



Tim Speed Consulting

*Highway Statement
Proposed Residential Development
Gatherley Road, Brompton on Swale*

for
Mr Neil Pittaway

Document Validation

Project: Gatherley Road, Brompton on Swale, Highway Statement

Project number: TSC363

File reference: TSC363-01

Issue/Revision	Draft	Issue 1	Issue 2	Issue 3	Issue 4
Issue Date		10 th May 2016	30 th June 2016		
Prepared by		<i>Tim Speed</i>	<i>Tim Speed</i>		
Checked by		<i>Linda Richardson</i>	<i>Linda Richardson</i>		
Authorised by		<i>Tim Speed</i>	<i>Tim Speed</i>		



Tim Speed Consulting

29 Westacres Crescent
Newcastle upon Tyne
NE15 7NY

0191 241 2437
www.timspeedconsulting.co.uk



Contents

1. Introduction.....4
2. Existing Conditions 5
3. Proposals 6
4. Junction Analysis 7
5. Conclusions.....12

Appendix A - Site Boundary

Appendix B - Proposed Site Access

Appendix C - Network Diagrams

Appendix D – Picady Output



1. Introduction

1.1. Mr Neil Pittaway is applying for planning permission for the residential development of land at Gatherley Road, Brompton on Swale. The site boundary is shown in Appendix A.

1.2. This Highway Statement has been prepared to accompany the planning application.



2. Existing Conditions

- 2.1. The A6136 Gatherley Road is a single carriageway. It has a total width of 7.8 metres, the central 1.0 metre having hatched road markings. It has street lighting and a maximum speed limit of 40mph. There is a footway on each side, although that on the north-eastern (site frontage) side is variable in width and is less than 2.0 metres in places.
- 2.2. The proposed development site comprises a farm steading and agricultural fields. Access to the steading and fields is taken from a private road arm at the Stephenson Road/Caxton Close roundabout.
- 2.3. There is an extant outline planning permission for up to 250 dwellings (reference 11/00521/OUT) accessed through the northern part of the site to which this Highway Statement has been prepared. That permission includes a new access from Gatherley Road.



3. Proposals

- 3.1. It is proposed to develop the site with up to 32 dwellings.
- 3.2. Access would be taken at a simple priority junction at the same location of the access proposed for the extant 11/00521/OUT development. The dimensions and geometry of the proposed access for the 32 dwellings would be exactly as approved for 11/00521/OUT. It is proposed that the alignment of the access through the 32-dwelling site would be exactly as proposed for 11/00521/OUT and could be continued to serve the 11/00521/OUT development.
- 3.3. The proposed access is shown in Appendix B.
- 3.4. The access road would have a carriageway width of 6.1 metres with a 2.0 metre footway on each side. There would be radii of 10 metres at the junction with Gatherley Road.
- 3.5. Visibility to the left from the proposed junction would be 2.4m x in excess of 120m. 11/00521/OUT was approved with a visibility of 2.4m x 110m to the right measured to 1.0 metre into the carriageway from the north-eastern channel line. Such visibility would be equally relevant to the proposed 32 dwelling development.
- 3.6. It would be proposed to increase the Gatherley Road north-eastern footway width to 2.0 metres for the whole site frontage.



4. Junction Analysis

4.1. Introduction

4.1.1. This Section sets out the methodology and results of the traffic impact assessment undertaken for the proposed development, to address the capacity and adequacy of the proposed Gatherley Road/site access simple priority junction.

4.2. Traffic Survey Data

4.2.1. Base traffic survey for the weekday am and pm peak hours has been obtained from the Transport Assessment which accompanied 11/00521/OUT. The peak hours were 0800-0900 and 1630-1730.

4.2.2. The 2011 weekday am and pm peak hours traffic flows are shown on Figures 1 and 2 in Appendix C.

4.3. Assessment Year

4.3.1. In order to examine the adequacy of the proposed access junction, capacity analyses have been undertaken for 2021, five years after the date of registration of the planning application (2016).

4.4. Traffic Growth

4.4.1. The weekday peak periods growth factors from the Temprowise version 6.2 database for principal urban roads in rural Richmondshire using the NTM AF09 dataset have been used to predict traffic growth. The growth factors are shown in Table 4.1.

Table 4.1. Temprowise Growth Factors

From	To	Growth Rate
2011	2021	am 1.1317 pm 1.1392



4.4.2. Figures 3 and 4 in Appendix C show the 2011 traffic flows growthed to 2021.

4.5. A1 Improvements

4.5.1. Improvements to the A1 in the area are currently being implemented, which include changes to the number of and locations of accesses between the A1 and the local highway network. Those improvements were proposed subsequent to permission 11/00521/OUT and will result in changes to vehicle movements on the local highway network.

4.5.2. Data has been obtained from Highways England showing those changes to vehicle movements. Whilst the data obtained is for the A6136 Gatherley Road/A6136 Leeming Lane/Catterick Road junction, data for a location closer to the proposed development site does not exist and so the data obtained is the best available.

4.5.3. The data shows that the changes to Gatherley Road vehicle movements resulting from the A1 improvements will be as follows:

- weekday am peak hour, northbound 93.4%;
- weekday am peak hour, southbound 111.9%;
- weekday pm peak hour, northbound 132.8%;
- weekday pm peak hour, southbound 76.6%.

4.5.4. Figures 5 and 6 in Appendix C show the 2021 traffic flows adjusted by those changes.

4.6. Committed Development

4.6.1. Richmondshire District Council's Planning and Development Manager has advised that there are two committed developments which need to be included in the analyses:

- 11/00521/OUT;
- 15/00207/FULL: all-weather floodlit track at Catterick Racecourse.

4.6.2. The vehicle trips generated by 11/00521/OUT during the weekday am and pm peak hours are shown on Figures 7 and 8 in Appendix C.



4.6.3. The Transport Statement which accompanied 15/00207/FULL shows that the development would not affect the highway network during the weekday 0800-0900 and 1630-1730 periods.

4.7. Base Flows plus Committed Development

4.7.1. The 2021 adjusted base flows plus committed development are shown on Figures 9 and 10 in Appendix C.

4.8. Generated Traffic

- 4.8.1. 85th percentile trip rates were obtained from the TRICS database.
- 4.8.2. For the proposed use, the Private Houses section of the database was interrogated. The trip rates are shown in Table 4.2.

Table 4.2. Peak Hour Trip Generation Rates, Private Houses.

Time Period	Rate per dwelling	
	Inbound	Outbound
Weekday am peak hour	0.276	0.552
Weekday pm peak hour	0.510	0.273

4.8.3. Each of these trip rates is greater than used in the 11/00521/OUT Transport Assessment.

4.8.4. The predicted trip generation for 32 dwellings is shown in Table 4.3.



Table 4.3. Predicted Traffic Generation for 32 Dwellings.

Time Period	Trip Generation	
	Inbound	Outbound
Weekday am peak hour	9	18
Weekday pm peak hour	16	9

4.9. Assignment of Generated Traffic

4.9.1. The assignment of the predicted generated traffic is that used in the 11/00521/OUT Transport Assessment: weekday am peak hour 76% out to the south, 24% out to the north, 35% in from the north, 65% in from the south; weekday pm peak hour 83% out to the south, 17% out to the north, 18% in from the north, 82% in from the south

4.9.2. Applying the assignments to the trip generations in Table 4.2 results in the assignments of vehicles shown on Figures 11 and 12 in Appendix C for the weekday am peak hour and for the weekday pm peak hour respectively.

4.10. Base Flows plus Committed Development plus Generated Traffic

4.10.1. The 2021 weekday am and pm peak hour flows plus committed development plus generated traffic are shown on Figures 13 and 14 in Appendix C.

4.11. Junction Capacity Analysis

4.11.1. Capacity analyses for the junction have been undertaken utilising Picady. The results of the capacity analyses are presented below and the output is included in Appendix D.

4.11.2. The results for the junction with the development-generated traffic in 2021 are shown in Table 4.4.



Gatherley Road, Brompton on Swale, Highway Statement

Table 4.4. Results for the Gatherley Road/Site Access Junction in 2021.

	2021 with generated traffic			
	am peak hour		pm peak hour	
Movement	Max RFC	Max Queue	Max RFC	Max Queue
Site Access left and right turn	0.404	0.7	0.135	0.2
Gatherley Road south ahead and right turn	0.100	0.2	0.460	1.9

4.11.3. It can be seen that the junction would operate significantly under capacity well beyond 2021 with the committed development and with the proposed development in place.



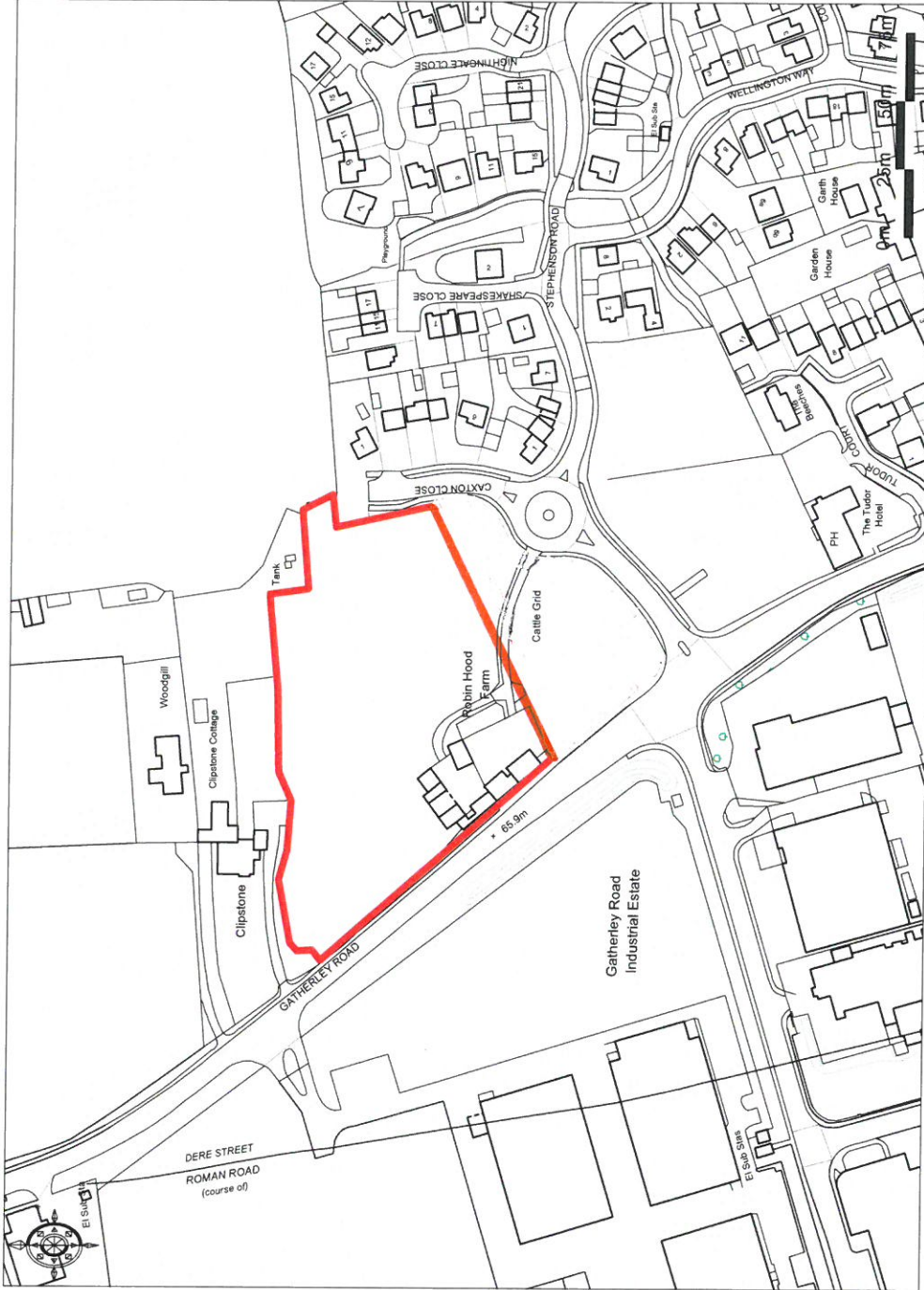
5. Conclusions

- 5.1. Mr Neil Pittaway is applying for planning permission for development of up to 32 dwellings at Gatherley Road, Brompton on Swale.
- 5.2. Access would be taken at a simple priority junction at the same location of the access proposed for the extant 11/00521/OUT residential development.
- 5.3. A capacity analysis shows that the proposed Gatherley Road/site access simple priority junction would operate significantly under capacity well beyond 2021 with the committed development and with the proposed development in place.
- 5.4. The proposed development would have an immaterial effect on the highway network in the vicinity.
- 5.5. The third bullet point of paragraph 32 of the National Planning Policy Framework states “Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe”. The impacts of the proposals are certainly far from severe and therefore the application should not be refused on highways grounds.



Appendix A
Site Boundary





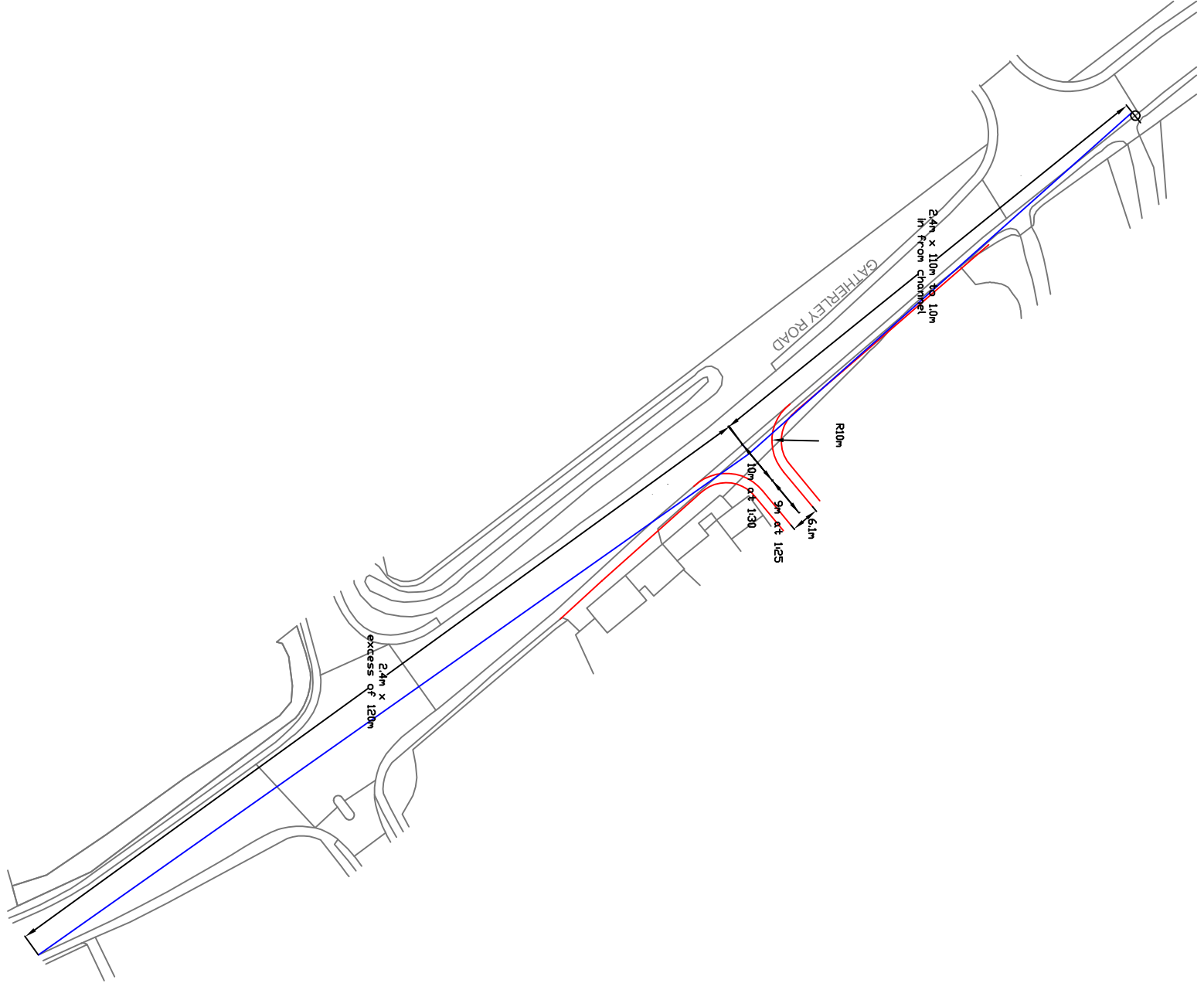
Ordnance Survey © Crown Copyright 2010. All rights reserved. Licence number 100020449. Printed Scale - 1:2500



Robin Hood Farm, Brompton on Swale

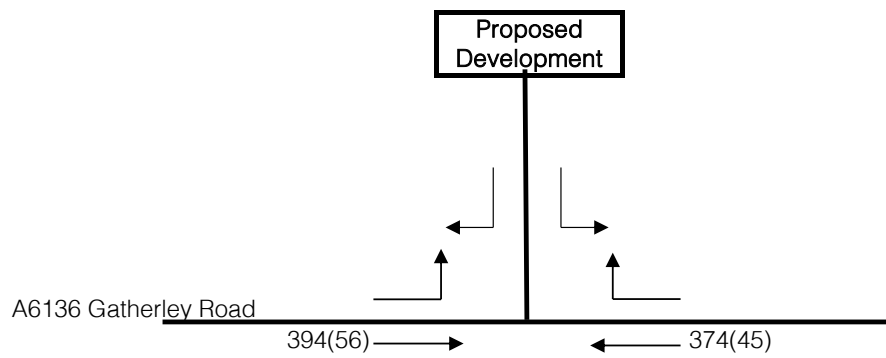
Appendix B
Proposed Site Access





Appendix C
Network Diagrams





Key

Total Vehicles(Heavy Vehicles)



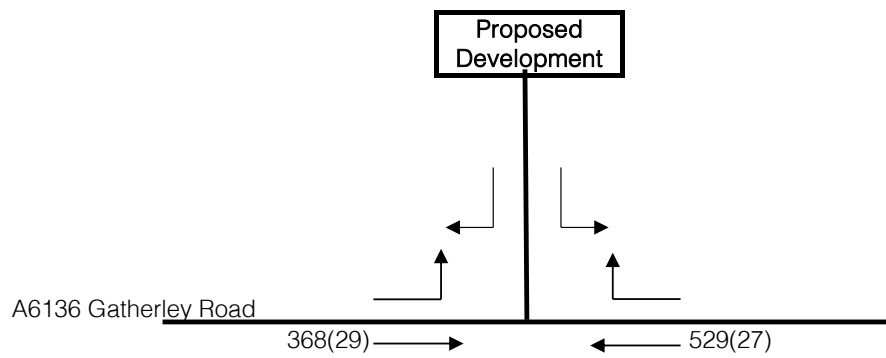
Tim Speed Consulting

TITLE

Gatherley Road, Brompton on Swale
2011 am peak hour survey

FIGURE No:

1



Key

Total Vehicles(Heavy Vehicles)



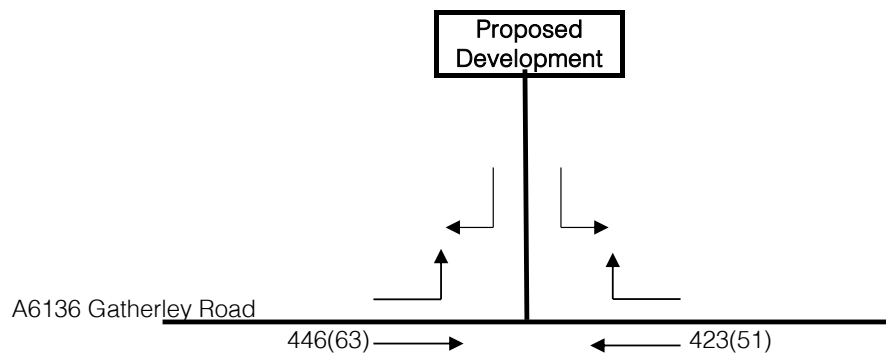
Tim Speed Consulting

TITLE

Gatherley Road, Brompton on Swale
2011 pm peak hour survey

FIGURE No:

2



Key

Total Vehicles(Heavy Vehicles)



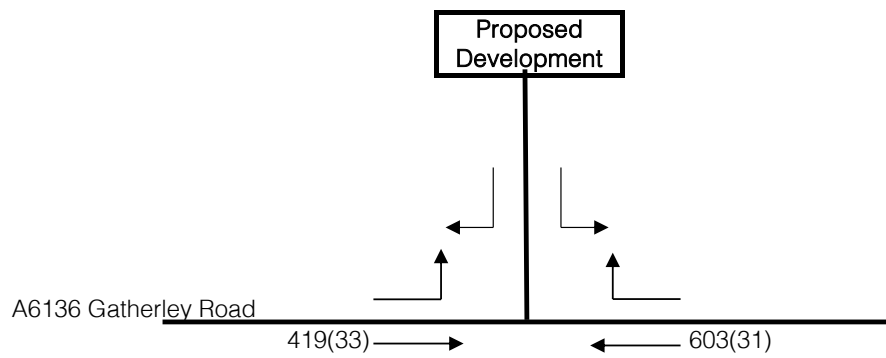
Tim Speed Consulting

TITLE

Gatherley Road, Brompton on Swale
2021 am peak hour base

FIGURE No:

3



Key

Total Vehicles(Heavy Vehicles)



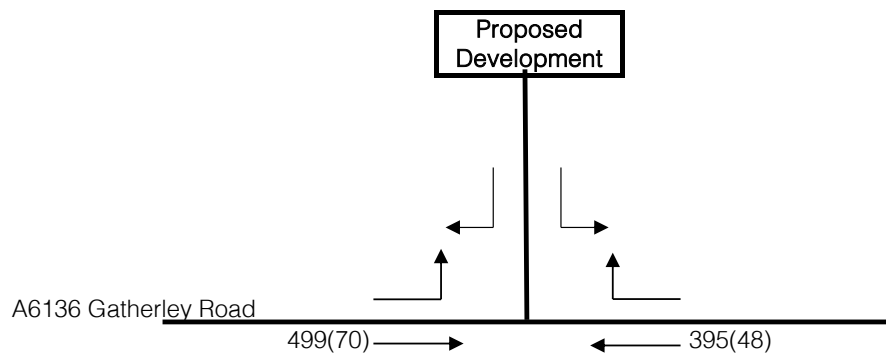
Tim Speed Consulting

TITLE

Gatherley Road, Brompton on Swale
2021 pm peak hour base

FIGURE No:

4



Key

Total Vehicles(Heavy Vehicles)



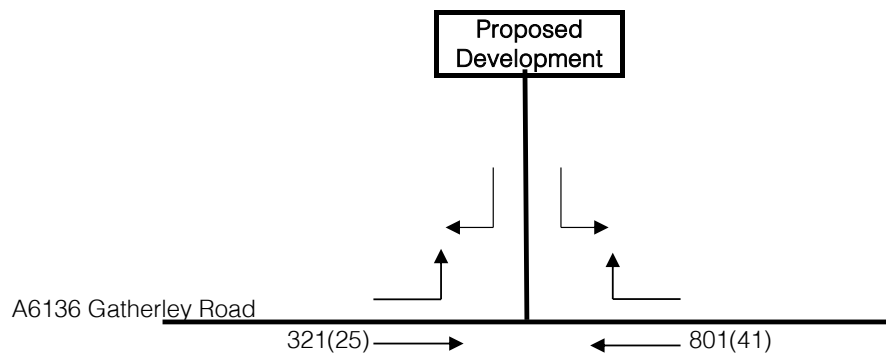
Tim Speed Consulting

TITLE

Gatherley Road, Brompton on Swale
2021 am peak hour adjusted base

FIGURE No:

5



Key

Total Vehicles(Heavy Vehicles)



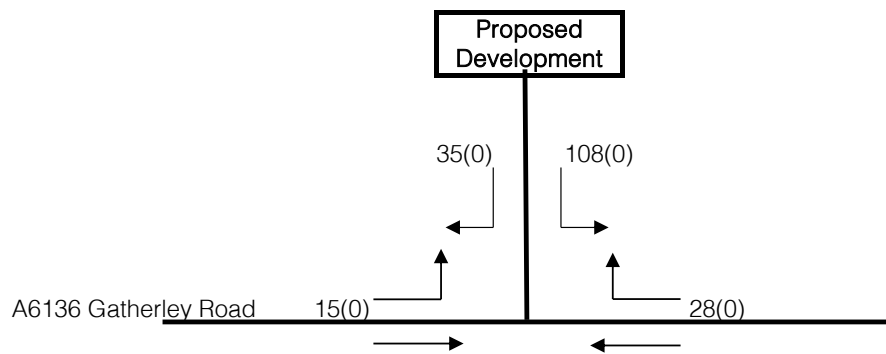
Tim Speed Consulting

TITLE

Gatherley Road, Brompton on Swale
2021 pm peak hour adjusted base

FIGURE No:

6



Key

Total Vehicles(Heavy Vehicles)



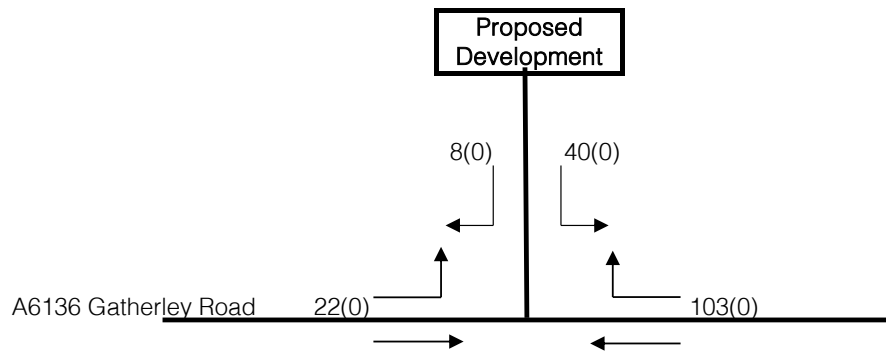
Tim Speed Consulting

TITLE

Gatherley Road, Brompton on Swale
am peak hour
committed development

FIGURE No:

7



Key

Total Vehicles(Heavy Vehicles)



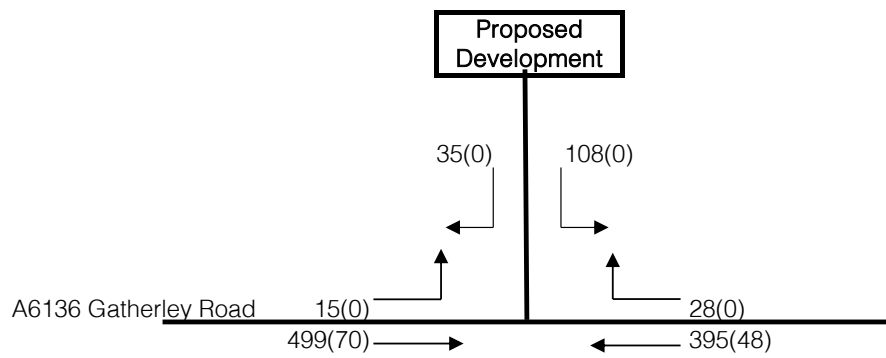
Tim Speed Consulting

TITLE

Gatherley Road, Brompton on Swale
pm peak hour
committed development

FIGURE No:

8



Key

Total Vehicles(Heavy Vehicles)



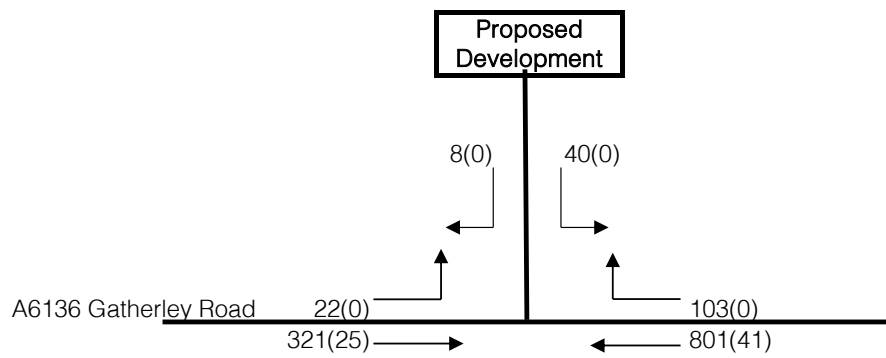
Tim Speed Consulting

TITLE

Gatherley Road, Brompton on Swale
2021 am peak hour adjusted base
plus committed development

FIGURE No:

9



Key

Total Vehicles(Heavy Vehicles)



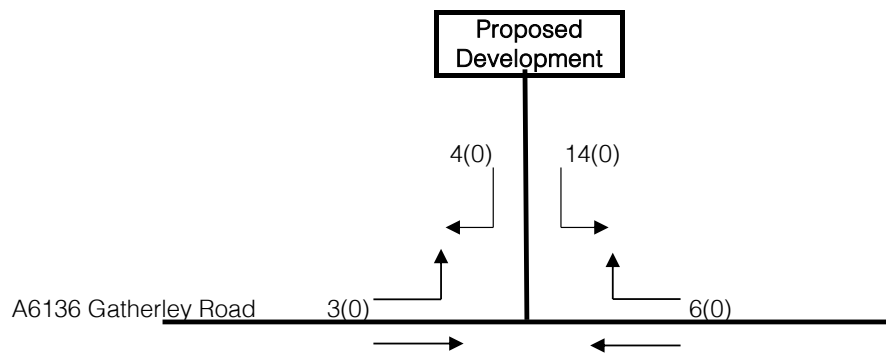
Tim Speed Consulting

TITLE

Gatherley Road, Brompton on Swale
2021 pm peak hour adjusted base
plus committed development

FIGURE No:

10



Key

Total Vehicles(Heavy Vehicles)



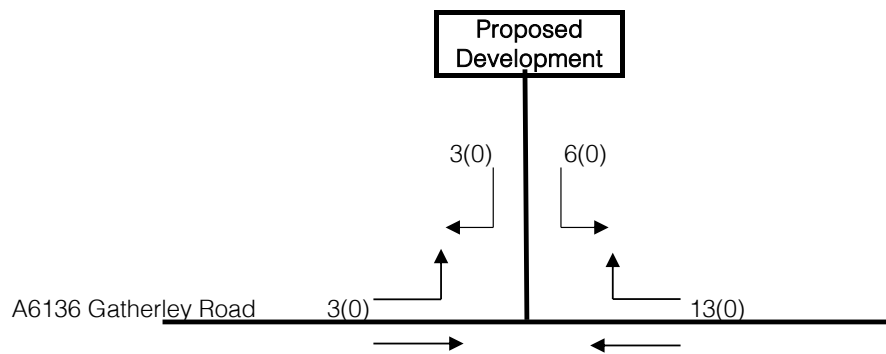
Tim Speed Consulting

TITLE

Gatherley Road, Brompton on Swale
am peak hour
generated traffic

FIGURE No:

12



Key

Total Vehicles(Heavy Vehicles)



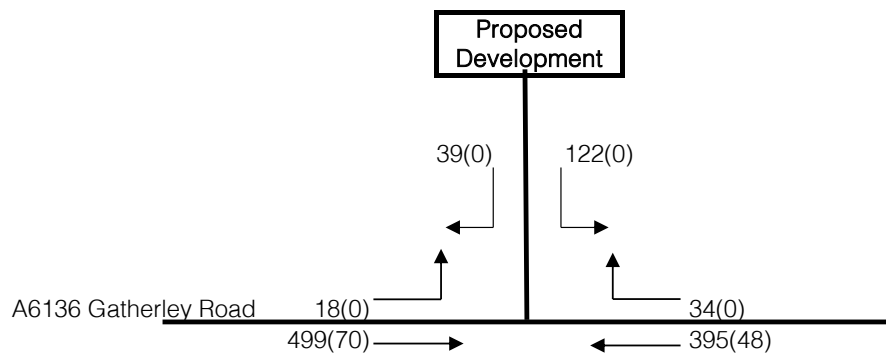
Tim Speed Consulting

TITLE

Gatherley Road, Brompton on Swale
pm peak hour
generated traffic

FIGURE No:

12



Key

Total Vehicles(Heavy Vehicles)



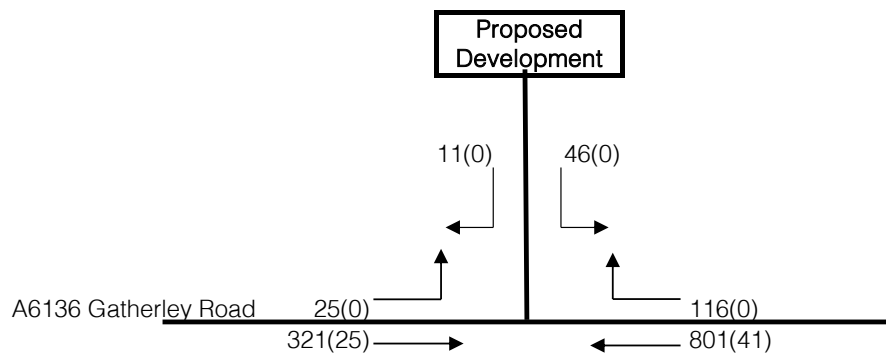
Tim Speed Consulting

TITLE

Gatherley Road, Brompton on Swale
2021 am peak hour adjusted base
plus com dev plus generated traffic

FIGURE No:

13



Key

Total Vehicles(Heavy Vehicles)



Tim Speed Consulting

TITLE


Gatherley Road, Brompton on Swale
2021 pm peak hour adjusted base
plus com dev plus generated traffic

FIGURE No:

14

Appendix D
Picady Output



PICADY		
GUI Version: 5.1 AD Analysis Program Release: 4.0 (SEPT 2008)		
© Copyright TRL Limited, 2008 Adapted from PICADY/3 which is Crown Copyright by permission of the controller of HMSO		
For sales and distribution information, program advice and maintenance, contact:		
TRL Limited Crowthorne House Nine Mile Ride Wokingham, Berks. RG40 3GA, UK		Tel: +44 (0)1344 770758 Fax: +44 (0)1344 770864 E-mail: software@trl.co.uk Web: www.trlsoftware.co.uk
The user of this computer program for the solution of an engineering problem is in no way relieved of their responsibility for the correctness of the solution		

Run Analysis

Parameter	Values
File Run	C:\..\PICADY\Gatherley Road+site access.vpi
Date Run	24 March 2016
Time Run	16:38:57
Driving Side	Drive On The Left

Arm Names and Flow Scaling Factors

Arm	Arm Name	Flow Scaling Factor (%)
Arm A	Gatherley Road north	100
Arm B	Site access	100
Arm C	Gatherley Road south	100

Stream Labelling Convention

Stream A-B contains traffic going from A to B etc.

Run Information

Parameter	Values
Run Title	Gatherley Road, Brompton-on -Swale
Location	-
Date	23 March 2016
Enumerator	Tim [TIM-PC]
Job Number	-
Status	-
Client	-
Description	-

Errors and Warnings

Parameter	Values
Warning	No Errors Or Warnings

Geometric Data

Geometric Parameters

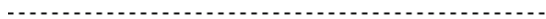
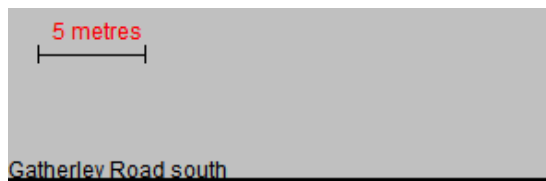
Parameter	Minor Arm B
Major Road Carriageway Width (m)	6.80
Major Road Kerbed Central Reserve Width (m)	0.00
Major Road Right Turning Lane Width (m)	2.20
Minor Road First Lane Width (m)	3.70
Minor Road Visibility To Right (m)	20
Minor Road Visibility To Left (m)	22
Major Road Right Turn Visibility (m)	167
Major Road Right Turn Blocks Traffic	Yes (if over 0 veh)

Slope and Intercept Values

Stream	Intercept for Stream B-A	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	529.226	0.093	0.235	0.148	0.336
B-C	681.136	0.101	0.255	-	-
C-B	670.675	0.251	0.251	-	-

Note: Streams may be combined in which case capacity will be adjusted
 These values do not allow for any site-specific corrections

Junction Diagram



Demand Data

Modelling Periods

Parameter	Period	Duration (min)	Segment Length (min)
First Modelling Period	07:45-09:15	90	15
Second Modelling Period	16:15-17:45	90	15

ODTAB Turning Counts

Demand Set: 2021 am base + comm + dev
Modelling Period: 07:45-09:15

From/To	Arm A	Arm B	Arm C
Arm A	0.0	18.0	499.0
Arm B	39.0	0.0	122.0
Arm C	395.0	34.0	0.0

Demand Set: 2021 pm base + comm + gen

Modelling Period: 16:15-17:45

From/To	Arm A	Arm B	Arm C
Arm A	0.0	25.0	321.0
Arm B	11.0	0.0	46.0
Arm C	801.0	116.0	0.0

ODTAB Synthesised Flows

Demand Set: 2021 am base + comm + dev

Modelling Period: 07:45-09:15

Arm	Rising Time	Rising Flow (veh/min)	Peak Time	Peak Flow (veh/min)	Falling Time	Falling Flow (veh/min)
Arm A	08:00	6.463	08:30	9.694	09:00	6.463
Arm B	08:00	2.013	08:30	3.019	09:00	2.013
Arm C	08:00	5.363	08:30	8.044	09:00	5.363

Heavy Vehicles Percentages

Demand Set: 2021 am base + comm + dev

Modelling Period: 07:45-09:15

From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	14.1
Arm B	0.0	-	0.0
Arm C	12.2	0.0	-

Demand Set: 2021 pm base + comm + gen

Modelling Period: 16:15-17:45

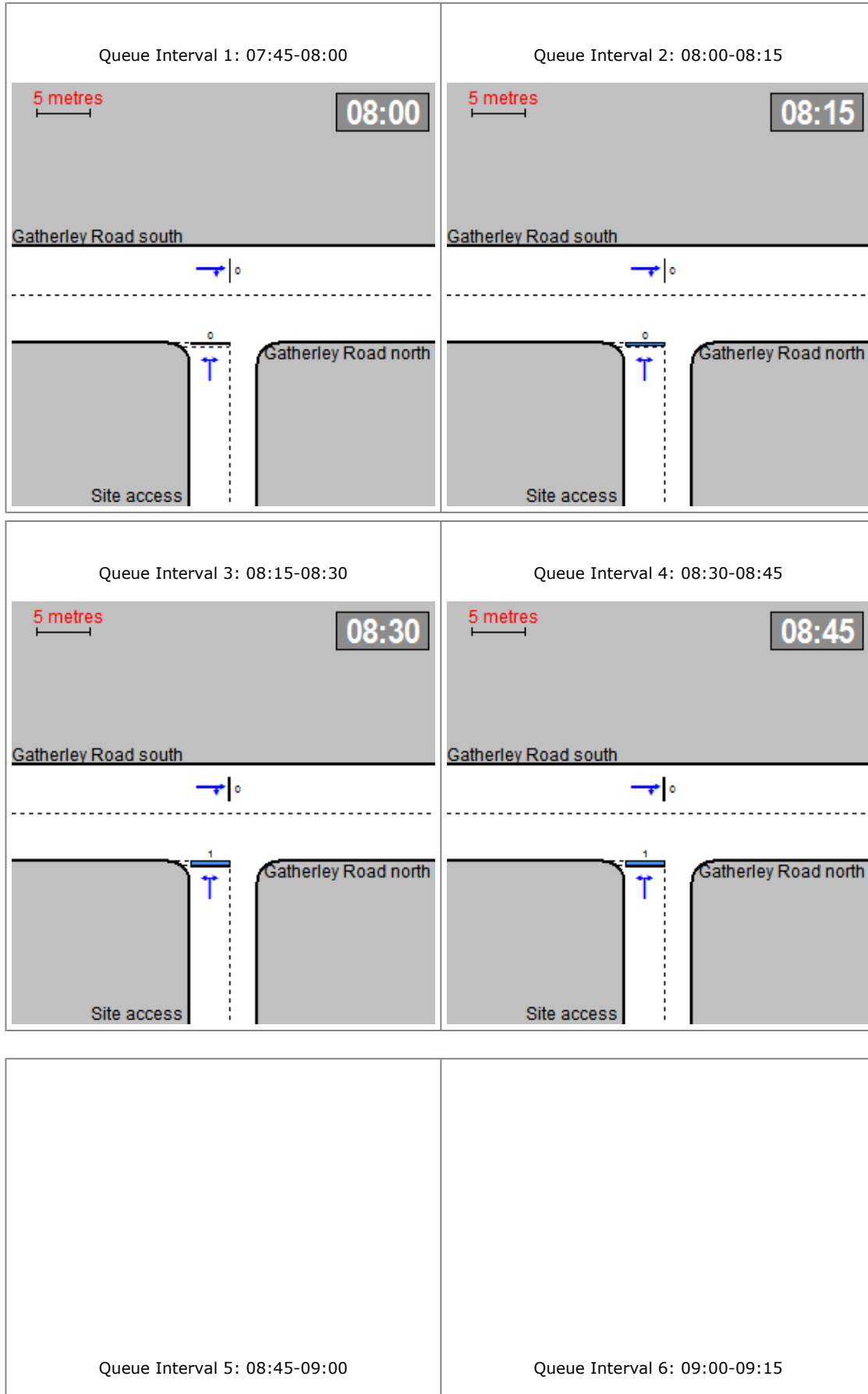
From/To	Arm A	Arm B	Arm C
Arm A	-	0.0	7.8
Arm B	0.0	-	0.0
Arm C	5.1	0.0	-

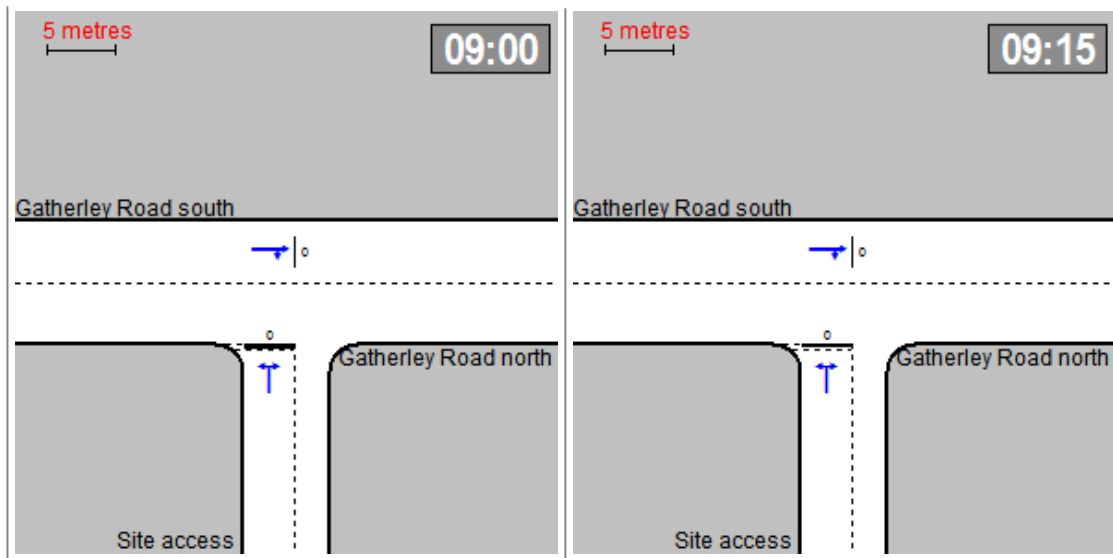
Queue Diagrams

Demand Set: Sum of Demand Sets for Modelling Period: 07:45 - 09:15

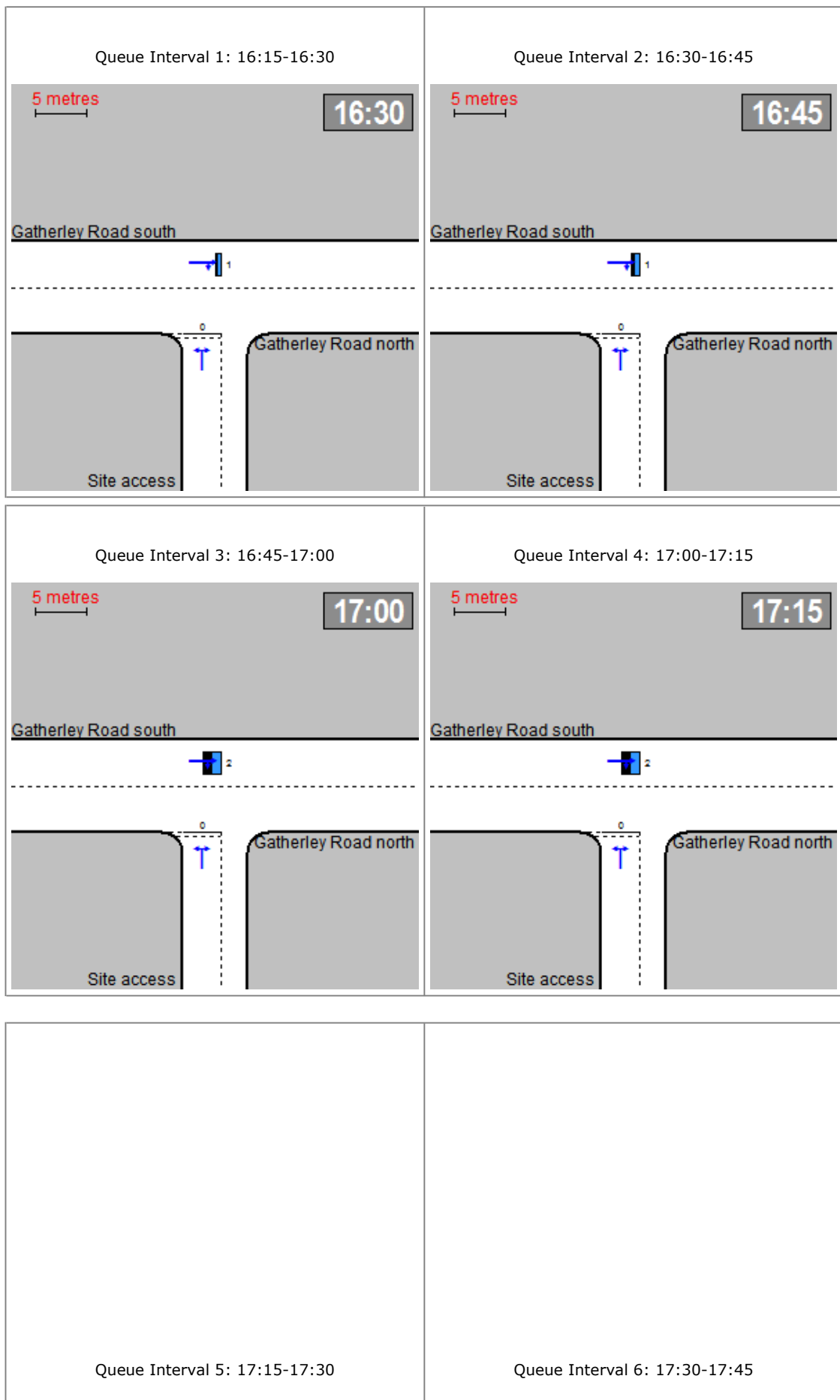
Modelling Period: 07:45-09:15

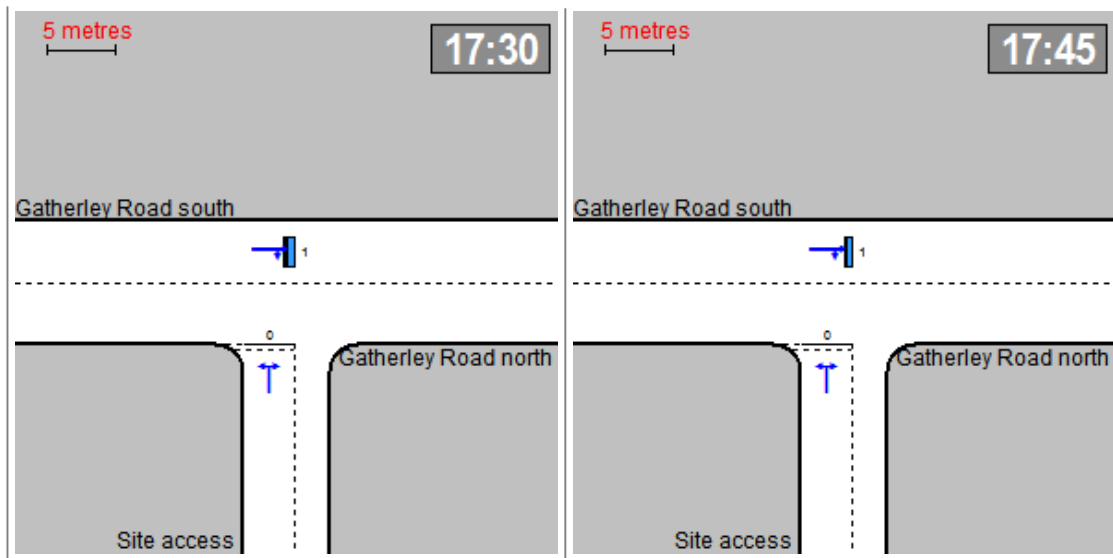
View Extent: 40m





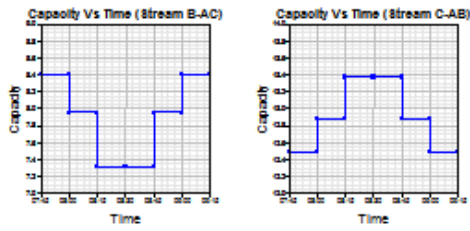
Demand Set: Sum of Demand Sets for Modelling Period: 16:15 - 17:45
Modelling Period: 16:15-17:45
View Extent: 40m



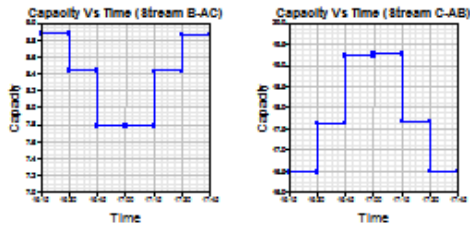


Capacity Graph

Demand Set: Sum of Demand Sets for Modelling Period: 07:45 - 09:15
Modelling Period: 07:45-09:15

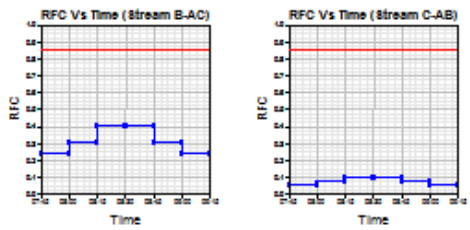


Demand Set: Sum of Demand Sets for Modelling Period: 16:15 - 17:45
Modelling Period: 16:15-17:45

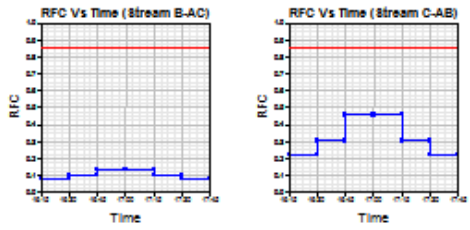


RFC Graph

Demand Set: Sum of Demand Sets for Modelling Period: 07:45 - 09:15
Modelling Period: 07:45-09:15



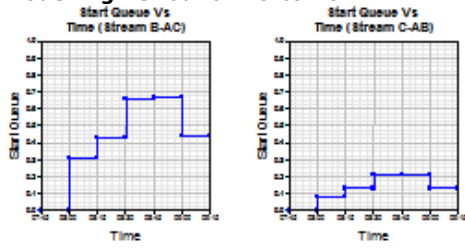
Demand Set: Sum of Demand Sets for Modelling Period: 16:15 - 17:45
Modelling Period: 16:15-17:45



Start Queue Graph

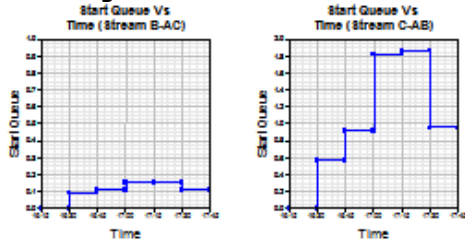
Demand Set: Sum of Demand Sets for Modelling Period: 07:45 - 09:15

Modelling Period: 07:45-09:15



Demand Set: Sum of Demand Sets for Modelling Period: 16:15 - 17:45

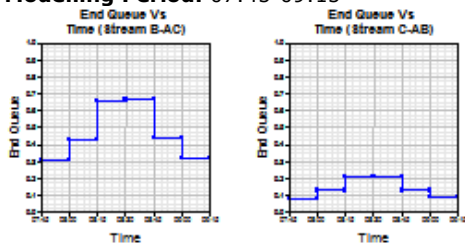
Modelling Period: 16:15-17:45



End Queue Graph

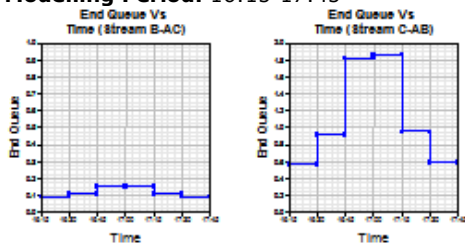
Demand Set: Sum of Demand Sets for Modelling Period: 07:45 - 09:15

Modelling Period: 07:45-09:15



Demand Set: Sum of Demand Sets for Modelling Period: 16:15 - 17:45

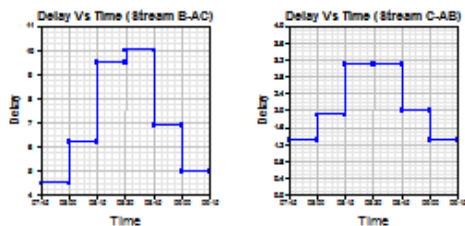
Modelling Period: 16:15-17:45



Delay Graph

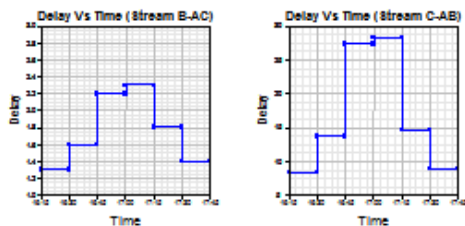
Demand Set: Sum of Demand Sets for Modelling Period: 07:45 - 09:15

Modelling Period: 07:45-09:15



Demand Set: Sum of Demand Sets for Modelling Period: 16:15 - 17:45

Modelling Period: 16:15-17:45



Queues & Delays

Demand Set: Sum of Demand Sets for Modelling Period: 07:45 - 09:15

Modelling Period: 07:45-09:15

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/segment)	Delay (veh.min/segment)	Mean Arriving Vehicle Delay (min)
07:45-08:00	B-AC	2.02	8.40	0.240	-	0.00	0.31	-	4.5	0.16
	C-AB	0.68	12.49	0.054	-	0.00	0.08	-	1.3	0.08
	C-A	4.71	-	-	-	-	-	-	-	-
	A-B	0.23	-	-	-	-	-	-	-	-
	A-C	6.26	-	-	-	-	-	-	-	-
08:00-08:15	B-AC	2.41	7.95	0.303	-	0.31	0.43	-	6.2	0.18
	C-AB	0.93	12.88	0.072	-	0.08	0.13	-	1.9	0.08
	C-A	5.50	-	-	-	-	-	-	-	-
	A-B	0.27	-	-	-	-	-	-	-	-
	A-C	7.48	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/segment)	Delay (veh.min/segment)	Mean Arriving Vehicle Delay (min)
08:15-08:30	B-AC	2.95	7.31	0.404	-	0.43	0.66	-	9.5	0.23
	C-AB	1.33	13.37	0.099	-	0.13	0.21	-	3.1	0.08
	C-A	6.54	-	-	-	-	-	-	-	-
	A-B	0.33	-	-	-	-	-	-	-	-
	A-C	9.16	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/segment)	Delay (veh.min/segment)	Mean Arriving Vehicle Delay (min)
08:30-08:45	B-AC	2.95	7.31	0.404	-	0.66	0.67	-	10.0	0.23
	C-AB	1.33	13.37	0.100	-	0.21	0.21	-	3.1	0.08
	C-A	6.54	-	-	-	-	-	-	-	-
	A-B	0.33	-	-	-	-	-	-	-	-
	A-C	9.16	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/segment)	Delay (veh.min/segment)	Mean Arriving Vehicle Delay (min)
08:45-09:00	B-AC	2.41	7.95	0.303	-	0.67	0.44	-	6.9	0.18
	C-AB	0.93	12.88	0.073	-	0.21	0.13	-	2.0	0.08
	C-A	5.49	-	-	-	-	-	-	-	-
	A-B	0.27	-	-	-	-	-	-	-	-
	A-C	7.48	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/segment)	Delay (veh.min/segment)	Mean Arriving Vehicle Delay (min)
09:00-09:15	B-AC	2.02	8.40	0.241	-	0.44	0.32	-	5.0	0.16
	C-AB	0.68	12.49	0.054	-	0.13	0.09	-	1.3	0.08
	C-A	4.70	-	-	-	-	-	-	-	-
	A-B	0.23	-	-	-	-	-	-	-	-
	A-C	6.26	-	-	-	-	-	-	-	-

Demand Set: Sum of Demand Sets for Modelling Period: 16:15 - 17:45

Modelling Period: 16:15-17:45

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/segment)	Delay (veh.min/segment)	Mean Arriving Vehicle Delay (min)
16:15-16:30	B-AC	0.72	8.87	0.081	-	0.00	0.09	-	1.3	0.12
	C-AB	3.64	16.47	0.221	-	0.00	0.57	-	8.4	0.08
	C-A	7.87	-	-	-	-	-	-	-	-
	A-B	0.31	-	-	-	-	-	-	-	-
	A-C	4.03	-	-	-	-	-	-	-	-

Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/segment)	Delay (veh.min/segment)	Mean Arriving Vehicle Delay (min)
16:30-16:45	B-AC	0.85	8.44	0.101	-	0.09	0.11	-	1.6	0.13
	C-AB	5.36	17.63	0.304	-	0.57	0.91	-	13.7	0.08
	C-A	8.38	-	-	-	-	-	-	-	-
	A-B	0.37	-	-	-	-	-	-	-	-

	A-C	4.81	-	-	-	-	-	-	-	-
Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/segment)	Delay (veh.min/segment)	Mean Arriving Vehicle Delay (min)
16:45-17:00	B-AC	1.05	7.78	0.134	-	0.11	0.15	-	2.2	0.15
	C-AB	8.81	19.23	0.458	-	0.91	1.82	-	27.3	0.10
	C-A	8.02	-	-	-	-	-	-	-	-
	A-B	0.46	-	-	-	-	-	-	-	-
	A-C	5.89	-	-	-	-	-	-	-	-
Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/segment)	Delay (veh.min/segment)	Mean Arriving Vehicle Delay (min)
17:00-17:15	B-AC	1.05	7.78	0.135	-	0.15	0.15	-	2.3	0.15
	C-AB	8.86	19.26	0.460	-	1.82	1.86	-	28.3	0.10
	C-A	7.97	-	-	-	-	-	-	-	-
	A-B	0.46	-	-	-	-	-	-	-	-
	A-C	5.89	-	-	-	-	-	-	-	-
Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/segment)	Delay (veh.min/segment)	Mean Arriving Vehicle Delay (min)
17:15-17:30	B-AC	0.85	8.43	0.101	-	0.15	0.11	-	1.8	0.13
	C-AB	5.41	17.67	0.306	-	1.86	0.95	-	14.6	0.08
	C-A	8.33	-	-	-	-	-	-	-	-
	A-B	0.37	-	-	-	-	-	-	-	-
	A-C	4.81	-	-	-	-	-	-	-	-
Segment	Stream	Demand (veh/min)	Capacity (veh/min)	RFC	Ped. Flow (ped/min)	Start Queue (veh)	End Queue (veh)	Geometric Delay (veh.min/segment)	Delay (veh.min/segment)	Mean Arriving Vehicle Delay (min)
17:30-17:45	B-AC	0.72	8.86	0.081	-	0.11	0.09	-	1.4	0.12
	C-AB	3.67	16.50	0.223	-	0.95	0.59	-	8.9	0.08
	C-A	7.83	-	-	-	-	-	-	-	-
	A-B	0.31	-	-	-	-	-	-	-	-
	A-C	4.03	-	-	-	-	-	-	-	-

Entry capacities marked with an '(X)' are dominated by a pedestrian crossing in that time segment.

In time segments marked with a '(B)', traffic leaving the junction may block back from a crossing so impairing normal operation of the junction.

Delays marked with '###' could not be calculated.

Overall Queues & Delays

Queueing Delay Information Over Whole Period

Demand Set: Sum of Demand Sets for Modelling Period: 07:45 - 09:15

Modelling Period: 07:45-09:15

Stream	Total Demand (veh)	Total Demand (veh/h)	Queueing Delay (min)	Queueing Delay (min/veh)	Inclusive Delay (min)	Inclusive Delay (min/veh)
B-AC	221.6	147.7	42.1	0.2	42.1	0.2
C-AB	88.2	58.8	12.7	0.1	12.7	0.1
C-A	502.3	334.8	-	-	-	-
A-B	24.8	16.5	-	-	-	-
A-C	686.8	457.9	-	-	-	-
All	1523.7	1015.8	54.7	0.0	54.7	0.0

Demand Set: Sum of Demand Sets for Modelling Period: 16:15 - 17:45

Modelling Period: 16:15-17:45

Stream	Total Demand (veh)	Total Demand (veh/h)	Queueing Delay (min)	Queueing Delay (min/veh)	Inclusive Delay (min)	Inclusive Delay (min/veh)
B-AC	78.5	52.3	10.6	0.1	10.6	0.1
C-AB	536.4	357.6	101.1	0.2	101.2	0.2
C-A	725.8	483.9	-	-	-	-
A-B	34.4	22.9	-	-	-	-
A-C	441.8	294.6	-	-	-	-
All	1816.9	1211.3	111.7	0.1	111.7	0.1

Delay is that occurring only within the time period.

Inclusive delay includes delay suffered by vehicles which are still queuing after the end of the time period.

These will only be significantly different if there is a large queue remaining at the end of the time period.

PICADY 5 Run Successful