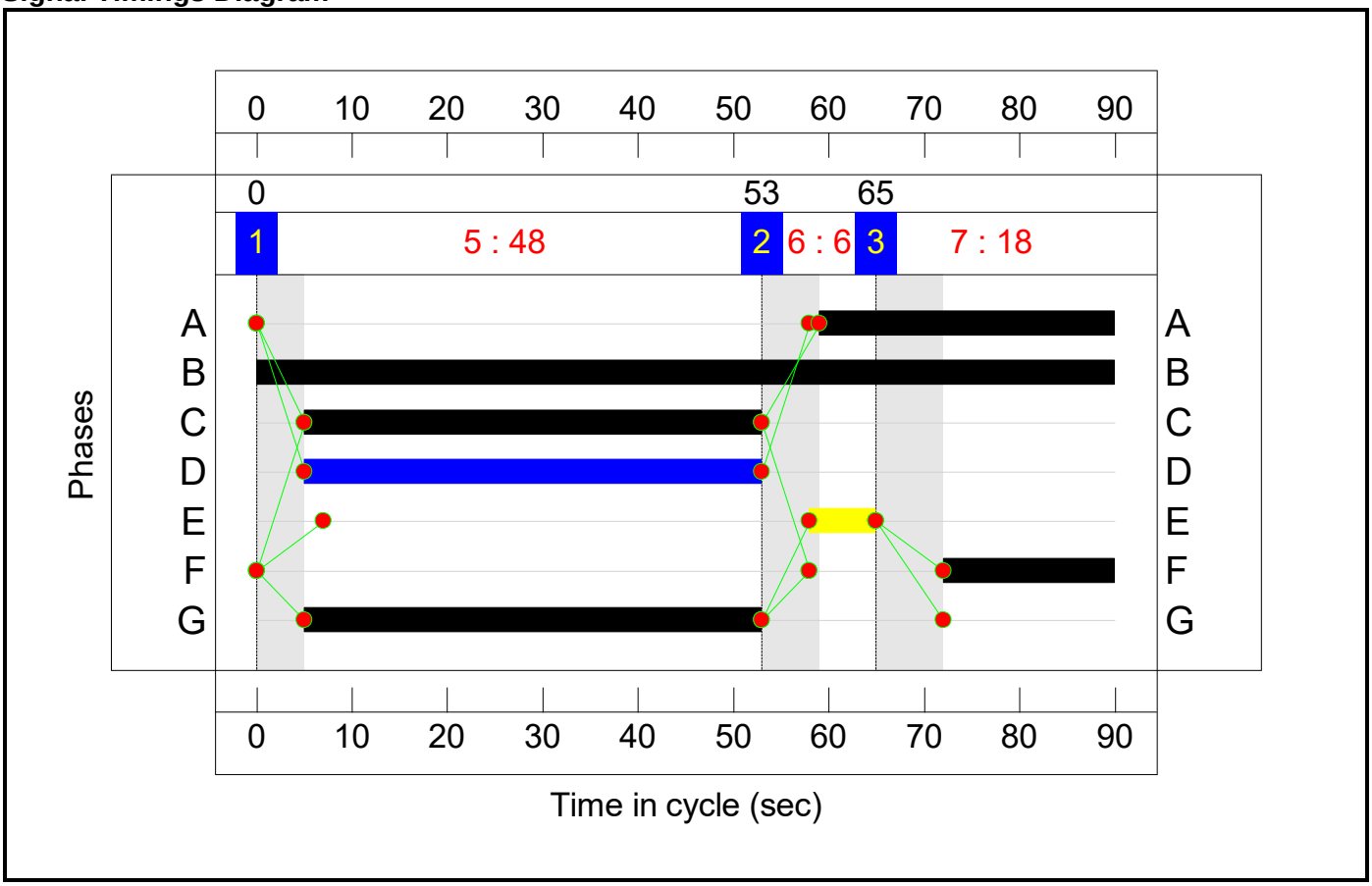


Full Input Data And Results

Stage Timings

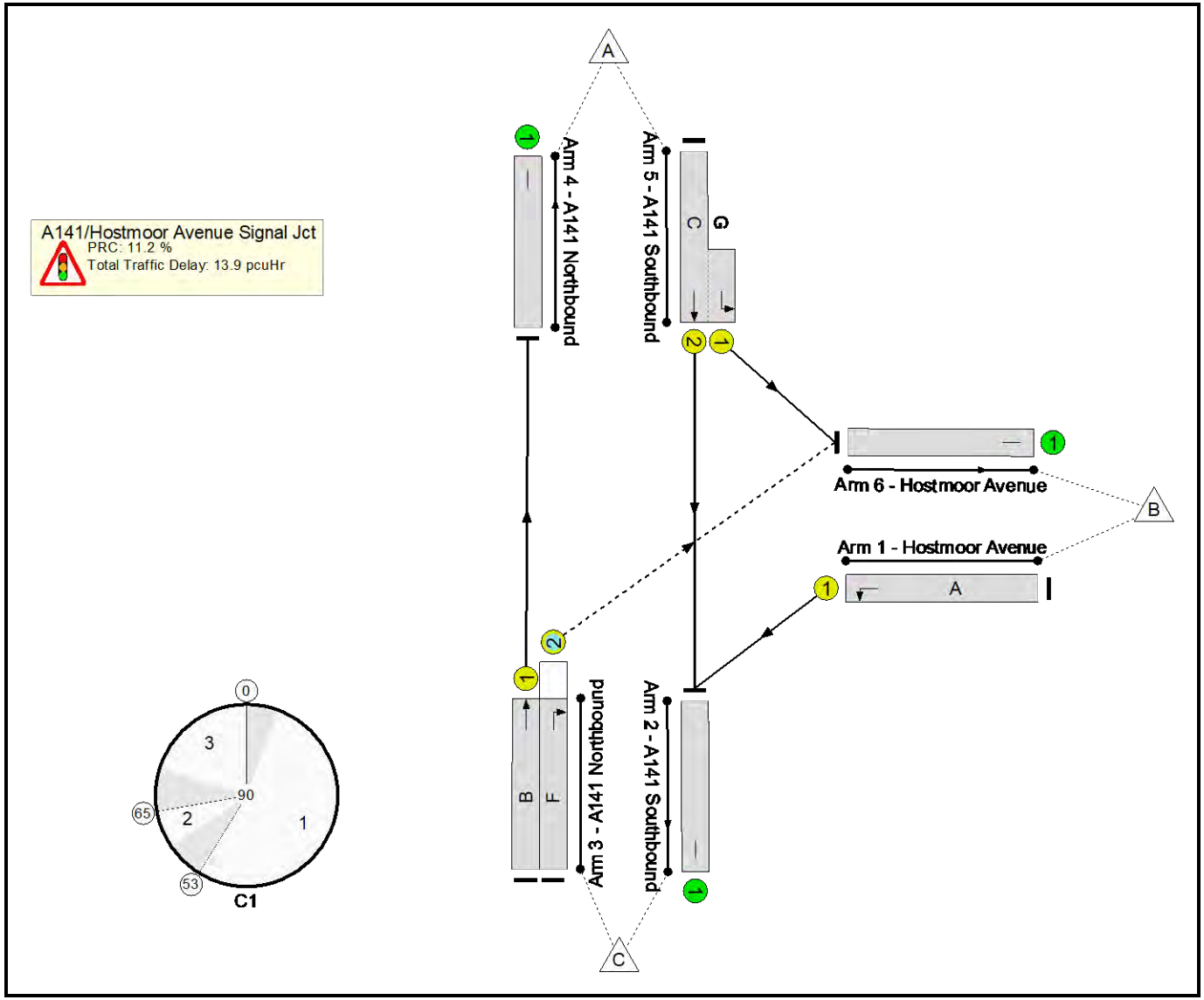
Stage	1	2	3
Duration	48	6	18
Change Point	0	53	65

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.9%**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**80.9%**
1/1	Hostmoor Avenue Left	U	N/A	N/A	A		1	31	-	341	1839	654	52.2%
2/1	A141 Southbound	U	N/A	N/A	-		-	-	-	1086	Inf	Inf	0.0%
3/1	A141 Northbound Ahead	U	N/A	N/A	B		1	90	-	804	1974	1974	40.7%
3/2	A141 Northbound Right	O	N/A	N/A	F		1	18	-	317	1914	404	78.5%
4/1	A141 Northbound	U	N/A	N/A	-		-	-	-	804	Inf	Inf	0.0%
5/2+5/1	A141 Southbound Ahead Left	U	N/A	N/A	C G		1	48	-	918	2070:1781	921+214	80.9 : 80.9%
6/1	Hostmoor Avenue	U	N/A	N/A	-		-	-	-	490	Inf	Inf	0.0%

Full Input Data And Results

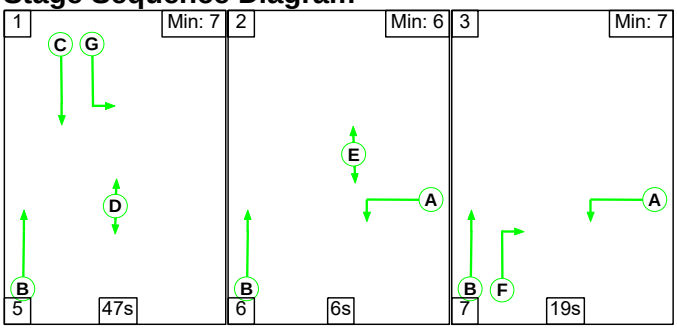
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**310**	**7**	**9.2**	**4.7**	**0.0**	**13.9**	**-**	**-**	**-**	**-**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**0**	**310**	**7**	**9.2**	**4.7**	**0.0**	**13.9**	**-**	**-**	**-**	**-**
1/1	341	341	-	-	-	2.2	0.5	-	2.7	28.7	6.7	0.5	7.3
2/1	1086	1086	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	804	804	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
3/2	317	317	0	310	7	3.0	1.8	0.0	4.7	53.4	7.5	1.8	9.2
4/1	804	804	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2+5/1	918	918	-	-	-	4.0	2.1	-	6.1	24.0	17.4	2.1	19.5
6/1	490	490	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 11.2 Total Delay for Signalled Lanes (pcuHr): 13.88 Cycle Time (s): 90
PRC Over All Lanes (%): 11.2 Total Delay Over All Lanes(pcuHr): 13.88

Full Input Data And Results

Scenario 2: '2021 Base + McD + Aldi, PM' (FG2: '2021 Base + Aldi, PM', Plan 1: 'Network Control Plan 1')

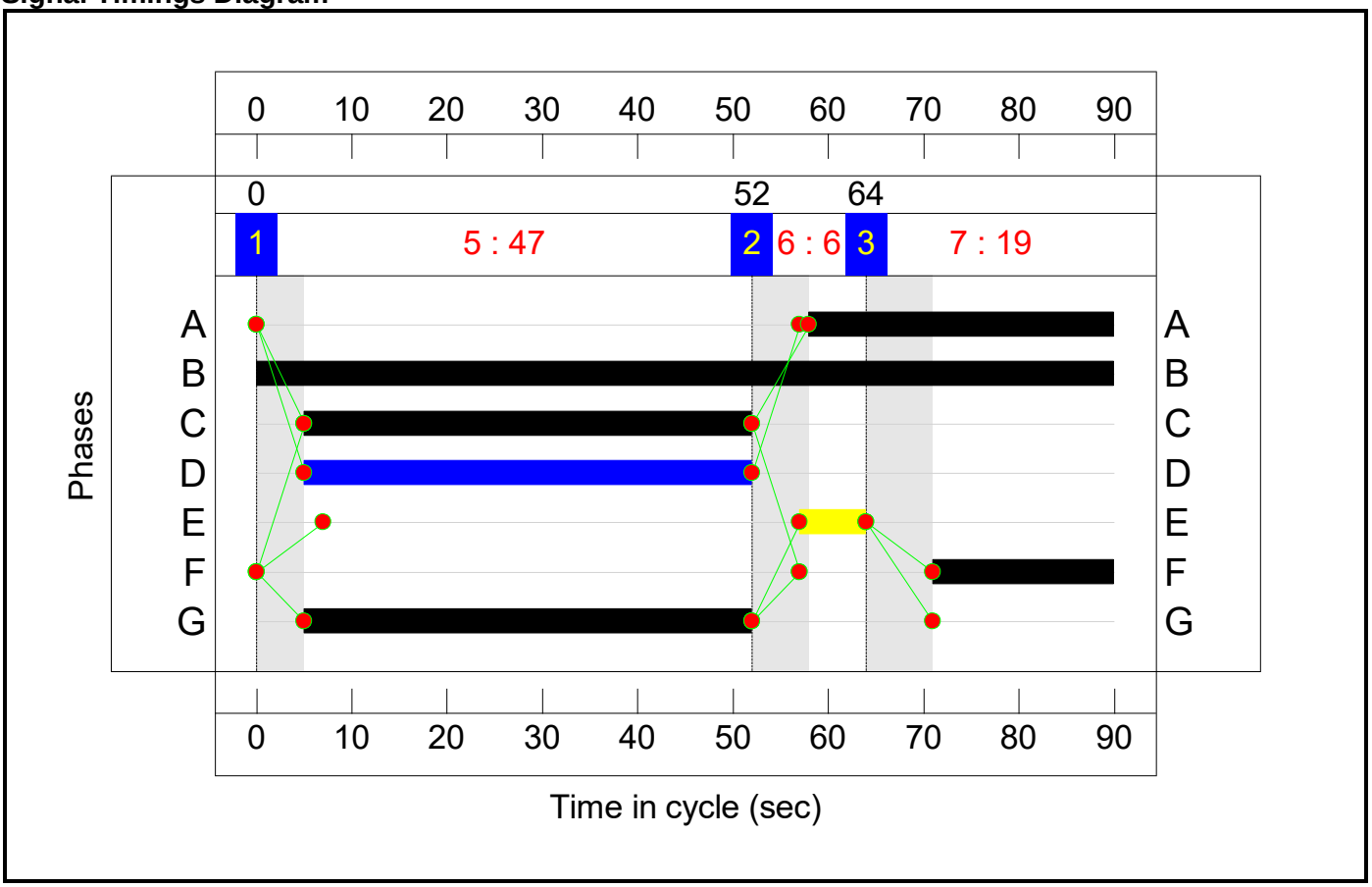
Stage Sequence Diagram



Stage Timings

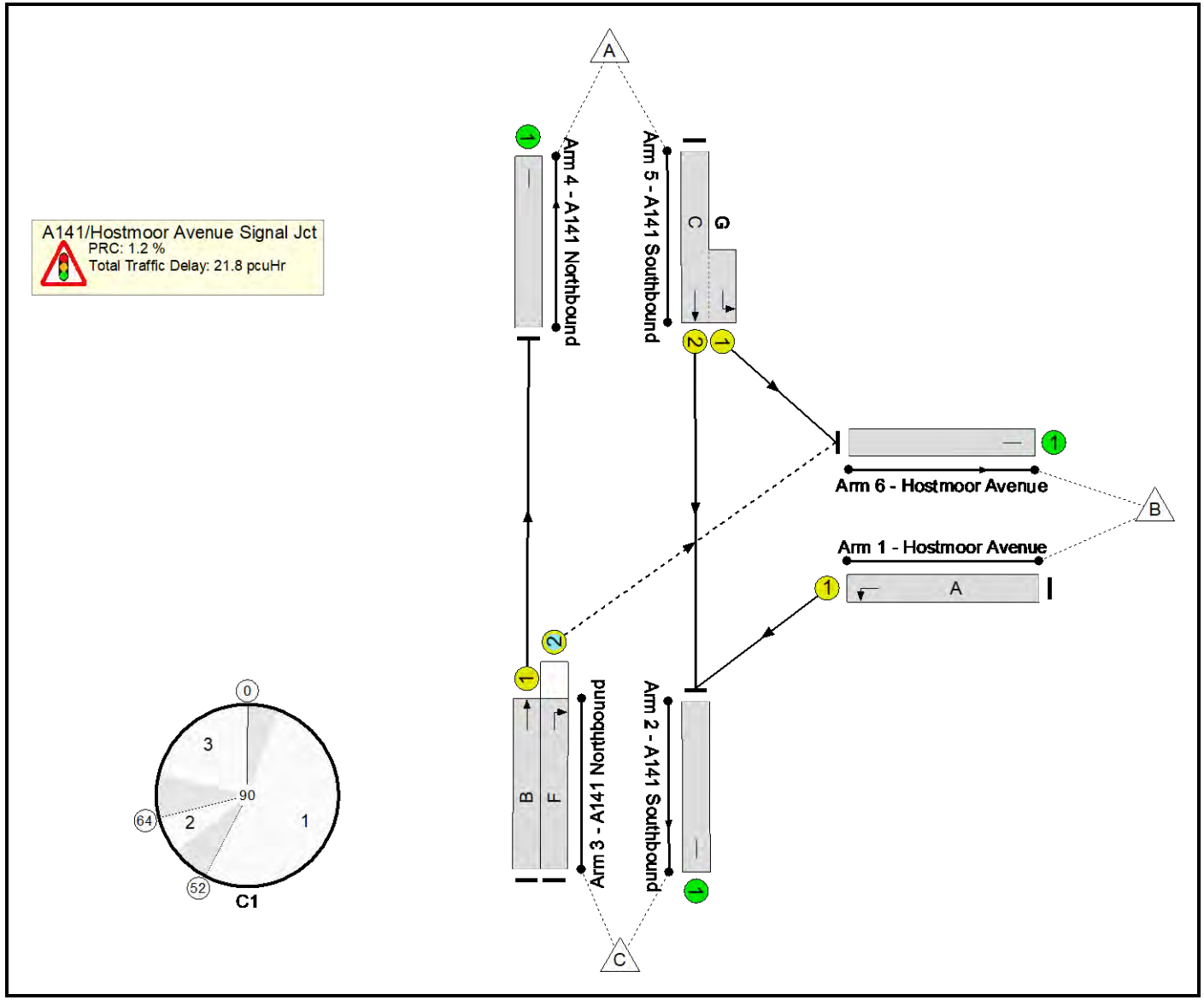
Stage	1	2	3
Duration	47	6	19
Change Point	0	52	64

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**88.9%**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**88.9%**
1/1	Hostmoor Avenue Left	U	N/A	N/A	A		1	32	-	598	1839	674	88.7%
2/1	A141 Southbound	U	N/A	N/A	-		-	-	-	1387	Inf	Inf	0.0%
3/1	A141 Northbound Ahead	U	N/A	N/A	B		1	90	-	937	1974	1974	47.5%
3/2	A141 Northbound Right	O	N/A	N/A	F		1	19	-	329	1914	425	77.4%
4/1	A141 Northbound	U	N/A	N/A	-		-	-	-	937	Inf	Inf	0.0%
5/2+5/1	A141 Southbound Ahead Left	U	N/A	N/A	C G		1	47	-	990	2070:1781	888+226	88.9 : 88.9%
6/1	Hostmoor Avenue	U	N/A	N/A	-		-	-	-	530	Inf	Inf	0.0%

Full Input Data And Results

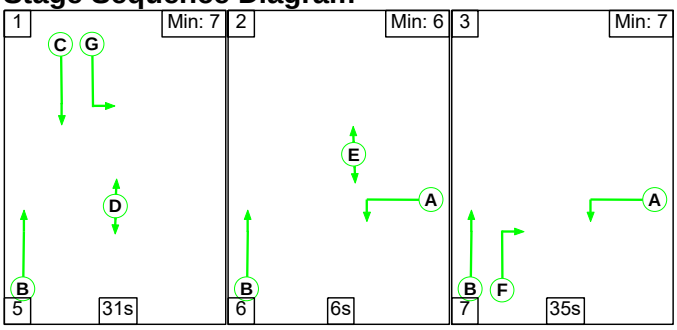
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**322**	**7**	**12.3**	**9.5**	**0.0**	**21.8**	**-**	**-**	**-**	**-**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**0**	**322**	**7**	**12.3**	**9.5**	**0.0**	**21.8**	**-**	**-**	**-**	**-**
1/1	598	598	-	-	-	4.4	3.6	-	8.0	48.3	14.0	3.6	17.5
2/1	1387	1387	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	937	937	-	-	-	0.0	0.5	-	0.5	1.7	0.0	0.5	0.5
3/2	329	329	0	322	7	3.0	1.7	0.0	4.7	50.9	7.7	1.7	9.3
4/1	937	937	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2+5/1	990	990	-	-	-	4.9	3.8	-	8.6	31.4	20.7	3.8	24.5
6/1	530	530	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 1.2 Total Delay for Signalled Lanes (pcuHr): 21.78 Cycle Time (s): 90
PRC Over All Lanes (%): 1.2 Total Delay Over All Lanes(pcuHr): 21.78

Full Input Data And Results

Scenario 3: '2021 Base + McD + Aldi, SAT' (FG3: '2021 Base + Aldi, SAT', Plan 1: 'Network Control Plan 1')

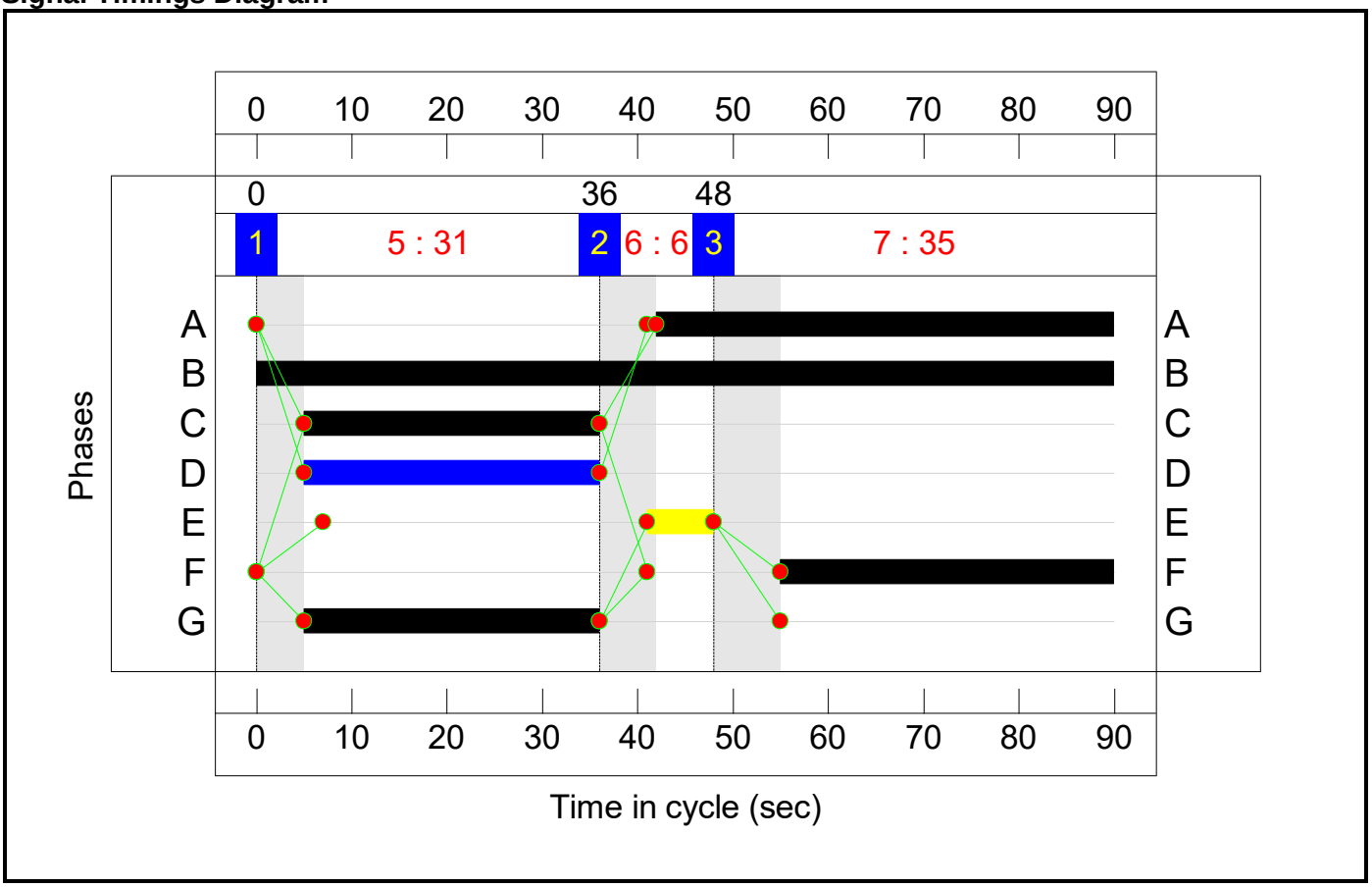
Stage Sequence Diagram



Stage Timings

Stage	1	2	3
Duration	31	6	35
Change Point	0	36	48

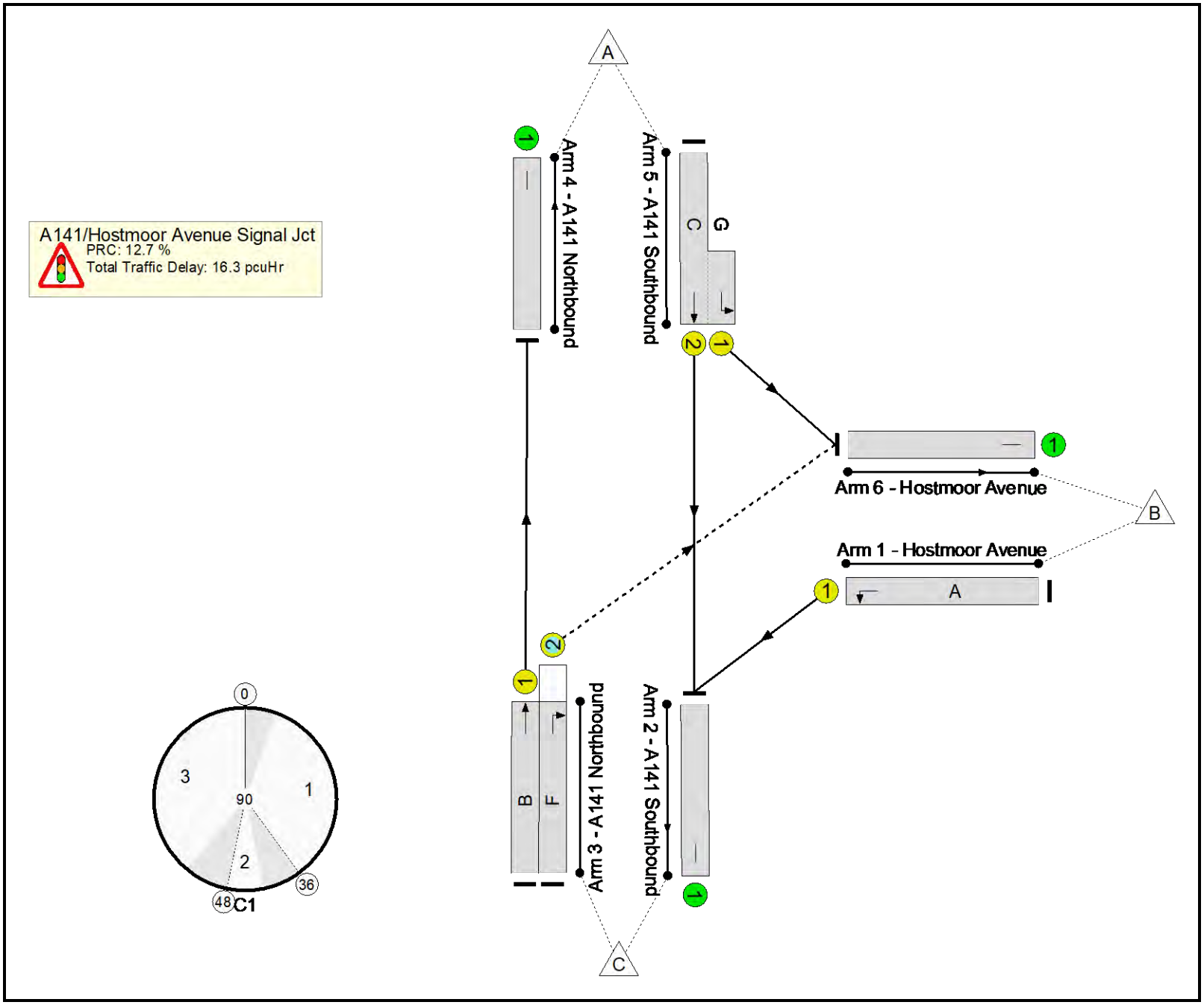
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**79.9%**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**79.9%**
1/1	Hostmoor Avenue Left	U	N/A	N/A	A		1	48	-	788	1839	1001	78.7%
2/1	A141 Southbound	U	N/A	N/A	-		-	-	-	1224	Inf	Inf	0.0%
3/1	A141 Northbound Ahead	U	N/A	N/A	B		1	90	-	695	1974	1974	35.2%
3/2	A141 Northbound Right	O	N/A	N/A	F		1	35	-	533	1914	766	69.6%
4/1	A141 Northbound	U	N/A	N/A	-		-	-	-	695	Inf	Inf	0.0%
5/2+5/1	A141 Southbound Ahead Left	U	N/A	N/A	C G		1	31	-	620	2070:1781	546+230	79.9 : 79.9%
6/1	Hostmoor Avenue	U	N/A	N/A	-		-	-	-	717	Inf	Inf	0.0%

Full Input Data And Results

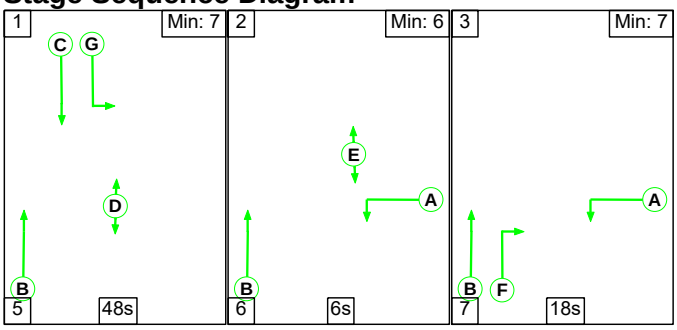
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**521**	**12**	**11.2**	**5.2**	**0.0**	**16.3**	**-**	**-**	**-**	**-**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**0**	**521**	**12**	**11.2**	**5.2**	**0.0**	**16.3**	**-**	**-**	**-**	**-**
1/1	788	788	-	-	-	3.6	1.8	-	5.4	24.6	15.5	1.8	17.4
2/1	1224	1224	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	695	695	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3
3/2	533	533	0	521	12	3.3	1.1	0.0	4.5	30.1	11.0	1.1	12.1
4/1	695	695	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2+5/1	620	620	-	-	-	4.3	1.9	-	6.2	35.9	11.9	1.9	13.9
6/1	717	717	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 12.7 Total Delay for Signalled Lanes (pcuHr): 16.31 Cycle Time (s): 90
PRC Over All Lanes (%): 12.7 Total Delay Over All Lanes(pcuHr): 16.31

Full Input Data And Results

Scenario 4: '2026 Base + McD + Aldi, AM' (FG4: '2026 Base + Aldi, AM', Plan 1: 'Network Control Plan 1')

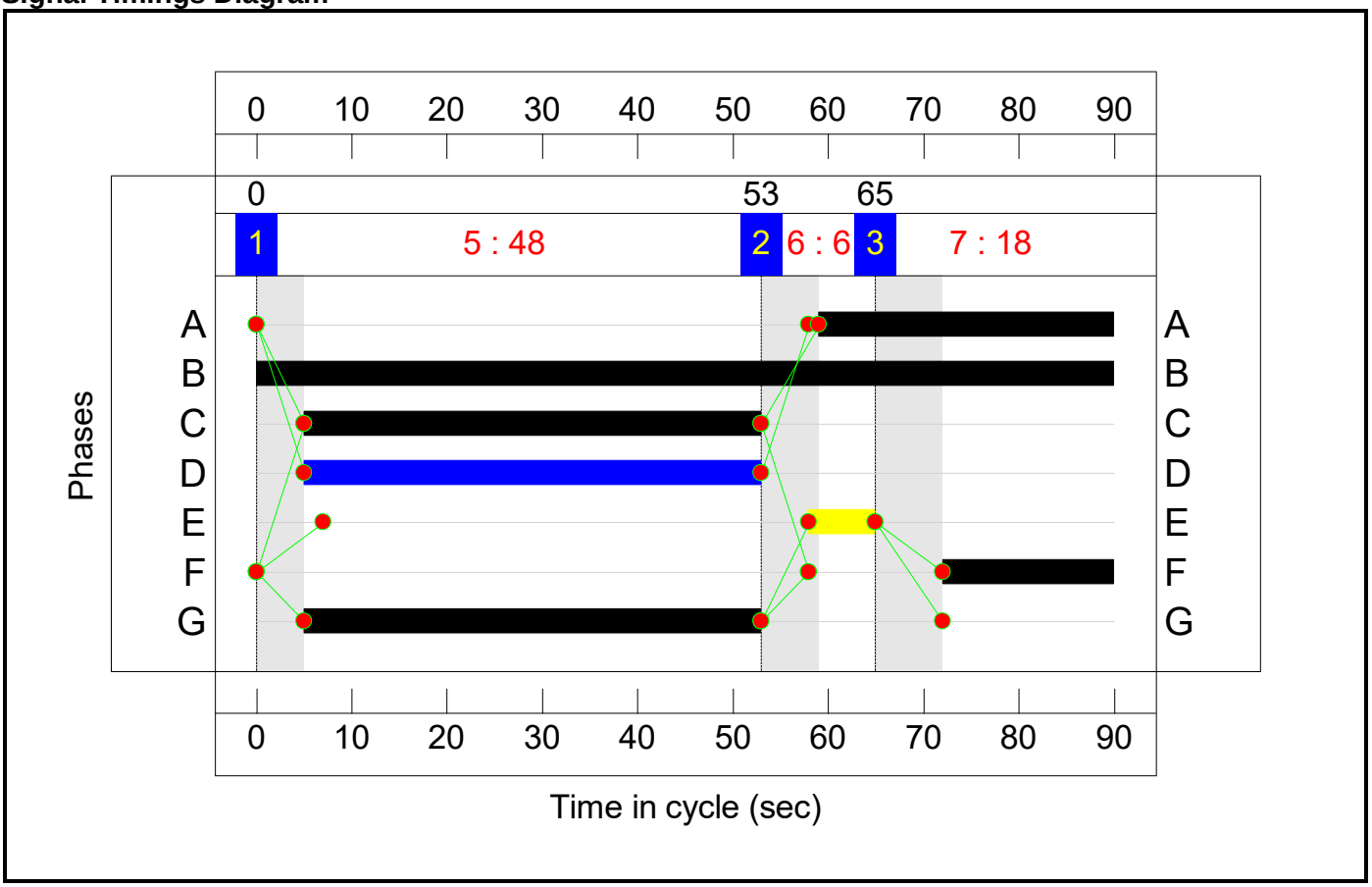
Stage Sequence Diagram



Stage Timings

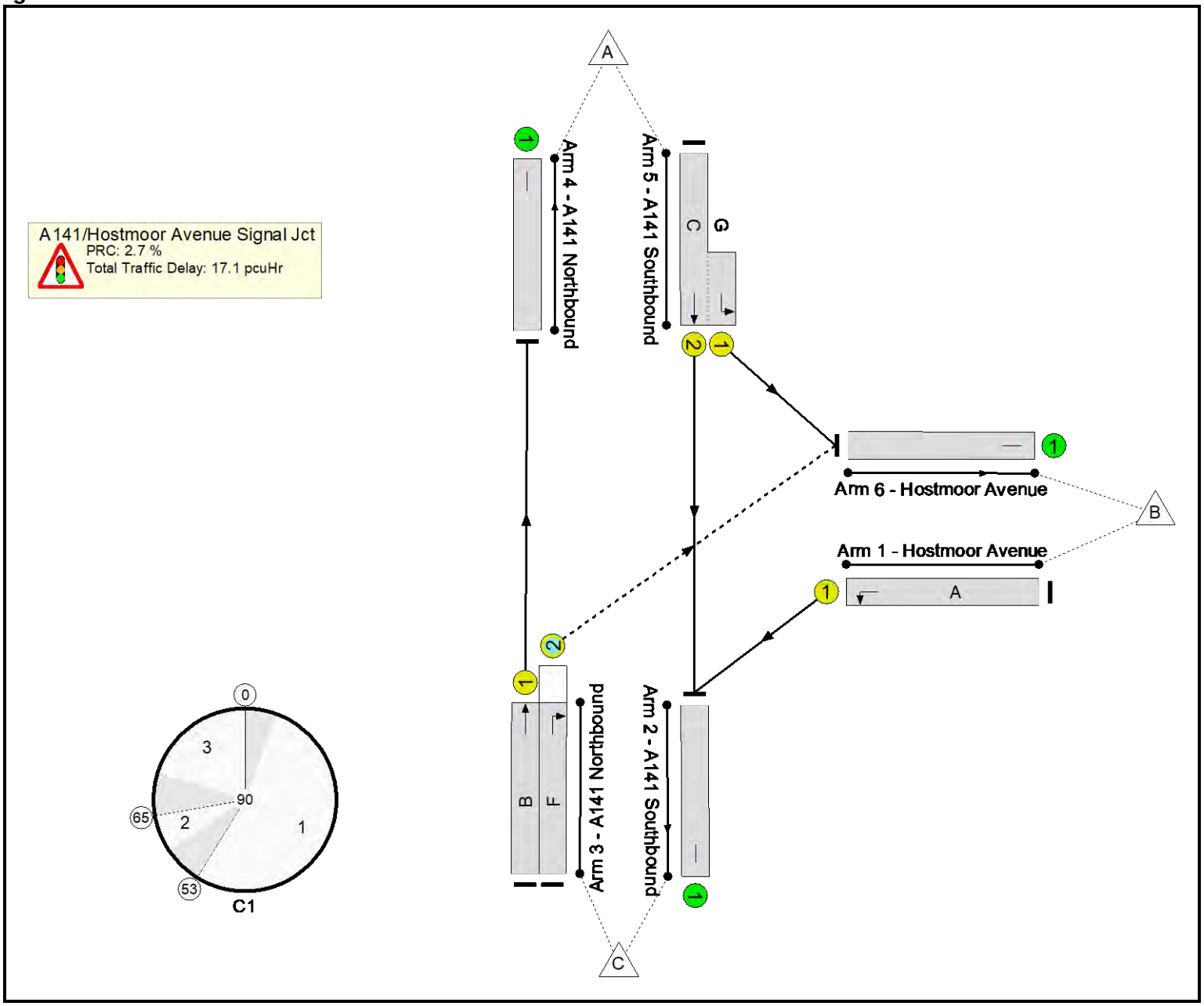
Stage	1	2	3
Duration	48	6	18
Change Point	0	53	65

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.6%**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.6%**
1/1	Hostmoor Avenue Left	U	N/A	N/A	A		1	31	-	365	1839	654	55.8%
2/1	A141 Southbound	U	N/A	N/A	-		-	-	-	1173	Inf	Inf	0.0%
3/1	A141 Northbound Ahead	U	N/A	N/A	B		1	90	-	871	1974	1974	44.1%
3/2	A141 Northbound Right	O	N/A	N/A	F		1	18	-	340	1914	404	84.1%
4/1	A141 Northbound	U	N/A	N/A	-		-	-	-	871	Inf	Inf	0.0%
5/2+5/1	A141 Southbound Ahead Left	U	N/A	N/A	C G		1	48	-	994	2070:1781	922+212	87.6 : 87.6%
6/1	Hostmoor Avenue	U	N/A	N/A	-		-	-	-	526	Inf	Inf	0.0%

Full Input Data And Results

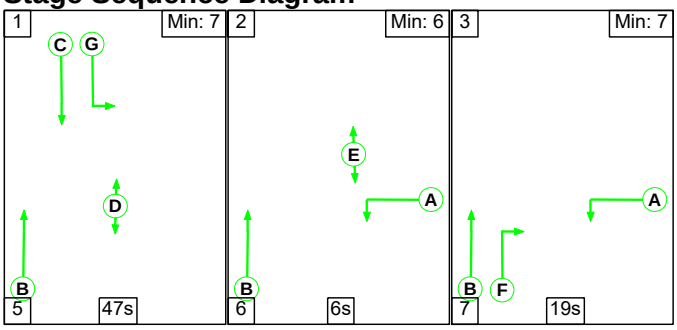
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**332**	**8**	**10.3**	**6.9**	**0.0**	**17.1**	**-**	**-**	**-**	**-**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**0**	**332**	**8**	**10.3**	**6.9**	**0.0**	**17.1**	**-**	**-**	**-**	**-**
1/1	365	365	-	-	-	2.4	0.6	-	3.0	29.5	7.3	0.6	7.9
2/1	1173	1173	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	871	871	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
3/2	340	340	0	332	8	3.2	2.5	0.0	5.7	60.1	8.1	2.5	10.6
4/1	871	871	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2+5/1	994	994	-	-	-	4.7	3.4	-	8.1	29.3	20.3	3.4	23.7
6/1	526	526	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 2.7 Total Delay for Signalled Lanes (pcuHr): 17.15 Cycle Time (s): 90
PRC Over All Lanes (%): 2.7 Total Delay Over All Lanes(pcuHr): 17.15

Full Input Data And Results

Scenario 5: '2026 Base + McD + Aldi, PM' (FG5: '2026 Base + Aldi, PM', Plan 1: 'Network Control Plan 1')

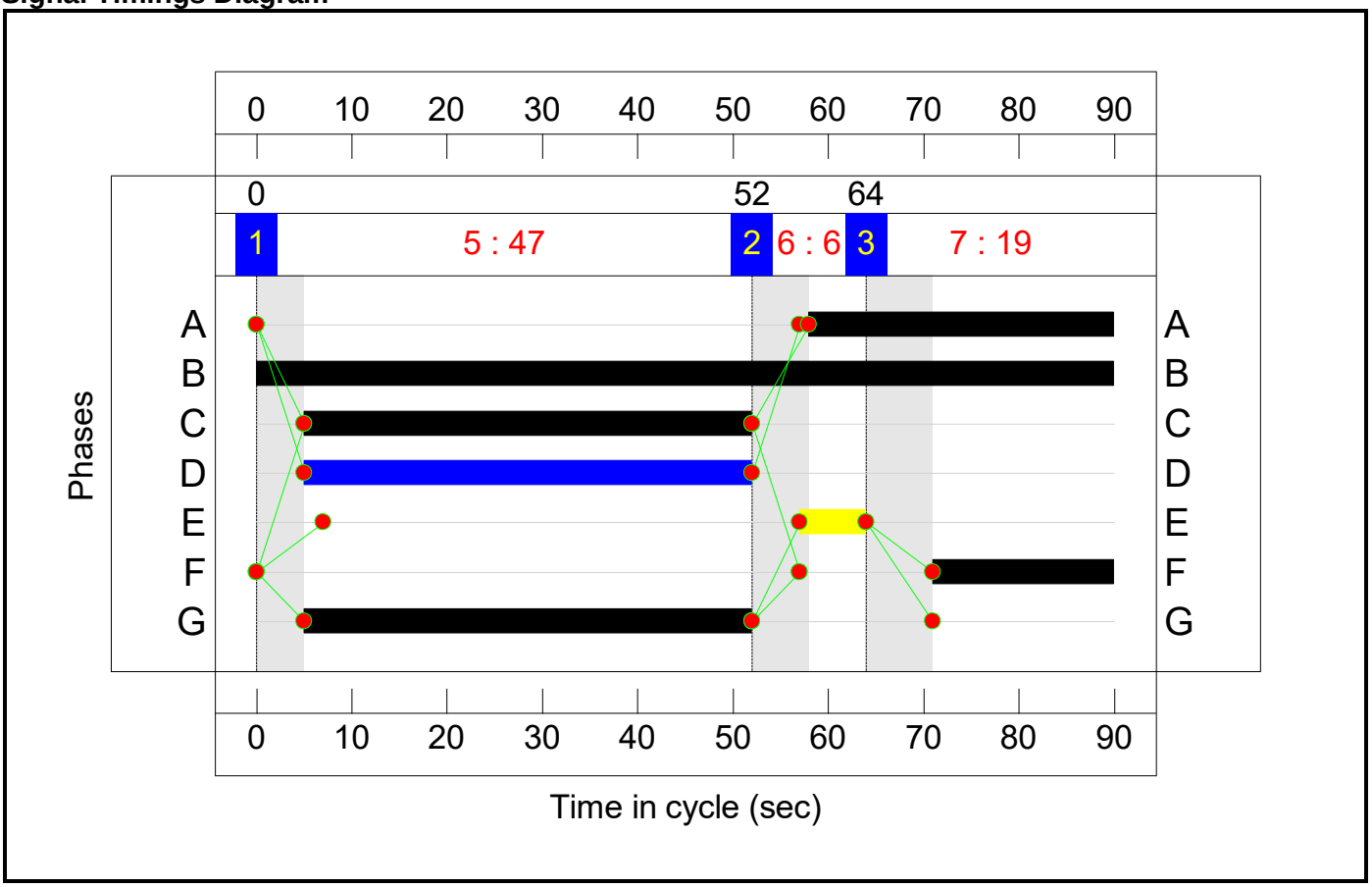
Stage Sequence Diagram



Stage Timings

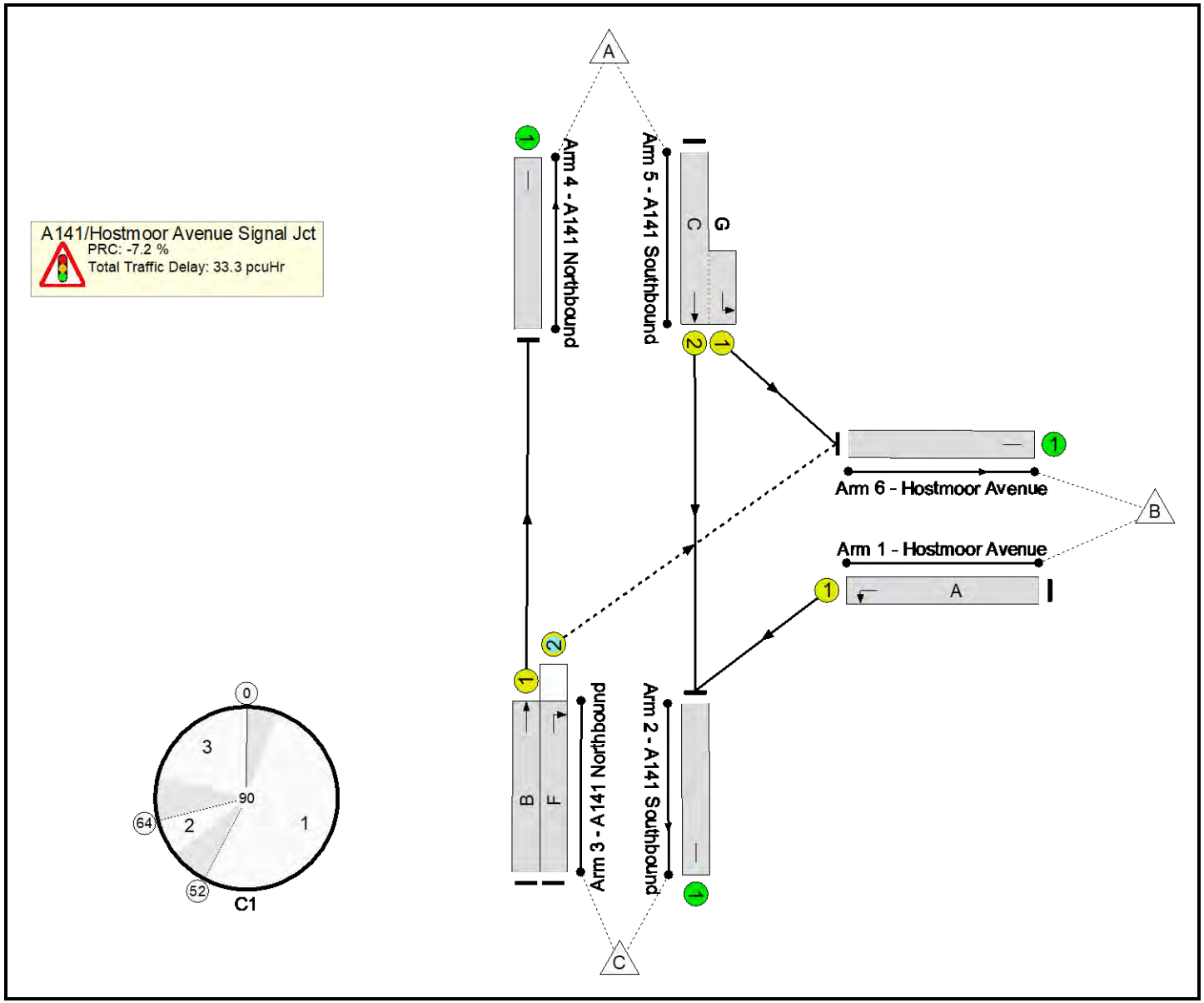
Stage	1	2	3
Duration	47	6	19
Change Point	0	52	64

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**96.5%**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**96.5%**
1/1	Hostmoor Avenue Left	U	N/A	N/A	A		1	32	-	644	1839	674	95.5%
2/1	A141 Southbound	U	N/A	N/A	-		-	-	-	1502	Inf	Inf	0.0%
3/1	A141 Northbound Ahead	U	N/A	N/A	B		1	90	-	1017	1974	1974	51.5%
3/2	A141 Northbound Right	O	N/A	N/A	F		1	19	-	354	1914	425	83.2%
4/1	A141 Northbound	U	N/A	N/A	-		-	-	-	1017	Inf	Inf	0.0%
5/2+5/1	A141 Southbound Ahead Left	U	N/A	N/A	C G		1	47	-	1074	2070:1781	890+224	96.5 : 96.5%
6/1	Hostmoor Avenue	U	N/A	N/A	-		-	-	-	570	Inf	Inf	0.0%

Full Input Data And Results

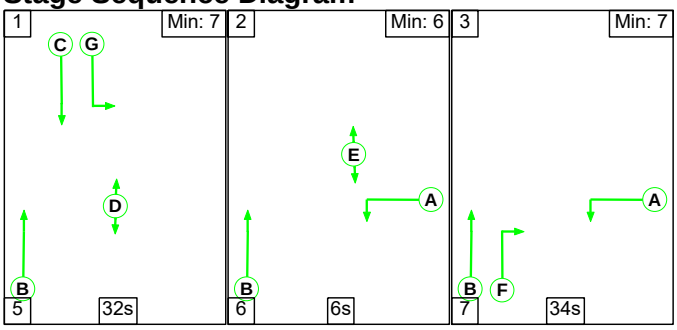
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**346**	**8**	**14.0**	**19.3**	**0.0**	**33.3**	**-**	**-**	**-**	**-**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**0**	**346**	**8**	**14.0**	**19.3**	**0.0**	**33.3**	**-**	**-**	**-**	**-**
1/1	644	644	-	-	-	5.0	7.2	-	12.2	68.0	15.6	7.2	22.8
2/1	1502	1502	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	1017	1017	-	-	-	0.0	0.5	-	0.5	1.9	0.0	0.5	0.5
3/2	354	354	0	346	8	3.3	2.3	0.0	5.6	57.1	8.4	2.3	10.7
4/1	1017	1017	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2+5/1	1074	1074	-	-	-	5.8	9.3	-	15.0	50.3	24.6	9.3	33.9
6/1	570	570	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -7.2 Total Delay for Signalled Lanes (pcuHr): 33.34 Cycle Time (s): 90
PRC Over All Lanes (%): -7.2 Total Delay Over All Lanes(pcuHr): 33.34

Full Input Data And Results

Scenario 6: '2026 Base + McD + Aldi, SAT' (FG6: '2026 Base + Aldi, SAT', Plan 1: 'Network Control Plan 1')

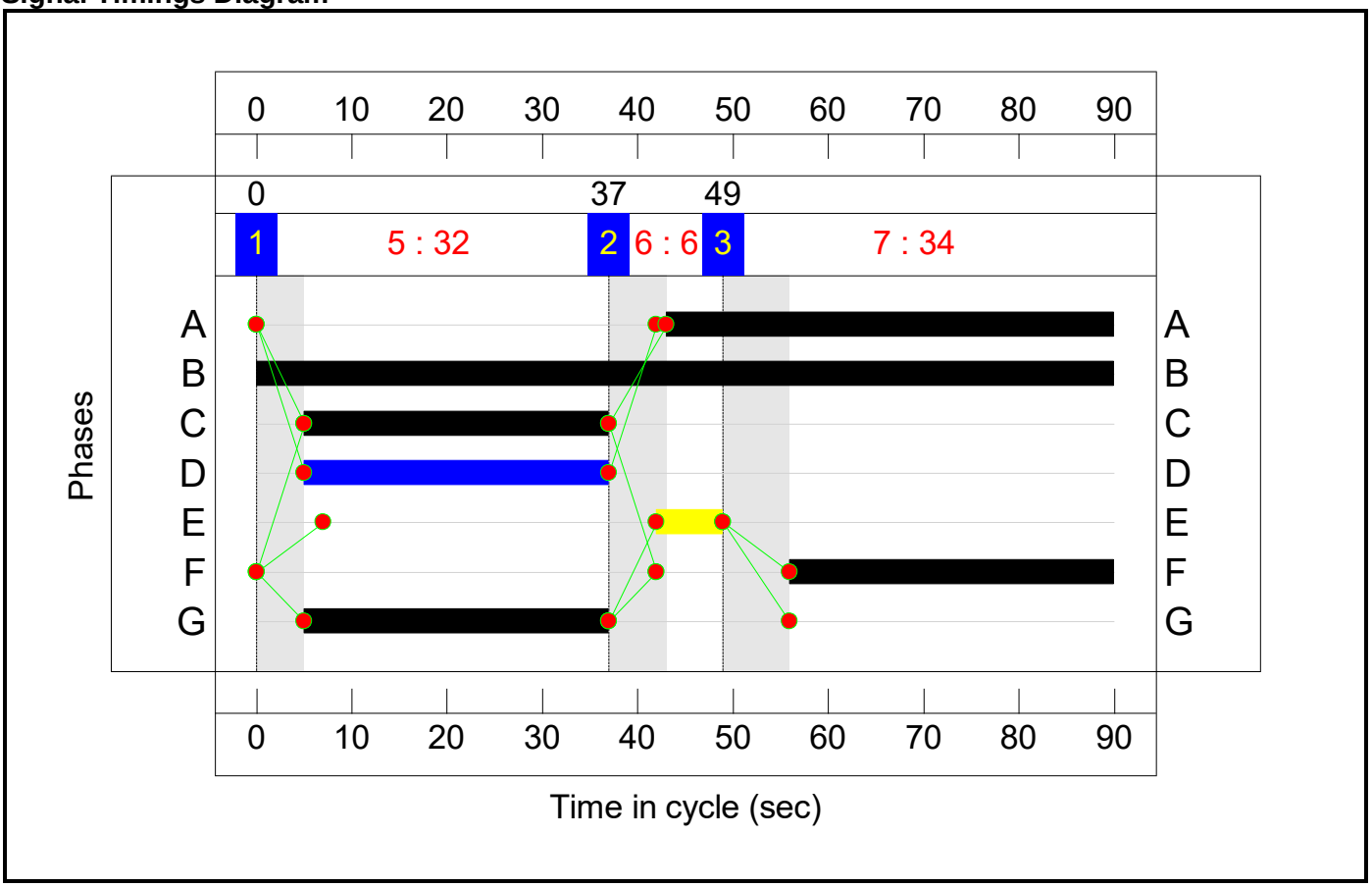
Stage Sequence Diagram



Stage Timings

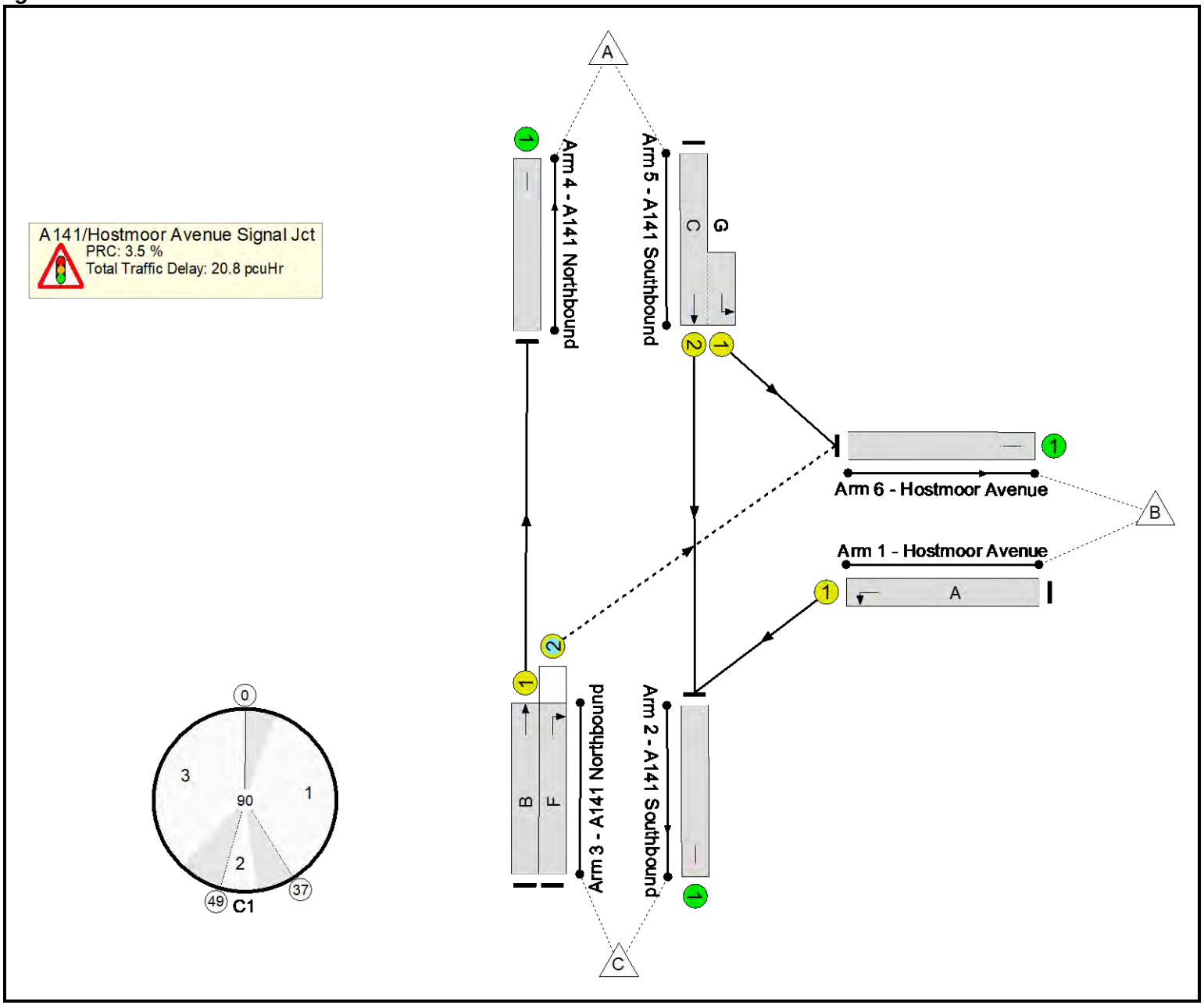
Stage	1	2	3
Duration	32	6	34
Change Point	0	37	49

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.0%**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.0%**
1/1	Hostmoor Avenue Left	U	N/A	N/A	A		1	47	-	853	1839	981	87.0%
2/1	A141 Southbound	U	N/A	N/A	-		-	-	-	1333	Inf	Inf	0.0%
3/1	A141 Northbound Ahead	U	N/A	N/A	B		1	90	-	763	1974	1974	38.7%
3/2	A141 Northbound Right	O	N/A	N/A	F		1	34	-	576	1914	744	77.4%
4/1	A141 Northbound	U	N/A	N/A	-		-	-	-	763	Inf	Inf	0.0%
5/2+5/1	A141 Southbound Ahead Left	U	N/A	N/A	C G		1	32	-	678	2070:1781	564+233	85.1 : 85.1%
6/1	Hostmoor Avenue	U	N/A	N/A	-		-	-	-	774	Inf	Inf	0.0%

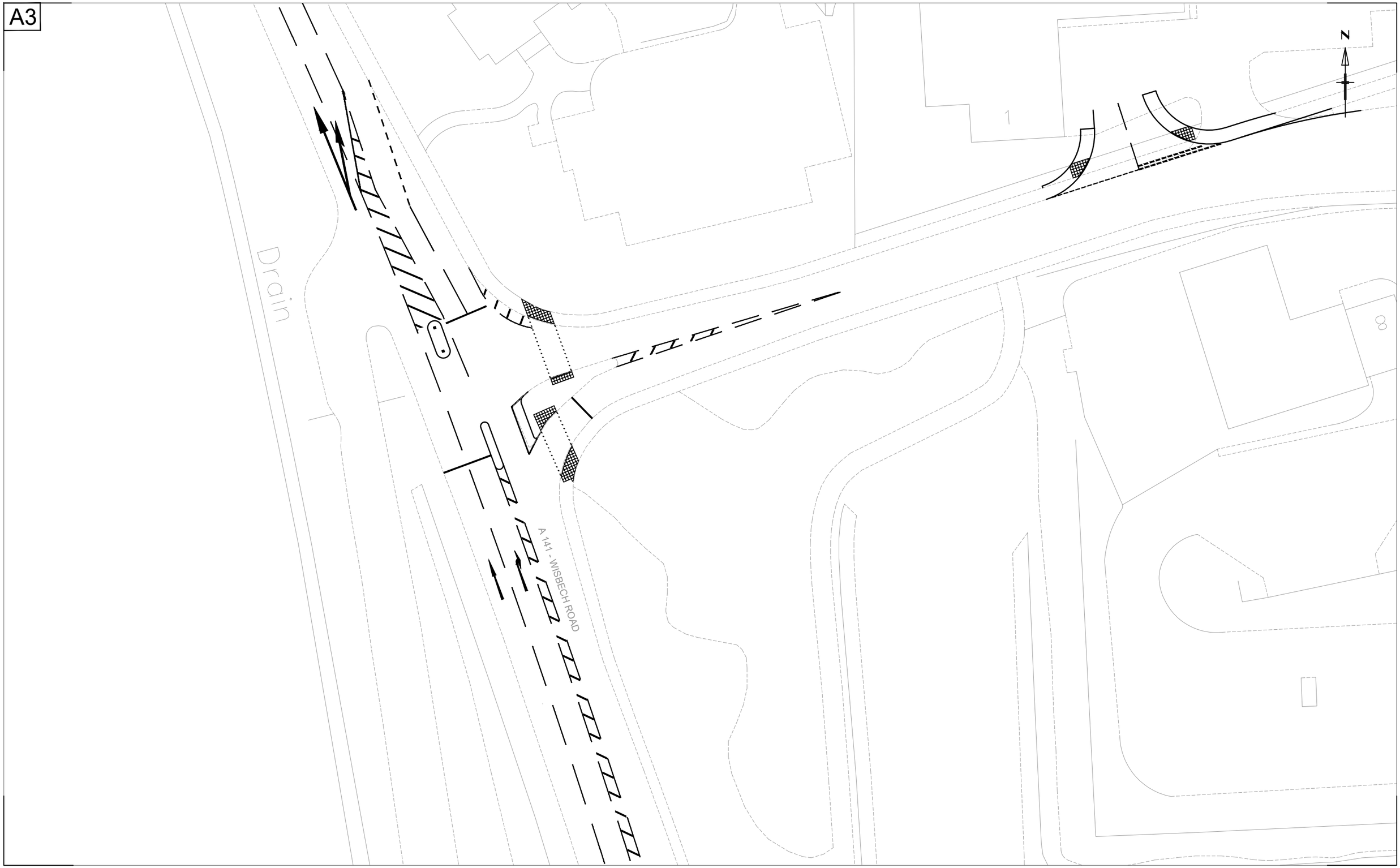
Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**563**	**13**	**12.9**	**7.9**	**0.0**	**20.8**	**-**	**-**	**-**	**-**
A141/Hostmoor Avenue Signal Jct	**-**	**-**	**0**	**563**	**13**	**12.9**	**7.9**	**0.0**	**20.8**	**-**	**-**	**-**	**-**
1/1	853	853	-	-	-	4.3	3.2	-	7.5	31.7	18.5	3.2	21.7
2/1	1333	1333	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	763	763	-	-	-	0.0	0.3	-	0.3	1.5	0.0	0.3	0.3
3/2	576	576	0	563	13	3.8	1.7	0.0	5.5	34.5	12.5	1.7	14.2
4/1	763	763	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2+5/1	678	678	-	-	-	4.7	2.7	-	7.4	39.3	13.6	2.7	16.3
6/1	774	774	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 3.5 Total Delay for Signalled Lanes (pcuHr): 20.76 Cycle Time (s): 90
PRC Over All Lanes (%): 3.5 Total Delay Over All Lanes(pcuHr): 20.76

Appendix 3 – Proposed Signal Junction Layout

A3



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QUALITY MANAGEMENT SYSTEM
ISO 9001 : 2015 FS 594947

client
ALDI STORES LTD

project
PROPOSED DEVELOPMENT
MARCH, HOSTMOOR AVENUE

title
PROPOSED HIGHWAY IMPROVEMENTS

date	drawn by	checked by
FEBRUARY 2021	T.A.S	C.B.W

scale	status
1:500	PLANNING

drawing number	rev.
19126-SK210222.1	

ALDI STORES LIMITED

PROPOSED DISCOUNT FOODSTORE, HOSTMOOR AVENUE, MARCH

TN07 – JUNCTION CAPACITY ASSESSMENT

23RD FEBRUARY 2021

1.0 Introduction

1.1 Connect Consultants Limited is a firm of transport planning and highway design consultants who have been instructed by Aldi Stores Limited to undertake pre-application discussions in advance of a planning application for the proposed Aldi store on Hostmoor Avenue in March.

1.2 During pre-application discussions with Cambridgeshire County Council (CCC), acting as the Local Highway Authority (LHA), it was agreed in an email, dated 13th January 2021, that junction capacity tests for the A141 / Hostmoor Avenue Junction be undertaken based on the following scenarios:

1) 2021 and 2026 Base + McDonald's and Aldi without Westry Retail Park

   a. The existing baseline junction layout with calibrations made following survey work undertaken on Friday 2nd October 2020 and Saturday 3rd October 2020.

   b. The proposed signal-controlled junction layout assessed in the Connect Technical Note 'TN04 – Traffic Signal Junction Capacity Assessment' (12th November 2020)

2) 2026 Base + McDonald's and Aldi with Westry Retail Park

   a. The 45m roundabout layout consented for Westry Retail Park (local planning reference F/YR15/0640/F)

   b. The 60m roundabout layout proposed for Westry Retail Park (local planning reference F/YR18/0566/F)

1.3 In addition, Connect will consider scenario 1a, but without any junction capacity calibrations.

2.0 2021 and 2026 Base + McDonald's and Aldi without Westry Retail Park

<u>Existing Junction Layout - Calibrated</u>

2.1 The A141 / Hostmoor Avenue Junction has been tested based on the existing junction layout but with calibrations made to the 'direct intercept adjustment' value in the PICADY model.

2.2 The direct intercept was adjusted with a value of 55 PCUs per 15-minute time segment, which was calculated from observations made of the RFC of the junction via traffic surveys undertaken on Friday 2nd October 2020 and Saturday 3rd October 2020.

2.3 The assessment uses a 'DIRECT' demand profile, which is based on the unaltered surveyed flow inputs disaggregated into 15-minute time segments. This ensures that the demand profile best reflects the observed traffic conditions. The McDonald's and Aldi traffic have been assumed to exhibit the same traffic profile as existing traffic.

2.4 The results of the PICADY tests for the existing A141 / Hostmoor Avenue Junction, based on the 2021 and 2026 base scenarios, are shown at Table 2.1 below. The PICADY model outputs are provided at Appendix 1.

Table 2.1 – A141/Hostmoor Avenue Junction: Existing Layout – Calibrated

	AM			PM			SAT		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2021 Base								
Hostmoor Ave to A141 (S)	0.9	9.70	0.42	3.3	21.15	0.78	5.1	23.69	0.86
From A141 (S)	1.8	17.34	0.64	1.2	14.89	0.56	3.9	25.07	0.81
	2021 Base + McDonalds + Aldi								
Hostmoor Ave to A141 (S)	1.1	10.48	0.48	5.5	31.00	0.87	12.4	54.70	0.98
From A141 (S)	2.6	21.61	0.72	1.6	17.67	0.63	9.7	36.64	0.95
	2026 Base								
Hostmoor Ave to A141 (S)	1.0	10.65	0.46	5.9	33.52	0.87	11.2	54.76	0.96
From A141 (S)	2.6	22.51	0.72	1.7	18.98	0.64	4.3	26.60	0.83
	2026 Base + McDonalds + Aldi								
Hostmoor Ave to A141 (S)	1.3	11.59	0.52	11.0	62.84	0.96	37.3	163.27	1.08
From A141 (S)	4.0	28.35	0.80	2.4	23.42	0.72	23.8	57.14	1.05

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

2.5 The results of the 2021 PICADY tests, based on the existing junction layout with intercept calibrations, indicates that the junction approaches capacity during the Saturday peak hour, but remains within theoretical capacity with the McDonald's and Aldi in place.

2.6 In the 2026 scenario, the introduction of the McDonald's and Aldi results in the junction becoming over capacity during the Saturday peak hour, but remains within capacity during the AM and PM peak hours.

2.7 Normally an RFC of less than 0.85 is considered to indicate satisfactory performance of a junction to allow for a standard error within he PICADY formula of +/- 15%. However, the margin of error in this instance has been significantly reduced because the performance of the junction has been directly observed. Therefore, an RFC of 1.00 is more relevant in this case than 0.85.

Existing Junction Layout - Uncalibrated

2.8 The A141 / Hostmoor Avenue Junction has been tested based on the existing junction layout without 'direct intercept adjustments' applied to the model as above.

2.9 The same model inputs used in the calibrated model above have been inputted in this model without calibrations.

2.10 The results of the PICADY tests, based on the 2021 and 2026 base scenarios, are shown at Table 2.2. The PICADY model outputs are provided at Appendix 1.

Table 2.2 – A141/Hostmoor Avenue Junction: Existing Layout – Uncalibrated

	AM			PM			SAT		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2021 Base								
Hostmoor Ave to A141 (S)	1.7	18.42	0.59	39.4	271.42	1.13	71.7	393.01	1.17
From A141 (S)	1.8	17.34	0.64	1.2	14.91	0.56	3.9	25.07	0.81
	2021 Base + McDonalds + Aldi								
Hostmoor Ave to A141 (S)	2.3	21.91	0.67	84.4	532.24	1.25	163.4	861.30	1.33
From A141 (S)	2.6	21.61	0.72	1.6	17.70	0.63	9.7	36.64	0.95
	2026 Base								
Hostmoor Ave to A141 (S)	2.1	22.16	0.65	93.9	610.52	1.29	145.5	799.69	1.31
From A141 (S)	2.6	22.51	0.72	1.7	19.02	0.64	7.7	33.78	0.92
	2026 Base + McDonalds + Aldi								
Hostmoor Ave to A141 (S)	3.0	28.74	0.74	142.7	900.32	1.41	241.2	1296.26	1.48
From A141 (S)	4.0	28.35	0.80	2.4	23.51	0.72	23.8	57.14	1.05

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

2.11 The results of the PICADY tests, based on the existing junction layout without intercept calibrations, indicates that the Hostmoor Avenue approach is expected to operate overcapacity during the PM and Saturday peak hours in both the 2021 and 2026 base scenarios.

2.12 The A141 northbound approach is predicted to approach theoretical capacity during the Saturday peak hour in the 2021 base scenario with McDonald's and Aldi traffic, and overcapacity in the 2026 base scenario with McDonald's and Aldi traffic. The approach is expected to remain within capacity during the AM and PM peak hours.

<u>Proposed Signal-Controlled Junction Layout</u>

2.13 The Connect Technical Note 'TN04 – Traffic Signal Junction Capacity Assessment' (12th November 2020) tested the operation of the A141 / Hostmoor Avenue Junction based on an alternative layout proposed by Connect where all approaches are signal-controlled. An indicative layout of the proposed signal-controlled junction is shown at Appendix 2.

2.14 Following comments raised by CCC in a consultation document, dated 11th February 2021, in relation to TN04, the Linsig model of the proposed signal scheme has been revised. Details are provided in 'TN06 – Response to Pre-application Comments' (19th February 2021).

2.15 The results of the Linsig tests set out in TN06 are provided below at Table 2.3.

Table 2.3 – A141/Hostmoor Avenue Junction: Proposed Signal Layout

Junction Approach	AM 08:00-09:00		PM 16:45-17:45		SAT 11:30-12:30	
	DoS	MMQ	DoS	MMQ	DoS	MMQ
2021 Base + McDonald's + Aldi						
Hostmoor Avenue Left	52.2%	7.3	88.7%	17.5	78.7%	17.4
A141 Northbound Ahead	40.7%	0.3	47.5%	0.5	35.2%	0.3
A141 Northbound Right	78.5%	9.2	77.4%	9.3	69.6%	12.1
A141 Southbound Ahead Left	80.9 : 80.9%	19.5	88.9 : 88.9%	24.5	79.9 : 79.9%	13.9
2026 Base + McDonald's + Aldi						
Hostmoor Avenue Left	55.8%	7.9	95.5%	22.8	87.0%	21.7
A141 Northbound Ahead	44.1%	0.4	51.5%	0.5	38.7%	0.3
A141 Northbound Right	84.1%	10.6	83.2%	10.7	77.4%	14.2
A141 Southbound Ahead Left	87.6 : 87.6%	23.7	96.5 : 96.5%	33.9	85.1 : 85.1%	16.3

2.16 The Linsig model has been run on a three-stage sequence, Stage 2 of which includes the Hostmoor Avenue eastbound pedestrian crossing being called every cycle. In practice, it is expected that there will be a relatively low frequency of pedestrian calls for the crossing, perhaps once in every fourth cycle as an estimate. Therefore, the majority of cycles are likely to operate on a two-stage sequence, which could result in the junction potentially operating with more efficiency.

3.0 2026 Base + McDonald's and Aldi with Westry Retail Park

F/YR15/0640 – Consented 45m Roundabout

3.1 As part of the planning permission for the Westry Retail Park (local planning authority reference F/YR15/0640), it has been consented that the A141 / Hostmoor Avenue junction be redeveloped into a 45m diameter roundabout, with a new west access into the retail park.

3.2 The operation of the roundabout has been assessed using the ARCADY computer program for the 2026 base year, including Westry Retail Park traffic, with the proposed Aldi development and McDonald's traffic. The 2026 base year has been used as opposed to the 2021 assessment year because Westry Retail Park, and therefore the consented roundabout, will not be constructed in 2021.

3.3 The geometric properties of the consented roundabout are provided in the modelling outputs at Appendix 23 of the MTC Transport Assessment, dated October 2015, produced in support of the F/YR15/064 planning application.

3.4 The model has been assessed using a 'DIRECT' traffic profile, based on the observed 15-minute traffic flows recorded by the 2018 weekday and 2015 Saturday surveys undertaken at the junction.

3.5 The observed traffic movements through the junction have been calculated as proportionate values for each 15-minute time segment. As the consented roundabout will allow for the presently forbidden right-turn movement from Hostmoor Avenue to the A141, proportionate values for this movement have been calculated based on the 15-minute traffic flows observed for the A141 U-turn movement at Peas Hill Roundabout.

3.6 As the Westry Retail Park access did not exist when the surveys were undertaken, no proportionate values for these traffic movements can be calculated from the traffic surveys. Therefore, for simplicity, the demand profile through the retail park access arm is assumed to be 'FLAT' amongst the 15-minute segments that comprise each peak hour.

3.7 The Westry Retail Park flows are based on its consented GFA of 7,003 sq.m. with allowances made for secondary trip types.

3.8 The proportionate demand values have been applied to the 2026 base + Westry Retail Park + McDonald's + proposed development peak hour turning movements calculated in the Connect report 'TN02 – Response to Pre-application Comments' (17th August 2020) to disaggregate the peak hour flows into constituent 15-minute time segments.

3.9 The resultant 'DIRECT' 15-minute origin-destination traffic demands have been inputted into the ARCADY model and the results of the junction capacity tests are shown at Table 3.1 below. The ARCADY model outputs are provided at Appendix 3.

Table 3.1 – A141/Hostmoor Avenue Roundabout: 45m Diameter

	AM			PM			SAT		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2026 Base + Westry RP								
A141 (N)	3.0	10.14	0.76	4.6	15.02	0.83	1.8	8.16	0.64
Hostmoor Avenue	0.6	6.96	0.38	2.5	14.81	0.72	2.5	12.21	0.72
A141 (S)	2.2	6.92	0.69	3.3	9.05	0.77	2.9	8.31	0.75
Westry Retail Park	0.1	4.34	0.10	0.3	5.33	0.25	0.5	5.70	0.32
	2026 Base + Westry RP + McDonald's + Aldi								
A141 (N)	3.1	10.65	0.77	5.1	16.58	0.85	2.0	9.10	0.67
Hostmoor Avenue	0.7	7.15	0.43	3.4	18.58	0.78	4.1	17.29	0.82
A141 (S)	2.3	7.17	0.70	3.5	9.63	0.79	3.5	9.68	0.78
Westry Retail Park	0.1	4.43	0.11	0.3	5.52	0.26	0.5	6.25	0.35

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

3.10 The results of the ARCADY tests for the consented 45m roundabout indicate that the roundabout operates within capacity with the Aldi and McDonald's traffic.

F/YR18/0566/F – Proposed 60m Roundabout

3.11 As part of the planning application for the expansion of the consented Westry Retail Park (local planning authority reference F/YR18/0566/F), it is proposed that the consented 45m roundabout increase in diameter to 60m.

3.12 The operation of the roundabout has been assessed using the ARCADY computer program for the 2026 base year, including Westry Retail Park traffic based on its proposed GFA of 15,328.5 sq.m with allowances made for secondary trip types, with the proposed Aldi development and McDonald's traffic.

3.13 Again, the model is assessed using a 'DIRECT' traffic profile, based on the observed 15-minute traffic flows recorded by the 2018 weekday and 2015 Saturday surveys undertaken at the junction.

3.14 The geometric properties of the 60m roundabout are provided in the modelling outputs at Appendix 29 of the MTC Transport Assessment, dated October 2018, produced in support of the F/YR18/0566/F planning application.

3.15 The results of the junction capacity tests for the proposed 60m roundabout are shown at Table 3.2 below. The ARCDAY model outputs are shown at Appendix 4.

Table 3.2 – A141/Hostmoor Avenue Roundabout: 60m Diameter

	AM			PM			SAT		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2026 Base + Westry RP								
A141 (N)	2.2	7.11	0.69	3.8	11.29	0.80	1.8	7.41	0.65
Hostmoor Avenue	0.4	4.73	0.30	1.5	8.24	0.60	1.7	7.90	0.63
A141 (S)	1.5	4.58	0.61	2.5	6.23	0.72	2.4	6.01	0.71
Westry Retail Park	0.2	3.52	0.17	0.6	4.90	0.40	1.1	6.05	0.52
	2026 Base + Westry RP + McDonald's + Aldi								
A141 (N)	2.3	7.29	0.70	4.1	12.21	0.81	2.0	8.06	0.67
Hostmoor Avenue	0.5	4.77	0.34	1.8	9.29	0.65	2.4	9.75	0.72
A141 (S)	1.5	4.66	0.61	2.6	6.42	0.72	2.7	6.78	0.73
Westry Retail Park	0.2	3.54	0.17	0.7	5.00	0.40	1.2	6.66	0.55

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

3.16 The results of the ARCADY tests for the proposed 60m roundabout indicate that the roundabout will operate within capacity with the proposed development in place.

3.17 It has been assessed that the proposed 60m roundabout will be able to accommodate the expected increases in traffic demand as a result of local committed developments and the proposed discount foodstore more satisfactorily than the consented 45m roundabout.

4.0 Conclusions

4.1 For the existing junction layout, the calibrated PICADY model indicates that during the Saturday peak hour the junction is predicted to approach capacity in the 2021 base year with the McDonald's and Aldi in place and operate over capacity in the 2026 base year with the McDonald's and Aldi in place during the Saturday peak hour.

4.2 The uncalibrated version of the existing junction PICADY model indicates that the junction is predicted to operate over capacity during the PM and Saturday peak hours in both the 2021 and 2026 scenarios.

4.3 For the proposed signal-controlled layout, the junction is predicted to operate within theoretical capacity in the 2021 and 2026 base scenarios with the McDonald's and Aldi in place, but with the Hostmoor Avenue and A141 southbound arms approaching capacity in 2026.

4.4 For the consented 45m roundabout layout, the roundabout is predicted operate within capacity in the 2026 base scenario with the McDonald's and Aldi traffic.

4.5 For the proposed 60m roundabout layout, the roundabout is predicted to operate within capacity in the 2026 base + McDonald's + Aldi scenario.

Appendix 1 – Existing Junction Model Outputs

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: 20210210 A141 - A141 Jct DIRECT - Calibrated.j9
Path: K:\Aldi Chelmsford\March, Hostmoor Avenue\Calcs\Tests\For TN07
Report generation date: 19/02/2021 16:21:25

Summary of junction performance

	AM			PM			SAT		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2021 base								
Stream B-AC	0.9	9.70	0.42	3.3	21.15	0.78	5.1	23.69	0.86
Stream C-AB	1.8	17.34	0.64	1.2	14.89	0.56	3.9	25.07	0.81
	2021 base + McDonalds + Aldi								
Stream B-AC	1.1	10.48	0.48	5.5	31.00	0.87	12.4	54.70	0.98
Stream C-AB	2.6	21.61	0.72	1.6	17.67	0.63	9.7	36.64	0.95
	2026 base								
Stream B-AC	1.0	10.65	0.46	5.9	33.52	0.87	11.2	54.76	0.96
Stream C-AB	2.6	22.51	0.72	1.7	18.98	0.64	4.3	26.60	0.83
	2026 base + McDonalds + Aldi								
Stream B-AC	1.3	11.59	0.52	11.0	62.84	0.96	37.3	163.27	1.08
Stream C-AB	4.0	28.35	0.80	2.4	23.42	0.72	23.8	57.14	1.05

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	A141 - Hostmoor Ave priority junction
Location	
Site number	
Date	04/05/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CCL\TBritton
Description	

Units

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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2021 base	AM	DIRECT	08:00	09:00	60	15	✓
D2	2021 base	PM	DIRECT	16:45	17:45	60	15	✓
D3	2021 base	SAT	DIRECT	11:30	12:30	60	15	✓
D4	2021 base + McDonalds + Aldi	AM	DIRECT	08:00	09:00	60	15	✓
D5	2021 base + McDonalds + Aldi	PM	DIRECT	16:45	17:45	60	15	✓
D6	2021 base + McDonalds + Aldi	SAT	DIRECT	11:30	12:30	60	15	✓
D7	2026 base	AM	DIRECT	08:00	09:00	60	15	✓
D8	2026 base	PM	DIRECT	16:45	17:45	60	15	✓
D9	2026 base	SAT	DIRECT	11:30	12:30	60	15	✓
D10	2026 base + McDonalds + Aldi	AM	DIRECT	08:00	09:00	60	15	✓
D11	2026 base + McDonalds + Aldi	PM	DIRECT	16:45	17:45	60	15	✓
D12	2026 base + McDonalds + Aldi	SAT	DIRECT	11:30	12:30	60	15	✓

Analysis Set Details

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

2021 base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		3.37	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A141 N		Major
B	Hostmoor Avene		Minor
C	A141 S		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.91		✓	4.00	250.0	✓	15.00

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	One lane	4.52	43	62

Slope / Intercept / Capacity

Stream Intercept Adjustments

Stream intercept adjustment	Use adjustment	Reason	Direct intercept adjustment (PCU/TS)
B-AC	✓	To reflect observed traffic conditions	55.00

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	150.399	0.100	0.254	0.160	0.363
B-C	190.964	0.107	0.271	-	-
C-B	214.886	0.305	0.305	-	-

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 period length (min)	Time segment length (min)	Run automatically
D1	2021 base	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	32.00	166.00
	B	0.00	0.00	66.00
	C	223.00	55.00	0.00

08:15 - 08:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	39.00	197.00
	B	0.00	0.00	58.00
	C	176.00	50.00	0.00

08:30 - 08:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	32.00	175.00
	B	0.00	0.00	67.00
	C	158.00	65.00	0.00

08:45 - 09:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	29.00	155.00
	B	0.00	0.00	62.00
	C	153.00	93.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	16	11
	B	0	0	22
	C	12	11	0

08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	11
	B	0	0	16
	C	11	8	0

08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	11
	B	0	0	14
	C	11	8	0

08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	25	13
	B	0	0	14
	C	18	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.42	9.70	0.9	A	73.72	294.86
C-AB	0.64	17.34	1.8	C	70.32	281.29
C-A					200.20	800.79
A-B					36.63	146.50
A-C					193.08	772.33

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	80.52	80.52	191.98	0.419	79.65	0.0	0.9	9.704	A
C-AB	61.05	61.05	147.29	0.415	60.28	0.0	0.8	11.386	B
C-A	249.76	249.76			249.76				
A-B	37.12	37.12			37.12				
A-C	184.26	184.26			184.26				

08:15 - 08:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67.28	67.28	182.31	0.369	67.43	0.9	0.7	9.498	A
C-AB	54.00	54.00	135.85	0.398	54.03	0.8	0.7	12.172	B
C-A	195.36	195.36			195.36				
A-B	40.17	40.17			40.17				
A-C	218.67	218.67			218.67				

08:30 - 08:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	76.38	76.38	189.71	0.403	76.33	0.7	0.8	9.165	A
C-AB	70.20	70.20	145.51	0.482	69.96	0.7	1.0	12.820	B
C-A	175.38	175.38			175.38				
A-B	32.96	32.96			32.96				
A-C	194.25	194.25			194.25				

08:45 - 09:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	70.68	70.68	194.54	0.363	70.79	0.8	0.7	8.298	A
C-AB	96.04	96.04	150.70	0.637	95.20	1.0	1.8	17.335	C
C-A	180.29	180.29			180.29				
A-B	36.25	36.25			36.25				
A-C	175.15	175.15			175.15				

2021 base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		5.69	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 period length (min)	Time segment length (min)	Run automatically
D2	2021 base	PM	DIRECT	16:45	17:45	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

16:45 - 17:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	38.00	181.00
	B	0.00	0.00	115.00
	C	212.00	66.00	0.00

17:00 - 17:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	45.00	194.00
	B	0.00	0.00	143.00
	C	247.00	71.00	0.00

17:15 - 17:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	43.00	203.00
	B	0.00	0.00	137.00
	C	218.00	76.00	0.00

17:30 - 17:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	46.00	187.00
	B	0.00	0.00	131.00
	C	219.00	76.00	0.00

Vehicle Mix

16:45 - 17:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	8	8
	B	0	0	3
	C	6	2	0

17:00 - 17:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	5	5
	B	0	0	1
	C	4	0	0

17:15 - 17:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	5	5
	B	0	0	1
	C	4	0	0

17:30 - 17:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	3
	B	0	0	2
	C	6	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.78	21.15	3.3	C	133.72	534.87
C-AB	0.56	14.89	1.2	B	72.78	291.12
C-A					235.10	940.42
A-B					45.09	180.36
A-C					201.24	804.94

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	118.45	118.45	188.51	0.628	116.77	0.0	1.7	12.646	B
C-AB	67.32	67.32	142.67	0.472	66.43	0.0	0.9	11.909	B
C-A	224.72	224.72			224.72				
A-B	41.04	41.04			41.04				
A-C	195.48	195.48			195.48				

17:00 - 17:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	144.43	144.43	185.61	0.778	142.77	1.7	3.3	21.146	C
C-AB	71.01	71.01	138.27	0.514	70.85	0.9	1.0	13.569	B
C-A	256.87	256.87			256.87				
A-B	47.25	47.25			47.25				
A-C	203.70	203.70			203.70				

17:15 - 17:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	138.37	138.37	183.28	0.755	138.47	3.3	3.2	20.417	C
C-AB	76.02	76.02	136.05	0.559	75.84	1.0	1.2	14.892	B
C-A	226.70	226.70			226.70				
A-B	45.15	45.15			45.15				
A-C	213.15	213.15			213.15				

17:30 - 17:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	133.62	133.62	188.66	0.708	134.30	3.2	2.6	16.842	C
C-AB	76.77	76.77	141.77	0.542	76.80	1.2	1.2	13.861	B
C-A	232.13	232.13			232.13				
A-B	46.92	46.92			46.92				
A-C	192.61	192.61			192.61				

2021 base, SAT

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		11.25	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	2021 base	SAT	DIRECT	11:30	12:30	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

11:30 - 11:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	44.00	109.00
	B	0.00	0.00	178.00
	C	161.00	99.00	0.00

11:45 - 12:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	38.00	120.00
	B	0.00	0.00	163.00
	C	179.00	114.00	0.00

12:00 - 12:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	35.00	88.00
	B	0.00	0.00	170.00
	C	179.00	109.00	0.00

12:15 - 12:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	30.00	129.00
	B	0.00	0.00	166.00
	C	175.00	132.00	0.00

Vehicle Mix

11:30 - 11:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	8
	B	0	0	1
	C	1	0	0

11:45 - 12:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	4
	B	0	0	2
	C	4	1	0

12:00 - 12:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	4
	B	0	0	1
	C	4	1	0

12:15 - 12:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	6
	B	0	0	0
	C	4	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.86	23.69	5.1	C	170.94	683.74
C-AB	0.81	25.07	3.9	D	116.28	465.10
C-A					177.34	709.38
A-B					37.08	148.32
A-C					117.70	470.78

Main Results for each time segment

11:30 - 11:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	179.78	179.78	209.15	0.860	174.66	0.0	5.1	23.692	C
C-AB	99.05	99.05	165.18	0.600	97.60	0.0	1.4	13.058	B
C-A	162.56	162.56			162.56				
A-B	45.32	45.32			45.32				
A-C	117.72	117.72			117.72				

11:45 - 12:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	166.26	166.26	208.02	0.799	167.09	5.1	4.3	22.452	C
C-AB	115.69	115.69	165.96	0.697	114.97	1.4	2.2	17.312	C
C-A	185.61	185.61			185.61				
A-B	38.00	38.00			38.00				
A-C	124.80	124.80			124.80				

12:00 - 12:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	171.70	171.70	217.37	0.790	171.91	4.3	4.1	20.644	C
C-AB	110.20	110.20	176.43	0.625	110.63	2.2	1.7	13.915	B
C-A	186.05	186.05			186.05				
A-B	35.00	35.00			35.00				
A-C	91.52	91.52			91.52				

12:15 - 12:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	166.00	166.00	205.64	0.807	165.96	4.1	4.1	23.070	C
C-AB	140.17	140.17	172.29	0.814	137.97	1.7	3.9	25.066	D
C-A	175.15	175.15			175.15				
A-B	30.00	30.00			30.00				
A-C	136.74	136.74			136.74				

2021 base + McDonalds + Aldi, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		4.41	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 period length (min)	Time segment length (min)	Run automatically
D4	2021 base + McDonalds + Aldi	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	37.00	161.00
	B	0.00	0.00	78.00
	C	221.00	63.00	0.00

08:15 - 08:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	45.00	191.00
	B	0.00	0.00	68.00
	C	174.00	57.00	0.00

08:30 - 08:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	37.00	170.00
	B	0.00	0.00	79.00
	C	157.00	73.00	0.00

08:45 - 09:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	34.00	151.00
	B	0.00	0.00	73.00
	C	151.00	105.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	14	11
	B	0	0	19
	C	12	10	0

08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	11
	B	0	0	13
	C	11	7	0

08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	11
	B	0	0	13
	C	11	7	0

08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	22	13
	B	0	0	11
	C	18	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.48	10.48	1.1	B	84.99	339.96
C-AB	0.72	21.61	2.6	C	79.51	318.06
C-A					197.90	791.60
A-B					42.03	168.12
A-C					187.51	750.05

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	92.82	92.82	192.94	0.481	91.74	0.0	1.1	10.477	B
C-AB	69.30	69.30	147.44	0.470	68.35	0.0	1.0	12.376	B
C-A	247.52	247.52			247.52				
A-B	42.18	42.18			42.18				
A-C	178.71	178.71			178.71				

08:15 - 08:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	76.84	76.84	183.46	0.419	77.05	1.1	0.9	10.045	B
C-AB	60.99	60.99	136.00	0.448	61.04	1.0	0.9	13.195	B
C-A	193.14	193.14			193.14				
A-B	46.35	46.35			46.35				
A-C	212.01	212.01			212.01				

08:30 - 08:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	89.27	89.27	190.67	0.468	89.16	0.9	1.0	10.005	B
C-AB	78.13	78.13	145.66	0.536	77.83	0.9	1.2	14.131	B
C-A	174.25	174.25			174.25				
A-B	38.11	38.11			38.11				
A-C	188.70	188.70			188.70				

08:45 - 09:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	81.03	81.03	195.21	0.415	81.19	1.0	0.8	8.914	A
C-AB	109.64	109.64	152.06	0.721	108.23	1.2	2.6	21.610	C
C-A	176.69	176.69			176.69				
A-B	41.48	41.48			41.48				
A-C	170.63	170.63			170.63				

2021 base + McDonalds + Aldi, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		8.56	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 period length (min)	Time segment length (min)	Run automatically
D5	2021 base + McDonalds + Aldi	PM	DIRECT	16:45	17:45	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

16:45 - 17:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	42.00	176.00
	B	0.00	0.00	129.00
	C	210.00	74.00	0.00

17:00 - 17:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	50.00	188.00
	B	0.00	0.00	160.00
	C	245.00	80.00	0.00

17:15 - 17:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	48.00	198.00
	B	0.00	0.00	153.00
	C	216.00	86.00	0.00

17:30 - 17:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	51.00	182.00
	B	0.00	0.00	146.00
	C	217.00	86.00	0.00

Vehicle Mix

16:45 - 17:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	7	8
	B	0	0	3
	C	6	1	0

17:00 - 17:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	4	5
	B	0	0	1
	C	4	0	0

17:15 - 17:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	4	5
	B	0	0	1
	C	4	0	0

17:30 - 17:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	3
	B	0	0	1
	C	6	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.87	31.00	5.5	D	149.12	596.46
C-AB	0.63	17.67	1.6	C	81.97	327.88
C-A					232.94	931.78
A-B					49.72	198.88
A-C					195.71	782.84

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	132.87	132.87	189.56	0.701	130.59	0.0	2.3	15.196	C
C-AB	74.75	74.75	143.13	0.522	73.68	0.0	1.1	12.899	B
C-A	222.59	222.59			222.59				
A-B	44.94	44.94			44.94				
A-C	190.08	190.08			190.08				

17:00 - 17:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	161.60	161.60	186.81	0.865	158.38	2.3	5.5	30.622	D
C-AB	80.04	80.04	138.80	0.577	79.78	1.1	1.3	15.337	C
C-A	254.76	254.76			254.76				
A-B	52.00	52.00			52.00				
A-C	197.40	197.40			197.40				

17:15 - 17:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	154.53	154.53	184.19	0.839	154.57	5.5	5.5	30.995	D
C-AB	86.14	86.14	136.38	0.632	85.83	1.3	1.6	17.670	C
C-A	224.50	224.50			224.50				
A-B	49.92	49.92			49.92				
A-C	207.90	207.90			207.90				

17:30 - 17:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	147.46	147.46	189.51	0.778	149.07	5.5	3.9	23.339	C
C-AB	86.95	86.95	141.90	0.613	86.97	1.6	1.6	16.377	C
C-A	229.93	229.93			229.93				
A-B	52.02	52.02			52.02				
A-C	187.46	187.46			187.46				

2021 base + McDonalds + Aldi, SAT

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		24.84	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 period length (min)	Time segment length (min)	Run automatically
D6	2021 base + McDonalds + Aldi	SAT	DIRECT	11:30	12:30	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

11:30 - 11:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	54.00	100.00
	B	0.00	0.00	205.00
	C	156.00	115.00	0.00

11:45 - 12:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	47.00	110.00
	B	0.00	0.00	189.00
	C	175.00	133.00	0.00

12:00 - 12:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	43.00	81.00
	B	0.00	0.00	196.00
	C	175.00	127.00	0.00

12:15 - 12:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	38.00	119.00
	B	0.00	0.00	191.00
	C	170.00	154.00	0.00

Vehicle Mix

11:30 - 11:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	9
	B	0	0	1
	C	1	0	0

11:45 - 12:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	5
	B	0	0	1
	C	3	1	0

12:00 - 12:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	4
	B	0	0	1
	C	4	1	0

12:15 - 12:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	6
	B	0	0	0
	C	5	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.98	54.70	12.4	F	196.73	786.90
C-AB	0.95	36.64	9.7	E	153.20	612.82
C-A					154.66	618.63
A-B					46.01	184.02
A-C					108.72	434.88

Main Results for each time segment

11:30 - 11:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	207.05	207.05	210.47	0.984	194.64	0.0	12.4	42.611	E
C-AB	115.50	115.50	165.50	0.698	113.32	0.0	2.2	16.633	C
C-A	157.06	157.06			157.06				
A-B	55.08	55.08			55.08				
A-C	109.00	109.00			109.00				

11:45 - 12:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	190.89	190.89	209.47	0.911	191.40	12.4	11.9	53.946	F
C-AB	140.69	140.69	172.74	0.814	138.96	2.2	3.9	25.153	D
C-A	173.89	173.89			173.89				
A-B	47.94	47.94			47.94				
A-C	115.50	115.50			115.50				

12:00 - 12:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	197.96	197.96	218.49	0.906	198.62	11.9	11.2	49.078	E
C-AB	129.48	129.48	177.74	0.728	130.45	3.9	2.9	19.694	C
C-A	180.79	180.79			180.79				
A-B	43.00	43.00			43.00				
A-C	84.24	84.24			84.24				

12:15 - 12:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	191.00	191.00	207.65	0.920	191.00	11.2	11.2	54.703	F
C-AB	227.16	227.16	239.60	0.948	220.33	2.9	9.7	36.643	E
C-A	106.88	106.88			106.88				
A-B	38.00	38.00			38.00				
A-C	126.14	126.14			126.14				

2026 base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		4.13	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D7	2026 base	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	35.00	179.00
	B	0.00	0.00	71.00
	C	242.00	60.00	0.00

08:15 - 08:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	42.00	213.00
	B	0.00	0.00	62.00
	C	191.00	54.00	0.00

08:30 - 08:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	35.00	189.00
	B	0.00	0.00	72.00
	C	171.00	70.00	0.00

08:45 - 09:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	32.00	168.00
	B	0.00	0.00	67.00
	C	166.00	101.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	16	11
	B	0	0	22
	C	12	11	0

08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	11
	B	0	0	16
	C	11	8	0

08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	11
	B	0	0	14
	C	11	8	0

08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	25	13
	B	0	0	14
	C	18	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.46	10.65	1.0	B	79.25	317.00
C-AB	0.72	22.51	2.6	C	76.57	306.29
C-A					216.75	867.00
A-B					39.98	159.91
A-C					208.69	834.75

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	86.62	86.62	187.69	0.462	85.60	0.0	1.0	10.653	B
C-AB	66.60	66.60	141.83	0.470	65.65	0.0	1.0	12.960	B
C-A	271.04	271.04			271.04				
A-B	40.60	40.60			40.60				
A-C	198.69	198.69			198.69				

08:15 - 08:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	71.92	71.92	177.16	0.406	72.10	1.0	0.8	10.419	B
C-AB	58.32	58.32	129.48	0.450	58.36	1.0	0.9	14.036	B
C-A	212.01	212.01			212.01				
A-B	43.26	43.26			43.26				
A-C	236.43	236.43			236.43				

08:30 - 08:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	82.08	82.08	185.16	0.443	82.02	0.8	0.9	10.082	B
C-AB	75.62	75.62	139.85	0.541	75.31	0.9	1.2	14.980	B
C-A	189.79	189.79			189.79				
A-B	36.05	36.05			36.05				
A-C	209.79	209.79			209.79				

08:45 - 09:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	76.38	76.38	190.15	0.402	76.51	0.9	0.8	9.039	A
C-AB	105.74	105.74	146.93	0.720	104.35	1.2	2.6	22.508	C
C-A	194.17	194.17			194.17				
A-B	40.00	40.00			40.00				
A-C	189.84	189.84			189.84				

2026 base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		8.56	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 period length (min)	Time segment length (min)	Run automatically
D8	2026 base	PM	DIRECT	16:45	17:45	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

16:45 - 17:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	41.00	196.00
	B	0.00	0.00	125.00
	C	230.00	71.00	0.00

17:00 - 17:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	49.00	210.00
	B	0.00	0.00	156.00
	C	268.00	77.00	0.00

17:15 - 17:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	46.00	220.00
	B	0.00	0.00	149.00
	C	236.00	83.00	0.00

17:30 - 17:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	50.00	203.00
	B	0.00	0.00	142.00
	C	237.00	83.00	0.00

Vehicle Mix

16:45 - 17:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	8	8
	B	0	0	4
	C	6	2	0

17:00 - 17:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	5	5
	B	0	0	1
	C	4	0	0

17:15 - 17:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	5	5
	B	0	0	1
	C	4	0	0

17:30 - 17:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	3
	B	0	0	2
	C	6	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.87	33.52	5.9	D	145.72	582.89
C-AB	0.64	18.98	1.7	C	79.16	316.63
C-A					254.70	1018.80
A-B					48.76	195.03
A-C					218.07	872.27

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	130.00	130.00	183.77	0.707	127.64	0.0	2.4	16.069	C
C-AB	72.43	72.43	136.75	0.530	71.32	0.0	1.1	13.809	B
C-A	243.79	243.79			243.79				
A-B	44.28	44.28			44.28				
A-C	211.68	211.68			211.68				

17:00 - 17:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	157.56	157.56	180.60	0.872	154.06	2.4	5.9	33.326	D
C-AB	77.06	77.06	131.95	0.584	76.79	1.1	1.4	16.577	C
C-A	278.66	278.66			278.66				
A-B	51.45	51.45			51.45				
A-C	220.50	220.50			220.50				

17:15 - 17:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	150.49	150.49	178.09	0.845	150.57	5.9	5.8	33.521	D
C-AB	83.20	83.20	129.90	0.640	82.88	1.4	1.7	18.982	C
C-A	245.24	245.24			245.24				
A-B	48.30	48.30			48.30				
A-C	231.00	231.00			231.00				

17:30 - 17:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	144.84	144.84	183.75	0.788	146.57	5.8	4.1	25.191	D
C-AB	83.94	83.94	135.65	0.619	83.98	1.7	1.7	17.416	C
C-A	251.11	251.11			251.11				
A-B	51.00	51.00			51.00				
A-C	209.09	209.09			209.09				

2026 base, SAT

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		20.56	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 period length (min)	Time segment length (min)	Run automatically
D9	2026 base	SAT	DIRECT	11:30	12:30	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

11:30 - 11:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	48.00	119.00
	B	0.00	0.00	195.00
	C	176.00	108.00	0.00

11:45 - 12:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	46.00	127.00
	B	0.00	0.00	188.00
	C	196.00	132.00	0.00

12:00 - 12:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	38.00	96.00
	B	0.00	0.00	186.00
	C	196.00	119.00	0.00

12:15 - 12:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	48.00	119.00
	B	0.00	0.00	195.00
	C	176.00	108.00	0.00

Vehicle Mix

11:30 - 11:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	8
	B	0	0	1
	C	1	0	0

11:45 - 12:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	4
	B	0	0	2
	C	4	1	0

12:00 - 12:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	4
	B	0	0	1
	C	4	1	0

12:15 - 12:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	6
	B	0	0	0
	C	4	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.96	54.76	11.2	F	192.89	771.57
C-AB	0.83	26.60	4.3	D	120.45	481.80
C-A					189.32	757.27
A-B					45.36	181.44
A-C					121.65	486.58

Main Results for each time segment

11:30 - 11:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	196.95	196.95	205.78	0.957	186.93	0.0	10.0	37.755	E
C-AB	108.31	108.31	161.01	0.673	106.36	0.0	2.0	15.956	C
C-A	177.45	177.45			177.45				
A-B	49.44	49.44			49.44				
A-C	128.52	128.52			128.52				

11:45 - 12:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	191.76	191.76	205.18	0.935	190.95	10.0	10.8	54.094	F
C-AB	143.22	143.22	172.30	0.831	140.88	2.0	4.3	26.599	D
C-A	193.94	193.94			193.94				
A-B	46.00	46.00			46.00				
A-C	132.08	132.08			132.08				

12:00 - 12:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	187.86	187.86	214.79	0.875	190.02	10.8	8.7	41.289	E
C-AB	120.84	120.84	173.90	0.695	122.67	4.3	2.5	18.398	C
C-A	203.19	203.19			203.19				
A-B	38.00	38.00			38.00				
A-C	99.84	99.84			99.84				

12:15 - 12:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	195.00	195.00	206.58	0.944	192.46	8.7	11.2	54.761	F
C-AB	109.44	109.44	162.24	0.675	109.70	2.5	2.2	17.429	C
C-A	182.68	182.68			182.68				
A-B	48.00	48.00			48.00				
A-C	126.14	126.14			126.14				

2026 base + McDonalds + Aldi, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		5.52	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 period length (min)	Time segment length (min)	Run automatically
D10	2026 base + McDonalds + Aldi	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	40.00	174.00
	B	0.00	0.00	83.00
	C	239.00	67.00	0.00

08:15 - 08:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	48.00	208.00
	B	0.00	0.00	73.00
	C	189.00	61.00	0.00

08:30 - 08:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	40.00	184.00
	B	0.00	0.00	85.00
	C	170.00	79.00	0.00

08:45 - 09:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	36.00	163.00
	B	0.00	0.00	78.00
	C	164.00	113.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	14	11
	B	0	0	19
	C	12	10	0

08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	11
	B	0	0	13
	C	11	7	0

08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	11
	B	0	0	13
	C	11	7	0

08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	22	13
	B	0	0	12
	C	18	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.52	11.59	1.3	B	91.17	364.67
C-AB	0.80	28.35	4.0	D	87.07	348.30
C-A					212.82	851.28
A-B					45.04	180.16
A-C					203.11	812.45

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	98.77	98.77	188.66	0.524	97.50	0.0	1.3	11.595	B
C-AB	73.72	73.72	142.02	0.519	72.57	0.0	1.1	14.037	B
C-A	267.66	267.66			267.66				
A-B	45.60	45.60			45.60				
A-C	193.14	193.14			193.14				

08:15 - 08:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	82.49	82.49	178.00	0.463	82.71	1.3	1.1	11.264	B
C-AB	65.28	65.28	129.31	0.505	65.31	1.1	1.1	15.491	C
C-A	209.78	209.78			209.78				
A-B	49.44	49.44			49.44				
A-C	230.88	230.88			230.88				

08:30 - 08:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	96.05	96.05	186.12	0.516	95.92	1.1	1.2	11.255	B
C-AB	84.63	84.63	140.10	0.604	84.18	1.1	1.6	17.072	C
C-A	188.60	188.60			188.60				
A-B	41.20	41.20			41.20				
A-C	204.24	204.24			204.24				

08:45 - 09:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	87.36	87.36	191.27	0.457	87.57	1.2	1.0	9.824	A
C-AB	124.67	124.67	154.95	0.805	122.24	1.6	4.0	28.351	D
C-A	185.24	185.24			185.24				
A-B	43.92	43.92			43.92				
A-C	184.19	184.19			184.19				

2026 base + McDonalds + Aldi, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		15.83	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 period length (min)	Time segment length (min)	Run automatically
D11	2026 base + McDonalds + Aldi	PM	DIRECT	16:45	17:45	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

16:45 - 17:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	45.00	191.00
	B	0.00	0.00	138.00
	C	229.00	80.00	0.00

17:00 - 17:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	54.00	205.00
	B	0.00	0.00	172.00
	C	266.00	86.00	0.00

17:15 - 17:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	51.00	215.00
	B	0.00	0.00	165.00
	C	234.00	93.00	0.00

17:30 - 17:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	55.00	198.00
	B	0.00	0.00	157.00
	C	235.00	93.00	0.00

Vehicle Mix

16:45 - 17:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	8	8
	B	0	0	3
	C	6	1	0

17:00 - 17:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	4	5
	B	0	0	1
	C	4	0	0

17:15 - 17:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	4	5
	B	0	0	1
	C	4	0	0

17:30 - 17:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	3
	B	0	0	1
	C	6	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.96	62.84	11.0	F	160.27	641.08
C-AB	0.72	23.42	2.4	C	88.99	355.96
C-A					252.40	1009.61
A-B					53.48	213.90
A-C					212.81	851.22

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	142.14	142.14	184.77	0.769	139.01	0.0	3.1	19.141	C
C-AB	80.86	80.86	137.15	0.590	79.46	0.0	1.4	15.415	C
C-A	242.68	242.68			242.68				
A-B	48.60	48.60			48.60				
A-C	206.28	206.28			206.28				

17:00 - 17:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	173.72	173.72	181.52	0.957	166.41	3.1	10.4	50.165	F
C-AB	86.32	86.32	132.50	0.652	85.91	1.4	1.8	19.372	C
C-A	276.32	276.32			276.32				
A-B	56.16	56.16			56.16				
A-C	215.25	215.25			215.25				

17:15 - 17:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	166.65	166.65	179.01	0.931	166.11	10.4	11.0	62.836	F
C-AB	94.18	94.18	131.38	0.717	93.61	1.8	2.4	23.418	C
C-A	242.18	242.18			242.18				
A-B	53.04	53.04			53.04				
A-C	225.75	225.75			225.75				

17:30 - 17:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	158.57	158.57	184.60	0.859	162.26	11.0	7.3	44.640	E
C-AB	94.60	94.60	136.46	0.693	94.64	2.4	2.3	21.508	C
C-A	248.43	248.43			248.43				
A-B	56.10	56.10			56.10				
A-C	203.94	203.94			203.94				

2026 base + McDonalds + Aldi, SAT

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		64.74	F

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 period length (min)	Time segment length (min)	Run automatically
D12	2026 base + McDonalds + Aldi	SAT	DIRECT	11:30	12:30	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

11:30 - 11:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	58.00	111.00
	B	0.00	0.00	222.00
	C	171.00	125.00	0.00

11:45 - 12:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	51.00	122.00
	B	0.00	0.00	204.00
	C	192.00	144.00	0.00

12:00 - 12:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	46.00	89.00
	B	0.00	0.00	212.00
	C	192.00	137.00	0.00

12:15 - 12:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	40.00	131.00
	B	0.00	0.00	207.00
	C	187.00	166.00	0.00

Vehicle Mix

11:30 - 11:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	9
	B	0	0	1
	C	1	0	0

11:45 - 12:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	4
	B	0	0	1
	C	4	1	0

12:00 - 12:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	4
	B	0	0	1
	C	4	1	0

12:15 - 12:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	6
	B	0	0	0
	C	4	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	1.08	163.27	37.3	F	212.85	851.38
C-AB	1.05	57.14	23.8	F	204.68	818.73
C-A					131.07	524.29
A-B					49.04	196.16
A-C					119.82	479.29

Main Results for each time segment

11:30 - 11:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	224.22	224.22	206.78	1.084	198.86	0.0	25.4	70.457	F
C-AB	128.37	128.37	164.18	0.782	125.12	0.0	3.3	21.592	C
C-A	169.34	169.34			169.34				
A-B	59.16	59.16			59.16				
A-C	120.99	120.99			120.99				

11:45 - 12:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	206.04	206.04	206.06	1.000	202.30	25.4	29.1	129.896	F
C-AB	183.83	183.83	202.57	0.907	179.88	3.3	7.2	34.054	D
C-A	161.29	161.29			161.29				
A-B	51.00	51.00			51.00				
A-C	126.88	126.88			126.88				

12:00 - 12:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	214.12	214.12	215.91	0.992	211.86	29.1	31.4	136.289	F
C-AB	144.39	144.39	180.57	0.800	146.78	7.2	4.8	29.304	D
C-A	193.66	193.66			193.66				
A-B	46.00	46.00			46.00				
A-C	92.56	92.56			92.56				

12:15 - 12:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	207.00	207.00	203.99	1.015	201.06	31.4	37.3	163.266	F
C-AB	362.14	362.14	344.75	1.050	343.18	4.8	23.8	57.137	F
C-A	0.00	0.00			0.00				
A-B	40.00	40.00			40.00				
A-C	138.86	138.86			138.86				

Junctions 9

PICADY 9 - Priority Intersection Module

Filename: 20210210 A141 - A141 Jct DIRECT - Uncalibrated.j9
Path: K:\Aldi Chelmsford\March, Hostmoor Avenue\Calcs\Tests\For TN07
Report generation date: 19/02/2021 16:18:15

Summary of junction performance

	AM			PM			SAT		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2021 base								
Stream B-AC	1.7	18.42	0.59	39.4	271.42	1.13	71.7	393.01	1.17
Stream C-AB	1.8	17.34	0.64	1.2	14.91	0.56	3.9	25.07	0.81
	2021 base + McDonalds + Aldi								
Stream B-AC	2.3	21.91	0.67	84.4	532.24	1.25	163.4	861.30	1.33
Stream C-AB	2.6	21.61	0.72	1.6	17.70	0.63	9.7	36.64	0.95
	2026 base								
Stream B-AC	2.1	22.16	0.65	93.9	610.52	1.29	145.5	799.69	1.31
Stream C-AB	2.6	22.51	0.72	1.7	19.02	0.64	7.7	33.78	0.92
	2026 base + McDonalds + Aldi								
Stream B-AC	3.0	28.74	0.74	142.7	900.32	1.41	241.2	1296.26	1.48
Stream C-AB	4.0	28.35	0.80	2.4	23.51	0.72	23.8	57.14	1.05

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

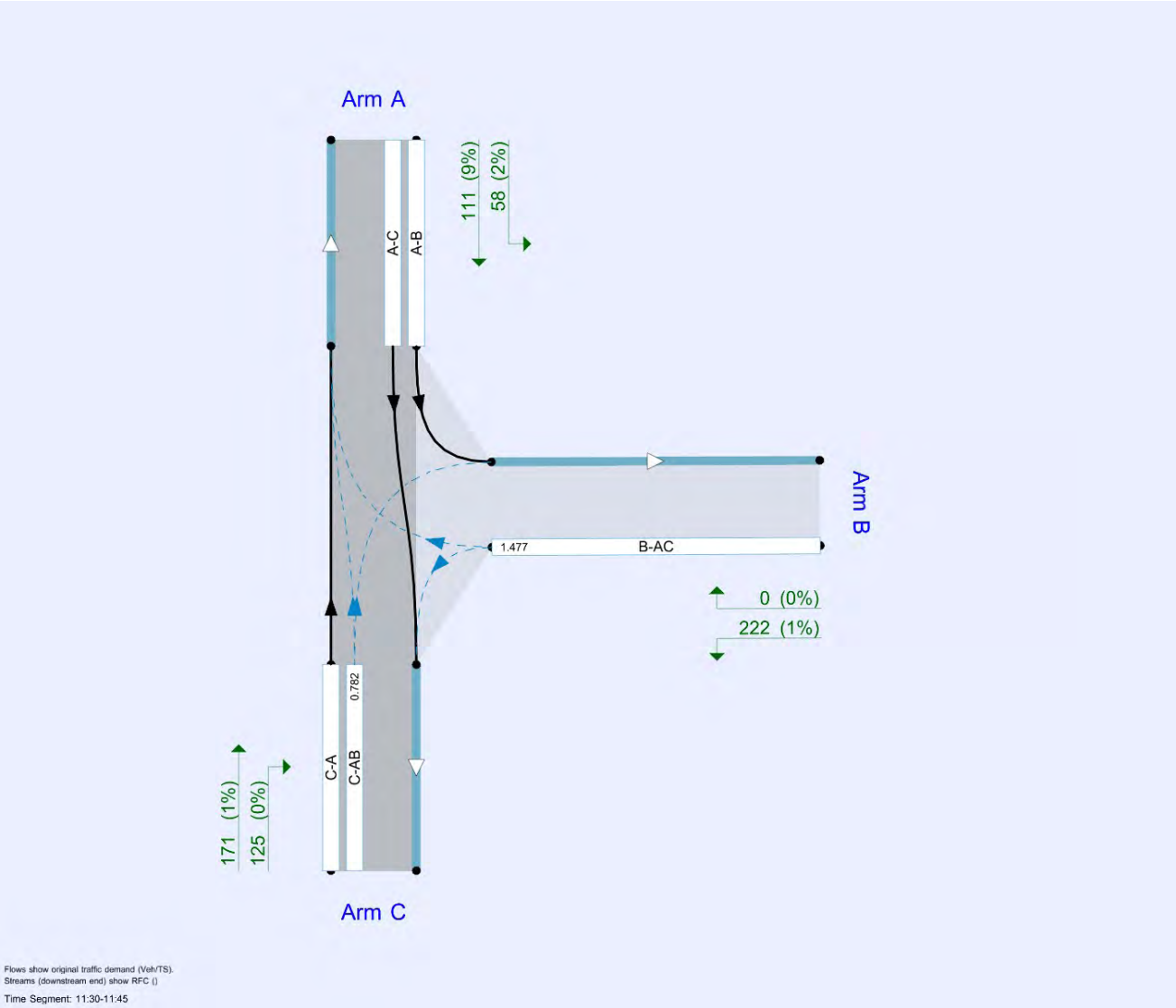
File summary

File Description

Title	A141 - Hostmoor Ave priority junction
Location	
Site number	
Date	04/05/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CCL\TBritton
Description	

Units

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



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2021 base	AM	DIRECT	08:00	09:00	60	15	✓
D2	2021 base	PM	DIRECT	16:45	17:45	60	15	✓
D3	2021 base	SAT	DIRECT	11:30	12:30	60	15	✓
D4	2021 base + McDonalds + Aldi	AM	DIRECT	08:00	09:00	60	15	✓
D5	2021 base + McDonalds + Aldi	PM	DIRECT	16:45	17:45	60	15	✓
D6	2021 base + McDonalds + Aldi	SAT	DIRECT	11:30	12:30	60	15	✓
D7	2026 base	AM	DIRECT	08:00	09:00	60	15	✓
D8	2026 base	PM	DIRECT	16:45	17:45	60	15	✓
D9	2026 base	SAT	DIRECT	11:30	12:30	60	15	✓
D10	2026 base + McDonalds + Aldi	AM	DIRECT	08:00	09:00	60	15	✓
D11	2026 base + McDonalds + Aldi	PM	DIRECT	16:45	17:45	60	15	✓
D12	2026 base + McDonalds + Aldi	SAT	DIRECT	11:30	12:30	60	15	✓

Analysis Set Details

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

2021 base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		4.48	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	A141 N		Major
B	Hostmoor Avene		Minor
C	A141 S		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.91		✓	4.00	250.0	✓	15.00

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	One lane	4.52	43	62

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	150.399	0.100	0.254	0.160	0.363
B-C	190.964	0.107	0.271	-	-
C-B	214.886	0.305	0.305	-	-

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 period length (min)	Time segment length (min)	Run automatically
D1	2021 base	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	32.00	166.00
	B	0.00	0.00	66.00
	C	223.00	55.00	0.00

08:15 - 08:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	39.00	197.00
	B	0.00	0.00	58.00
	C	176.00	50.00	0.00

08:30 - 08:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	32.00	175.00
	B	0.00	0.00	67.00
	C	158.00	65.00	0.00

08:45 - 09:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	29.00	155.00
	B	0.00	0.00	62.00
	C	153.00	93.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	16	11
	B	0	0	22
	C	12	11	0

08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	16	8
	B	0	0	16
	C	17	8	0

08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	11
	B	0	0	16
	C	11	8	0

08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	25	13
	B	0	0	14
	C	18	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.59	18.42	1.7	C	74.05	296.20
C-AB	0.64	17.34	1.8	C	70.32	281.29
C-A					202.84	811.35
A-B					37.89	151.57
A-C					191.61	766.42

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	80.52	80.52	136.98	0.588	78.86	0.0	1.7	18.416	C
C-AB	61.05	61.05	147.29	0.415	60.28	0.0	0.8	11.386	B
C-A	249.76	249.76			249.76				
A-B	37.12	37.12			37.12				
A-C	184.26	184.26			184.26				

08:15 - 08:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	67.28	67.28	128.37	0.524	67.54	1.7	1.4	18.238	C
C-AB	54.00	54.00	136.10	0.397	54.03	0.8	0.7	12.134	B
C-A	205.92	205.92			205.92				
A-B	45.24	45.24			45.24				
A-C	212.76	212.76			212.76				

08:30 - 08:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	77.72	77.72	134.71	0.577	77.59	1.4	1.5	18.212	C
C-AB	70.20	70.20	145.51	0.482	69.96	0.7	1.0	12.820	B
C-A	175.38	175.38			175.38				
A-B	32.96	32.96			32.96				
A-C	194.25	194.25			194.25				

08:45 - 09:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	70.68	70.68	139.54	0.507	70.98	1.5	1.2	15.310	C
C-AB	96.04	96.04	150.70	0.637	95.20	1.0	1.8	17.335	C
C-A	180.29	180.29			180.29				
A-B	36.25	36.25			36.25				
A-C	175.15	175.15			175.15				

2021 base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		54.31	F

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 period length (min)	Time segment length (min)	Run automatically
D2	2021 base	PM	DIRECT	16:45	17:45	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

16:45 - 17:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	38.00	181.00
	B	0.00	0.00	115.00
	C	212.00	66.00	0.00

17:00 - 17:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	45.00	194.00
	B	0.00	0.00	143.00
	C	247.00	71.00	0.00

17:15 - 17:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	43.00	203.00
	B	0.00	0.00	137.00
	C	218.00	76.00	0.00

17:30 - 17:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	46.00	187.00
	B	0.00	0.00	131.00
	C	219.00	76.00	0.00

Vehicle Mix

16:45 - 17:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	8	8
	B	0	0	4
	C	6	2	0

17:00 - 17:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	7	8
	B	0	0	2
	C	6	0	0

17:15 - 17:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	5	5
	B	0	0	1
	C	4	0	0

17:30 - 17:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	3
	B	0	0	2
	C	6	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	1.13	271.42	39.4	F	134.36	537.45
C-AB	0.56	14.91	1.2	B	72.78	291.12
C-A					236.34	945.36
A-B					45.32	181.26
A-C					202.69	810.76

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	119.60	119.60	133.51	0.896	113.65	0.0	6.0	39.663	E
C-AB	67.32	67.32	142.67	0.472	66.43	0.0	0.9	11.909	B
C-A	224.72	224.72			224.72				
A-B	41.04	41.04			41.04				
A-C	195.48	195.48			195.48				

17:00 - 17:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	145.86	145.86	128.94	1.131	125.42	6.0	26.4	135.448	F
C-AB	71.01	71.01	136.22	0.521	70.82	0.9	1.1	13.984	B
C-A	261.81	261.81			261.81				
A-B	48.15	48.15			48.15				
A-C	209.52	209.52			209.52				

17:15 - 17:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	138.37	138.37	128.28	1.079	126.97	26.4	37.8	240.794	F
C-AB	76.02	76.02	136.05	0.559	75.87	1.1	1.2	14.907	B
C-A	226.70	226.70			226.70				
A-B	45.15	45.15			45.15				
A-C	213.15	213.15			213.15				

17:30 - 17:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	133.62	133.62	133.66	1.000	132.02	37.8	39.4	271.417	F
C-AB	76.77	76.77	141.77	0.542	76.80	1.2	1.2	13.861	B
C-A	232.13	232.13			232.13				
A-B	46.92	46.92			46.92				
A-C	192.61	192.61			192.61				

2021 base, SAT

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		113.42	F

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 period length (min)	Time segment length (min)	Run automatically
D3	2021 base	SAT	DIRECT	11:30	12:30	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

11:30 - 11:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	44.00	109.00
	B	0.00	0.00	178.00
	C	161.00	99.00	0.00

11:45 - 12:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	38.00	120.00
	B	0.00	0.00	163.00
	C	179.00	114.00	0.00

12:00 - 12:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	35.00	88.00
	B	0.00	0.00	170.00
	C	179.00	109.00	0.00

12:15 - 12:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	30.00	129.00
	B	0.00	0.00	166.00
	C	175.00	132.00	0.00

Vehicle Mix

11:30 - 11:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	8
	B	0	0	1
	C	1	0	0

11:45 - 12:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	5
	B	0	0	2
	C	2	1	0

12:00 - 12:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	4
	B	0	0	2
	C	4	1	0

12:15 - 12:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	6
	B	0	0	0
	C	4	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	1.17	393.01	71.7	F	171.36	685.44
C-AB	0.81	25.07	3.9	D	116.28	465.13
C-A					176.44	705.77
A-B					37.37	149.46
A-C					118.00	471.98

Main Results for each time segment

11:30 - 11:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	179.78	179.78	154.15	1.166	149.22	0.0	30.6	105.949	F
C-AB	99.05	99.05	165.18	0.600	97.60	0.0	1.4	13.058	B
C-A	162.56	162.56			162.56				
A-B	45.32	45.32			45.32				
A-C	117.72	117.72			117.72				

11:45 - 12:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	166.26	166.26	152.57	1.090	152.87	30.6	43.9	231.356	F
C-AB	115.72	115.72	165.29	0.700	114.97	1.4	2.2	17.530	C
C-A	182.00	182.00			182.00				
A-B	39.14	39.14			39.14				
A-C	126.00	126.00			126.00				

12:00 - 12:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	173.40	173.40	162.37	1.068	161.72	43.9	55.6	292.219	F
C-AB	110.20	110.20	176.43	0.625	110.66	2.2	1.7	13.927	B
C-A	186.05	186.05			186.05				
A-B	35.00	35.00			35.00				
A-C	91.52	91.52			91.52				

12:15 - 12:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	166.00	166.00	150.64	1.102	149.93	55.6	71.7	393.006	F
C-AB	140.17	140.17	172.29	0.814	137.97	1.7	3.9	25.066	D
C-A	175.15	175.15			175.15				
A-B	30.00	30.00			30.00				
A-C	136.74	136.74			136.74				

2021 base + McDonalds + Aldi, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		6.03	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2021 base + McDonalds + Aldi	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	37.00	161.00
	B	0.00	0.00	78.00
	C	221.00	63.00	0.00

08:15 - 08:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	45.00	191.00
	B	0.00	0.00	68.00
	C	174.00	57.00	0.00

08:30 - 08:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	37.00	170.00
	B	0.00	0.00	79.00
	C	157.00	73.00	0.00

08:45 - 09:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	34.00	151.00
	B	0.00	0.00	73.00
	C	151.00	105.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	14	11
	B	0	0	19
	C	12	10	0

08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	14	8
	B	0	0	14
	C	17	7	0

08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	11
	B	0	0	13
	C	11	7	0

08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	22	13
	B	0	0	11
	C	18	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.67	21.91	2.3	C	85.16	340.64
C-AB	0.72	21.61	2.6	C	79.51	318.06
C-A					200.51	802.04
A-B					43.27	173.07
A-C					186.08	744.32

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	92.82	92.82	137.94	0.673	90.55	0.0	2.3	21.686	C
C-AB	69.30	69.30	147.44	0.470	68.35	0.0	1.0	12.376	B
C-A	247.52	247.52			247.52				
A-B	42.18	42.18			42.18				
A-C	178.71	178.71			178.71				

08:15 - 08:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	77.52	77.52	129.48	0.599	77.91	2.3	1.9	21.231	C
C-AB	60.99	60.99	136.24	0.448	61.04	1.0	0.9	13.157	B
C-A	203.58	203.58			203.58				
A-B	51.30	51.30			51.30				
A-C	206.28	206.28			206.28				

08:30 - 08:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	89.27	89.27	135.67	0.658	89.06	1.9	2.1	21.908	C
C-AB	78.13	78.13	145.66	0.536	77.83	0.9	1.2	14.131	B
C-A	174.25	174.25			174.25				
A-B	38.11	38.11			38.11				
A-C	188.70	188.70			188.70				

08:45 - 09:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	81.03	81.03	140.21	0.578	81.51	2.1	1.6	17.538	C
C-AB	109.64	109.64	152.06	0.721	108.23	1.2	2.6	21.610	C
C-A	176.69	176.69			176.69				
A-B	41.48	41.48			41.48				
A-C	170.63	170.63			170.63				

2021 base + McDonalds + Aldi, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		113.69	F

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 period length (min)	Time segment length (min)	Run automatically
D5	2021 base + McDonalds + Aldi	PM	DIRECT	16:45	17:45	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

16:45 - 17:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	42.00	176.00
	B	0.00	0.00	129.00
	C	210.00	74.00	0.00

17:00 - 17:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	50.00	188.00
	B	0.00	0.00	160.00
	C	245.00	80.00	0.00

17:15 - 17:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	48.00	198.00
	B	0.00	0.00	153.00
	C	216.00	86.00	0.00

17:30 - 17:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	51.00	182.00
	B	0.00	0.00	146.00
	C	217.00	86.00	0.00

Vehicle Mix

16:45 - 17:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	7	8
	B	0	0	3
	C	6	1	0

17:00 - 17:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	6	8
	B	0	0	2
	C	6	0	0

17:15 - 17:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	4	5
	B	0	0	1
	C	4	0	0

17:30 - 17:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	3
	B	0	0	1
	C	6	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	1.25	532.24	84.4	F	149.52	598.06
C-AB	0.63	17.70	1.6	C	81.97	327.89
C-A					234.17	936.67
A-B					49.97	199.88
A-C					197.12	788.48

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	132.87	132.87	134.56	0.987	122.45	0.0	10.4	56.304	F
C-AB	74.75	74.75	143.13	0.522	73.68	0.0	1.1	12.899	B
C-A	222.59	222.59			222.59				
A-B	44.94	44.94			44.94				
A-C	190.08	190.08			190.08				

17:00 - 17:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	163.20	163.20	130.18	1.254	128.16	10.4	45.5	213.487	F
C-AB	80.06	80.06	136.79	0.585	79.75	1.1	1.4	15.857	C
C-A	259.64	259.64			259.64				
A-B	53.00	53.00			53.00				
A-C	203.04	203.04			203.04				

17:15 - 17:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	154.53	154.53	129.19	1.196	128.78	45.5	71.2	415.458	F
C-AB	86.14	86.14	136.38	0.632	85.88	1.4	1.6	17.698	C
C-A	224.50	224.50			224.50				
A-B	49.92	49.92			49.92				
A-C	207.90	207.90			207.90				

17:30 - 17:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	147.46	147.46	134.51	1.096	134.31	71.2	84.4	532.243	F
C-AB	86.95	86.95	141.90	0.613	86.97	1.6	1.6	16.377	C
C-A	229.93	229.93			229.93				
A-B	52.02	52.02			52.02				
A-C	187.46	187.46			187.46				

2021 base + McDonalds + Aldi, SAT

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		265.51	F

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 period length (min)	Time segment length (min)	Run automatically
D6	2021 base + McDonalds + Aldi	SAT	DIRECT	11:30	12:30	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

11:30 - 11:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	54.00	100.00
	B	0.00	0.00	205.00
	C	156.00	115.00	0.00

11:45 - 12:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	47.00	110.00
	B	0.00	0.00	189.00
	C	175.00	133.00	0.00

12:00 - 12:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	43.00	81.00
	B	0.00	0.00	196.00
	C	175.00	127.00	0.00

12:15 - 12:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	38.00	119.00
	B	0.00	0.00	191.00
	C	170.00	154.00	0.00

Vehicle Mix

11:30 - 11:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	9
	B	0	0	1
	C	1	0	0

11:45 - 12:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	5
	B	0	0	1
	C	3	1	0

12:00 - 12:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	4
	B	0	0	1
	C	4	1	0

12:15 - 12:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	6
	B	0	0	0
	C	5	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	1.33	861.30	163.4	F	196.73	786.90
C-AB	0.95	36.64	9.7	E	153.20	612.82
C-A					154.66	618.63
A-B					46.01	184.02
A-C					108.72	434.88

Main Results for each time segment

11:30 - 11:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	207.05	207.05	155.47	1.332	152.64	0.0	54.4	170.829	F
C-AB	115.50	115.50	165.50	0.698	113.32	0.0	2.2	16.633	C
C-A	157.06	157.06			157.06				
A-B	55.08	55.08			55.08				
A-C	109.00	109.00			109.00				

11:45 - 12:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	190.89	190.89	154.47	1.236	154.33	54.4	91.0	427.817	F
C-AB	140.69	140.69	172.74	0.814	138.96	2.2	3.9	25.153	D
C-A	173.89	173.89			173.89				
A-B	47.94	47.94			47.94				
A-C	115.50	115.50			115.50				

12:00 - 12:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	197.96	197.96	163.49	1.211	163.41	91.0	125.5	620.113	F
C-AB	129.48	129.48	177.74	0.728	130.45	3.9	2.9	19.694	C
C-A	180.79	180.79			180.79				
A-B	43.00	43.00			43.00				
A-C	84.24	84.24			84.24				

12:15 - 12:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	191.00	191.00	152.65	1.251	153.09	125.5	163.4	861.301	F
C-AB	227.16	227.16	239.60	0.948	220.33	2.9	9.7	36.643	E
C-A	106.88	106.88			106.88				
A-B	38.00	38.00			38.00				
A-C	126.14	126.14			126.14				

2026 base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		5.59	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D7	2026 base	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	35.00	179.00
	B	0.00	0.00	71.00
	C	242.00	60.00	0.00

08:15 - 08:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	42.00	213.00
	B	0.00	0.00	62.00
	C	191.00	54.00	0.00

08:30 - 08:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	35.00	189.00
	B	0.00	0.00	72.00
	C	171.00	70.00	0.00

08:45 - 09:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	32.00	168.00
	B	0.00	0.00	67.00
	C	166.00	101.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	16	11
	B	0	0	22
	C	12	11	0

08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	16	8
	B	0	0	16
	C	17	8	0

08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	11
	B	0	0	16
	C	11	8	0

08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	25	13
	B	0	0	14
	C	18	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.65	22.16	2.1	C	79.61	318.44
C-AB	0.72	22.51	2.6	C	76.57	306.29
C-A					219.62	878.46
A-B					41.34	165.37
A-C					207.09	828.36

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	86.62	86.62	132.69	0.653	84.48	0.0	2.1	21.920	C
C-AB	66.60	66.60	141.83	0.470	65.65	0.0	1.0	12.960	B
C-A	271.04	271.04			271.04				
A-B	40.60	40.60			40.60				
A-C	198.69	198.69			198.69				

08:15 - 08:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	71.92	71.92	123.31	0.583	72.25	2.1	1.8	21.957	C
C-AB	58.32	58.32	129.77	0.449	58.36	1.0	0.9	13.979	B
C-A	223.47	223.47			223.47				
A-B	48.72	48.72			48.72				
A-C	230.04	230.04			230.04				

08:30 - 08:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	83.52	83.52	130.16	0.642	83.35	1.8	2.0	22.160	C
C-AB	75.62	75.62	139.85	0.541	75.31	0.9	1.2	14.985	B
C-A	189.79	189.79			189.79				
A-B	36.05	36.05			36.05				
A-C	209.79	209.79			209.79				

08:45 - 09:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	76.38	76.38	135.15	0.565	76.79	2.0	1.6	18.076	C
C-AB	105.74	105.74	146.93	0.720	104.35	1.2	2.6	22.508	C
C-A	194.17	194.17			194.17				
A-B	40.00	40.00			40.00				
A-C	189.84	189.84			189.84				

2026 base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		120.95	F

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 period length (min)	Time segment length (min)	Run automatically
D8	2026 base	PM	DIRECT	16:45	17:45	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

16:45 - 17:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	41.00	196.00
	B	0.00	0.00	125.00
	C	230.00	71.00	0.00

17:00 - 17:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	49.00	210.00
	B	0.00	0.00	156.00
	C	268.00	77.00	0.00

17:15 - 17:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	46.00	220.00
	B	0.00	0.00	149.00
	C	236.00	83.00	0.00

17:30 - 17:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	50.00	203.00
	B	0.00	0.00	142.00
	C	237.00	83.00	0.00

Vehicle Mix

16:45 - 17:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	8	8
	B	0	0	4
	C	6	2	0

17:00 - 17:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	7	8
	B	0	0	2
	C	6	0	0

17:15 - 17:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	5	5
	B	0	0	1
	C	4	0	0

17:30 - 17:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	3
	B	0	0	2
	C	6	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	1.29	610.52	93.9	F	146.11	584.45
C-AB	0.64	19.02	1.7	C	79.16	316.65
C-A					256.03	1024.14
A-B					49.00	196.01
A-C					219.64	878.57

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	130.00	130.00	128.77	1.010	118.28	0.0	11.7	63.427	F
C-AB	72.43	72.43	136.75	0.530	71.32	0.0	1.1	13.809	B
C-A	243.79	243.79			243.79				
A-B	44.28	44.28			44.28				
A-C	211.68	211.68			211.68				

17:00 - 17:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	159.12	159.12	123.79	1.285	121.00	11.7	49.8	245.225	F
C-AB	77.09	77.09	129.76	0.594	76.76	1.1	1.4	17.245	C
C-A	283.99	283.99			283.99				
A-B	52.43	52.43			52.43				
A-C	226.80	226.80			226.80				

17:15 - 17:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	150.49	150.49	123.09	1.223	122.81	49.8	77.5	473.234	F
C-AB	83.20	83.20	129.90	0.640	82.93	1.4	1.7	19.020	C
C-A	245.24	245.24			245.24				
A-B	48.30	48.30			48.30				
A-C	231.00	231.00			231.00				

17:30 - 17:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	144.84	144.84	128.75	1.125	128.49	77.5	93.9	610.520	F
C-AB	83.94	83.94	135.65	0.619	83.98	1.7	1.7	17.418	C
C-A	251.11	251.11			251.11				
A-B	51.00	51.00			51.00				
A-C	209.09	209.09			209.09				

2026 base, SAT

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		228.33	F

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 period length (min)	Time segment length (min)	Run automatically
D9	2026 base	SAT	DIRECT	11:30	12:30	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

11:30 - 11:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	48.00	119.00
	B	0.00	0.00	195.00
	C	176.00	108.00	0.00

11:45 - 12:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	42.00	131.00
	B	0.00	0.00	179.00
	C	196.00	125.00	0.00

12:00 - 12:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	38.00	96.00
	B	0.00	0.00	186.00
	C	196.00	119.00	0.00

12:15 - 12:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	33.00	141.00
	B	0.00	0.00	181.00
	C	191.00	144.00	0.00

Vehicle Mix

11:30 - 11:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	8
	B	0	0	1
	C	1	0	0

11:45 - 12:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	5
	B	0	0	2
	C	2	1	0

12:00 - 12:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	4
	B	0	0	2
	C	4	1	0

12:15 - 12:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	6
	B	0	0	0
	C	4	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	1.31	799.69	145.5	F	187.56	750.25
C-AB	0.92	33.78	7.7	D	138.20	552.79
C-A					181.81	727.25
A-B					40.93	163.70
A-C					128.84	515.37

Main Results for each time segment

11:30 - 11:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	196.95	196.95	150.78	1.306	147.75	0.0	49.2	161.147	F
C-AB	108.31	108.31	161.01	0.673	106.36	0.0	2.0	15.956	C
C-A	177.45	177.45			177.45				
A-B	49.44	49.44			49.44				
A-C	128.52	128.52			128.52				

11:45 - 12:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	182.58	182.58	148.99	1.225	149.80	49.2	82.0	399.377	F
C-AB	130.67	130.67	165.25	0.791	129.20	2.0	3.4	23.816	C
C-A	195.50	195.50			195.50				
A-B	43.26	43.26			43.26				
A-C	137.55	137.55			137.55				

12:00 - 12:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	189.72	189.72	159.79	1.187	159.69	82.0	112.0	571.281	F
C-AB	120.84	120.84	173.74	0.696	121.80	3.4	2.5	17.850	C
C-A	203.19	203.19			203.19				
A-B	38.00	38.00			38.00				
A-C	99.84	99.84			99.84				

12:15 - 12:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	181.00	181.00	146.86	1.232	147.54	112.0	145.5	799.689	F
C-AB	192.98	192.98	210.63	0.916	187.72	2.5	7.7	33.780	D
C-A	151.10	151.10			151.10				
A-B	33.00	33.00			33.00				
A-C	149.46	149.46			149.46				

2026 base + McDonalds + Aldi, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		7.93	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 period length (min)	Time segment length (min)	Run automatically
D10	2026 base + McDonalds + Aldi	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	40.00	174.00
	B	0.00	0.00	83.00
	C	239.00	67.00	0.00

08:15 - 08:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	48.00	208.00
	B	0.00	0.00	73.00
	C	189.00	61.00	0.00

08:30 - 08:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	40.00	184.00
	B	0.00	0.00	85.00
	C	170.00	79.00	0.00

08:45 - 09:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	36.00	163.00
	B	0.00	0.00	78.00
	C	164.00	113.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	14	11
	B	0	0	19
	C	12	10	0

08:15 - 08:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	14	8
	B	0	0	14
	C	17	7	0

08:30 - 08:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	3	11
	B	0	0	13
	C	11	7	0

08:45 - 09:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	22	13
	B	0	0	12
	C	18	3	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	0.74	28.74	3.0	D	91.35	365.40
C-AB	0.80	28.35	4.0	D	87.07	348.30
C-A					215.66	862.62
A-B					46.36	185.44
A-C					201.55	806.21

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	98.77	98.77	133.66	0.739	95.76	0.0	3.0	26.521	D
C-AB	73.72	73.72	142.02	0.519	72.57	0.0	1.1	14.037	B
C-A	267.66	267.66			267.66				
A-B	45.60	45.60			45.60				
A-C	193.14	193.14			193.14				

08:15 - 08:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	83.22	83.22	124.13	0.670	83.59	3.0	2.6	27.412	D
C-AB	65.28	65.28	129.60	0.504	65.31	1.1	1.1	15.421	C
C-A	221.12	221.12			221.12				
A-B	54.72	54.72			54.72				
A-C	224.64	224.64			224.64				

08:30 - 08:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	96.05	96.05	131.12	0.733	95.77	2.6	2.9	28.741	D
C-AB	84.63	84.63	140.10	0.604	84.18	1.1	1.6	17.072	C
C-A	188.60	188.60			188.60				
A-B	41.20	41.20			41.20				
A-C	204.24	204.24			204.24				

08:45 - 09:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	87.36	87.36	136.27	0.641	88.14	2.9	2.1	21.562	C
C-AB	124.67	124.67	154.95	0.805	122.24	1.6	4.0	28.351	D
C-A	185.24	185.24			185.24				
A-B	43.92	43.92			43.92				
A-C	184.19	184.19			184.19				

2026 base + McDonalds + Aldi, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		190.24	F

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 period length (min)	Time segment length (min)	Run automatically
D11	2026 base + McDonalds + Aldi	PM	DIRECT	16:45	17:45	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

16:45 - 17:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	45.00	191.00
	B	0.00	0.00	138.00
	C	229.00	80.00	0.00

17:00 - 17:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	54.00	205.00
	B	0.00	0.00	172.00
	C	266.00	86.00	0.00

17:15 - 17:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	51.00	215.00
	B	0.00	0.00	165.00
	C	234.00	93.00	0.00

17:30 - 17:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	55.00	198.00
	B	0.00	0.00	157.00
	C	235.00	93.00	0.00

Vehicle Mix

16:45 - 17:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	8	8
	B	0	0	3
	C	6	1	0

17:00 - 17:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	6	8
	B	0	0	2
	C	6	0	0

17:15 - 17:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	4	5
	B	0	0	1
	C	4	0	0

17:30 - 17:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	3
	B	0	0	1
	C	6	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	1.41	900.32	142.7	F	160.70	642.80
C-AB	0.72	23.51	2.4	C	89.02	356.07
C-A					253.70	1014.82
A-B					53.75	214.98
A-C					214.34	857.37

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	142.14	142.14	129.77	1.095	123.11	0.0	19.0	87.363	F
C-AB	80.86	80.86	137.15	0.590	79.46	0.0	1.4	15.415	C
C-A	242.68	242.68			242.68				
A-B	48.60	48.60			48.60				
A-C	206.28	206.28			206.28				

17:00 - 17:15

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	175.44	175.44	124.74	1.406	123.45	19.0	71.0	342.641	F
C-AB	86.43	86.43	130.44	0.663	85.94	1.4	1.9	20.240	C
C-A	281.53	281.53			281.53				
A-B	57.24	57.24			57.24				
A-C	221.40	221.40			221.40				

17:15 - 17:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	166.65	166.65	124.01	1.344	124.03	71.0	113.6	669.090	F
C-AB	94.18	94.18	131.39	0.717	93.69	1.9	2.4	23.505	C
C-A	242.18	242.18			242.18				
A-B	53.04	53.04			53.04				
A-C	225.75	225.75			225.75				

17:30 - 17:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	158.57	158.57	129.60	1.224	129.56	113.6	142.7	900.323	F
C-AB	94.60	94.60	136.46	0.693	94.64	2.4	2.3	21.515	C
C-A	248.43	248.43			248.43				
A-B	56.10	56.10			56.10				
A-C	203.94	203.94			203.94				

2026 base + McDonalds + Aldi, SAT

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		400.86	F

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 period length (min)	Time segment length (min)	Run automatically
D12	2026 base + McDonalds + Aldi	SAT	DIRECT	11:30	12:30	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
A		DIRECT	✓	100.000
B		DIRECT	✓	100.000
C		DIRECT	✓	100.000

Origin-Destination Data

11:30 - 11:45

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	58.00	111.00
	B	0.00	0.00	222.00
	C	171.00	125.00	0.00

11:45 - 12:00

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	51.00	122.00
	B	0.00	0.00	204.00
	C	192.00	144.00	0.00

12:00 - 12:15

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	46.00	89.00
	B	0.00	0.00	212.00
	C	192.00	137.00	0.00

12:15 - 12:30

Demand (Veh/TS)

		To		
		A	B	C
From	A	0.00	40.00	131.00
	B	0.00	0.00	207.00
	C	187.00	166.00	0.00

Vehicle Mix

11:30 - 11:45

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	9
	B	0	0	1
	C	1	0	0

11:45 - 12:00

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	2	5
	B	0	0	1
	C	3	1	0

12:00 - 12:15

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	4
	B	0	0	1
	C	4	1	0

12:15 - 12:30

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	6
	B	0	0	0
	C	4	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/TS)	Total Junction Arrivals (PCU)
B-AC	1.48	1296.26	241.2	F	212.85	851.38
C-AB	1.05	57.14	23.8	F	205.26	821.04
C-A					130.02	520.06
A-B					49.30	197.18
A-C					120.13	480.51

Main Results for each time segment

11:30 - 11:45

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	224.22	224.22	151.78	1.477	149.75	0.0	74.5	232.927	F
C-AB	128.37	128.37	164.18	0.782	125.12	0.0	3.3	21.592	C
C-A	169.34	169.34			169.34				
A-B	59.16	59.16			59.16				
A-C	120.99	120.99			120.99				

11:45 - 12:00

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	206.04	206.04	150.62	1.368	150.56	74.5	129.9	604.958	F
C-AB	186.14	186.14	204.40	0.911	182.00	3.3	7.4	34.408	D
C-A	157.06	157.06			157.06				
A-B	52.02	52.02			52.02				
A-C	128.10	128.10			128.10				

12:00 - 12:15

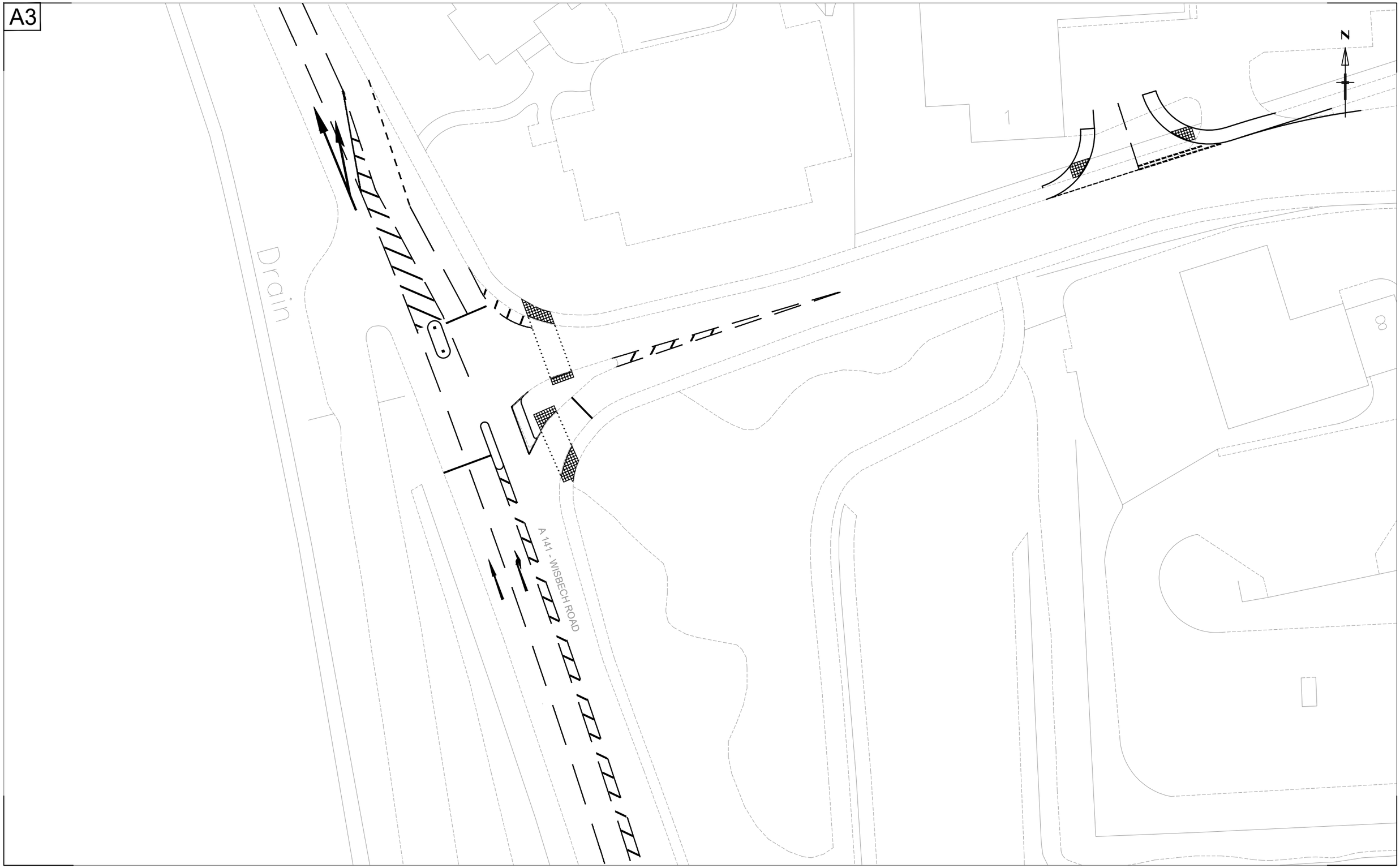
Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	214.12	214.12	160.91	1.331	160.88	129.9	183.2	919.712	F
C-AB	144.39	144.39	180.39	0.800	146.96	7.4	4.8	29.575	D
C-A	193.66	193.66			193.66				
A-B	46.00	46.00			46.00				
A-C	92.56	92.56			92.56				

12:15 - 12:30

Stream	Total Demand (PCU/TS)	Junction Arrivals (PCU)	Capacity (PCU/TS)	RFC	Throughput (PCU/TS)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	207.00	207.00	148.99	1.389	148.98	183.2	241.2	1296.260	F
C-AB	362.14	362.14	344.75	1.050	343.18	4.8	23.8	57.144	F
C-A	0.00	0.00			0.00				
A-B	40.00	40.00			40.00				
A-C	138.86	138.86			138.86				

Appendix 2 – Proposed Signal Junction Layout Sketch

A3



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QUALITY MANAGEMENT SYSTEM
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client
ALDI STORES LTD

project
PROPOSED DEVELOPMENT
MARCH, HOSTMOOR AVENUE

title
PROPOSED HIGHWAY IMPROVEMENTS

date	drawn by	checked by
FEBRUARY 2021	T.A.S	C.B.W

scale	status
1:500	PLANNING

drawing number	rev.
19126-SK210222.1	

Appendix 3 – 45m Roundabout Model Outputs

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 20210127 A141 45m rbt DIRECT.j9
Path: K:\Aldi Chelmsford\March, Hostmoor Avenue\Calcs\Tests\For TN07
Report generation date: 23/02/2021 11:49:50

»2026 base w Westry, AM
»2026 base w Westry, PM
»2026 base w Westry, SAT
»2026 base w Westry + McD + Aldi, AM
»2026 base w Westry + McD + Aldi, PM
»2026 base w Westry + McD + Aldi, SAT

Summary of junction performance

	AM			PM			SAT		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2026 base w Westry								
A141 N	3.0	10.14	0.76	4.6	15.02	0.83	1.8	8.16	0.64
Hostmoor Avenue	0.6	6.96	0.38	2.5	14.81	0.72	2.5	12.21	0.72
A141 S	2.2	6.92	0.69	3.3	9.05	0.77	2.9	8.31	0.75
Westry Retail Park	0.1	4.34	0.10	0.3	5.33	0.25	0.5	5.70	0.32
	2026 base w Westry + McD + Aldi								
A141 N	3.1	10.65	0.77	5.1	16.58	0.85	2.0	9.10	0.67
Hostmoor Avenue	0.7	7.15	0.43	3.4	18.58	0.78	4.1	17.29	0.82
A141 S	2.3	7.17	0.70	3.5	9.63	0.79	3.5	9.68	0.78
Westry Retail Park	0.1	4.43	0.11	0.3	5.52	0.26	0.5	6.25	0.35

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

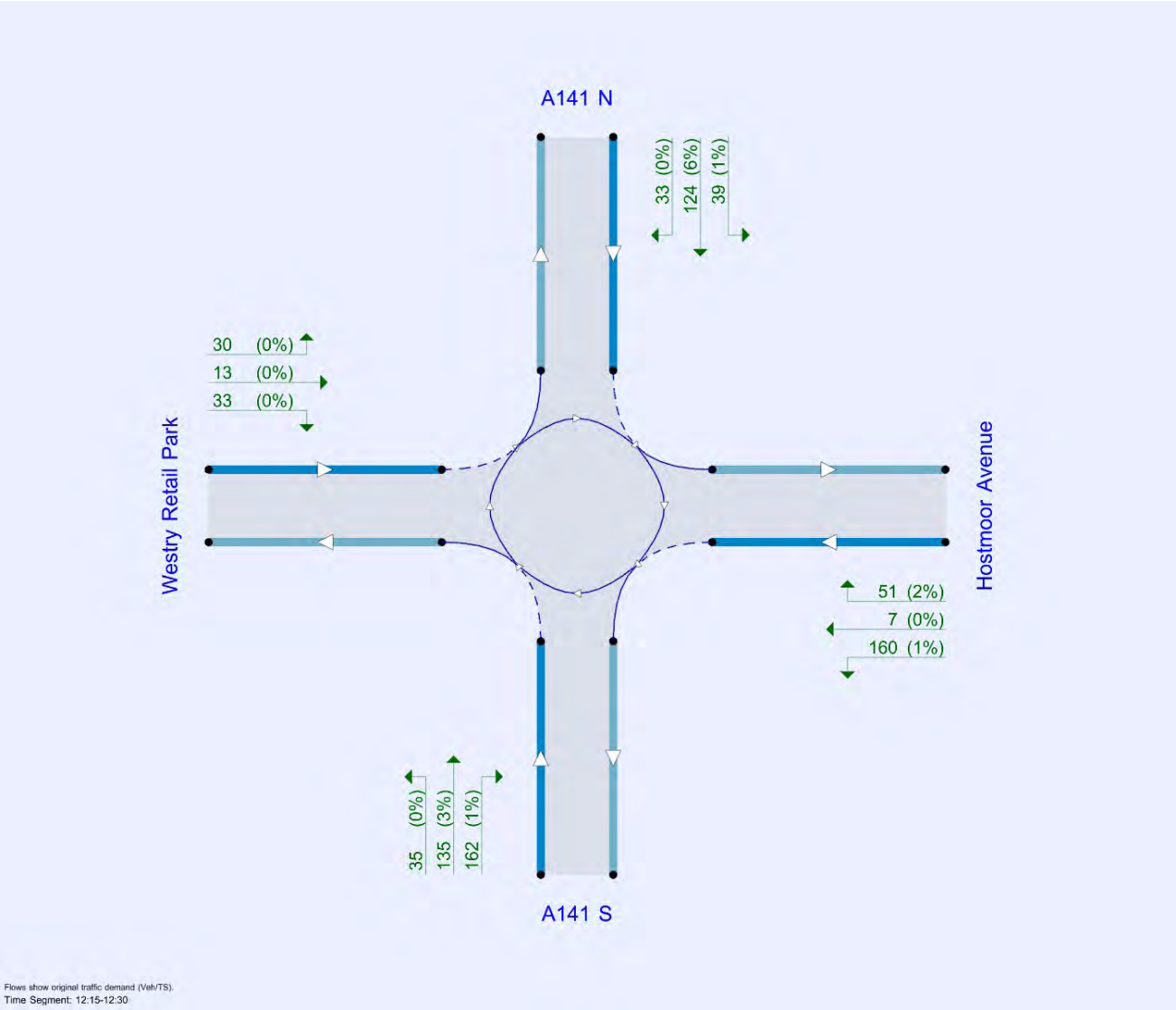
File summary

File Description

Title	A141 - Hostmoor Ave - Westry RP rbt
Location	
Site number	
Date	04/05/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CCL\TBritton
Description	

Units

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



The junction diagram reflects the last run of Junctions.

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 period length (min)	Time segment length (min)
D1	2026 base w Westry	AM	DIRECT	08:00	09:00	60	15
D2	2026 base w Westry	PM	DIRECT	16:45	17:45	60	15
D3	2026 base w Westry	SAT	DIRECT	11:30	12:30	60	15
D4	2026 base w Westry + McD + Aldi	AM	DIRECT	08:00	09:00	60	15
D5	2026 base w Westry + McD + Aldi	PM	DIRECT	16:45	17:45	60	15
D6	2026 base w Westry + McD + Aldi	SAT	DIRECT	11:30	12:30	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2026 base w Westry, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.14	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A141 N	
2	Hostmoor Avenue	
3	A141 S	
4	Westry Retail Park	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A141 N	3.66	7.28	15.1	20.0	45.0	25.2	
Hostmoor Avenue	3.66	5.36	22.2	20.0	45.0	21.0	
A141 S	3.75	7.30	25.0	50.0	45.0	22.5	
Westry Retail Park	5.45	6.50	2.5	20.0	45.0	28.1	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
A141 N	0.644	439.621
Hostmoor Avenue	0.612	392.563
A141 S	0.699	494.922
Westry Retail Park	0.649	449.715

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 period length (min)	Time segment length (min)
D1	2026 base w Westry	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A141 N		✓	100.000
Hostmoor Avenue		✓	100.000
A141 S		✓	100.000
Westry Retail Park		✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	35.00	177.00	16.00
	Hostmoor Avenue	36.00	0.00	43.00	3.00
	A141 S	204.00	60.00	0.00	18.00
	Westry Retail Park	10.00	2.00	12.00	0.00

08:15 - 08:30

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	42.00	210.00	16.00
	Hostmoor Avenue	28.00	0.00	38.00	3.00
	A141 S	161.00	54.00	0.00	18.00
	Westry Retail Park	10.00	2.00	12.00	0.00

08:30 - 08:45

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	35.00	187.00	16.00
	Hostmoor Avenue	24.00	0.00	44.00	3.00
	A141 S	144.00	70.00	0.00	18.00
	Westry Retail Park	10.00	2.00	12.00	0.00

08:45 - 09:00

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	32.00	166.00	16.00
	Hostmoor Avenue	16.00	0.00	41.00	3.00
	A141 S	140.00	100.00	0.00	18.00
	Westry Retail Park	10.00	2.00	12.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	15	11	0
	Hostmoor Avenue	30	0	10	0
	A141 S	12	7	0	0
	Westry Retail Park	0	0	0	0

08:15 - 08:30

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	15	11	0
	Hostmoor Avenue	30	0	10	0
	A141 S	12	7	0	0
	Westry Retail Park	0	0	0	0

08:30 - 08:45

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	15	11	0
	Hostmoor Avenue	30	0	10	0
	A141 S	12	7	0	0
	Westry Retail Park	0	0	0	0

08:45 - 09:00

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	15	11	0
	Hostmoor Avenue	30	0	10	0
	A141 S	12	7	0	0
	Westry Retail Park	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A141 N	0.76	10.14	3.0	B
Hostmoor Avenue	0.38	6.96	0.6	A
A141 S	0.69	6.92	2.2	A
Westry Retail Park	0.10	4.34	0.1	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	228.00	73.47	351.50	0.649	226.20	1.8	7.084	A
Hostmoor Avenue	82.00	203.41	216.45	0.379	81.40	0.6	6.635	A
A141 S	282.00	54.59	407.81	0.692	279.81	2.2	6.918	A
Westry Retail Park	24.00	297.69	231.07	0.104	23.88	0.1	4.342	A

08:15 - 08:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	268.00	68.18	354.39	0.756	266.83	3.0	10.140	B
Hostmoor Avenue	69.00	237.03	198.40	0.348	69.06	0.5	6.964	A
A141 S	233.00	46.99	415.04	0.561	233.89	1.3	4.993	A
Westry Retail Park	24.00	243.90	270.89	0.089	24.02	0.1	3.647	A

08:30 - 08:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	238.00	83.93	344.98	0.690	238.69	2.3	8.526	A
Hostmoor Avenue	71.00	215.56	213.23	0.333	71.04	0.5	6.330	A
A141 S	232.00	43.07	419.65	0.553	232.05	1.2	4.798	A
Westry Retail Park	24.00	238.09	276.09	0.087	24.00	0.1	3.572	A

08:45 - 09:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	214.00	113.79	326.62	0.655	214.34	1.9	8.045	A
Hostmoor Avenue	60.00	194.30	228.58	0.262	60.15	0.4	5.347	A
A141 S	258.00	35.09	427.58	0.603	257.75	1.5	5.299	A
Westry Retail Park	24.00	255.83	265.10	0.091	24.00	0.1	3.731	A

2026 base w Westry, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	11.97	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D2	2026 base w Westry	PM	DIRECT	16:45	17:45	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A141 N		✓	100.000
Hostmoor Avenue		✓	100.000
A141 S		✓	100.000
Westry Retail Park		✓	100.000

Origin-Destination Data

16:45 - 17:00

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	40.00	191.00	29.00
	Hostmoor Avenue	26.00	0.00	95.00	6.00
	A141 S	192.00	71.00	0.00	32.00
	Westry Retail Park	24.00	5.00	27.00	0.00

17:00 - 17:15

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	48.00	204.00	29.00
	Hostmoor Avenue	34.00	0.00	118.00	6.00
	A141 S	223.00	76.00	0.00	32.00
	Westry Retail Park	24.00	5.00	27.00	0.00

17:15 - 17:30

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	46.00	214.00	29.00
	Hostmoor Avenue	36.00	0.00	113.00	6.00
	A141 S	197.00	82.00	0.00	32.00
	Westry Retail Park	24.00	5.00	27.00	0.00

17:30 - 17:45

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	49.00	198.00	29.00
	Hostmoor Avenue	37.00	0.00	108.00	6.00
	A141 S	198.00	82.00	0.00	32.00
	Westry Retail Park	24.00	5.00	27.00	0.00

Vehicle Mix

16:45 - 17:00

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	6	6	0
	Hostmoor Avenue	3	0	2	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

17:00 - 17:15

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	6	6	0
	Hostmoor Avenue	3	0	2	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

17:15 - 17:30

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	6	6	0
	Hostmoor Avenue	3	0	2	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

17:30 - 17:45

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	6	6	0
	Hostmoor Avenue	3	0	2	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A141 N	0.83	15.02	4.6	C
Hostmoor Avenue	0.72	14.81	2.5	B
A141 S	0.77	9.05	3.3	A
Westry Retail Park	0.25	5.33	0.3	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	260.00	102.34	354.35	0.734	257.35	2.7	9.048	A
Hostmoor Avenue	127.00	244.62	231.11	0.550	125.81	1.2	8.455	A
A141 S	295.00	60.40	434.17	0.679	292.93	2.1	6.284	A
Westry Retail Park	56.00	286.91	255.11	0.220	55.72	0.3	4.507	A

17:00 - 17:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	281.00	107.72	350.87	0.801	279.87	3.8	12.453	B
Hostmoor Avenue	158.00	259.08	221.87	0.712	156.84	2.4	13.596	B
A141 S	331.00	68.61	427.99	0.773	329.80	3.3	9.050	A
Westry Retail Park	56.00	331.63	224.67	0.249	55.95	0.3	5.333	A

17:15 - 17:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	289.00	114.04	346.91	0.833	288.15	4.6	15.020	C
Hostmoor Avenue	155.00	269.25	215.39	0.720	154.87	2.5	14.809	B
A141 S	311.00	70.85	427.28	0.728	311.53	2.7	7.815	A
Westry Retail Park	56.00	315.42	236.06	0.237	56.02	0.3	5.000	A

17:30 - 17:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	276.00	114.00	347.02	0.795	276.55	4.1	12.912	B
Hostmoor Avenue	151.00	254.54	224.71	0.672	151.36	2.1	12.342	B
A141 S	312.00	72.10	426.40	0.732	312.01	2.7	7.869	A
Westry Retail Park	56.00	317.06	234.96	0.238	56.00	0.3	5.030	A

2026 base w Westry, SAT

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.99	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 period length (min)	Time segment length (min)
D3	2026 base w Westry	SAT	DIRECT	11:30	12:30	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A141 N		✓	100.000
Hostmoor Avenue		✓	100.000
A141 S		✓	100.000
Westry Retail Park		✓	100.000

Origin-Destination Data

11:30 - 11:45

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	47.00	112.00	33.00
	Hostmoor Avenue	20.00	0.00	155.00	7.00
	A141 S	135.00	108.00	0.00	35.00
	Westry Retail Park	32.00	7.00	36.00	0.00

11:45 - 12:00

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	41.00	123.00	33.00
	Hostmoor Avenue	44.00	0.00	142.00	7.00
	A141 S	150.00	124.00	0.00	35.00
	Westry Retail Park	32.00	7.00	36.00	0.00

12:00 - 12:15

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	37.00	91.00	33.00
	Hostmoor Avenue	43.00	0.00	148.00	7.00
	A141 S	150.00	118.00	0.00	35.00
	Westry Retail Park	32.00	7.00	36.00	0.00

12:15 - 12:30

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	32.00	132.00	33.00
	Hostmoor Avenue	38.00	0.00	144.00	7.00
	A141 S	147.00	143.00	0.00	35.00
	Westry Retail Park	32.00	7.00	36.00	0.00

Vehicle Mix

11:30 - 11:45

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	2	6	0
	Hostmoor Avenue	2	0	1	0
	A141 S	3	1	0	0
	Westry Retail Park	0	0	0	0

11:45 - 12:00

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	2	6	0
	Hostmoor Avenue	2	0	1	0
	A141 S	3	1	0	0
	Westry Retail Park	0	0	0	0

12:00 - 12:15

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	2	6	0
	Hostmoor Avenue	2	0	1	0
	A141 S	3	1	0	0
	Westry Retail Park	0	0	0	0

12:15 - 12:30

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	2	6	0
	Hostmoor Avenue	2	0	1	0
	A141 S	3	1	0	0
	Westry Retail Park	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A141 N	0.64	8.16	1.8	A
Hostmoor Avenue	0.72	12.21	2.5	B
A141 S	0.75	8.31	2.9	A
Westry Retail Park	0.32	5.70	0.5	A

Main Results for each time segment

11:30 - 11:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	192.00	150.15	329.08	0.583	190.62	1.4	6.439	A
Hostmoor Avenue	182.00	179.78	275.55	0.660	180.11	1.9	9.257	A
A141 S	278.00	59.48	444.87	0.625	276.36	1.6	5.291	A
Westry Retail Park	75.00	261.36	276.51	0.271	74.63	0.4	4.450	A

11:45 - 12:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	197.00	166.58	318.28	0.619	196.78	1.6	7.395	A
Hostmoor Avenue	193.00	191.74	267.58	0.721	192.40	2.5	11.864	B
A141 S	309.00	83.59	427.95	0.722	308.11	2.5	7.453	A
Westry Retail Park	75.00	316.83	239.79	0.313	74.92	0.5	5.456	A

12:00 - 12:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	161.00	161.06	322.68	0.499	161.59	1.0	5.608	A
Hostmoor Avenue	198.00	160.49	287.63	0.688	198.21	2.3	10.099	B
A141 S	303.00	83.14	428.19	0.708	303.07	2.5	7.199	A
Westry Retail Park	75.00	311.14	243.52	0.308	75.00	0.4	5.342	A

12:15 - 12:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	197.00	185.65	305.83	0.644	196.24	1.8	8.156	A
Hostmoor Avenue	189.00	200.29	262.17	0.721	188.78	2.5	12.205	B
A141 S	325.00	77.89	432.19	0.752	324.52	2.9	8.313	A
Westry Retail Park	75.00	327.55	232.83	0.322	74.98	0.5	5.701	A

2026 base w Westry + McD + Aldi, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.45	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D4	2026 base w Westry + McD + Aldi	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A141 N		✓	100.000
Hostmoor Avenue		✓	100.000
A141 S		✓	100.000
Westry Retail Park		✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	40.00	173.00	16.00
	Hostmoor Avenue	42.00	0.00	52.00	3.00
	A141 S	197.00	66.00	0.00	18.00
	Westry Retail Park	9.00	5.00	10.00	0.00

08:15 - 08:30

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	47.00	206.00	16.00
	Hostmoor Avenue	33.00	0.00	45.00	3.00
	A141 S	156.00	60.00	0.00	18.00
	Westry Retail Park	9.00	5.00	10.00	0.00

08:30 - 08:45

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	40.00	183.00	16.00
	Hostmoor Avenue	29.00	0.00	53.00	3.00
	A141 S	140.00	77.00	0.00	18.00
	Westry Retail Park	9.00	5.00	10.00	0.00

08:45 - 09:00

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	36.00	162.00	16.00
	Hostmoor Avenue	18.00	0.00	48.00	3.00
	A141 S	135.00	110.00	0.00	18.00
	Westry Retail Park	9.00	5.00	10.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	13	11	0
	Hostmoor Avenue	25	0	8	0
	A141 S	13	7	0	0
	Westry Retail Park	0	0	0	0

08:15 - 08:30

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	13	11	0
	Hostmoor Avenue	25	0	8	0
	A141 S	13	7	0	0
	Westry Retail Park	0	0	0	0

08:30 - 08:45

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	13	11	0
	Hostmoor Avenue	25	0	8	0
	A141 S	13	7	0	0
	Westry Retail Park	0	0	0	0

08:45 - 09:00

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	13	11	0
	Hostmoor Avenue	25	0	8	0
	A141 S	13	7	0	0
	Westry Retail Park	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A141 N	0.77	10.65	3.1	B
Hostmoor Avenue	0.43	7.15	0.7	A
A141 S	0.70	7.17	2.3	A
Westry Retail Park	0.11	4.43	0.1	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	229.00	80.40	348.05	0.658	227.12	1.9	7.334	A
Hostmoor Avenue	97.00	197.40	226.09	0.429	96.26	0.7	6.894	A
A141 S	281.00	60.52	402.09	0.699	278.74	2.3	7.173	A
Westry Retail Park	24.00	302.56	227.10	0.106	23.88	0.1	4.427	A

08:15 - 08:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	269.00	75.20	350.94	0.767	267.75	3.1	10.653	B
Hostmoor Avenue	81.00	230.97	207.16	0.391	81.09	0.6	7.146	A
A141 S	234.00	52.00	409.92	0.571	234.91	1.3	5.168	A
Westry Retail Park	24.00	249.93	266.18	0.090	24.02	0.1	3.715	A

08:30 - 08:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	239.00	91.91	340.82	0.701	239.71	2.4	8.970	A
Hostmoor Avenue	85.00	209.57	221.99	0.383	85.02	0.6	6.574	A
A141 S	235.00	48.08	414.62	0.567	235.03	1.3	5.012	A
Westry Retail Park	24.00	246.08	269.96	0.089	24.00	0.1	3.658	A

08:45 - 09:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	214.00	124.76	320.59	0.668	214.36	2.1	8.506	A
Hostmoor Avenue	69.00	188.30	237.69	0.290	69.21	0.4	5.350	A
A141 S	263.00	37.12	425.01	0.619	262.72	1.6	5.535	A
Westry Retail Park	24.00	262.84	259.80	0.092	24.00	0.1	3.815	A

2026 base w Westry + McD + Aldi, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	13.54	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D5	2026 base w Westry + McD + Aldi	PM	DIRECT	16:45	17:45	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A141 N		✓	100.000
Hostmoor Avenue		✓	100.000
A141 S		✓	100.000
Westry Retail Park		✓	100.000

Origin-Destination Data

16:45 - 17:00

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	44.00	187.00	29.00
	Hostmoor Avenue	31.00	0.00	104.00	6.00
	A141 S	187.00	78.00	0.00	32.00
	Westry Retail Park	23.00	8.00	25.00	0.00

17:00 - 17:15

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	53.00	200.00	29.00
	Hostmoor Avenue	41.00	0.00	129.00	6.00
	A141 S	217.00	84.00	0.00	32.00
	Westry Retail Park	23.00	8.00	25.00	0.00

17:15 - 17:30

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	51.00	210.00	29.00
	Hostmoor Avenue	43.00	0.00	124.00	6.00
	A141 S	191.00	90.00	0.00	32.00
	Westry Retail Park	23.00	8.00	25.00	0.00

17:30 - 17:45

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	54.00	194.00	29.00
	Hostmoor Avenue	44.00	0.00	118.00	6.00
	A141 S	192.00	90.00	0.00	32.00
	Westry Retail Park	23.00	8.00	25.00	0.00

Vehicle Mix

16:45 - 17:00

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	5	6	0
	Hostmoor Avenue	3	0	1	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

17:00 - 17:15

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	5	6	0
	Hostmoor Avenue	3	0	1	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

17:15 - 17:30

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	5	6	0
	Hostmoor Avenue	3	0	1	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

17:30 - 17:45

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	5	6	0
	Hostmoor Avenue	3	0	1	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A141 N	0.85	16.58	5.1	C
Hostmoor Avenue	0.78	18.58	3.4	C
A141 S	0.79	9.63	3.5	A
Westry Retail Park	0.26	5.52	0.3	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	260.00	110.26	350.03	0.743	257.23	2.8	9.438	A
Hostmoor Avenue	141.00	238.57	236.53	0.596	139.56	1.4	9.152	A
A141 S	297.00	65.31	431.22	0.689	294.84	2.2	6.500	A
Westry Retail Park	56.00	293.75	250.72	0.223	55.71	0.3	4.609	A

17:00 - 17:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	282.00	116.65	345.97	0.815	280.66	4.1	13.477	B
Hostmoor Avenue	176.00	252.94	227.27	0.774	174.26	3.2	16.451	C
A141 S	333.00	75.41	423.74	0.786	331.66	3.5	9.627	A
Westry Retail Park	56.00	340.34	219.06	0.256	55.94	0.3	5.516	A

17:15 - 17:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	290.00	123.05	341.91	0.848	289.00	5.1	16.577	C
Hostmoor Avenue	173.00	263.13	220.70	0.784	172.75	3.4	18.577	C
A141 S	313.00	77.79	422.95	0.740	313.57	2.9	8.277	A
Westry Retail Park	56.00	324.42	230.27	0.243	56.02	0.3	5.167	A

17:30 - 17:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	277.00	123.00	342.09	0.810	277.61	4.5	14.148	B
Hostmoor Avenue	168.00	248.59	229.93	0.731	168.59	2.8	14.840	B
A141 S	314.00	79.17	421.99	0.744	314.01	2.9	8.339	A
Westry Retail Park	56.00	326.11	229.13	0.244	56.00	0.3	5.200	A

2026 base w Westry + McD + Aldi, SAT

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	11.31	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D6	2026 base w Westry + McD + Aldi	SAT	DIRECT	11:30	12:30	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A141 N		✓	100.000
Hostmoor Avenue		✓	100.000
A141 S		✓	100.000
Westry Retail Park		✓	100.000

Origin-Destination Data

11:30 - 11:45

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	57.00	105.00	33.00
	Hostmoor Avenue	27.00	0.00	172.00	7.00
	A141 S	124.00	122.00	0.00	35.00
	Westry Retail Park	30.00	13.00	33.00	0.00

11:45 - 12:00

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	49.00	116.00	33.00
	Hostmoor Avenue	59.00	0.00	158.00	7.00
	A141 S	138.00	141.00	0.00	35.00
	Westry Retail Park	30.00	13.00	33.00	0.00

12:00 - 12:15

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	45.00	85.00	33.00
	Hostmoor Avenue	57.00	0.00	164.00	7.00
	A141 S	138.00	134.00	0.00	35.00
	Westry Retail Park	30.00	13.00	33.00	0.00

12:15 - 12:30

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	39.00	124.00	33.00
	Hostmoor Avenue	51.00	0.00	160.00	7.00
	A141 S	135.00	162.00	0.00	35.00
	Westry Retail Park	30.00	13.00	33.00	0.00

Vehicle Mix

11:30 - 11:45

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	1	6	0
	Hostmoor Avenue	2	0	1	0
	A141 S	3	1	0	0
	Westry Retail Park	0	0	0	0

11:45 - 12:00

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	1	6	0
	Hostmoor Avenue	2	0	1	0
	A141 S	3	1	0	0
	Westry Retail Park	0	0	0	0

12:00 - 12:15

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	1	6	0
	Hostmoor Avenue	2	0	1	0
	A141 S	3	1	0	0
	Westry Retail Park	0	0	0	0

12:15 - 12:30

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	1	6	0
	Hostmoor Avenue	2	0	1	0
	A141 S	3	1	0	0
	Westry Retail Park	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A141 N	0.67	9.10	2.0	A
Hostmoor Avenue	0.82	17.29	4.1	C
A141 S	0.78	9.68	3.5	A
Westry Retail Park	0.35	6.25	0.5	A

Main Results for each time segment

11:30 - 11:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	195.00	167.01	319.98	0.609	193.47	1.5	7.027	A
Hostmoor Avenue	206.00	169.75	281.81	0.731	203.41	2.6	11.140	B
A141 S	281.00	66.31	440.47	0.638	279.27	1.7	5.526	A
Westry Retail Park	76.00	271.14	270.19	0.281	75.61	0.4	4.616	A

11:45 - 12:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	198.00	186.38	307.11	0.645	197.75	1.8	8.208	A
Hostmoor Avenue	224.00	181.70	273.79	0.818	222.48	4.1	16.998	C
A141 S	314.00	98.18	418.11	0.751	312.82	2.9	8.451	A
Westry Retail Park	76.00	336.19	227.16	0.335	75.89	0.5	5.946	A

12:00 - 12:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	163.00	180.08	312.11	0.522	163.67	1.1	6.091	A
Hostmoor Avenue	228.00	151.54	293.15	0.778	228.44	3.7	14.044	B
A141 S	307.00	97.25	418.69	0.733	307.10	2.8	8.081	A
Westry Retail Park	76.00	329.26	231.70	0.328	76.01	0.5	5.780	A

12:15 - 12:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	196.00	207.51	293.21	0.668	195.15	2.0	9.098	A
Hostmoor Avenue	218.00	189.22	269.05	0.810	217.65	4.0	17.292	C
A141 S	332.00	90.86	423.49	0.784	331.33	3.5	9.679	A
Westry Retail Park	76.00	347.35	219.92	0.346	75.97	0.5	6.250	A

Appendix 4 – 60m Roundabout Model Outputs

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 20210127 A141 60m rbt DIRECT.j9
Path: K:\Aldi Chelmsford\March, Hostmoor Avenue\Calcs\Tests\For TN07
Report generation date: 19/02/2021 16:24:30

Summary of junction performance

	AM			PM			SAT		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2026 base w Westry								
A141 N	2.2	7.11	0.69	3.8	11.29	0.80	1.8	7.41	0.65
Hostmoor Avenue	0.4	4.73	0.30	1.5	8.24	0.60	1.7	7.90	0.63
A141 S	1.5	4.58	0.61	2.5	6.23	0.72	2.4	6.01	0.71
Westry Retail Park	0.2	3.52	0.17	0.6	4.90	0.40	1.1	6.05	0.52
	2026 base w Westry + Aldi								
A141 N	2.3	7.29	0.70	4.1	12.21	0.81	2.0	8.06	0.67
Hostmoor Avenue	0.5	4.77	0.34	1.8	9.29	0.65	2.4	9.75	0.72
A141 S	1.5	4.66	0.61	2.6	6.42	0.72	2.7	6.78	0.73
Westry Retail Park	0.2	3.54	0.17	0.7	5.00	0.40	1.2	6.66	0.55

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	A141 - Hostmoor Ave - Westry RP rbt
Location	
Site number	
Date	04/05/2020
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CCL\TBritton
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perTimeSegment	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 period length (min)	Time segment length (min)
D1	2026 base w Westry	AM	DIRECT	08:00	09:00	60	15
D2	2026 base w Westry	PM	DIRECT	16:45	17:45	60	15
D3	2026 base w Westry	SAT	DIRECT	11:30	12:30	60	15
D4	2026 base w Westry + Aldi	AM	DIRECT	08:00	09:00	60	15
D5	2026 base w Westry + Aldi	PM	DIRECT	16:45	17:45	60	15
D6	2026 base w Westry + Aldi	SAT	DIRECT	11:30	12:30	60	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2026 base w Westry, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A141 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Westry Retail Park - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.51	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	A141 N	
2	Hostmoor Avenue	
3	A141 S	
4	Westry Retail Park	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A141 N	3.44	9.00	24.5	25.0	60.0	33.5	
Hostmoor Avenue	3.64	7.00	25.7	60.0	60.0	21.5	
A141 S	3.82	9.00	42.7	50.0	60.0	24.5	
Westry Retail Park	6.00	7.00	59.1	20.0	60.0	39.7	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/TS)
A141 N	0.611	503.373
Hostmoor Avenue	0.614	483.440
A141 S	0.691	599.723
Westry Retail Park	0.606	508.642

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 period length (min)	Time segment length (min)
D1	2026 base w Westry	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A141 N		✓	100.000
Hostmoor Avenue		✓	100.000
A141 S		✓	100.000
Westry Retail Park		✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	35.00	174.00	35.00
	Hostmoor Avenue	35.00	0.00	43.00	7.00
	A141 S	198.00	59.00	0.00	40.00
	Westry Retail Park	23.00	5.00	25.00	0.00

08:15 - 08:30

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	41.00	207.00	35.00
	Hostmoor Avenue	27.00	0.00	38.00	7.00
	A141 S	156.00	54.00	0.00	40.00
	Westry Retail Park	23.00	5.00	25.00	0.00

08:30 - 08:45

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	35.00	184.00	35.00
	Hostmoor Avenue	24.00	0.00	44.00	7.00
	A141 S	140.00	69.00	0.00	40.00
	Westry Retail Park	23.00	5.00	25.00	0.00

08:45 - 09:00

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	31.00	163.00	35.00
	Hostmoor Avenue	15.00	0.00	40.00	7.00
	A141 S	136.00	99.00	0.00	40.00
	Westry Retail Park	23.00	5.00	25.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	15	11	0
	Hostmoor Avenue	30	0	10	0
	A141 S	13	7	0	0
	Westry Retail Park	0	0	0	0

08:15 - 08:30

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	15	11	0
	Hostmoor Avenue	30	0	10	0
	A141 S	13	7	0	0
	Westry Retail Park	0	0	0	0

08:30 - 08:45

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	15	11	0
	Hostmoor Avenue	30	0	10	0
	A141 S	13	7	0	0
	Westry Retail Park	0	0	0	0

08:45 - 09:00

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	15	11	0
	Hostmoor Avenue	30	0	10	0
	A141 S	13	7	0	0
	Westry Retail Park	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A141 N	0.69	7.11	2.2	A
Hostmoor Avenue	0.30	4.73	0.4	A
A141 S	0.61	4.58	1.5	A
Westry Retail Park	0.17	3.52	0.2	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	244.00	88.58	406.16	0.601	242.52	1.5	5.451	A
Hostmoor Avenue	85.00	232.63	280.17	0.303	84.57	0.4	4.591	A
A141 S	297.00	76.57	490.30	0.606	295.48	1.5	4.584	A
Westry Retail Park	53.00	290.51	308.19	0.172	52.79	0.2	3.520	A

08:15 - 08:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	283.00	84.10	408.01	0.694	282.27	2.2	7.114	A
Hostmoor Avenue	72.00	266.39	262.56	0.274	72.05	0.4	4.726	A
A141 S	250.00	68.97	498.48	0.502	250.50	1.0	3.635	A
Westry Retail Park	53.00	237.50	345.14	0.154	53.02	0.2	3.080	A

08:30 - 08:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	254.00	98.95	399.86	0.635	254.44	1.8	6.207	A
Hostmoor Avenue	75.00	244.36	277.98	0.270	75.01	0.4	4.435	A
A141 S	249.00	66.06	502.61	0.495	249.03	1.0	3.551	A
Westry Retail Park	53.00	233.05	349.04	0.152	53.00	0.2	3.039	A

08:45 - 09:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	229.00	128.86	382.71	0.598	229.26	1.5	5.877	A
Hostmoor Avenue	62.00	223.22	294.93	0.210	62.10	0.3	3.868	A
A141 S	275.00	57.07	511.40	0.538	274.84	1.2	3.803	A
Westry Retail Park	53.00	249.90	339.51	0.156	53.00	0.2	3.140	A

2026 base w Westry, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A141 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Westry Retail Park - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.09	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 period length (min)	Time segment length (min)
D2	2026 base w Westry	PM	DIRECT	16:45	17:45	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A141 N		✓	100.000
Hostmoor Avenue		✓	100.000
A141 S		✓	100.000
Westry Retail Park		✓	100.000

Origin-Destination Data

16:45 - 17:00

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	40.00	185.00	63.00
	Hostmoor Avenue	25.00	0.00	94.00	13.00
	A141 S	184.00	70.00	0.00	71.00
	Westry Retail Park	52.00	10.00	58.00	0.00

17:00 - 17:15

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	47.00	198.00	63.00
	Hostmoor Avenue	34.00	0.00	118.00	13.00
	A141 S	214.00	76.00	0.00	71.00
	Westry Retail Park	52.00	10.00	58.00	0.00

17:15 - 17:30

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	45.00	207.00	63.00
	Hostmoor Avenue	35.00	0.00	112.00	13.00
	A141 S	189.00	81.00	0.00	71.00
	Westry Retail Park	52.00	10.00	58.00	0.00

17:30 - 17:45

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	49.00	191.00	63.00
	Hostmoor Avenue	36.00	0.00	107.00	13.00
	A141 S	190.00	81.00	0.00	71.00
	Westry Retail Park	52.00	10.00	58.00	0.00

Vehicle Mix

16:45 - 17:00

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	6	6	0
	Hostmoor Avenue	4	0	2	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

17:00 - 17:15

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	6	6	0
	Hostmoor Avenue	4	0	2	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

17:15 - 17:30

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	5	6	0
	Hostmoor Avenue	3	0	2	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

17:30 - 17:45

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	6	6	0
	Hostmoor Avenue	4	0	2	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A141 N	0.80	11.29	3.8	B
Hostmoor Avenue	0.60	8.24	1.5	A
A141 S	0.72	6.23	2.5	A
Westry Retail Park	0.40	4.90	0.6	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	288.00	137.31	400.32	0.719	285.51	2.5	7.682	A
Hostmoor Avenue	132.00	303.59	284.13	0.465	131.14	0.9	5.850	A
A141 S	325.00	100.21	511.34	0.636	323.28	1.7	4.744	A
Westry Retail Park	120.00	277.50	332.75	0.361	119.44	0.6	4.208	A

17:00 - 17:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	308.00	143.80	396.18	0.777	307.14	3.3	9.998	A
Hostmoor Avenue	165.00	318.27	274.61	0.601	164.38	1.5	8.119	A
A141 S	361.00	109.69	504.02	0.716	360.25	2.5	6.225	A
Westry Retail Park	120.00	323.22	303.66	0.395	119.91	0.6	4.896	A

17:15 - 17:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	315.00	149.03	393.53	0.800	314.52	3.8	11.290	B
Hostmoor Avenue	160.00	327.57	269.21	0.594	160.00	1.5	8.241	A
A141 S	341.00	110.90	504.40	0.676	341.34	2.1	5.532	A
Westry Retail Park	120.00	305.28	315.57	0.380	120.03	0.6	4.603	A

17:30 - 17:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	303.00	149.00	393.19	0.771	303.35	3.5	10.075	B
Hostmoor Avenue	156.00	312.36	278.27	0.561	156.17	1.3	7.382	A
A141 S	342.00	112.08	503.33	0.679	342.00	2.1	5.580	A
Westry Retail Park	120.00	307.02	314.26	0.382	120.00	0.6	4.634	A

2026 base w Westry, SAT

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A141 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Westry Retail Park - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	6.76	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 period length (min)	Time segment length (min)
D3	2026 base w Westry	SAT	DIRECT	11:30	12:30	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A141 N		✓	100.000
Hostmoor Avenue		✓	100.000
A141 S		✓	100.000
Westry Retail Park		✓	100.000

Origin-Destination Data

11:30 - 11:45

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	46.00	103.00	71.00
	Hostmoor Avenue	20.00	0.00	154.00	14.00
	A141 S	126.00	107.00	0.00	78.00
	Westry Retail Park	71.00	14.00	79.00	0.00

11:45 - 12:00

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	40.00	114.00	71.00
	Hostmoor Avenue	43.00	0.00	141.00	14.00
	A141 S	141.00	123.00	0.00	78.00
	Westry Retail Park	71.00	14.00	79.00	0.00

12:00 - 12:15

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	36.00	83.00	71.00
	Hostmoor Avenue	41.00	0.00	147.00	14.00
	A141 S	141.00	117.00	0.00	78.00
	Westry Retail Park	71.00	14.00	79.00	0.00

12:15 - 12:30

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	32.00	122.00	71.00
	Hostmoor Avenue	37.00	0.00	143.00	14.00
	A141 S	138.00	142.00	0.00	78.00
	Westry Retail Park	71.00	14.00	79.00	0.00

Vehicle Mix

11:30 - 11:45

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	2	7	0
	Hostmoor Avenue	3	0	1	0
	A141 S	3	1	0	0
	Westry Retail Park	0	0	0	0

11:45 - 12:00

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	2	7	0
	Hostmoor Avenue	3	0	1	0
	A141 S	3	1	0	0
	Westry Retail Park	0	0	0	0

12:00 - 12:15

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	2	7	0
	Hostmoor Avenue	3	0	1	0
	A141 S	3	1	0	0
	Westry Retail Park	0	0	0	0

12:15 - 12:30

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	2	7	0
	Hostmoor Avenue	3	0	1	0
	A141 S	3	1	0	0
	Westry Retail Park	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A141 N	0.65	7.41	1.8	A
Hostmoor Avenue	0.63	7.90	1.7	A
A141 S	0.71	6.01	2.4	A
Westry Retail Park	0.52	6.05	1.1	A

Main Results for each time segment

11:30 - 11:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	220.00	199.00	367.60	0.598	218.53	1.5	5.980	A
Hostmoor Avenue	188.00	251.42	321.05	0.586	186.61	1.4	6.628	A
A141 S	311.00	104.28	519.18	0.599	309.53	1.5	4.263	A
Westry Retail Park	164.00	251.75	352.75	0.465	163.14	0.9	4.726	A

11:45 - 12:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	225.00	215.65	356.99	0.630	224.79	1.7	6.796	A
Hostmoor Avenue	198.00	263.69	312.42	0.634	197.69	1.7	7.820	A
A141 S	342.00	127.71	502.59	0.680	341.39	2.1	5.562	A
Westry Retail Park	164.00	306.27	318.90	0.514	163.81	1.0	5.795	A

12:00 - 12:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	190.00	210.05	361.92	0.525	190.56	1.1	5.270	A
Hostmoor Avenue	202.00	233.48	332.10	0.608	202.12	1.6	6.931	A
A141 S	336.00	126.17	503.61	0.667	336.06	2.0	5.376	A
Westry Retail Park	164.00	299.10	323.31	0.507	164.01	1.0	5.649	A

12:15 - 12:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	225.00	234.74	345.07	0.652	224.29	1.8	7.406	A
Hostmoor Avenue	194.00	271.31	307.64	0.631	193.90	1.7	7.902	A
A141 S	358.00	121.83	506.92	0.706	357.68	2.4	6.014	A
Westry Retail Park	164.00	316.72	312.61	0.525	163.95	1.1	6.050	A

2026 base w Westry + Aldi, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A141 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Westry Retail Park - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	5.60	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D4	2026 base w Westry + Aldi	AM	DIRECT	08:00	09:00	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A141 N		✓	100.000
Hostmoor Avenue		✓	100.000
A141 S		✓	100.000
Westry Retail Park		✓	100.000

Origin-Destination Data

08:00 - 08:15

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	39.00	170.00	35.00
	Hostmoor Avenue	41.00	0.00	51.00	7.00
	A141 S	192.00	65.00	0.00	40.00
	Westry Retail Park	21.00	7.00	23.00	0.00

08:15 - 08:30

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	47.00	202.00	35.00
	Hostmoor Avenue	32.00	0.00	45.00	7.00
	A141 S	151.00	59.00	0.00	40.00
	Westry Retail Park	21.00	7.00	23.00	0.00

08:30 - 08:45

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	39.00	180.00	35.00
	Hostmoor Avenue	29.00	0.00	52.00	7.00
	A141 S	136.00	76.00	0.00	40.00
	Westry Retail Park	21.00	7.00	23.00	0.00

08:45 - 09:00

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	36.00	159.00	35.00
	Hostmoor Avenue	18.00	0.00	48.00	7.00
	A141 S	131.00	110.00	0.00	40.00
	Westry Retail Park	21.00	7.00	23.00	0.00

Vehicle Mix

08:00 - 08:15

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	13	11	0
	Hostmoor Avenue	25	0	8	0
	A141 S	13	7	0	0
	Westry Retail Park	0	0	0	0

08:15 - 08:30

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	13	11	0
	Hostmoor Avenue	25	0	8	0
	A141 S	13	7	0	0
	Westry Retail Park	0	0	0	0

08:30 - 08:45

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	13	11	0
	Hostmoor Avenue	25	0	8	0
	A141 S	13	7	0	0
	Westry Retail Park	0	0	0	0

08:45 - 09:00

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	13	11	0
	Hostmoor Avenue	25	0	8	0
	A141 S	13	7	0	0
	Westry Retail Park	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A141 N	0.70	7.29	2.3	A
Hostmoor Avenue	0.34	4.77	0.5	A
A141 S	0.61	4.66	1.5	A
Westry Retail Park	0.17	3.54	0.2	A

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	244.00	94.54	403.55	0.605	242.49	1.5	5.538	A
Hostmoor Avenue	99.00	226.64	290.81	0.340	98.49	0.5	4.667	A
A141 S	297.00	82.54	487.25	0.610	295.46	1.5	4.656	A
Westry Retail Park	51.00	296.46	304.96	0.167	50.80	0.2	3.536	A

08:15 - 08:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	284.00	89.11	405.93	0.700	283.24	2.3	7.287	A
Hostmoor Avenue	84.00	259.38	272.91	0.308	84.06	0.4	4.766	A
A141 S	250.00	73.98	495.93	0.504	250.52	1.0	3.676	A
Westry Retail Park	51.00	242.51	342.34	0.149	51.02	0.2	3.088	A

08:30 - 08:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	254.00	105.93	396.59	0.640	254.46	1.8	6.353	A
Hostmoor Avenue	88.00	238.36	287.64	0.306	88.01	0.4	4.508	A
A141 S	252.00	71.06	499.98	0.504	252.00	1.0	3.631	A
Westry Retail Park	51.00	241.03	344.19	0.148	51.00	0.2	3.069	A

08:45 - 09:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	230.00	139.83	376.94	0.610	230.22	1.6	6.144	A
Hostmoor Avenue	73.00	217.19	304.54	0.240	73.13	0.3	3.890	A
A141 S	281.00	60.08	510.19	0.551	280.81	1.2	3.920	A
Westry Retail Park	51.00	258.88	333.99	0.153	50.99	0.2	3.179	A

2026 base w Westry + Aldi, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A141 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Westry Retail Park - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	8.66	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 period length (min)	Time segment length (min)
D5	2026 base w Westry + Aldi	PM	DIRECT	16:45	17:45	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A141 N		✓	100.000
Hostmoor Avenue		✓	100.000
A141 S		✓	100.000
Westry Retail Park		✓	100.000

Origin-Destination Data

16:45 - 17:00

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	44.00	181.00	63.00
	Hostmoor Avenue	30.00	0.00	103.00	13.00
	A141 S	179.00	77.00	0.00	71.00
	Westry Retail Park	51.00	13.00	56.00	0.00

17:00 - 17:15

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	52.00	194.00	63.00
	Hostmoor Avenue	40.00	0.00	129.00	13.00
	A141 S	208.00	83.00	0.00	71.00
	Westry Retail Park	51.00	13.00	56.00	0.00

17:15 - 17:30

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	50.00	203.00	63.00
	Hostmoor Avenue	42.00	0.00	123.00	13.00
	A141 S	184.00	89.00	0.00	71.00
	Westry Retail Park	51.00	13.00	56.00	0.00

17:30 - 17:45

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	53.00	187.00	63.00
	Hostmoor Avenue	43.00	0.00	117.00	13.00
	A141 S	185.00	89.00	0.00	71.00
	Westry Retail Park	51.00	13.00	56.00	0.00

Vehicle Mix

16:45 - 17:00

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	5	6	0
	Hostmoor Avenue	3	0	1	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

17:00 - 17:15

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	5	6	0
	Hostmoor Avenue	3	0	1	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

17:15 - 17:30

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	5	6	0
	Hostmoor Avenue	3	0	1	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

17:30 - 17:45

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	5	6	0
	Hostmoor Avenue	3	0	1	0
	A141 S	6	1	0	0
	Westry Retail Park	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A141 N	0.81	12.21	4.1	B
Hostmoor Avenue	0.65	9.29	1.8	A
A141 S	0.72	6.42	2.6	A
Westry Retail Park	0.40	5.00	0.7	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	288.00	145.25	396.22	0.727	285.42	2.6	7.948	A
Hostmoor Avenue	146.00	297.55	290.34	0.503	145.00	1.0	6.151	A
A141 S	327.00	105.14	508.57	0.643	325.23	1.8	4.863	A
Westry Retail Park	120.00	284.41	328.76	0.365	119.43	0.6	4.289	A

17:00 - 17:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	309.00	151.78	392.10	0.788	308.03	3.5	10.569	B
Hostmoor Avenue	182.00	312.19	280.83	0.648	181.21	1.8	8.961	A
A141 S	362.00	115.61	500.62	0.723	361.23	2.5	6.418	A
Westry Retail Park	120.00	330.15	299.73	0.400	119.91	0.7	5.002	A

17:15 - 17:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	316.00	158.02	388.28	0.814	315.40	4.1	12.207	B
Hostmoor Avenue	178.00	321.47	274.80	0.648	177.98	1.8	9.290	A
A141 S	344.00	117.86	500.08	0.688	344.30	2.2	5.792	A
Westry Retail Park	120.00	315.23	309.55	0.388	120.02	0.6	4.751	A

17:30 - 17:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	303.00	158.00	388.54	0.780	303.46	3.7	10.657	B
Hostmoor Avenue	173.00	306.44	284.38	0.608	173.23	1.6	8.117	A
A141 S	345.00	119.11	499.20	0.691	345.00	2.2	5.836	A
Westry Retail Park	120.00	317.03	308.41	0.389	120.00	0.6	4.778	A

2026 base w Westry + Aldi, SAT

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A141 S - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Westry Retail Park - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	7.75	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)
D6	2026 base w Westry + Aldi	SAT	DIRECT	11:30	12:30	60	15

Vehicle mix varies over time	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Scaling Factor (%)
A141 N		✓	100.000
Hostmoor Avenue		✓	100.000
A141 S		✓	100.000
Westry Retail Park		✓	100.000

Origin-Destination Data

11:30 - 11:45

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	55.00	96.00	71.00
	Hostmoor Avenue	27.00	0.00	171.00	14.00
	A141 S	116.00	121.00	0.00	78.00
	Westry Retail Park	69.00	20.00	76.00	0.00

11:45 - 12:00

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	48.00	106.00	71.00
	Hostmoor Avenue	58.00	0.00	157.00	14.00
	A141 S	129.00	140.00	0.00	78.00
	Westry Retail Park	69.00	20.00	76.00	0.00

12:00 - 12:15

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	44.00	78.00	71.00
	Hostmoor Avenue	56.00	0.00	164.00	14.00
	A141 S	129.00	133.00	0.00	78.00
	Westry Retail Park	69.00	20.00	76.00	0.00

12:15 - 12:30

Demand (Veh/TS)

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0.00	38.00	114.00	71.00
	Hostmoor Avenue	50.00	0.00	159.00	14.00
	A141 S	126.00	161.00	0.00	78.00
	Westry Retail Park	69.00	20.00	76.00	0.00

Vehicle Mix

11:30 - 11:45

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	1	7	0
	Hostmoor Avenue	2	0	1	0
	A141 S	4	1	0	0
	Westry Retail Park	0	0	0	0

11:45 - 12:00

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	1	7	0
	Hostmoor Avenue	2	0	1	0
	A141 S	4	1	0	0
	Westry Retail Park	0	0	0	0

12:00 - 12:15

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	1	7	0
	Hostmoor Avenue	2	0	1	0
	A141 S	4	1	0	0
	Westry Retail Park	0	0	0	0

12:15 - 12:30

Heavy Vehicle Percentages

		To			
		A141 N	Hostmoor Avenue	A141 S	Westry Retail Park
From	A141 N	0	1	7	0
	Hostmoor Avenue	2	0	1	0
	A141 S	4	1	0	0
	Westry Retail Park	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A141 N	0.67	8.06	2.0	A
Hostmoor Avenue	0.72	9.75	2.4	A
A141 S	0.73	6.78	2.7	A
Westry Retail Park	0.55	6.66	1.2	A

Main Results for each time segment

11:30 - 11:45

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	222.00	215.87	359.04	0.618	220.41	1.6	6.420	A
Hostmoor Avenue	212.00	241.39	327.69	0.647	210.21	1.8	7.551	A
A141 S	315.00	111.15	513.04	0.614	313.43	1.6	4.474	A
Westry Retail Park	165.00	262.59	345.61	0.477	164.10	0.9	4.933	A

11:45 - 12:00

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	225.00	235.51	346.52	0.649	224.78	1.8	7.376	A
Hostmoor Avenue	229.00	252.66	319.99	0.716	228.36	2.4	9.748	A
A141 S	347.00	142.52	491.18	0.706	346.22	2.4	6.173	A
Westry Retail Park	165.00	325.97	306.38	0.539	164.75	1.2	6.342	A

12:00 - 12:15

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	193.00	229.07	351.89	0.548	193.58	1.2	5.705	A
Hostmoor Avenue	234.00	225.48	337.67	0.693	234.12	2.3	8.708	A
A141 S	340.00	141.19	492.01	0.691	340.08	2.3	5.928	A
Westry Retail Park	165.00	318.14	311.18	0.530	165.01	1.1	6.158	A

12:15 - 12:30

Arm	Total Demand (Veh/TS)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	End queue (Veh)	Delay (s)	Unsignalised level of service
A141 N	223.00	256.66	333.16	0.669	222.26	2.0	8.061	A
Hostmoor Avenue	223.00	260.28	315.12	0.708	222.94	2.4	9.747	A
A141 S	365.00	134.83	496.83	0.735	364.57	2.7	6.778	A
Westry Retail Park	165.00	336.65	299.94	0.550	164.93	1.2	6.661	A

APPENDIX 4 – CCC PRE-APPLICATION CORRESPONDENCE

Cambridgeshire County Council

Aldi, Hostmoor Avenue, March

Pre-App Advice - FDC 1991

TRANSPORTATION COMMENTS

PREPARED BY: Transport Assessment Team

AUTHOR: Hannah Seymour-Shove

CHECKED BY: Andrew Connolly

DATE: 26th February 2020

Background

These comments comprise pre-application advice made by the County Council concerning the erection of an Aldi discount foodstore on the land to the north of Hostmoor Avenue and to the west of Martin Avenue in March. As per our TA Requirements document, the level of development proposed would require a Transport Assessment and accompanying Travel Plan.

In preparing a TA the applicant is referred to the County Council's Transport Assessment Requirements September 2019 of which a copy can be found in the link below:
https://www.cambridgeshire.gov.uk/business/planning-and-development/developing-new-communities/

As such a TA should consider the following in its content.

- The planning and transport policy context of the development
- Reference to the potential for use of other transport modes to the development site, including bus, cycle and walking. To include reference to the location of the nearest bus stops in relation to the development
- Identification of the traffic related study area including any key junctions that may be affected by the development
- Baseline traffic surveys at these key junctions and consideration of any committed developments in the area that may add to local traffic flows
- Previous 60 months accident records as obtained from Cambridgeshire County Council business.intelligence@cambridgeshire.gov.uk for the study area
- Trip generation assessment from surveys taken from any other nearby similar sites and/or TRICS as a comparison
- Trip distribution on the network according to a clear methodology
- Future year assessment of the key junctions with the development
- Assessment of any mitigation for vehicle impacts, and difficulties of access by walking, cycling and public transport to the site
- Travel Plan

The remainder of this note sets out in further detail what should be included within any TA submitted to the County Council.

1. Policy Review

   The Transport Assessment should include an up-to-date review of the relevant national and local transport policies, this should include reference to documents such as:

   - National Planning Policy Framework [NPPF] (2019)
   - Planning Practice Guidance [PPG] (2014)
   - Third Cambridgeshire Local Transport Plan (2011-2031)
   - Cambridgeshire's Long Term Transport Strategy (2015)

- Fenland Local Plan (2014)
- March Area Transport Study

The purpose of the policy review is to demonstrate the ways in which the development is consistent with policy objectives at both national and local levels.

2. Development Site

Local Highway Network

The TA should detail the surrounding highway network, outlining the widths and speed limits of the surrounding highway. Consideration should be given to any deficiencies in the local highway network within any TA submitted.

Sustainable Travel Provision

A site location plan should show the relationship between the existing site and the surrounding public transport, pedestrian and cycle networks including consideration of key desire lines with which the development will interact.

The quality of the surrounding pedestrian and cycle links, inclusive of crossing points, should be described and areas for improvement identified. The TA should also outline any surrounding Public Rights Of Way (PROW) within the vicinity of the development site.

An analysis of the nearest bus stops accessible to the site including the current infrastructure available at the bus stops and any existing constraints in terms of walking to these stops is required within any TA submitted. An audit of the existing local bus services at these stops; inclusive of destinations served and frequency should also be provided as part of the assessment. Bus timetables should be appended to the TA.

Road Safety

CCC requires accident analysis to be presented for the most recent 60 month time period for the study area. Contact should be made with the County Council via business.intelligence@cambridgeshire.gov.uk to obtain such data. Full CCC outputs should be provided. It should be noted the use of Crashmap would not be acceptable as such data is generally older than CCC data.

Accident analysis needs to identify any trends with regards to accidents that have occurred involving vulnerable road users, or at specific locations, and determine the extent to which the development will affect the identified pattern and rate of accidents.

Committed Development

The County Council are aware that there are a number of committed developments which should be taken into consideration including the following:

- **McDonalds, March** - F/YR19/1093/F - Erection of a 2-storey drive thru restaurant/takeaway on the land south of Hostmoor Avenue
- **Westry Retail Park** - F/YR18/0566/F - Erection of 13 x retail units, 1 x drive-thru restaurant/coffee shop, 2 x units with A3/A5 use, and a new roundabout on A141

It should also be noted that there is existing consent for retail units and drive thru restaurants/coffee shop on the land opposite Hostmoor Avenue (F/YR15/0640/F). This development has commenced.

Traffic flow diagrams should be provided for each development. These should be obtained from the latest TA documents for each site respectively. If the distribution models for these

developments do not extend as far as the junctions to be modelled, traffic distribution should be based on the traffic distribution of the background traffic at each junction identified through the traffic surveys.

Contact should be made with Fenland District Council as Local Planning Authority to advise of any other committed developments which should be taken into consideration.

3. Development Proposals

Proposed Development

It is noted the development comprises an Aldi foodstore with a proposed GFA of 1,881sqm. A detailed site location plan should be provided within the TA.

A description of the existing and proposed land use of the development in addition to estimated commencement and completion dates should also be provided within the TA.

Details of proposed staff numbers should be provided if available.

Access and Parking

The Highway Authority does not support the proposed access arrangements, the access should remain off Martin Avenue. Hostmoor Avenue junction with the A141 is currently over capacity and the creation of a new access in this location without a right turn lane would cause a safety and capacity concern.

Contact should be made with Highways Development Management via Alexander.Woolnough@cambridgeshire.gov.uk to agree the servicing arrangement and site access details.

Recent data should be provided from other local Aldi stores to demonstrate that the proposed amount of car parking is sufficient.

The cycle parking should be secure, covered, and located in a visible position on the site. It will be for the LPA to agree parking provision on-site.

Study Network and Baseline Traffic Data

An ATC survey should be undertaken at the proposed site access to provide speed data and justification for the peak periods used within the assessment.

It is noted the following junctions will be assessed and surveyed as part of the TA. This should include turning movement and queue length surveys:

- Site Access/Hostmoor Avenue
- Martin Avenue/Hostmoor Avenue/Tesco roundabout
- A141 Wisbech Road/Hostmoor Avenue priority junction

The County Council consider the following junction should also be assessed and surveyed as part of the TA:

- Wisbech Road/A141 Isle of Ely Way/Whittlesey Road (Peas Hill) roundabout

All surveys included within the assessment should be undertaken at a neutral time during peak hours whilst avoiding school, college and university holiday periods (see Webtag Unit M1.2). Full survey outputs should be appended to the TA when submitted. It should also be noted that the County Council reserve the right for further traffic surveys and analysis if it is shown to be needed.

Trip Generation

The County Council require the trip generation for the site to be provided as part of the TA, this should include weekly AM, PM, and daily trip generation in addition to the Saturday peak period. It is noted the trip generation for the development has been calculated using TRICS under the category of retail 'discount food stores'. The County Council do not accept TRICS trip rates for discounted food stores for Aldi developments. This is because Aldi stores are now within the top 5 biggest supermarkets within the UK.

Recent data should be provided from other local Aldi stores to demonstrate vehicular trip rates.

Multi-modal trip generation should be provided within the TA.

Development trips have been assigned as follows:

- Pass-by trips (taken from Hostmoor Avenue) = 10%
- Diverted trips (taken from A141 Wisbech Road) = 10%
- Linked trips (visit both Aldi and Tesco) = 30%
- New to Study Area = 30%
- Transferred trips (exclusively use Aldi as opposed to Tesco) = 20%

A detailed rationale, including evidence should be provided for the Highway Authority to review justifying the above percentage of new, linked, diverted, transferred and pass-by trips used within any assessment submitted.

Trip Distribution and Assignment

The TA needs to set out the distribution of new trips onto the network. The distribution of development trips should in this instance be based on the turning count proportions to be determined from the traffic surveys which are yet to be undertaken. Vehicle trip distribution and assignment traffic flow diagrams should be presented in the TA.

Future Year Assessment

The TA should indicate the impact of the proposed development. This requires setting out the existing transport situation, how this situation may change in future years, and the future year with the proposed development in place. For future and design years, assessments should consider committed development, committed transport schemes and background growth. Traffic flow diagrams should be produced for each of the assessment scenarios.

As per our TA Requirements (September 2019), CCC requires the following assessment scenarios be modelled for the weekday AM and PM peak assessment periods in addition to the Saturday peak period:

- Base Year (year of application submission)
- Future year (year of opening) scenario with no development (base + TEMPRO Growth + committed development)
- Future year (year of opening) scenario with development (base + TEMPRO Growth + committed development + development)
- Design year (5 years post opening) scenario with no development (base + TEMPRO Growth + committed development)
- Design year (5 years post opening) scenario with development (base + TEMPRO Growth + committed development + development)

Cambridgeshire County Council

Aldi Store, Hostmoor Avenue, March

CCC Ref: FDC 1991

TRANSPORTATION COMMENTS

PREPARED BY: Transport Assessment Team

AUTHOR: Hannah Seymour-Shove

CHECKED BY: David Allatt

DATE: 1st July 2020

Background

These comments concern the Transport Assessment dated June 2020 produced by Connect Consultants Ltd. The proposals comprise the development of a new Aldi discount foodstore with GIA of 1881sqm on Hostmoor Avenue in March.

Pre-Application Transport Assessment Review

Pedestrian and Cycle Access

The walking and cycling catchment maps are acceptable for use. The development is situated within acceptable walking and cycling catchments.

The applicant should detail the widths of the key footway links within the site vicinity. It is noted footways are present along both sides of Hostmoor Avenue. In addition, a continuous footway is present on the east side of the A141 Wisbech Road within the site vicinity. It is noted majority of cycling in the vicinity takes place on the surrounding roads.

Bus Access

The nearest bus stops are situated within suitable walking distance from the site. Existing infrastructure at these stops comprise a shelter with timetable information at the stop situated c260m south of the site located within the forecourt of the Tesco store, and a flag and pole with timetable information at the stop situated c400m northeast of the site located on the A141 Wisbech Road. It is noted the Tesco bus stop serves the No.33 service which operates at a 2-hourly frequency between March and Peterborough Monday to Saturday, whilst the A141 bus stop serves the No.33 service and the No.46 service which operates at a 1.5-hourly frequency between Wisbech and March Monday to Saturday. The applicant should outline the condition of the walking routes to the nearest bus stops.

Highways Access

The audit of the surrounding highway network is acceptable for use.

Proposed Site Access and Servicing

The Highway Authority does not support the proposed access arrangements, CCC Highways have requested that the access is taken from the lower category road, and redesigned accordingly. Therefore, access should be taken off Martin Avenue. Hostmoor Avenue junction with the A141 is currently over capacity and the creation of a new access in this location without a right turn lane would cause a safety and capacity concern. Site access and servicing details should be agreed with Highways Development Management.

Development Parking Provision

Car parking standards listed within the Fenland Local Plan (2014) indicate a maximum 94 car parking spaces should be provided for the development. The TA however, states that there will be provision for 109 car parking spaces inclusive of 6 disabled spaces and 10 parent and child spaces, with provision of two EV charging spaces also proposed. The proposed provision is higher than the maximum car parking standards.

CCC recommend that car parking provision is proposed to within standard however, car parking provision is ultimately for the Local Planning Authority to approve. Justification of the over-provision of spaces needs to be submitted. This could be in the form of recent data provided from other local Aldi stores to demonstrate that the proposed amount of car parking is sufficient.

It is noted the Fenland Local Plan does not include cycle parking standards to specific numerical values. The cycle parking provision of 8 cycle spaces on-site seems a bit low. The applicant should demonstrate how 8 cycle spaces is acceptable given that sustainable travel to the site for staff and customers should be encouraged. Cycle parking should be secure, covered, and located in a visible position on the site. Furthermore, it will be for the LPA to agree cycle parking provision on-site.

Existing Traffic Flows

The study area listed below is acceptable for use:

1. Proposed Aldi Access/Hostmoor Avenue priority junction
2. Hostmoor Avenue/Tesco Access Roundabout
3. Existing A141/Hostmoor Avenue priority junction
4. Proposed A141/Hostmoor Avenue/Westry Retail Park roundabout
5. A141/B1099/Whittlesey Road roundabout (Peas Hill Roundabout)

It is noted new traffic surveys have not be undertaken due to the Covid-19 pandemic. Existing traffic flows have been obtained via traffic survey data obtained from the County Council for Tuesday 27th March 2018 and Saturday 9th May 2015. Survey outputs have not been provided. The surveys obtained from the Council only encompass one weekday and Saturday and as such cannot be representative of a whole week. Therefore, the Highway Authority requires surveys to be obtained which account for a neutral week. It should also be noted the 2015 data is not acceptable for use within the assessment as it is over 3 years old and is considered out of date. It is therefore advised new survey data is either obtained when traffic has returned to normal or the applicant should liaise with CCC to see if they have further in-date data for this area.

An ATC survey should be undertaken at the site access to provide speed data and justification for the peak periods used.

The use of TEMPRO software to calculate future background traffic growth is agreed. The TEMPRO growth rates however cannot be agreed until the baseline survey year and future assessment years are agreed and the growth rates recalculated.

Committed Development

CCC are not satisfied with the committed development included within the assessment.

It is not agreed that the McDonalds scheme has not been included within this assessment as committed development. Whilst it is noted the applicant considers the majority of McDonalds traffic

will be secondary trips, to provide a worst-case scenario, the applicant should include the McDonalds application as committed development within this assessment.

CCC are satisfied with the rationale justifying the use of the 'worst-case' Westry Retail Park traffic flows within the 2026 future year scenarios only. It is noted the Westry Retail Park committed development considers the proposed upgrade of the existing A141/Hostmoor Avenue priority junction to a 60m diameter priority roundabout.

It is noted construction of the existing consent for retail units and drive thru restaurants/coffee shop on the land opposite Hostmoor Avenue (F/YR15/0640/F) has recently commenced. It is unclear why this development has not been considered within the committed development.

Traffic flow diagrams should be provided for each development. These should be obtained from the latest TA documents for each site respectively.

Proposed Aldi Trip Attraction

Vehicle trip generation for the Aldi store has been based on arrival and departure data from the comparable Aldi store on Sandyland in Wisbech for the Weekday AM, PM peak and Saturday PM peak. Survey outputs should be appended to the TA for CCC to review. It is noted the observed trip numbers for the Aldi Wisbech store were converted into trip rates per 100sqm GFA, and applied to the 1,881sqm GFA of the proposed March store in order to determine the anticipated vehicle trip generation for the proposed development.

The new Aldi store is anticipated to generate 137 two-way vehicle movements in the Weekday AM peak, 186 two-way vehicle movements in the Weekday PM peak, and 320 two-way vehicle movements in the Saturday peak. The proposed Aldi vehicle trip generation cannot be agreed until such a time as the Aldi Wisbech survey outputs have been submitted and reviewed.

Multi-modal trip generation should be provided within the TA.

Vehicle trips to the Aldi store have been assigned as follows:

- New to study area = 10%
- Pass-by trips (taken from Hostmoor Avenue) = 10%
- Diverted trips (taken from A141 Wisbech Road) = 20%
- Transferred trips (from Tesco) = 15%
- Transferred trips (from Aldi Wisbech) = 5%
- Linked trips (visit both Aldi and Tesco) = 30%
- Linked trips (visit both Aldi and Westry Retail Park) = 10%

The proportion of 'pass-by', 'diverted', 'linked' and 'transferred' trips has been calculated using first principles Aldi data (interview data obtained in 2008, 2009, and 2015) and the TRICS research report 14/1.

The distribution of development trips is agreed.

Road Safety/Collision Analysis

The County Council do not accept accident data obtained from CrashMap as it does not provide the latest available data. The latest available 60 months accident data should be obtained from the County Council via: business.intelligence@cambridgeshire.gov.uk. Full outputs should be provided.

Junction Capacity Analysis
The junctions included within the capacity assessment are agreed.

The assessment scenarios used within the assessment for the Weekday AM, PM and Saturday peak periods are agreed.

The junction assessments cannot be agreed until such a time as the traffic surveys, committed development and trip generation have been accepted. The ARCADY/PICADY assessment should be undertaken using a DIRECT profile type as this will give the most accurate results and does not rely on assumptions to be made. The junction capacity assessment should therefore be remodelled to consider all the above.

Mitigation
At this stage, the impact of the development on the surrounding highway and sustainable transport network cannot be determined. It is therefore not possible to determine what mitigation is needed to make this development acceptable. Once the full impact of the development is known, mitigation measures can be assessed.

Travel Plan
Any application submitted for the proposed development would need to comprise a Travel Plan. This should comprise details of targets, measures and its management with the aim to encourage sustainable travel. Such Travel Plan would be secured as a pre-occupation condition.

Conclusion
The Transport Assessment does not include sufficient information to properly determine the highway impact of the proposed development.

If this Transport Assessment was included as part of any planning application as submitted, CCC would request that such application not be determined until such time as the additional information above has been submitted and reviewed.

TEMPRO v7.2 software should be used to calculate future growth. The methodology to attain the TEMPRO growth rates is agreed however the growth rates should be revised to reflect the above assessment scenarios.

Junction Capacity Assessments

Junction capacity assessments should be undertaken for all the junctions included within the study area unless it is demonstrated to not be required.

Capacity assessments should be undertaken using Junctions 9 software. Any modelling work submitted as part of the planning application must include full junction modelling outputs appended to the TA. Furthermore, the provision of figures showing the geometric measurements input into the models is required in order for the models to be checked.

The base models should be calibrated using the queue length surveys. These surveys should be appended to the TA.

An assessment will need to be undertaken for the Hostmoor Avenue junction with the A141 in its current form and an assessment with the junction as a proposed roundabout.

Proposed Mitigation

The Transport Assessment should identify a suitable package of measures to mitigate the impact of the development on the surrounding transport network. This should include any improvements necessary for pedestrians and cyclists to access local facilities along with any bus stop improvements in order to promote travel by sustainable modes. It should also identify any improvements necessary to the local highway network in order to mitigate the development.

It should be noted that, under most circumstances, works in the public highway will be undertaken by the applicant through S278 agreements for the site.

Travel Plan

A Travel Plan should be submitted as part of the application. This should include details of targets, measures and its management with the aim to encourage sustainable travel. The detailed Travel Plan will be secured as a pre-occupation condition.

Note

The officer comments in this note are provided on an informal and without prejudice basis, based on current information. The County Council's officer comments and requirements may change and this will be confirmed in response to any subsequent planning application, or other, consultation.

Cambridgeshire County Council

Aldi Store, Hostmoor Avenue, March

CCC Ref: FDC 1991

TRANSPORTATION COMMENTS

PREPARED BY: Transport Assessment Team

AUTHOR: Hannah Seymour-Shove

CHECKED BY: David Allatt

DATE: 3rd September 2020

Background

These comments concern the TN01 - Response to Pre-Application Comments dated 17th August 2020 produced by Connect Consultants Ltd provided in response to our comments dated 1st July 2020. The proposals comprise the development of a new Aldi discount foodstore with GIA of 1881sqm on Hostmoor Avenue in March.

Pre-Application Transport Assessment Review

Pedestrian and Cycle Access

The widths of the key footway links within the site vicinity have been provided. It is noted footways present to the north of Hostmoor Avenue are of c1.88m in width whilst footways to the south are c1.99m wide. The existing footway situated on the east of the A141 Wisbech Road north of the A141/Hostmoor Avenue priority junction is c2.5m in width and whilst to the south of the junction the footway narrows to c1.64m in width. The majority of cycling in the vicinity is noted to take place on the surrounding roads. The pedestrian and cycle access audit is now acceptable for use within any TA submitted.

Bus Access

The nearest bus stops are situated within suitable walking distance from the site. Given the site location and the key pedestrian desire line from the site to the bus stops in the Tesco forecourt, the applicant should deliver a pedestrian island crossing across Hostmoor Avenue to the west of the Tesco Access Roundabout as part of any mitigation package agreed for this development.

Proposed Site Access and Servicing

It is noted discussions are ongoing with our Highways Development Management Team with regards to the proposed site access and a Stage 1 Road Safety Audit will be provided as part of the application submission. Site access and servicing details should be agreed with Highways Development Management.

Development Parking Provision

CCC advise that car parking provision is proposed to within standard however, car parking provision is ultimately for the Local Planning Authority to approve. It is noted justification of the provision of spaces will be submitted in future iterations of the TA.

Cycle parking should be secure, covered, and located in a visible position on the site. The proposed on-site cycle parking provision of 8 cycle spaces seems a bit low. Connect should obtain recent data from other comparable Aldi stores to determine on-site cycle parking. It will be for the LPA to agree cycle parking provision on-site.

Existing Traffic Flows
The proposed study area is acceptable for use.

The existing traffic flows used within the assessment have been obtained via traffic survey data attained from Tuesday 27th March 2018 and Saturday 9th May 2015. Connect note that if additional representative data can be collected then surveys will be organised if not, they propose the Highway Authority considers the planning application based on the data which is available. As stated in our previous comments, the existing survey data used within the assessment is considered out-of-date and is not representative of a whole week. This is not acceptable to the Highway Authority. Therefore, our previous comments are still valid which advises Connect to seek out additional representative data for this area for utilisation within any assessment submitted.

Connect have requested the Highway Authority to advise what conclusions would be made from the capacity analysis as submitted were the data used considered to be valid. It should be noted that as the Highway Authority would not accept the data used if it was to be provided in any TA submitted, reviewing it to consider a hypothetical capacity situation is therefore a meaningless exercise.

Using TEMPRO software to calculate future background traffic growth is agreed. The selection criteria and growth methodology set out in Section 4.3 of the TA dated June 2020 using TEMPRO software is agreed.

Committed Development
Given the traffic assessment for the McDonalds scheme committed development was not agreed at the time of writing of the Technical Note, Connect Consultants have undertaken their own separate traffic assessment for the consideration of the McDonalds trips within this assessment. This is accepted.

It is accepted that traffic generation associated with consented planning permission F/YR15/0640/F has been considered within the Westry Retail Park planning application (F/YR18/0566/F) and thus has been counted for within the committed development trips within this assessment.

The traffic flow diagrams provided for the committed development are acceptable for use.

Proposed Aldi Trip Attraction
The new Aldi store is anticipated to generate 137 two-way vehicle movements in the Weekday AM peak, 186 two-way vehicle movements in the Weekday PM peak, and 320 two-way vehicle movements in the Saturday peak. The proposed Aldi vehicle trip generation is agreed.

Vehicle trips to the Aldi store have been assigned as follows:

- New to study area = 10%
- Pass-by trips (taken from Hostmoor Avenue) = 10%
- Diverted trips (taken from A141 Wisbech Road) = 20%
- Transferred trips (from Tesco) = 15%
- Transferred trips (from Aldi Wisbech) = 5%
- Linked trips (visit both Aldi and Tesco) = 30%
- Linked trips (visit both Aldi and Westry Retail Park) = 10%

The proportion of 'pass-by', 'diverted', 'linked' and 'transferred' trips has been calculated using first principles Aldi data (interview data obtained in 2008, 2009, and 2015) and the TRICS research report 14/1.

The proposed methodology to determine modal split for the site is not agreed. Such methodology uses data that is over 3 years old and is considered out of date. The modal split for the development should be calculated using in-date survey data that is less than 3 years old obtained from comparable sites.

Road Safety/Collision Analysis
The latest available 60 months accident data obtained from the County Council has been provided. No accident cluster sites have been identified. This is acceptable for use within the assessment.

Junction Capacity Analysis
The junction assessments cannot be agreed until such a time as the baseline traffic surveys have been accepted. As previously requested, the ARCADY/PICADY assessment should be undertaken using a DIRECT profile type as this will give the most accurate results and does not rely on assumptions to be made. This is as per our Transport Assessment Requirements (2019). Furthermore, as per our TA Requirements (2019) the Highway Authority require a scale topographical drawing to be provided showing the geometric measurements for each of the junctions assessed in order for the models to be checked. The junction capacity assessment will need to be remodelled to consider the above.

Mitigation
At this stage, the impact of the development on the surrounding highway and sustainable transport network cannot be determined. It is therefore not possible to determine what mitigation is needed to make this development acceptable. Once the full impact of the development is known, mitigation measures will be assessed.

Travel Plan
It is noted a Travel Plan will accompany the revised TA when issued. This should comprise details of targets, measures and its management with the aim to encourage sustainable travel. Such Travel Plan would be secured as a pre-occupation condition.

Conclusion
The Transport Assessment does not include sufficient information to properly determine the highway impact of the proposed development.

If this Transport Assessment was included as part of any planning application as submitted, CCC would request that such application not be determined until such time as the additional information above has been submitted and reviewed.