Technical Note

PROJECT NAME: Grundon Waste Depot
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PROJECT REF: 116150

PROJECT MANAGER: Mark Fitch
DATE: 02/11/2017

Junction Modelling Assessment – Rev A

Background

The proposed housing development at land currently used by Grundon as a Waste Depot is located off Higham Way. Higham Way is in turn accessed from Merton Street.

It has been agreed with Oxfordshire County Council (OCC) that the highway network of interest in the assessment of the proposed housing development is the same as for the 2014 multi-storey car park assessment. Jacobs submitted a Transport Assessment in 2014 for the new car park at Banbury Railway Station.

This assessment included the modelling of three junctions;

- Concord Avenue / Cherwell Street / Bridge Street signalised crossroad junction;
- Bridge Street / Station Access simple priority junction; and
- Bridge Street / Merton Street / Waterloo Drive signalised staggered junction.

The Linsig model used in 2014 has been used as the basis for this junction capacity assessment with all flows updated.

The Network Layout from the Linsig model is provided as **Figure 1**.

In October 2017 OCC provided UTC signal timing information for junction F151 (Concord Avenue / Cherwell Street / Bridge Street signalised crossroad junction) and F218 (Bridge Street / Merton Street / Waterloo Drive signalised staggered junction). The original Linsig model has been amended to accommodate details included.

Traffic counts for the area were undertaken in October 2015 and the resultant 2015 Background AM and PM peak hour flows are included as **Appendix A.** The observed AM and PM peak hours are 0800-0900 and 1700-1800 respectively.

The Future year baseline AM and PM peak hour flows (provided as **Appendix B),** were derived by adding the agreed Committed Development flows (provided as **Appendix C**) to the 2015 Background AM and PM peak hour flows.

The sites are listed below.

- 05/01337/OUT Bankside / College Fields
- 10/01575/OUT Southam Road. SAPA Site
- 11/01868/F Relocated Prodrive Factory to Hella Site
- 11/01870/F Banbury Gateway Retail Park
- 11/01878/OUT Central M40 Site
- 12/00080/OUT Bloxham Road
- 12/01789/OUT Warwick Road North. Hanwell Fields
- 13/00158/OUT West of Southam Road and
- 13/00159/OUT East of Southam Road. Hardwick Farm
- 13/00656/OUT West of Warwick Road
- 13/00444/OUT Bretch Hill

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The Banbury Station Multi Storey Car Park was completed and fully operational by the time the recent traffic surveys were undertaken.

The “With Development” peak hour flows (provided as **Appendix D**), were derived by adding the proposed development flows (provided as **Appendix E**) to the Future year baseline AM and PM peak hour flows.

These traffic flows were set out in the Transport Assessment for the development at Grundon Waste Depot. The use of these flows was agreed with Oxfordshire County Council in October 2017 prior to modelling. Oxfordshire County Council advised that a comparison of ATCs for weekdays in September and October in 2015 and 2016 showed little change. As shown later in this report, the proposed development has minimal impact on the operation of the local junctions so further background growth testing will not provide any greater knowledge about the impact of the development. Nonetheless, upon review of this note, if further sensitivity testing is required we would be happy to discuss this.

The Cherwell Street / Bridge Street signalised crossroad junction has been analysed with four stages, ensuring that each phase operates within its maximum allowable green time. The Bridge Street / Merton Street / Waterloo Drive signalised staggered junction has been analysed with four stages from a possible six which also operate within their maximum allowable green time. In reality the junction operates a variable timing operation with phases three and six operating as demand dependant. The assessment scenarios are considered to be reflective of the typical cycle time at the junction over the assessed peak hour periods.

Each junction is modelled with independent cycle times.

Validation

The operational performance of the junctions were initially tested against the 2015 Background AM and PM peak hour flows. The results are summarised in **Table 1,** alongside the 2015 observed AM and PM peak hour queues. All queues are shown in passenger car units (PCUs). The LINSIG output for the 2015 Background scenario is attached at **Appendix F** and the 2015 observed AM and PM peak hour queues are attached as **Appendix G.**

Link	2015 AM Peak			2015 PM Peak		
	Validation Model		Queue Length Survey-Average	Validation Model		Queue Length Survey-Average
	DoS	MMQ		DoS	MMQ	
J1 - Bridge Street / Merton Street / Waterloo Drive						
Bridge Street West Right : Ahead	48.6 : 48.4%	7.2	11 : 5	59.2 : 59.1%	10.1	13 : 4
Merton Street Left : Right	44.5 : 44.5%	4.3	4 : 2	44.1 : 44.1%	4.0	5 : 3
Waterloo Drive Right Left	70.2%	4.5	3	44.9%	2.1	2
Bridge Street West (Internal) Left Ahead	34.3%	3.2	4	44.0%	4.7	3
Middleton Road Ahead Right	39.6%	6.9	8	37.1%	6.3	10
Bridge Street East (Internal)	55.6%	4.9	5	46.3%	3.2	6
PRC	**28.2**		N/A	**52.1**		N/A
Cycle Time	**102**		N/A	**101**		N/A
J2: Concord Avenue / Cherwell Street / Bridge Street						
Concord Avenue Left	48.6%	4.8	11	70.5%	7.3	13
Concord Avenue Ahead : Right	99.3 : 99.3%	22.2	17 : 2	107.4 : 107.4%	36.0	34 : 3
Bridge Street (E) Right Ahead: Left	96.3 : 82.1%	11.5	5 : 10	107.8 : 71.8%	16.5	8 : 9
Cherwell Street Ahead : Left	61.5 : 61.5%	9.2	11 : 2	69.0 : 69.0%	11.6	13 : 3
Cherwell Street Right	111.3%	30.9	20	105.2%	25.5	20
Bridge Street (W) Left Right Ahead	52.9%	2.9	4	67.9%	5.0	12
PRC	**-23.7**		N/A	**-19.8**		**N/A**
Cycle Time	**77**		N/A	**81**		**N/A**
J3: Station Access						
Bridge Street (W) Right Ahead	42.3%	0.9	-	49.2%	1.3	-
Bridge Street (E) Left Ahead	28.3%	0.2	-	25.5%	0.2	-
Station Approach Left Right	18.9%	0.1	-	34.6%	0.3	-

Table 1 - 2015 Background AM and PM peak hour flow scenarios Linsig results

From **Table 1**, it can be seen that the queues predicted by the model are comparable to those observed during the traffic surveys.

In the 2015 Background situation, the Concord Avenue / Cherwell Street / Bridge Street signalised crossroads is identified as operating above capacity and experiences large queues, which reflects the current operation.
Following this validation exercise, the model is considered appropriate for use in assessing future traffic flow scenarios.

Future Baseline Results

A test of the operational performance of the junction was then undertaken for the Future Baseline AM and PM peak hour flow scenarios, with the committed development traffic. The results are summarised in **Table 2**. The full Linsig Report is provided as **Appendix H.**

Link	Baseline Flow Scenario			
	2015 AM Peak		2015 PM Peak	
	DoS	MMQ	DoS	MMQ
J1 - Bridge Street / Merton Street / Waterloo Drive				
Bridge Street West Right Ahead	49.7 : 49.0%	7.4	60.4 : 60.0%	10.6
Merton Street Left Right	47.7 : 47.7%	4.6	52.1 : 52.1%	4.9
Waterloo Drive Right Left	74.0%	4.9	48.9%	2.4
Bridge Street West (Internal) Left Ahead	35.0%	3.3	44.9%	4.8
Middleton Road Ahead Right	42.6%	7.5	41.2%	7.3
Bridge Street East (Internal)	59.9%	5.6	51.5%	3.7
PRC	**21.5**		**49.0**	
Cycle Time	**102**		**101**	
J2: Concord Avenue / Cherwell Street / Bridge Street				
Concord Avenue Left	50.6%	5.0	72.7%	7.7
Concord Avenue Ahead Right	112.8 : 112.8%	55.5	126.6 : 126.6%	83.7
Bridge Street (E) Right Left Ahead	101.1 : 90.2%	16.1	119.9 : 85.0%	31.8
Cherwell Street Ahead Left	70.7 : 70.7%	11.8	76.8 : 76.8%	14.4
Cherwell Street Right	140.7%	81.5	122.1%	56.8
Bridge Street (W) Left Right Ahead	52.9%	2.9	68.2%	5.0
PRC	**-56.4**		**-40.7**	
Cycle Time	**77**		**81**	
J3: Station Access				
Bridge Street (W) Right Ahead	43.5%	1.0	50.4%	1.4
Bridge Street (E) Left Ahead	30.7%	0.2	29.5%	0.2
Station Approach Left Right	20.4%	0.1	40.0%	0.3

Table 2 - 2015 Baseline AM and PM peak hour flow scenarios Linsig results

From **Table 2** it can be seen that the Bridge Street / Merton Street / Waterloo Drive signalised staggered junction continues to operate within capacity in both the AM and PM peaks. However the Concord Avenue / Cherwell Street / Bridge Street signalized crossroad junction is operating even further over its theoretical capacity with a reduced PRC of -56.4 and -40.7 in the AM and PM peaks respectively.

With Development Results

A test of the operational performance of the junction when the development traffic has been added to the future baseline was then undertaken for the AM and PM peak hour flow scenarios. The results of which are summarised in **Table 3** below and the full Linsig report is provided as **Appendix I**.

Link	Future Baseline plus development Flow Scenario			
	AM Peak		PM Peak	
	DoS	MMQ	DoS	MMQ
J1 - Bridge Street / Merton Street / Waterloo Drive				
Bridge Street West Right Ahead	49.9 : 49.1%	7.4	61.8 : 61.3%	10.6
Merton Street Left Right	59.3 : 59.3%	6.1	53.9 : 53.9%	5.2
Waterloo Drive Right Left	74.0%	4.9	49.6%	2.4
Bridge Street West (Internal) Left Ahead	35.9%	3.6	44.5%	4.9
Middleton Road Ahead Right	42.8%	7.6	42.7%	7.5
Bridge Street East (Internal)	60.1%	5.6	53.7%	3.8
PRC	**21.5**		**45.6**	
Cycle Time	**102**		**101**	
J2: Concord Avenue / Cherwell Street / Bridge Street				
Concord Avenue Left	51.0%	5.1	76.9%	8.4
Concord Avenue Ahead Right	112.6 : 112.6%	54.9	126.4 : 126.4%	83.1
Bridge Street (E) Right Left Ahead	106.6 : 95.9%	26.9	120.9 : 86.4%	33.9
Cherwell Street Ahead Left	70.6 : 70.6%	11.8	76.6 : 76.6%	14.4
Cherwell Street Right	142.0%	83.7	128.0%	68.8
Bridge Street (W) Left Right Ahead	56.8%	2.9	68.2%	5.0
PRC	**-57.7**		**-42.2**	
Cycle Time	**77**		**81**	
J3: Station Access				
Bridge Street (W) Right Ahead	44.0%	1.0	51.2%	1.4
Bridge Street (E) Left Ahead	32.9%	0.2	30.1%	0.2
Station Approach Left Right	20.8%	0.1	41.1%	0.3

Table 3 - Future AM and PM peak hour flow scenarios Linsig results

From **Table 3** it can be seen that the Bridge Street / Merton Street / Waterloo Drive signalised staggered junction would continue to operate within capacity in both the AM and PM peaks. Minimal changes to the Concord Avenue / Cherwell Street / Bridge Street signalised crossroad junction are experienced, which would be within the daily variation for queuing at this junction.

Given the minimal impact of the development, and that any further increase in background traffic levels would further reduce the proportional impact of the development, then, as discussed previously, no sensitivity analysis is likely to be insightful. This is because an increase in background traffic would only reduce the relative impact that the development has.

Conclusion

The methodology for the assessment of the highway impacts of the proposed residential development at Grundon Waste Depot has been agreed with Oxfordshire County Council.

The 2015 observed turning counts and queue length show little queuing at the Bridge Street / Merton Street / Waterloo Drive junction. However queuing was observed at the Concord Avenue / Cherwell Street / Bridge Street junction, suggesting the junction is currently operating over capacity. A junction model using Linsig software was used to assess the 2015 Background AM and PM peak hour flows and this also identified that the junction is operating over its theoretical capacity.

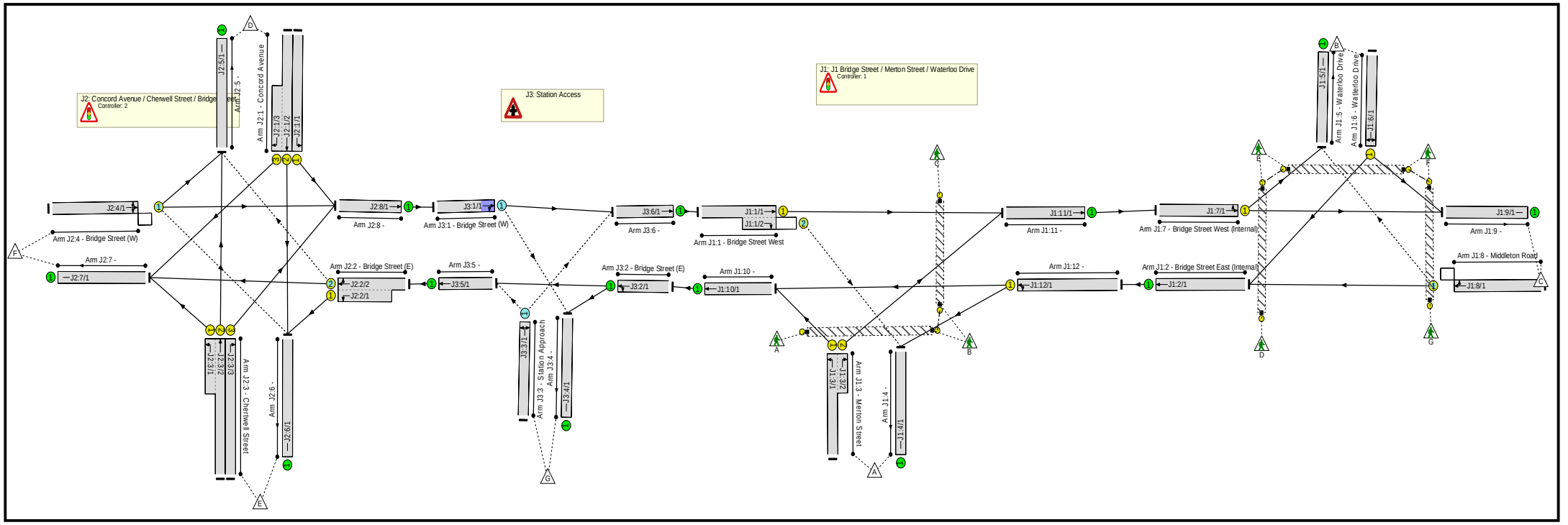
The 2015 Baseline AM and PM peak hour flows were also assessed. It was identified that the Bridge Street / Merton Street / Waterloo Drive continues to operate within its theoretical capacity. However, the Concord Avenue / Cherwell Street / Bridge Street junction PCR reduced from -27.3 and -19.8 to -56.4 and -40.7 in the AM and PM peaks respectively.

The Future AM and PM peak hour flows were then assessed. The Bridge Street / Merton Street / Waterloo Drive signalised staggered junction continues to operate within capacity in both the AM and PM peaks. Minimal changes to the Concord Avenue / Cherwell Street / Bridge Street signalised crossroad junction are experienced, which would be within the daily variation for queuing at this junction.

From a comparison between the Baseline AM and PM peaks and the Future AM and PM peaks it can be concluded the traffic generated by the residential development at the Grundon Waste Depot on Higham Way will have a negligible impact on the operation of the local junctions.

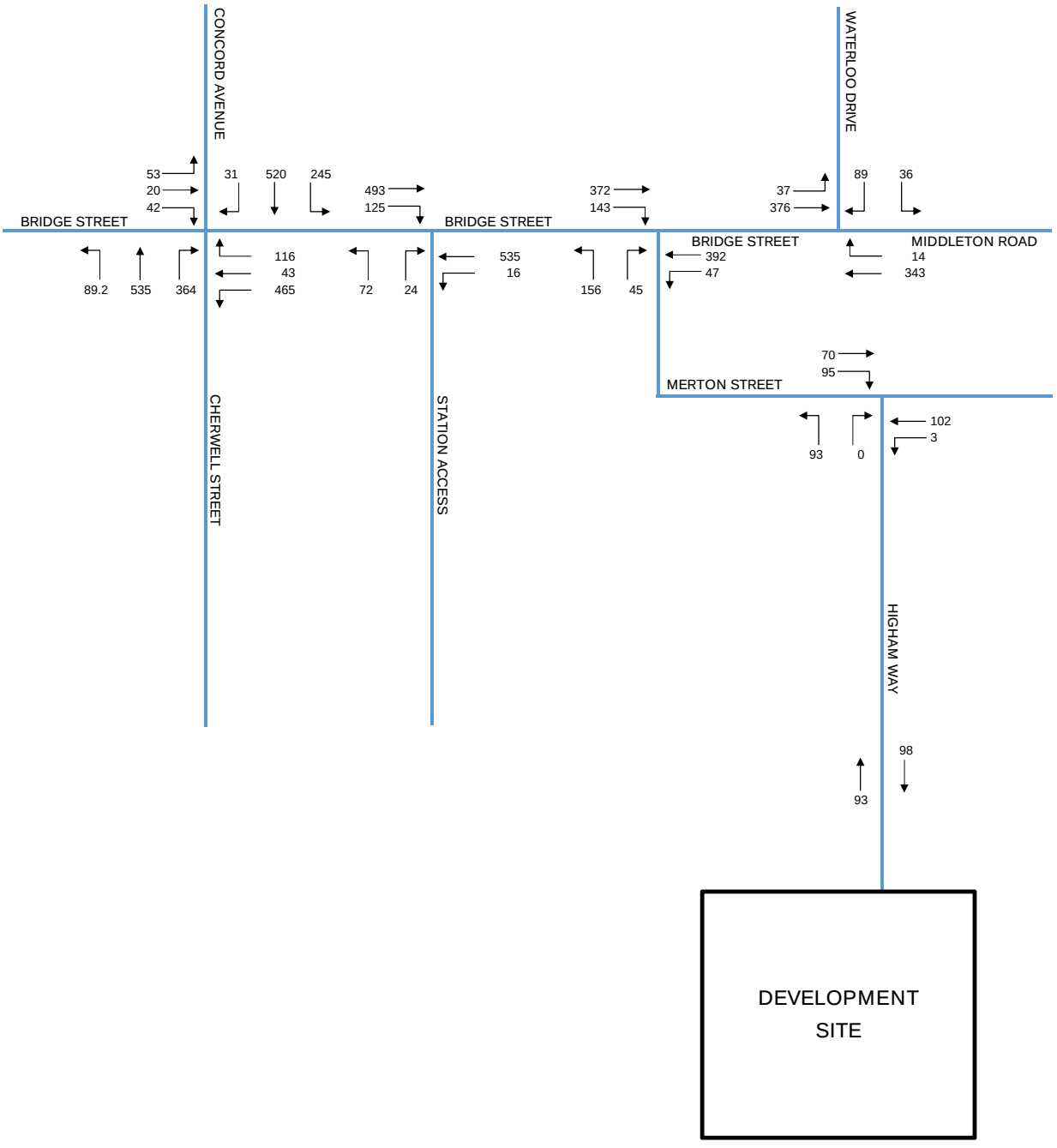
We invite Oxfordshire County Council, as the local highway authority, to review the assessment set out in this note. It is our conclusion that the assessment demonstrates that there are no highways grounds for with-holding planning permission for the proposed development.

Figure 1 - Network Layout View



Appendix A

2015 Background AM and PM Peak Hour Traffic Flows



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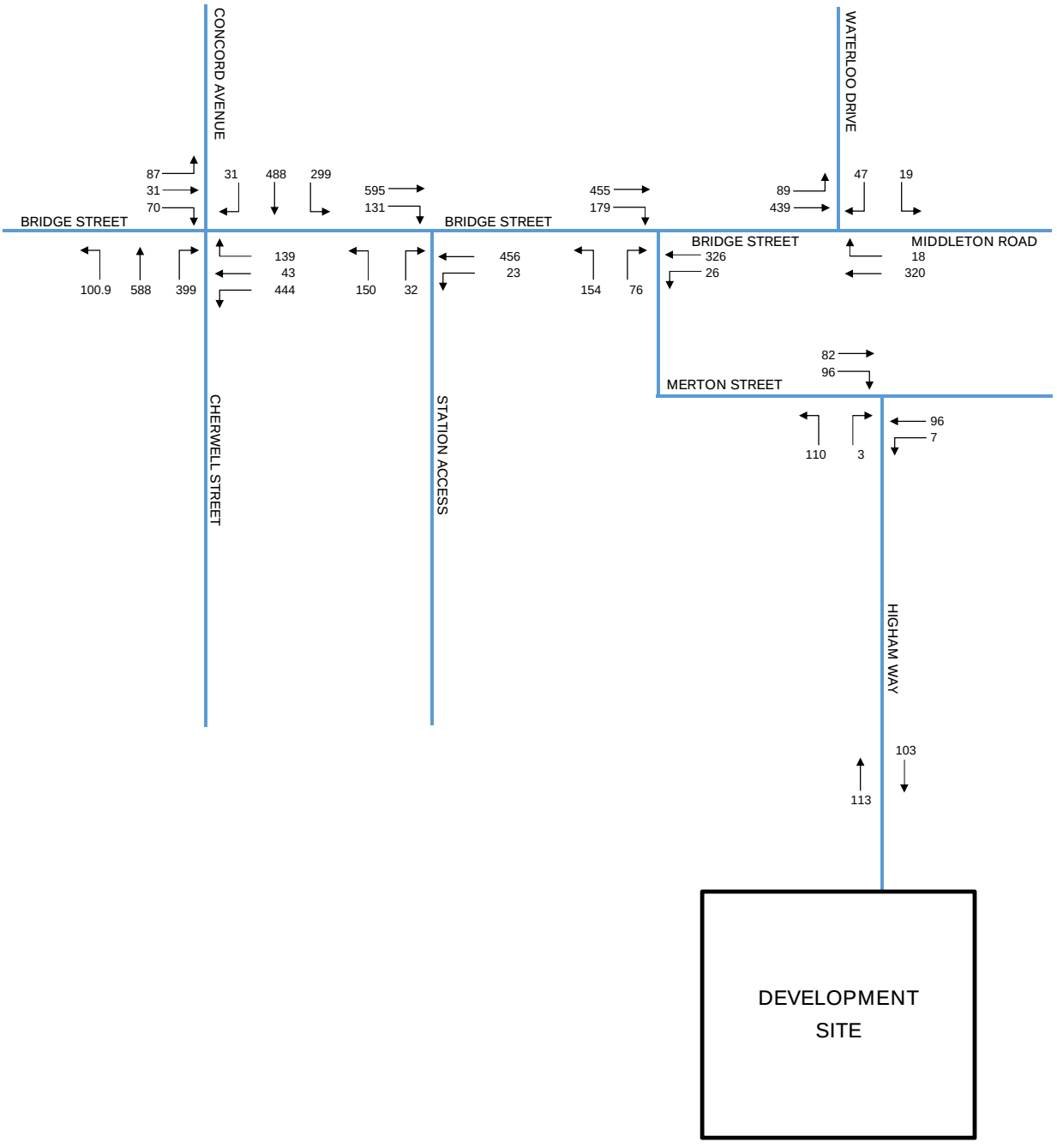
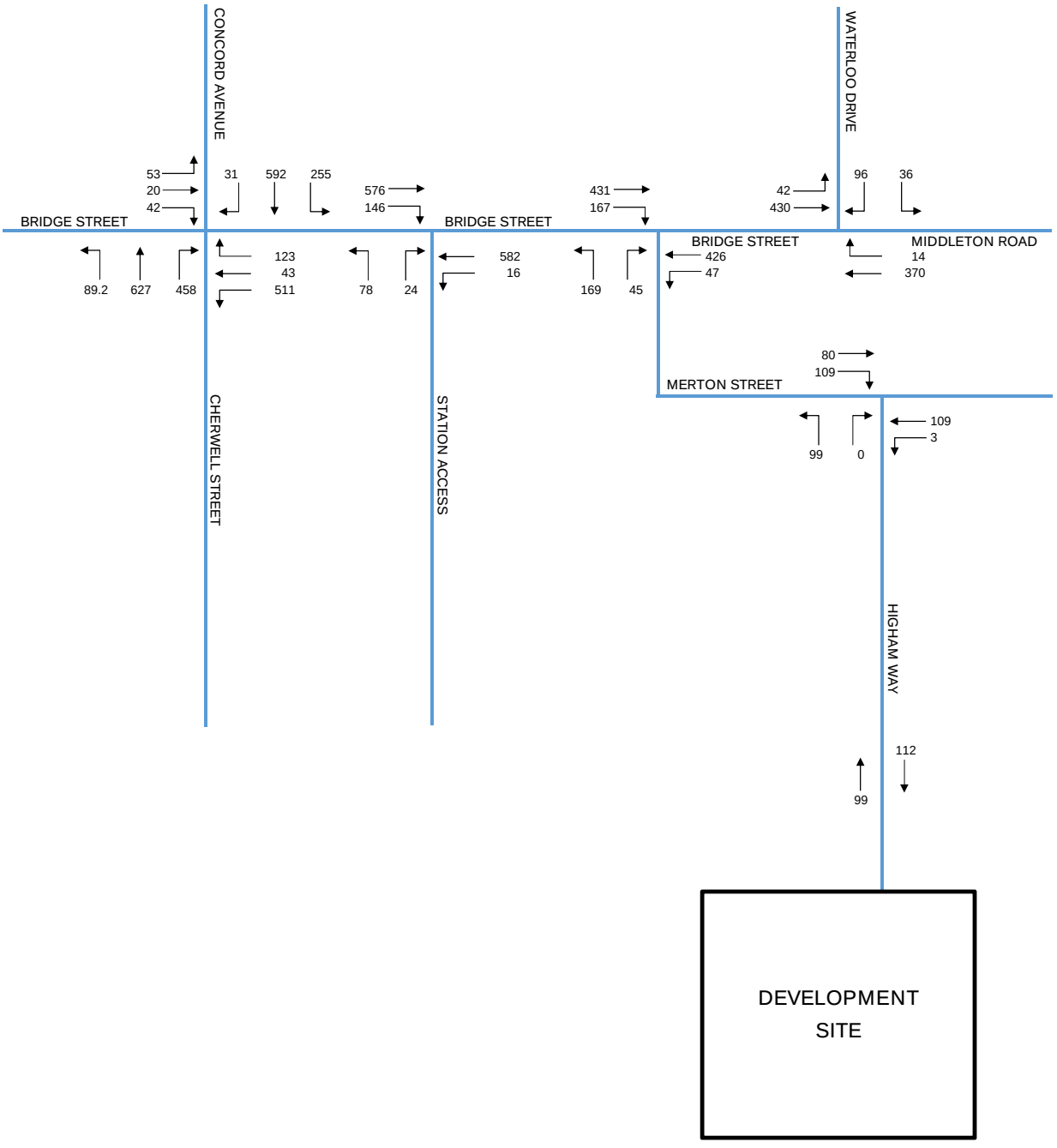
	Job Title: GRUNDON WASTE DEPOT	Designed by: SC; Drawn by: SC; Ckd/appd: CW; Scale: N.T.S.; 1st Issued: Oct '15; Job number: 116150	Figure No. 1



Drawing Title: TOTAL SURVEYED TRAFFIC FLOWS (PCU) - PM PEAK (1700-1800)	Client: GRUNDON WASTE MANAGEMENT LTD	SWECO	File Extension: 151009_116150_Traffic Flows.xls
	Job Title: GRUNDON WASTE DEPOT	Designed by: SC / Drawn by: SC / Ckd/appd: CW; Scale: N.T.S. / 1st Issued: Oct '15 / Job number: 116150	Figure No. 2

Appendix B

2015 Baseline AM and PM Peak Hour Traffic Flows



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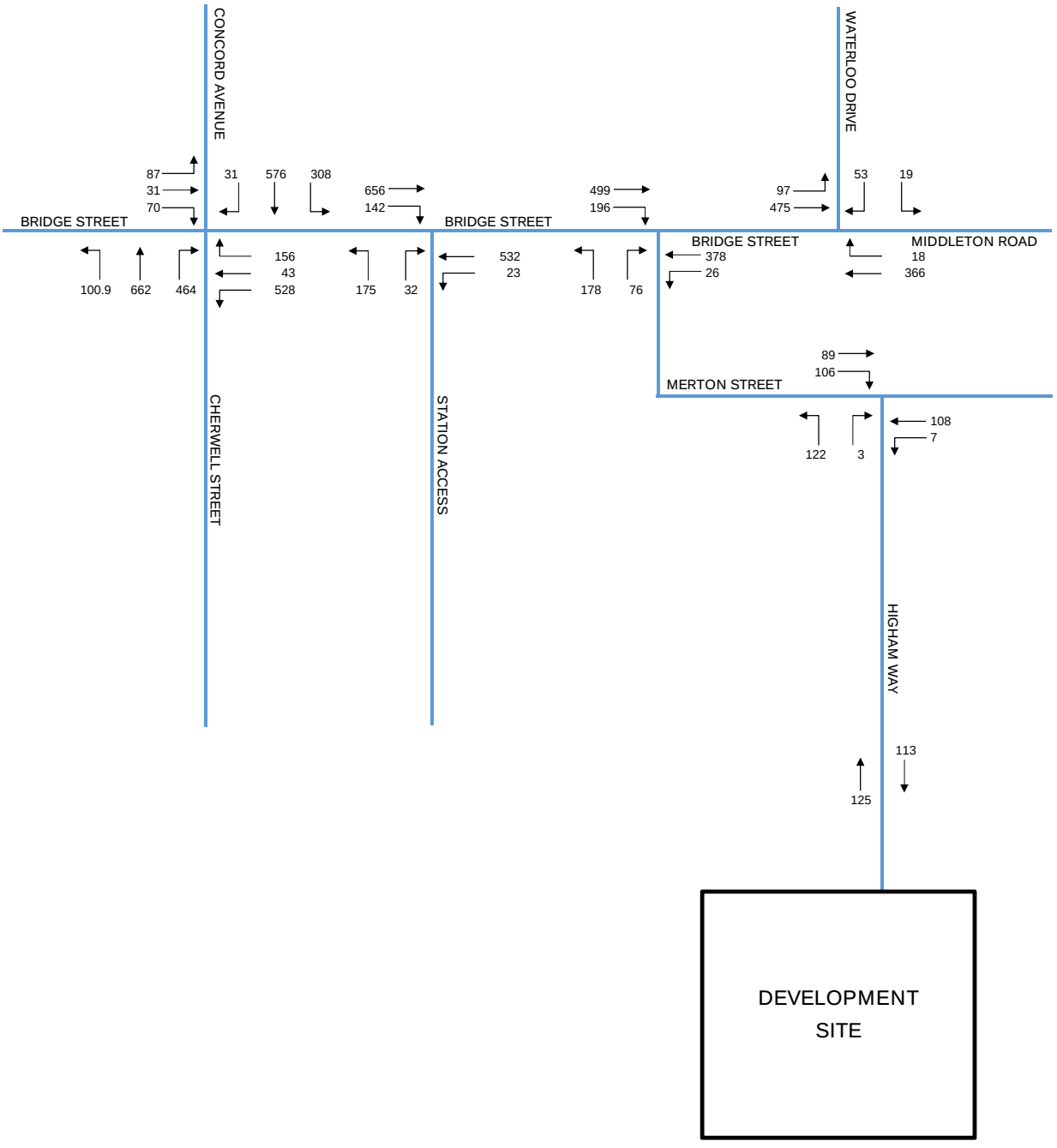
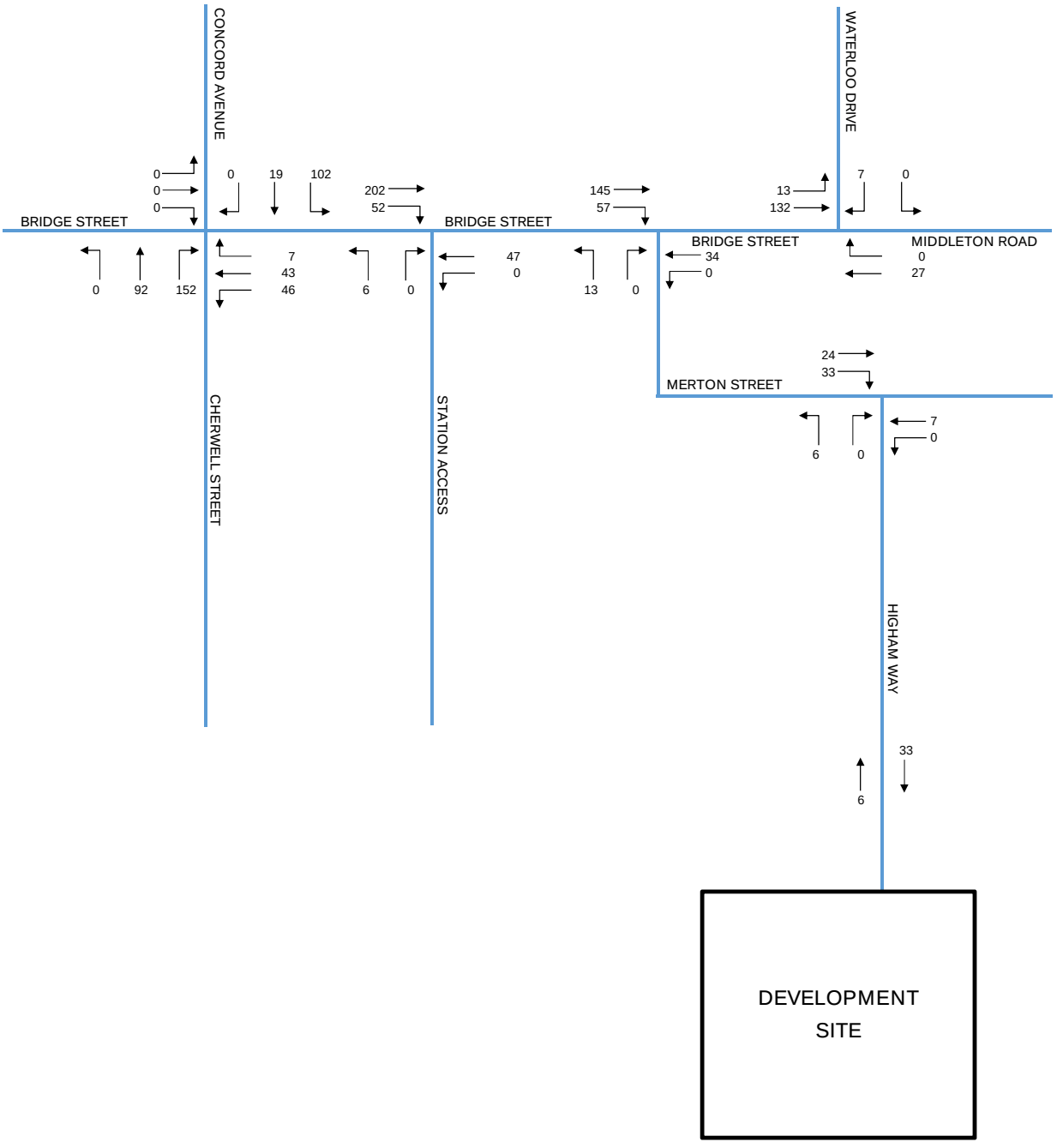
	Job Title: GRUNDON WASTE DEPOT	Designed by: SC / Drawn by: SC / Ckd/appd: CW; Scale: N.T.S. / 1st Issued: Oct '15 / Job number: 116150	Figure No. 7



Drawing Title: TOTAL SURVEYED + COMMITTED DEVELOPMENT TRAFFIC FLOWS (PCU) PM (1700-1800)	Client: GRUNDON WASTE MANAGEMENT LTD	SWECO	File Extension: 151009_116150_Traffic Flows.xls
	Job Title: GRUNDON WASTE DEPOT	Designed by: SC / Scale: N.T.S. Drawn by: SC / 1st Issued: Oct '15 Ckd/appd: CW / Job number: 116150	Figure No. 8

Appendix C

Committed Development AM and PM Peak Hour Flows



Drawing Title: CASTLE QUAY DEVELOPMENT TRAFFIC FLOWS (PCU) AM PEAK (0800-0900)	Client: GRUNDON WASTE MANAGEMENT LTD	SWECO	File Extension: 151009_116150_Traffic Flows.xls
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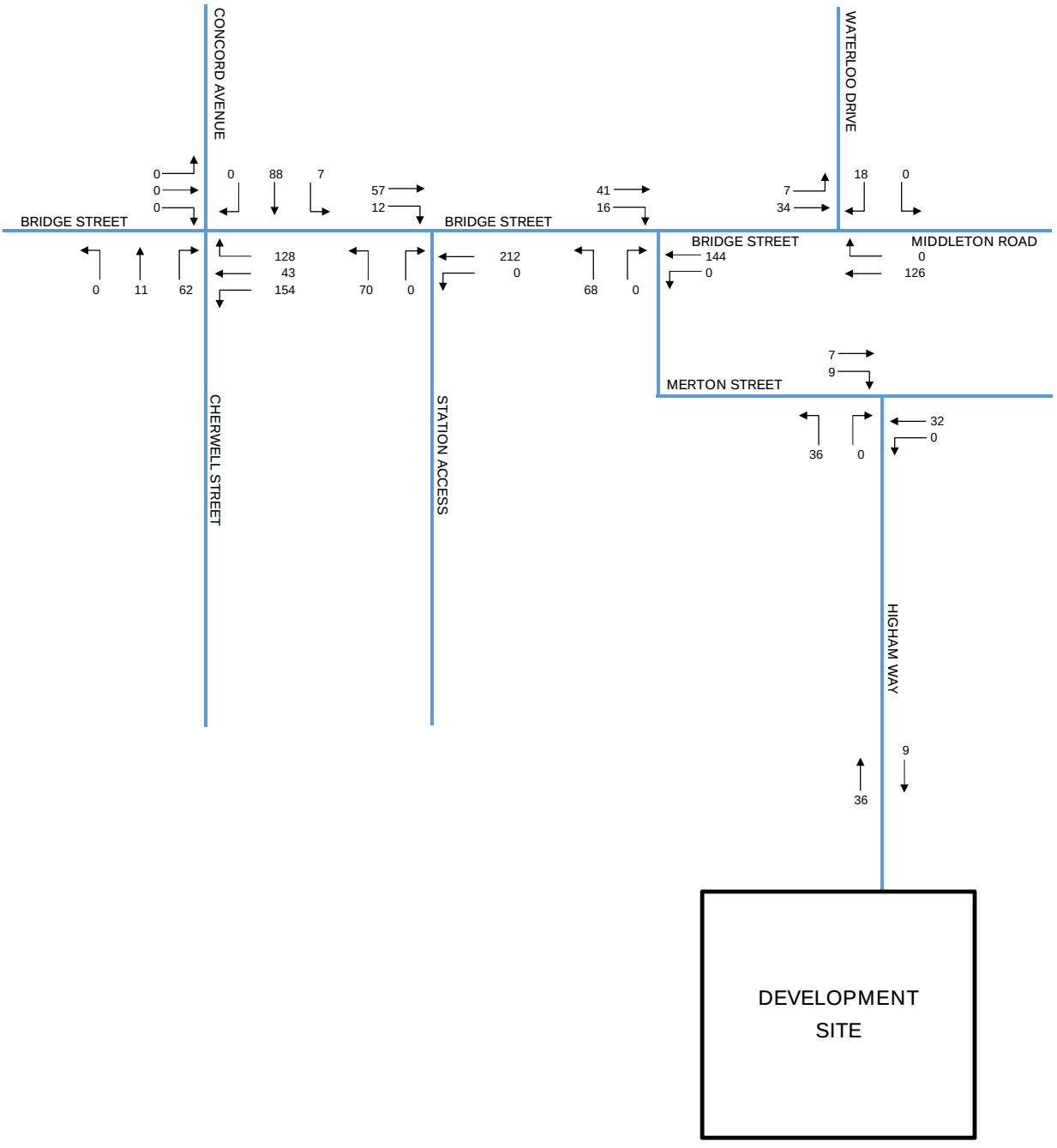

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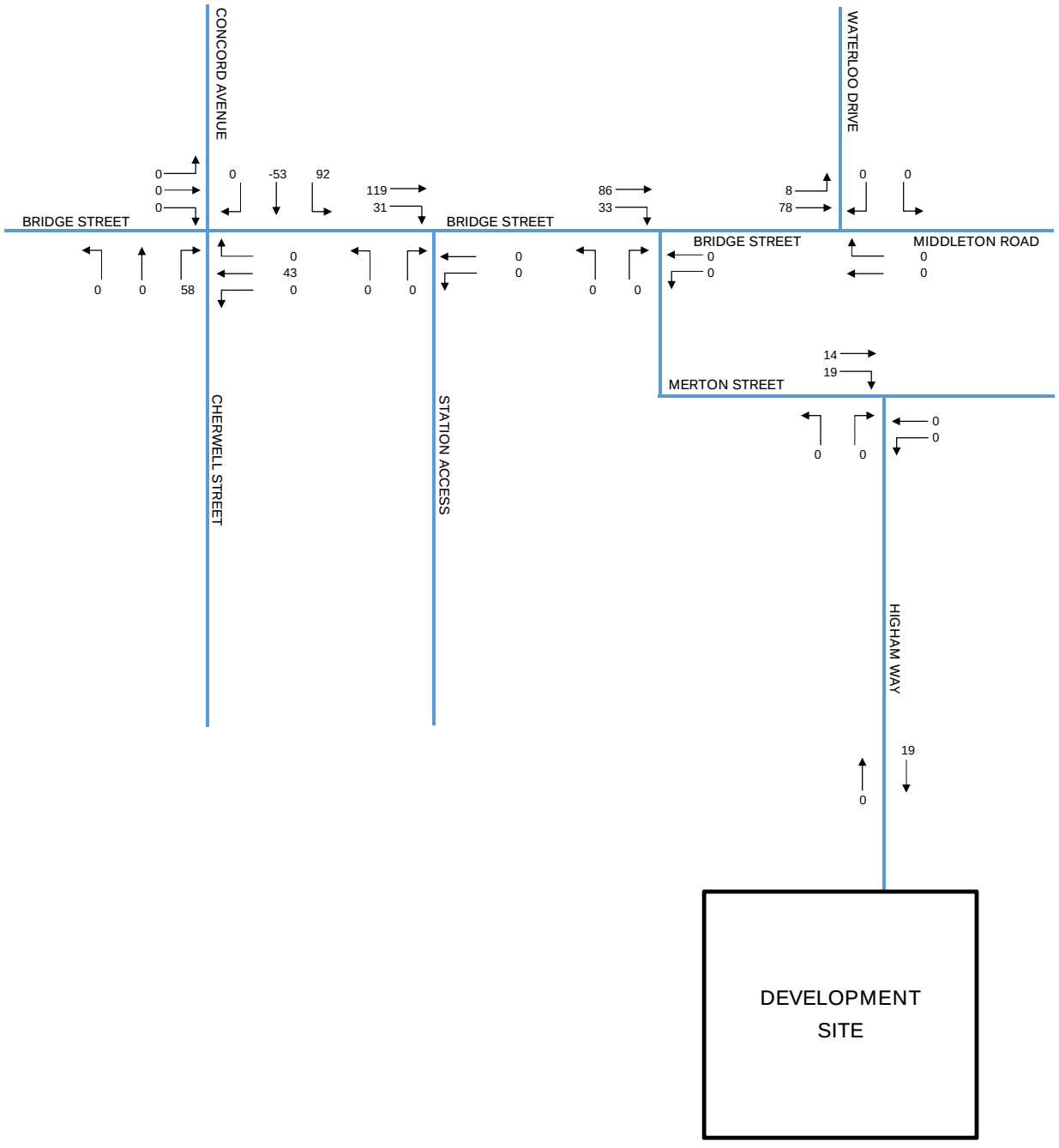

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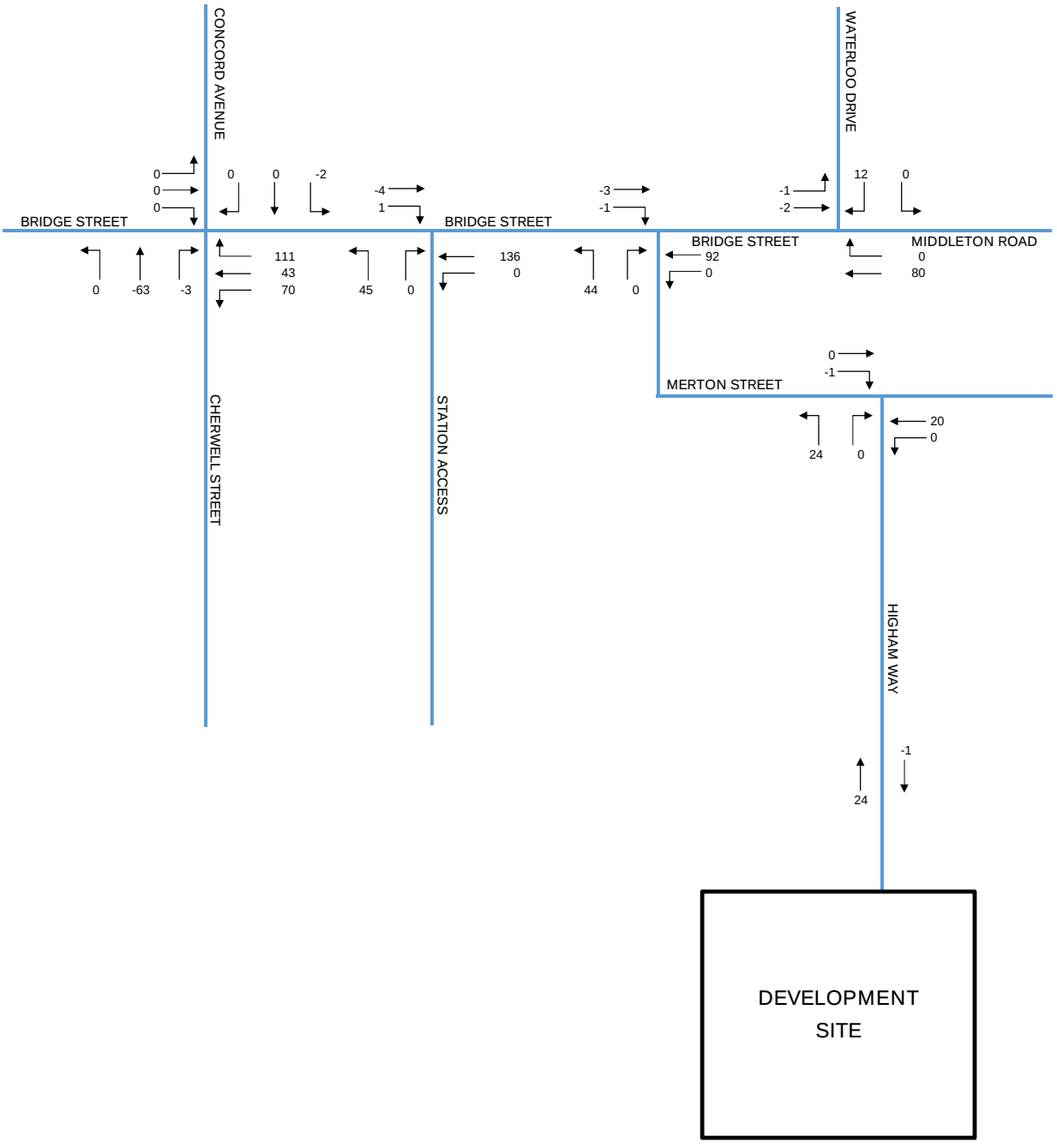
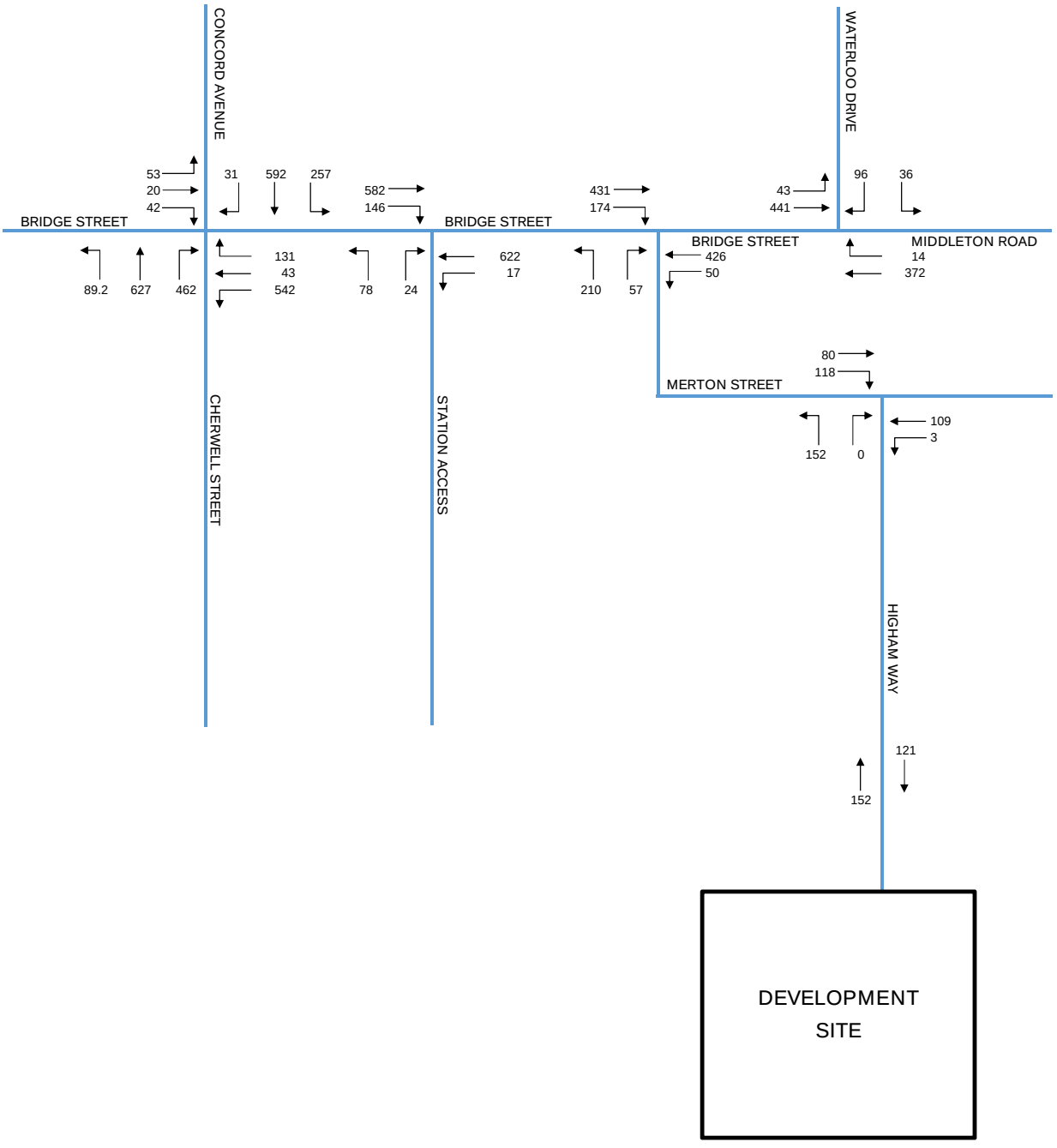
	Job Title: GRUNDON WASTE DEPOT	Designed by: SC / Scale: N.T.S. Drawn by: SC / 1st Issued: Oct '15 Ckd/appd: CW / Job number: 116150	Figure No. 5



Drawing Title: (REDUCTION) STATION CAR PARK TRAFFIC FLOWS (PCU) PM PEAK (1700-1800)	Client: GRUNDON WASTE MANAGEMENT LTD	SWECO	File Extension: 151009_116150_Traffic Flows.xls
	Job Title: GRUNDON WASTE DEPOT	Designed by: SC / Scale: N.T.S. Drawn by: SC / 1st Issued: Oct '15 Ckd/appd: CW / Job number: 116150	Figure No. 6

Appendix D

Future AM and PM Peak Hour Traffic Flows



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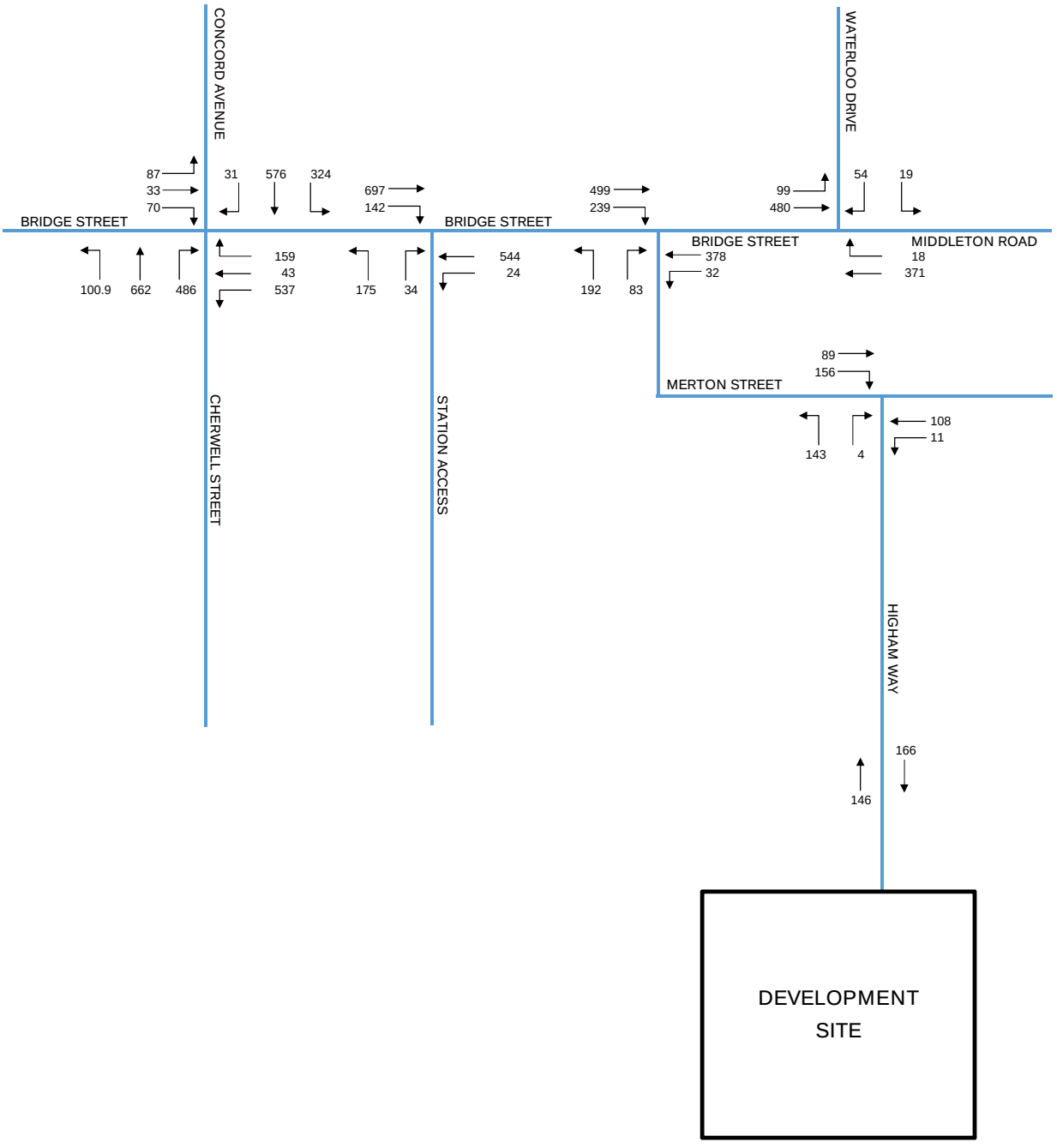
	Job Title: GRUNDON WASTE DEPOT	Designed by: SC / Drawn by: SC / Ckd/appd: CW; Scale: N.T.S. / 1st Issued: Oct '15 / Job number: 116150	Figure No. 11



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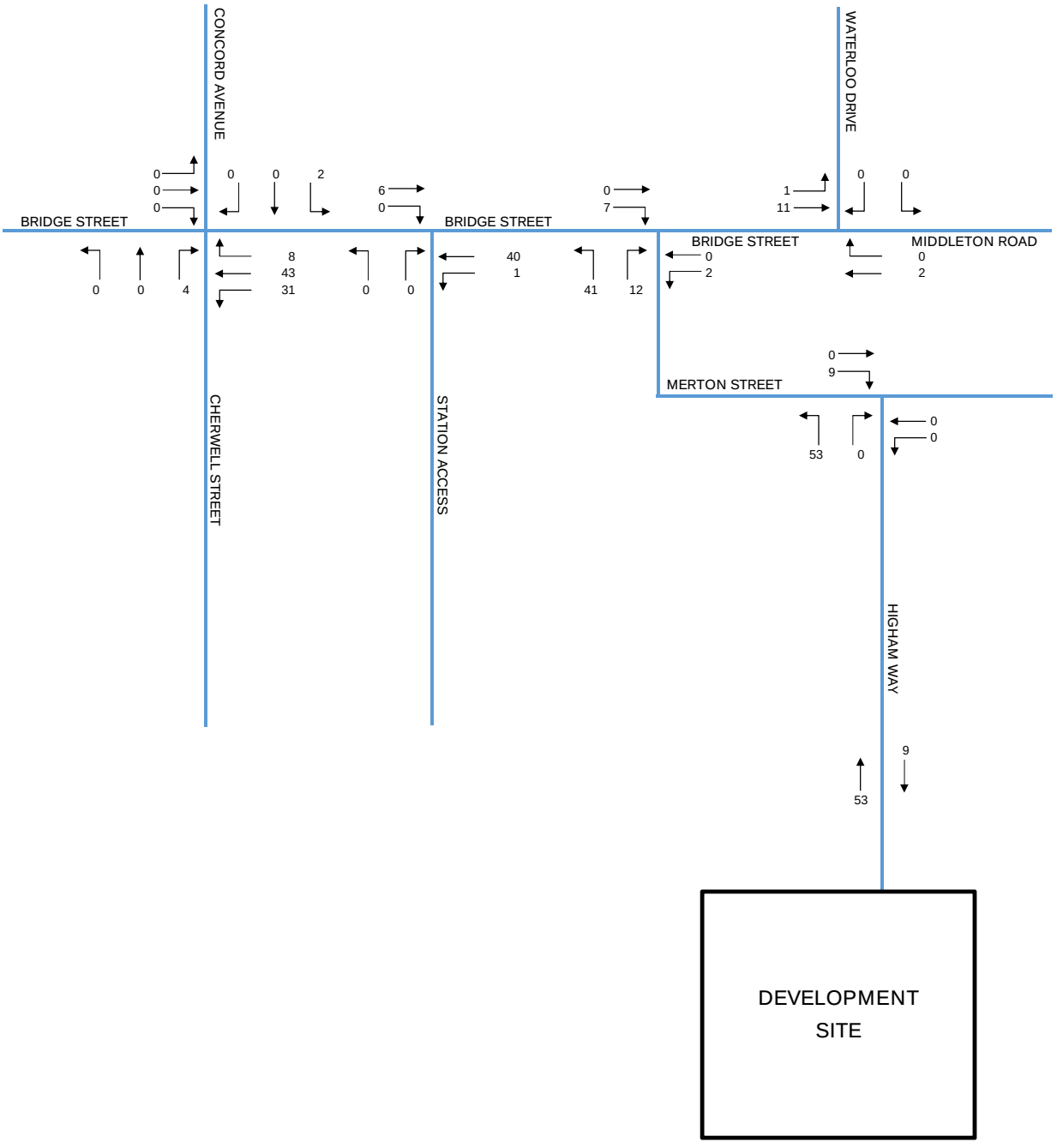
	Job Title: GRUNDON WASTE DEPOT	Designed by: SC / Drawn by: SC / Ckd/appd: CW; Scale: N.T.S. / 1st Issued: Oct '15 / Job number: 116150	Figure No. 12

Appendix E

Proposed Development AM and PM Peak Hour Flows



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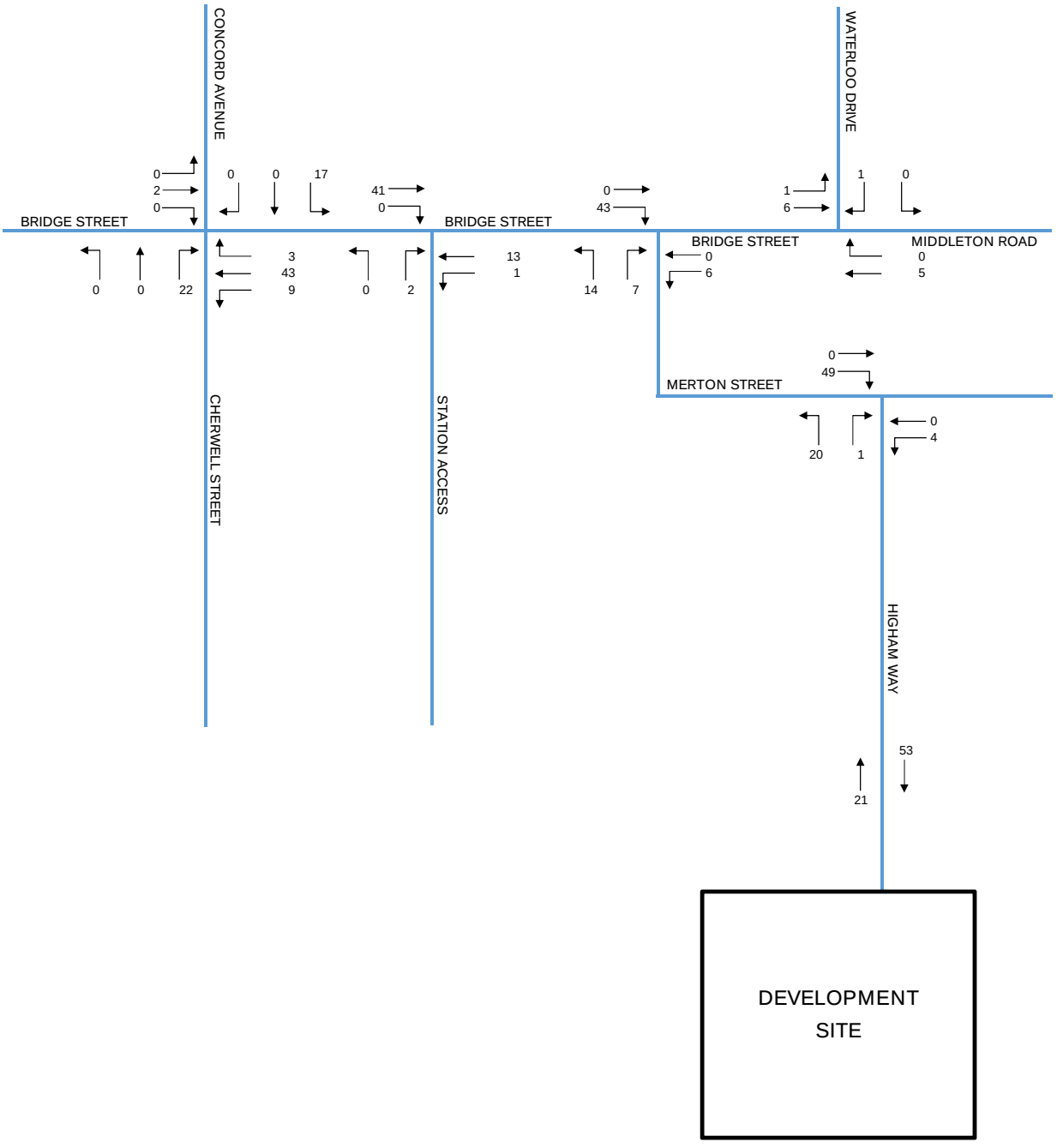
	Job Title: GRUNDON WASTE DEPOT	Designed by: SC / Scale: N.T.S. Drawn by: SC / 1st Issued: Oct '15 Ckd/appd: CW / Job number: 116150	Figure No. 9



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	Job Title: GRUNDON WASTE DEPOT	Designed by: SC / Scale: N.T.S. Drawn by: SC / 1st Issued: Oct '15 Ckd/appd: CW / Job number: 116150	Figure No. 10

Appendix F

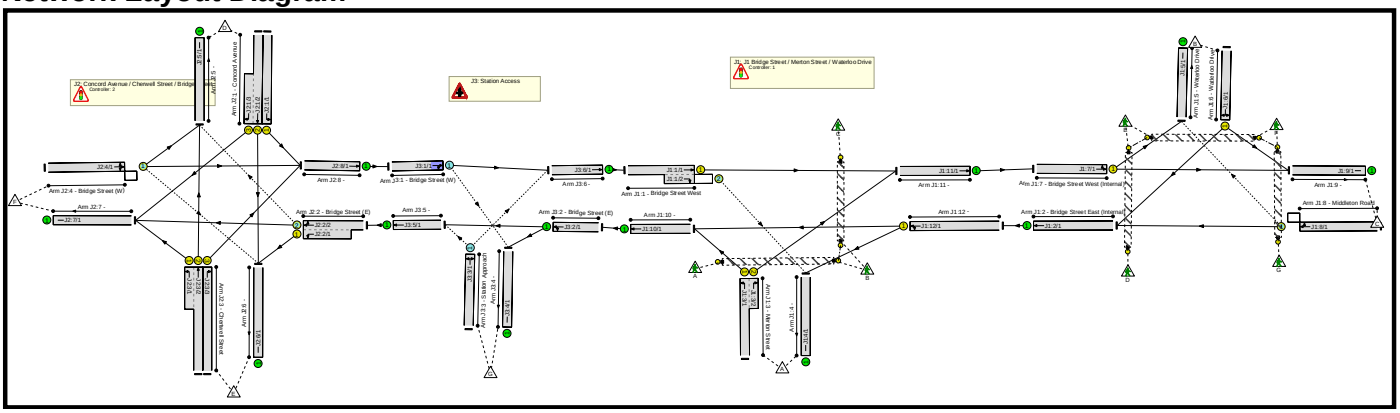
2015 Background AM and PM Peak Hour Traffic Flows Linsig Output Report

Full Input Data And Results

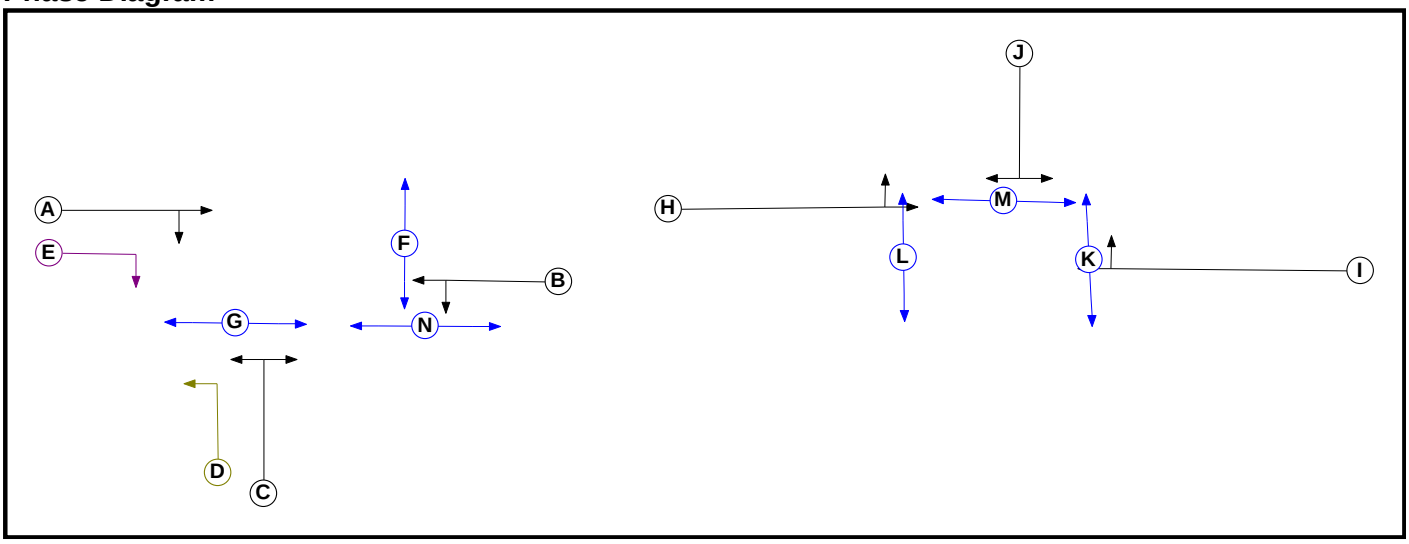
User and Project Details

Project:	**Banbury ICC Site Multi-Storey Car Park**
Title:	**Bridge Street / Merton Street**
Location:	Banbury, Oxfordshire
File name:	Grundon Waste Depot Local Roads V1.lsg3x
Author:	Matthew Thompson
Company:	Sweco
Address:	
Notes:	

Network Layout Diagram



C1
Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		3	3
D	Filter	C	4	0
E	Ind. Arrow	A	4	4
F	Pedestrian		8	8
G	Pedestrian		8	8
H	Traffic		7	7
I	Traffic		7	7
J	Traffic		7	7
K	Pedestrian		8	8
L	Pedestrian		8	8
M	Pedestrian		8	8
N	Pedestrian		8	8

Full Input Data And Results

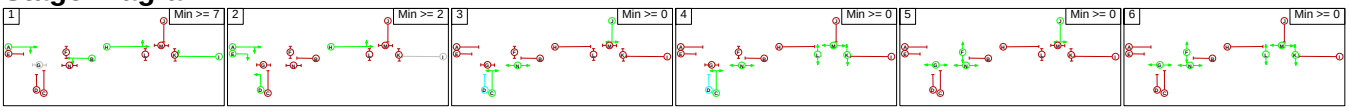
Phase Intergreens Matrix

		Starting Phase													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
Terminating Phase	A		-	7	-	-	8	-	-	-	-	-	-	-	9
	B	-		6	9	7	5	-	-	-	-	-	-	-	8
	C	9	7		-	6	9	5	-	-	-	-	-	-	-
	D	-	5	-		-	-	5	-	-	-	-	-	-	-
	E	-	6	7	-		-	-	-	-	-	-	-	-	9
	F	5	5	5	-	-		-	-	-	-	-	-	-	-
	G	-	-	14	14	-	-		-	-	-	-	-	-	-
	H	-	-	-	-	-	-	-		-	7	10	5	10	-
	I	-	-	-	-	-	-	-	-		7	5	10	10	-
	J	-	-	-	-	-	-	-	5	5		10	10	5	-
	K	-	-	-	-	-	-	-	11	11	11		-	-	-
	L	-	-	-	-	-	-	-	11	11	11	-		-	-
	M	-	-	-	-	-	-	-	11	11	11	-	-		-
	N	14	14	-	-	14	-	-	-	-	-	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A B H I
2	A D E H
3	C J N
4	C K L M N
5	F G J N
6	F G K L M N

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	4	A	Losing	3	3
1	4	B	Losing	4	4
1	4	H	Losing	5	5
1	4	I	Losing	5	5
3	2	E	Gaining absolute	9	9
4	2	E	Gaining absolute	9	9

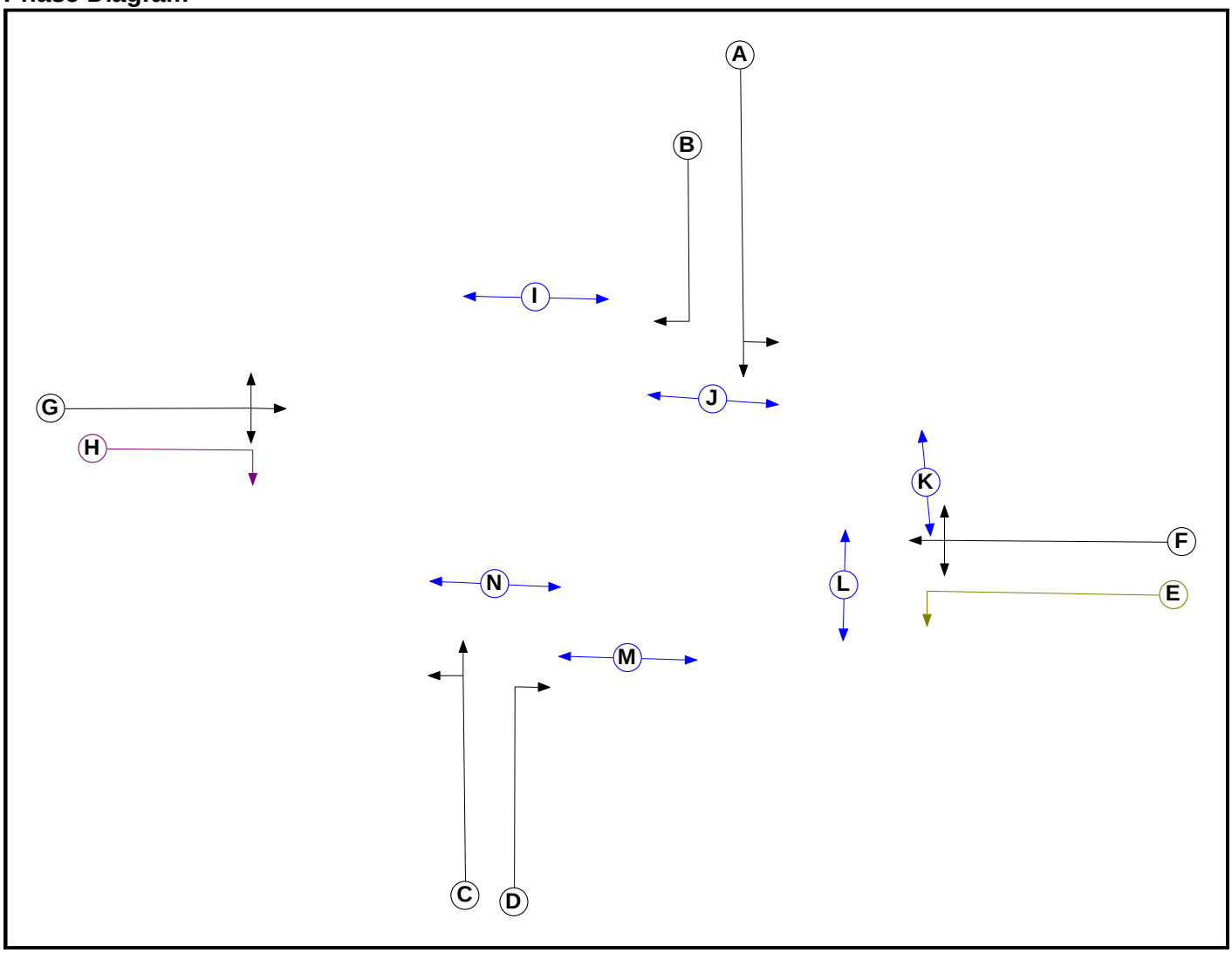
Full Input Data And Results

Prohibited Stage Change

		To Stage					
		1	2	3	4	5	6
From Stage	1		9	9	15	9	10
	2	X		9	10	X	X
	3	14	14		10	9	10
	4	14	14	11		11	9
	5	14	14	14	14		10
	6	14	14	14	14	11	

C2

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Filter	F	4	0
F	Traffic		7	7
G	Traffic		7	7
H	Ind. Arrow	G	5	5
I	Pedestrian		5	5
J	Pedestrian		5	5
K	Pedestrian		5	5
L	Pedestrian		5	5
M	Pedestrian		5	5
N	Pedestrian		5	5

Phase Intergreens Matrix

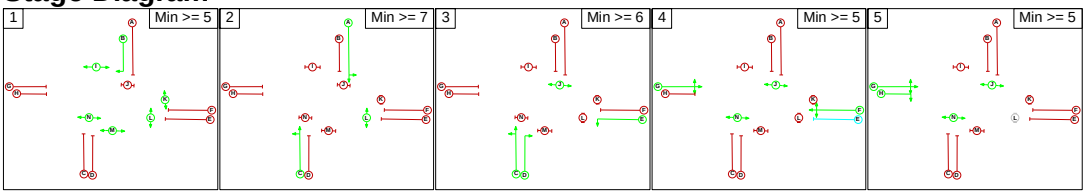
		Starting Phase														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
Terminating Phase	A		-	-	5	6	5	5	5	-	5	7	-	8	-
	B	-		6	-	-	5	5	5	-	5	-	-	-	-
	C	-	5		-	-	5	7	7	9	-	-	-	-	5
	D	7	-	-		-	5	5	5	-	-	9	-	-	5
	E	5	-	-	-		-	-	5	-	-	-	5	8	-
	F	7	7	7	7	-		-	7	12	-	-	5	8	-
	G	7	6	5	6	-	-		-	8	-	9	-	11	-
	H	7	6	5	6	5	7	-		8	-	9	-	11	-
	I	-	-	7	-	-	7	7	7		-	-	-	-	-
	J	10	10	-	-	-	-	-	-	-		-	-	-	-
	K	8	-	-	8	-	-	8	8	-	-		-	-	-
	L	-	-	-	-	7	7	-	-	-	-	-		-	-
	M	10	-	-	-	10	10	10	10	-	-	-	-		-
	N	-	-	10	10	-	-	-	-	-	-	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	B I K L M N
2	A C L
3	C D E J
4	F G J N
5	G H J N

Full Input Data And Results

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	I	Losing	3	3
1	2	K	Losing	2	2
1	4	B	Losing	5	5
1	4	I	Losing	3	3
1	4	L	Losing	3	3
2	1	A	Losing	1	1
2	3	A	Losing	1	1
2	4	A	Losing	1	1
3	4	F	Gaining absolute	5	5
4	1	G	Losing	1	1
4	2	F	Losing	3	3
4	2	G	Losing	3	3
4	3	F	Losing	3	3
4	3	G	Losing	4	4
5	2	G	Losing	3	3

Prohibited Stage Change

From Stage \ To Stage	1	2	3	4	5
1		10	10	10	10
2	9		7	7	7
3	X	X		7	X
4	12	10	10		7
5	11	10	10	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive

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)
J1:1/2 (Bridge Street West)	J1:4/1 (Right)	1439	0	J1:2/1	1.09	None	3.00	-	0.50	3	2.00
J1:8/1 (Middleton Road)	J1:5/1 (Right)	1440	0	J1:7/1	1.09	All	2.00	2.00	0.50	2	2.00

Junction: J2: Concord Avenue / Cherwell Street / Bridge Street

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)
J2:2/2 (Bridge Street (E))	J2:5/1 (Right)	1440	0	J2:4/1	1.09	To J2:5/1 (Left)	-	-	-	-	-
J2:4/1 (Bridge Street (W))	J2:6/1 (Right)	1440	0	J2:2/1 J2:2/2	1.09 1.09	All To J2:7/1 (Ahead)	2.00	2.00	0.50	2	2.00

Junction: J3: Station Access

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)
J3:1/1 (Bridge Street (W))	J3:4/1 (Right)	850	0	J3:2/1	0.35	All	-	-	-	-	-
J3:3/1 (Station Approach)	J3:5/1 (Left)	715	0	J3:2/1	0.22	All	-	-	-	-	-
	J3:6/1 (Right)	600	0	J3:2/1	0.22	All					
				J3:1/1	0.19	All					

Full Input Data And Results

Lane Input Data

Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive

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)
J1:1/1 (Bridge Street West)	U	A	2	3	25.7	Geom	-	3.00	0.00	Y	Arm J1:11 Ahead	Inf
J1:1/2 (Bridge Street West)	O	A E	2	3	5.0	Geom	-	3.00	0.00	N	Arm J1:4 Right	11.00
J1:2/1 (Bridge Street East (Internal))	U		2	3	5.9	Geom	-	4.60	0.00	Y	Arm J1:12 Ahead	Inf
J1:3/1 (Merton Street)	U	C D	2	3	5.0	Geom	-	3.00	0.00	Y	Arm J1:10 Left	Inf
J1:3/2 (Merton Street)	U	C	2	3	5.0	Geom	-	3.00	0.00	N	Arm J1:11 Right	Inf
J1:4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:5/1 (Waterloo Drive)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:6/1 (Watlerloo Drive)	U	J	2	3	60.0	Geom	-	3.75	0.00	Y	Arm J1:2 Right Arm J1:9 Left	8.00 6.00
J1:7/1 (Bridge Street West (Internal))	U	H	2	3	11.3	Geom	-	3.80	0.00	Y	Arm J1:5 Left Arm J1:9 Ahead	21.00 Inf
J1:8/1 (Middleton Road)	O	I	2	3	60.0	Geom	-	3.10	0.00	Y	Arm J1:2 Ahead Arm J1:5 Right	Inf 23.00
J1:9/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:10/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:11/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:12/1	U	B	2	3	10.4	Geom	-	4.60	0.00	Y	Arm J1:4 Left Arm J1:10 Ahead	10.00 Inf

Full Input Data And Results

Junction: J2: Concord Avenue / Cherwell Street / Bridge Street												
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)**
J2:1/1 (Concord Avenue)	U	A	2	3	60.0	Geom	-	2.80	0.00	Y	Arm J2:8 Left	Inf
J2:1/2 (Concord Avenue)	U	A	2	3	60.0	Geom	-	3.20	0.00	N	Arm J2:6 Ahead	Inf
J2:1/3 (Concord Avenue)	U	B	2	3	8.3	Geom	-	2.90	0.00	Y	Arm J2:7 Right	12.50
J2:2/1 (Bridge Street (E))	U	F E	2	3	10.1	Geom	-	2.50	0.00	Y	Arm J2:6 Left	15.50
J2:2/2 (Bridge Street (E))	O	F	2	3	10.4	Geom	-	2.50	0.00	Y	Arm J2:5 Right Arm J2:7 Ahead	17.00 Inf
J2:3/1 (Chertwell Street)	U	C	2	3	7.0	Geom	-	3.00	0.00	Y	Arm J2:7 Left	10.00
J2:3/2 (Chertwell Street)	U	C	2	3	60.0	Geom	-	3.00	0.00	N	Arm J2:5 Ahead	Inf
J2:3/3 (Chertwell Street)	U	D	2	3	60.0	Geom	-	3.00	0.00	Y	Arm J2:8 Right	Inf
J2:4/1 (Bridge Street (W))	O	G H	2	3	60.0	Geom	-	3.20	0.00	Y	Arm J2:5 Left Arm J2:6 Right Arm J2:8 Ahead	Inf 14.00 Inf
J2:5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J3: Station Access

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)
J3:1/1 (Bridge Street (W))	O		2	3	19.1	Geom	-	3.25	0.00	Y	Arm J3:4 Right Arm J3:6 Ahead	12.50 Inf
J3:2/1 (Bridge Street (E))	U		2	3	30.8	Geom	-	3.25	0.00	Y	Arm J3:4 Left Arm J3:5 Ahead	10.00 Inf
J3:3/1 (Station Approach)	O		2	3	60.0	Geom	-	3.25	0.00	Y	Arm J3:5 Left Arm J3:6 Right	Inf Inf
J3:4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:6/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Baseline - AM'	08:00	09:00	01:00	
2: 'Baseline - PM'	17:00	18:00	01:00	

Scenario 1: 'Baseline AM Peak (0800-0900)' (FG1: 'Baseline - AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination							
		A	B	C	D	E	F	G	Tot.
Origin	A	0	3	41	27	119	10	2	202
	B	8	0	35	15	59	6	2	125
	C	37	14	0	59	215	23	10	358
	D	54	13	126	0	528	31	46	798
	E	84	19	180	541	0	91	77	992
	F	4	1	12	53	43	0	2	115
	G	4	1	18	9	62	2	0	96
	Tot.	191	51	412	704	1026	163	139	2686

Full Input Data And Results

Traffic Lane Flows

Full Input Data And Results

Lane	Scenario 1: Baseline AM Peak (0800-0900)
Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive	
J1:1/1 (with short)	516(In) 370(Out)
J1:1/2 (short)	146
J1:2/1	434
J1:3/1 (with short)	202(In) 158(Out)
J1:3/2 (short)	44
J1:4/1	191
J1:5/1	51
J1:6/1	125
J1:7/1	414
J1:8/1	358
J1:9/1	412
J1:10/1	547
J1:11/1	414
J1:12/1	434
Junction: J2: Concord Avenue / Cherwell Street / Bridge Street	
J2:1/1	239
J2:1/2 (with short)	559(In) 528(Out)
J2:1/3 (short)	31
J2:2/1 (short)	455
J2:2/2 (with short)	606(In) 151(Out)
J2:3/1 (short)	91
J2:3/2 (with short)	632(In) 541(Out)
J2:3/3	360
J2:4/1	115
J2:5/1	704
J2:6/1	1026
J2:7/1	163
J2:8/1	618
Junction: J3: Station Access	
J3:1/1	618
J3:2/1	547
J3:3/1	96
J3:4/1	139
J3:5/1	606
J3:6/1	516

Full Input Data And Results

Lane Saturation Flows

Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Bridge Street West)	3.00	0.00	Y	Arm J1:11 Ahead	Inf	100.0 %	1915	1915
J1:1/2 (Bridge Street West)	3.00	0.00	N	Arm J1:4 Right	11.00	100.0 %	1808	1808
J1:2/1 (Bridge Street East (Internal))	4.60	0.00	Y	Arm J1:12 Ahead	Inf	100.0 %	2075	2075
J1:3/1 (Merton Street)	3.00	0.00	Y	Arm J1:10 Left	Inf	100.0 %	1915	1915
J1:3/2 (Merton Street)	3.00	0.00	N	Arm J1:11 Right	Inf	100.0 %	2055	2055
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Waterloo Drive Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1 (Watlerloo Drive)	3.75	0.00	Y	Arm J1:2 Right	8.00	72.0 %	1651	1651
				Arm J1:9 Left	6.00	28.0 %		
J1:7/1 (Bridge Street West (Internal))	3.80	0.00	Y	Arm J1:5 Left	21.00	8.9 %	1982	1982
				Arm J1:9 Ahead	Inf	91.1 %		
J1:8/1 (Middleton Road)	3.10	0.00	Y	Arm J1:2 Ahead	Inf	96.1 %	1920	1920
				Arm J1:5 Right	23.00	3.9 %		
J1:9/1	Infinite Saturation Flow						Inf	Inf
J1:10/1	Infinite Saturation Flow						Inf	Inf
J1:11/1	Infinite Saturation Flow						Inf	Inf
J1:12/1	4.60	0.00	Y	Arm J1:4 Left	10.00	10.4 %	2043	2043
				Arm J1:10 Ahead	Inf	89.6 %		

Full Input Data And Results

Junction: J2: Concord Avenue / Cherwell Street / Bridge Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (Concord Avenue)	2.80	0.00	Y	Arm J2:8 Left	Inf	100.0 %	1895	1895
J2:1/2 (Concord Avenue)	3.20	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2075	2075
J2:1/3 (Concord Avenue)	2.90	0.00	Y	Arm J2:7 Right	12.50	100.0 %	1701	1701
J2:2/1 (Bridge Street (E))	2.50	0.00	Y	Arm J2:6 Left	15.50	100.0 %	1700	1700
J2:2/2 (Bridge Street (E))	2.50	0.00	Y	Arm J2:5 Right	17.00	72.8 %	1752	1752
				Arm J2:7 Ahead	Inf	27.2 %		
J2:3/1 (Chertwell Street)	3.00	0.00	Y	Arm J2:7 Left	10.00	100.0 %	1665	1665
J2:3/2 (Chertwell Street)	3.00	0.00	N	Arm J2:5 Ahead	Inf	100.0 %	2055	2055
J2:3/3 (Chertwell Street)	3.00	0.00	Y	Arm J2:8 Right	Inf	100.0 %	1915	1915
J2:4/1 (Bridge Street (W))	3.20	0.00	Y	Arm J2:5 Left	Inf	46.1 %	1860	1860
				Arm J2:6 Right	14.00	37.4 %		
				Arm J2:8 Ahead	Inf	16.5 %		
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:7/1	Infinite Saturation Flow						Inf	Inf
J2:8/1	Infinite Saturation Flow						Inf	Inf

Junction: J3: Station Access

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J3:1/1 (Bridge Street (W))	3.25	0.00	Y	Arm J3:4 Right	12.50	20.2 %	1894	1894
				Arm J3:6 Ahead	Inf	79.8 %		
J3:2/1 (Bridge Street (E))	3.25	0.00	Y	Arm J3:4 Left	10.00	2.6 %	1933	1933
				Arm J3:5 Ahead	Inf	97.4 %		
J3:3/1 (Station Approach)	3.25	0.00	Y	Arm J3:5 Left	Inf	76.0 %	1940	1940
				Arm J3:6 Right	Inf	24.0 %		
J3:4/1	Infinite Saturation Flow						Inf	Inf
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 2: 'Baseline PM Peak (1700-1800)' (FG2: 'Baseline - PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination							
		A	B	C	D	E	F	G	Tot.
	A	0	11	67	31	108	9	4	230
	B	3	0	19	10	29	3	2	66
	C	25	18	0	67	189	22	17	338
Origin	D	70	30	145	0	491	31	52	819
	E	95	40	187	590	0	102	76	1090
	F	7	3	17	87	70	0	3	187
	G	5	4	23	29	114	8	0	183
	Tot.	205	106	458	814	1001	175	154	2913

Full Input Data And Results

Traffic Lane Flows

Full Input Data And Results

Lane	Scenario 2: Baseline PM Peak (1700-1800)
Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive	
J1:1/1 (with short)	626(In) 449(Out)
J1:1/2 (short)	177
J1:2/1	367
J1:3/1 (with short)	230(In) 152(Out)
J1:3/2 (short)	78
J1:4/1	205
J1:5/1	106
J1:6/1	66
J1:7/1	527
J1:8/1	338
J1:9/1	458
J1:10/1	491
J1:11/1	527
J1:12/1	367
Junction: J2: Concord Avenue / Cherwell Street / Bridge Street	
J2:1/1	297
J2:1/2 (with short)	522(In) 491(Out)
J2:1/3 (short)	31
J2:2/1 (short)	440
J2:2/2 (with short)	619(In) 179(Out)
J2:3/1 (short)	102
J2:3/2 (with short)	692(In) 590(Out)
J2:3/3	398
J2:4/1	187
J2:5/1	814
J2:6/1	1001
J2:7/1	175
J2:8/1	725
Junction: J3: Station Access	
J3:1/1	725
J3:2/1	491
J3:3/1	183
J3:4/1	154
J3:5/1	619
J3:6/1	626

Full Input Data And Results

Lane Saturation Flows

Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Bridge Street West)	3.00	0.00	Y	Arm J1:11 Ahead	Inf	100.0 %	1915	1915
J1:1/2 (Bridge Street West)	3.00	0.00	N	Arm J1:4 Right	11.00	100.0 %	1808	1808
J1:2/1 (Bridge Street East (Internal))	4.60	0.00	Y	Arm J1:12 Ahead	Inf	100.0 %	2075	2075
J1:3/1 (Merton Street)	3.00	0.00	Y	Arm J1:10 Left	Inf	100.0 %	1915	1915
J1:3/2 (Merton Street)	3.00	0.00	N	Arm J1:11 Right	Inf	100.0 %	2055	2055
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Waterloo Drive Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1 (Watlerloo Drive)	3.75	0.00	Y	Arm J1:2 Right	8.00	71.2 %	1651	1651
				Arm J1:9 Left	6.00	28.8 %		
J1:7/1 (Bridge Street West (Internal))	3.80	0.00	Y	Arm J1:5 Left	21.00	16.7 %	1971	1971
				Arm J1:9 Ahead	Inf	83.3 %		
J1:8/1 (Middleton Road)	3.10	0.00	Y	Arm J1:2 Ahead	Inf	94.7 %	1918	1918
				Arm J1:5 Right	23.00	5.3 %		
J1:9/1	Infinite Saturation Flow						Inf	Inf
J1:10/1	Infinite Saturation Flow						Inf	Inf
J1:11/1	Infinite Saturation Flow						Inf	Inf
J1:12/1	4.60	0.00	Y	Arm J1:4 Left	10.00	7.6 %	2052	2052
				Arm J1:10 Ahead	Inf	92.4 %		

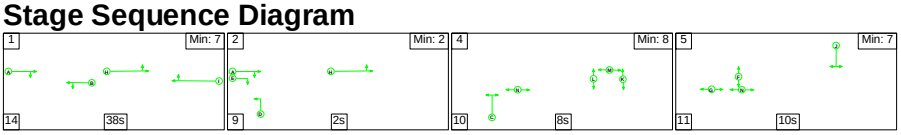
Full Input Data And Results

Junction: J2: Concord Avenue / Cherwell Street / Bridge Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Concord Avenue)	2.80	0.00	Y	Arm J2:8 Left	Inf	100.0 %	1895	1895
J2:1/2 (Concord Avenue)	3.20	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2075	2075
J2:1/3 (Concord Avenue)	2.90	0.00	Y	Arm J2:7 Right	12.50	100.0 %	1701	1701
J2:2/1 (Bridge Street (E))	2.50	0.00	Y	Arm J2:6 Left	15.50	100.0 %	1700	1700
J2:2/2 (Bridge Street (E))	2.50	0.00	Y	Arm J2:5 Right	17.00	76.5 %	1747	1747
				Arm J2:7 Ahead	Inf	23.5 %		
J2:3/1 (Chertwell Street)	3.00	0.00	Y	Arm J2:7 Left	10.00	100.0 %	1665	1665
J2:3/2 (Chertwell Street)	3.00	0.00	N	Arm J2:5 Ahead	Inf	100.0 %	2055	2055
J2:3/3 (Chertwell Street)	3.00	0.00	Y	Arm J2:8 Right	Inf	100.0 %	1915	1915
J2:4/1 (Bridge Street (W))	3.20	0.00	Y	Arm J2:5 Left	Inf	46.5 %	1860	1860
				Arm J2:6 Right	14.00	37.4 %		
				Arm J2:8 Ahead	Inf	16.0 %		
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:7/1	Infinite Saturation Flow						Inf	Inf
J2:8/1	Infinite Saturation Flow						Inf	Inf

Junction: J3: Station Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Bridge Street (W))	3.25	0.00	Y	Arm J3:4 Right	12.50	18.1 %	1899	1899
				Arm J3:6 Ahead	Inf	81.9 %		
J3:2/1 (Bridge Street (E))	3.25	0.00	Y	Arm J3:4 Left	10.00	4.7 %	1926	1926
				Arm J3:5 Ahead	Inf	95.3 %		
J3:3/1 (Station Approach)	3.25	0.00	Y	Arm J3:5 Left	Inf	82.5 %	1940	1940
				Arm J3:6 Right	Inf	17.5 %		
J3:4/1	Infinite Saturation Flow						Inf	Inf
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf

Scenario 1: 'Baseline AM Peak (0800-0900)' (FG1: 'Baseline - AM', Plan 1: 'Network Control Plan 1')
C1

Stage Sequence Diagram

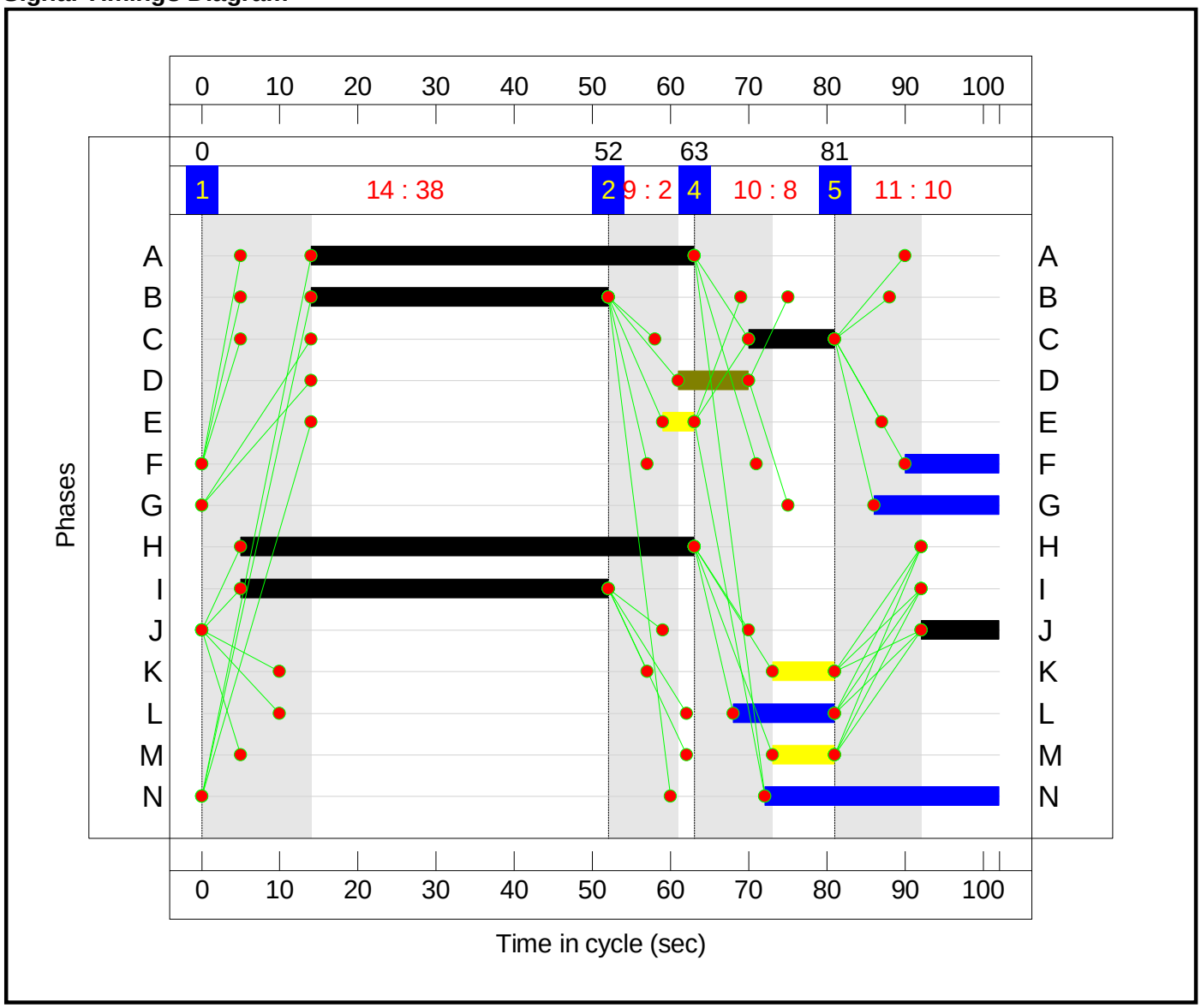


Full Input Data And Results

Stage Timings

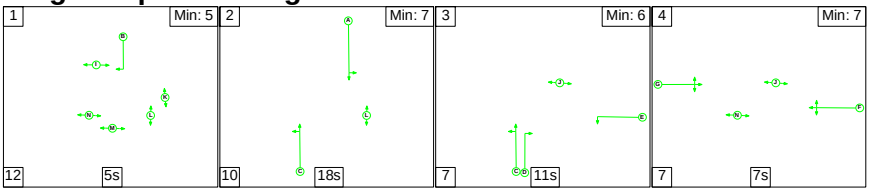
Stage	1	2	4	5
Duration	38	2	8	10
Change Point	0	52	63	81

Signal Timings Diagram



C2

Stage Sequence Diagram

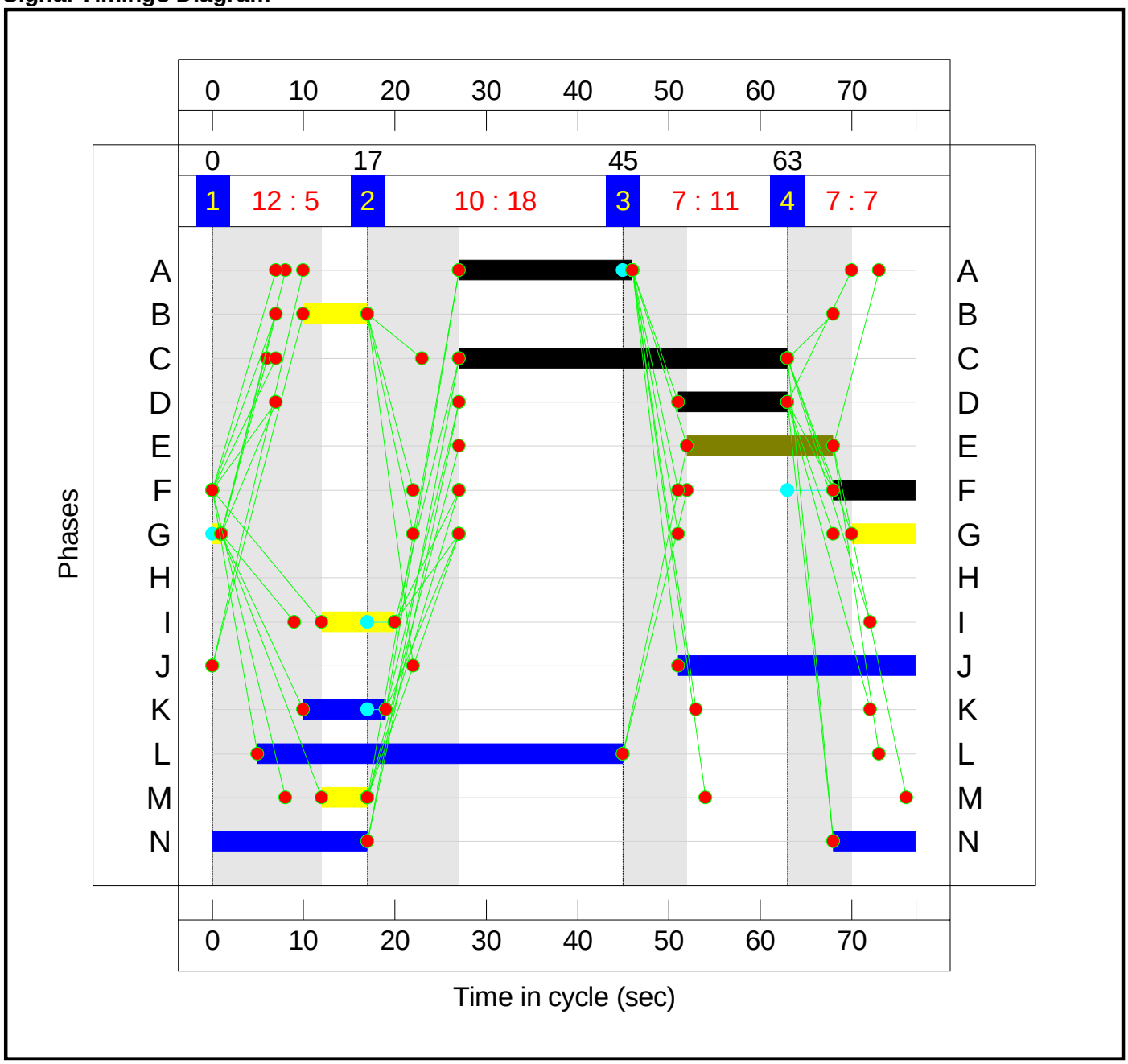


Full Input Data And Results

Stage Timings

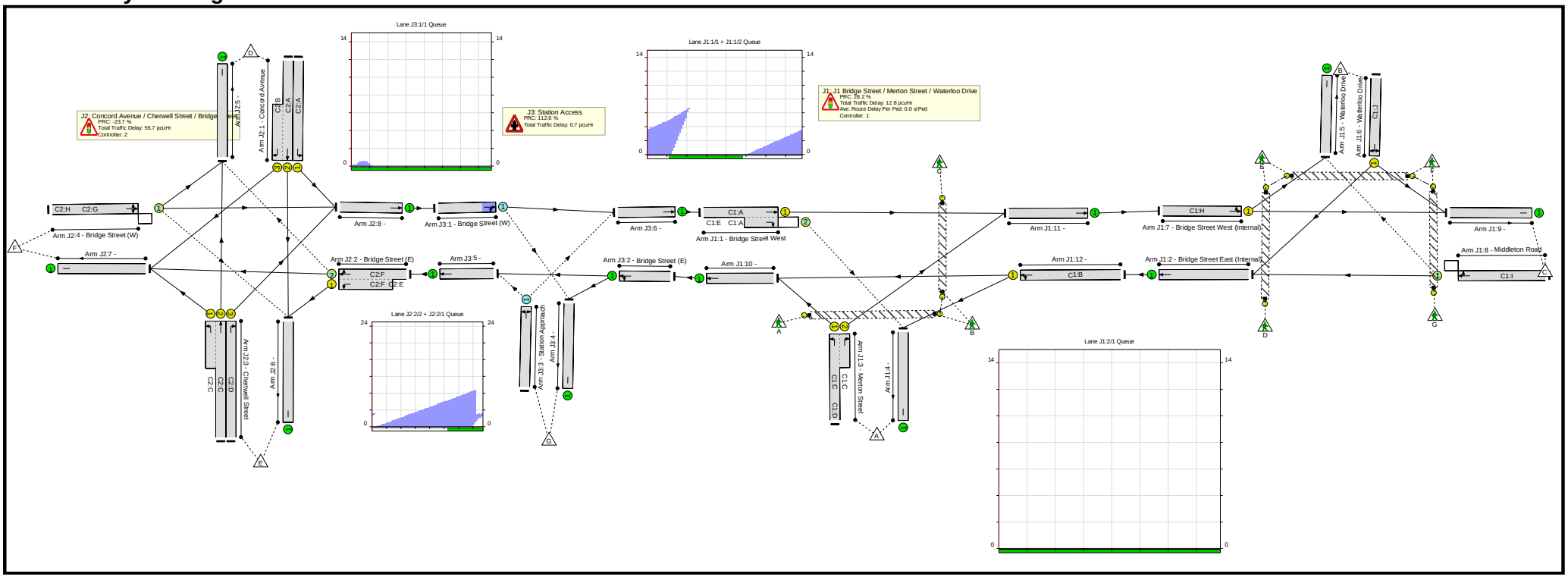
Stage	1	2	3	4
Duration	5	18	11	7
Change Point	0	17	45	63

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Full Input Data And 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: Bridge Street / Merton Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**111.3%**
J1: J1 Bridge Street / Merton Street / Waterloo Drive	-	-	**N/A**	-	-		-	-	-	-	-	-	**70.2%**
1/1+1/2	Bridge Street West Right Ahead	U+O	N/A	N/A	C1:A	C1:E	1	49	4	516	1915:1808	719+284	48.6 : 48.4%
2/1	Bridge Street East (Internal) Ahead	U	N/A	N/A	-		-	-	-	434	2075	2075	20.9%
3/1+3/2	Merton Street Left Right	U	N/A	N/A	C1:C	C1:D	1	20:11	9	202	1915:2055	355+99	44.5 : 44.5%
4/1		U	N/A	N/A	-		-	-	-	191	Inf	Inf	0.0%
5/1	Waterloo Drive	U	N/A	N/A	-		-	-	-	51	Inf	Inf	0.0%
6/1	Watlerloo Drive Right Left	U	N/A	N/A	C1:J		1	10	-	125	1651	178	70.2%
7/1	Bridge Street West (Internal) Left Ahead	U	N/A	N/A	C1:H		1	58	-	414	1982	1146	34.3%
8/1	Middleton Road Ahead Right	O	N/A	N/A	C1:I		1	47	-	358	1920	904	39.6%
9/1		U	N/A	N/A	-		-	-	-	412	Inf	Inf	0.0%
10/1	Ahead	U	N/A	N/A	-		-	-	-	547	Inf	Inf	0.0%
11/1	Ahead	U	N/A	N/A	-		-	-	-	414	Inf	Inf	0.0%
12/1	Left Ahead	U	N/A	N/A	C1:B		1	38	-	434	2043	781	55.6%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:G		1	16	-	0	-	3137	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:F		1	12	-	0	-	2353	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:M		1	8	-	0	-	1569	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:K		1	8	-	0	-	1569	0.0%

Full Input Data And Results

Ped Link: P5	Unnamed Ped Link	-	N/A	-	C1:L		1	13	-	0	-	2549	0.0%
J2: Concord Avenue / Cherwell Street / Bridge Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**111.3%**
1/1	Concord Avenue Left	U	N/A	N/A	C2:A		1	19	-	239	1895	492	48.6%
1/2+1/3	Concord Avenue Ahead Right	U	N/A	N/A	C2:A C2:B		1	19:7	-	559	2075:1701	532+31	99.3 : 99.3%
2/2+2/1	Bridge Street (E) Right Left Ahead	O+U	N/A	N/A	C2:F	C2:E	1	9:25	16	606	1752:1700	157+554	96.3 : 82.1%
3/2+3/1	Chertwell Street Ahead Left	U	N/A	N/A	C2:C		1	36	-	632	2055:1665	880+148	61.5 : 61.5%
3/3	Chertwell Street Right	U	N/A	N/A	C2:D		1	12	-	360	1915	323	111.3%
4/1	Bridge Street (W) Left Right Ahead	O	N/A	N/A	C2:G	C2:H	1	8	0	115	1860	217	52.9%
5/1		U	N/A	N/A	-		-	-	-	704	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	1026	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	163	Inf	Inf	0.0%
8/1	Ahead	U	N/A	N/A	-		-	-	-	618	Inf	Inf	0.0%
J3: Station Access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**42.3%**
1/1	Bridge Street (W) Right Ahead	O	N/A	N/A	-		-	-	-	618	1894	1373	42.3%
2/1	Bridge Street (E) Left Ahead	U	N/A	N/A	-		-	-	-	547	1933	1933	28.3%
3/1	Station Approach Left Right	O	N/A	N/A	-		-	-	-	96	1940	509	18.9%
4/1		U	N/A	N/A	-		-	-	-	139	Inf	Inf	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	606	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	516	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: Bridge Street / Merton Street	**-**	**-**	**313**	**200**	**5**	**27.4**	**41.8**	**0.0**	**69.2**	**-**	**-**	**-**	**-**
J1: J1 Bridge Street / Merton Street / Waterloo Drive	**-**	**-**	**14**	**133**	**4**	**9.4**	**3.3**	**0.0**	**12.8**	**-**	**-**	**-**	**-**
1/1+1/2	487	487	0	133	4	2.1	0.5	0.0	2.6	19.3	6.7	0.5	7.2
2/1	434	434	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
3/1+3/2	202	202	-	-	-	2.0	0.4	-	2.4	43.4	3.9	0.4	4.3
4/1	182	182	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	49	49	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	125	125	-	-	-	1.5	1.1	-	2.7	76.5	3.4	1.1	4.5
7/1	394	394	-	-	-	0.8	0.3	-	1.1	10.1	3.0	0.3	3.2
8/1	358	358	14	0	0	1.7	0.3	0.0	2.1	20.9	6.6	0.3	6.9
9/1	394	394	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	547	547	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	394	394	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	434	434	-	-	-	1.1	0.6	-	1.7	14.4	4.3	0.6	4.9
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P5	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
J2: Concord Avenue / Cherwell Street / Bridge Street	**-**	**-**	**86**	**66**	**1**	**17.9**	**37.8**	**0.0**	**55.7**	**-**	**-**	**-**	**-**
1/1	239	239	-	-	-	1.6	0.5	-	2.1	31.2	4.3	0.5	4.8
1/2+1/3	559	559	-	-	-	4.4	10.9	-	15.3	98.5	11.3	10.9	22.2

Full Input Data And Results

2/2+2/1	606	606	44	66	0	4.3	2.7	-	7.0	41.7	8.7	2.7	11.5
3/2+3/1	632	632	-	-	-	2.4	0.8	-	3.2	18.2	8.4	0.8	9.2
3/3	360	323	-	-	-	4.2	22.4	-	26.5	265.4	8.5	22.4	30.9
4/1	115	115	42	0	1	1.0	0.6	0.0	1.6	49.9	2.3	0.6	2.9
5/1	704	704	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	1026	1026	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	163	163	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	581	581	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Station Access	**-**	**-**	**213**	**0**	**0**	**0.1**	**0.7**	**0.0**	**0.7**	**-**	**-**	**-**	**-**
1/1	581	581	117	0	0	0.1	0.4	-	0.4	2.6	0.6	0.4	0.9
2/1	547	547	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
3/1	96	96	96	0	0	0.0	0.1	-	0.1	4.4	0.0	0.1	0.1
4/1	131	131	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	606	606	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	487	487	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

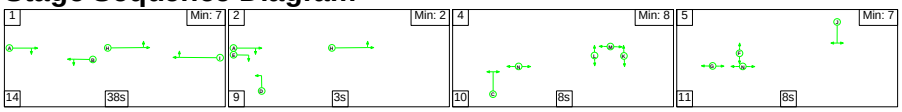
C1	PRC for Signalled Lanes (%):	28.2	Total Delay for Signalled Lanes (pcuHr):	12.63	Cycle Time (s): 102
C2	PRC for Signalled Lanes (%):	-23.7	Total Delay for Signalled Lanes (pcuHr):	55.72	Cycle Time (s): 77
	PRC Over All Lanes (%):	-23.7	Total Delay Over All Lanes(pcuHr):	69.21	

Full Input Data And Results

Scenario 2: 'Baseline PM Peak (1700-1800)' (FG2: 'Baseline - PM', Plan 1: 'Network Control Plan 1')

C1

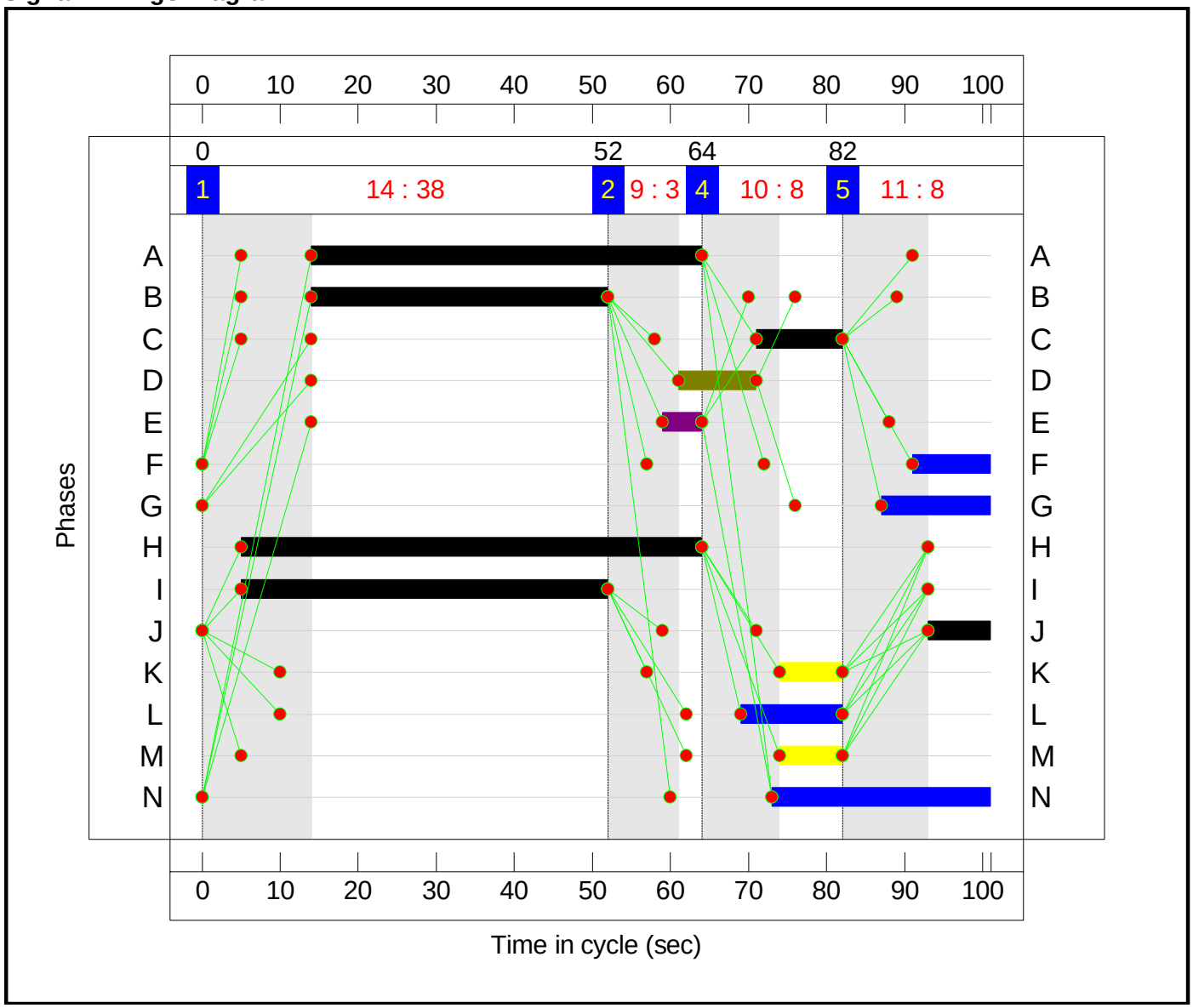
Stage Sequence Diagram



Stage Timings

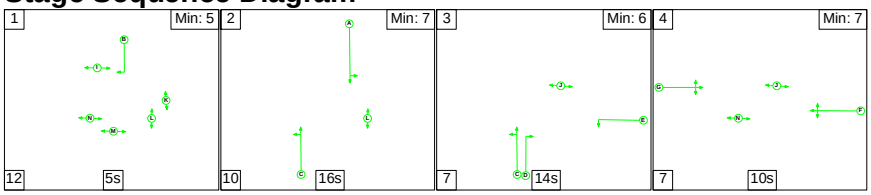
Stage	1	2	4	5
Duration	38	3	8	8
Change Point	0	52	64	82

Signal Timings Diagram



C2

Stage Sequence Diagram

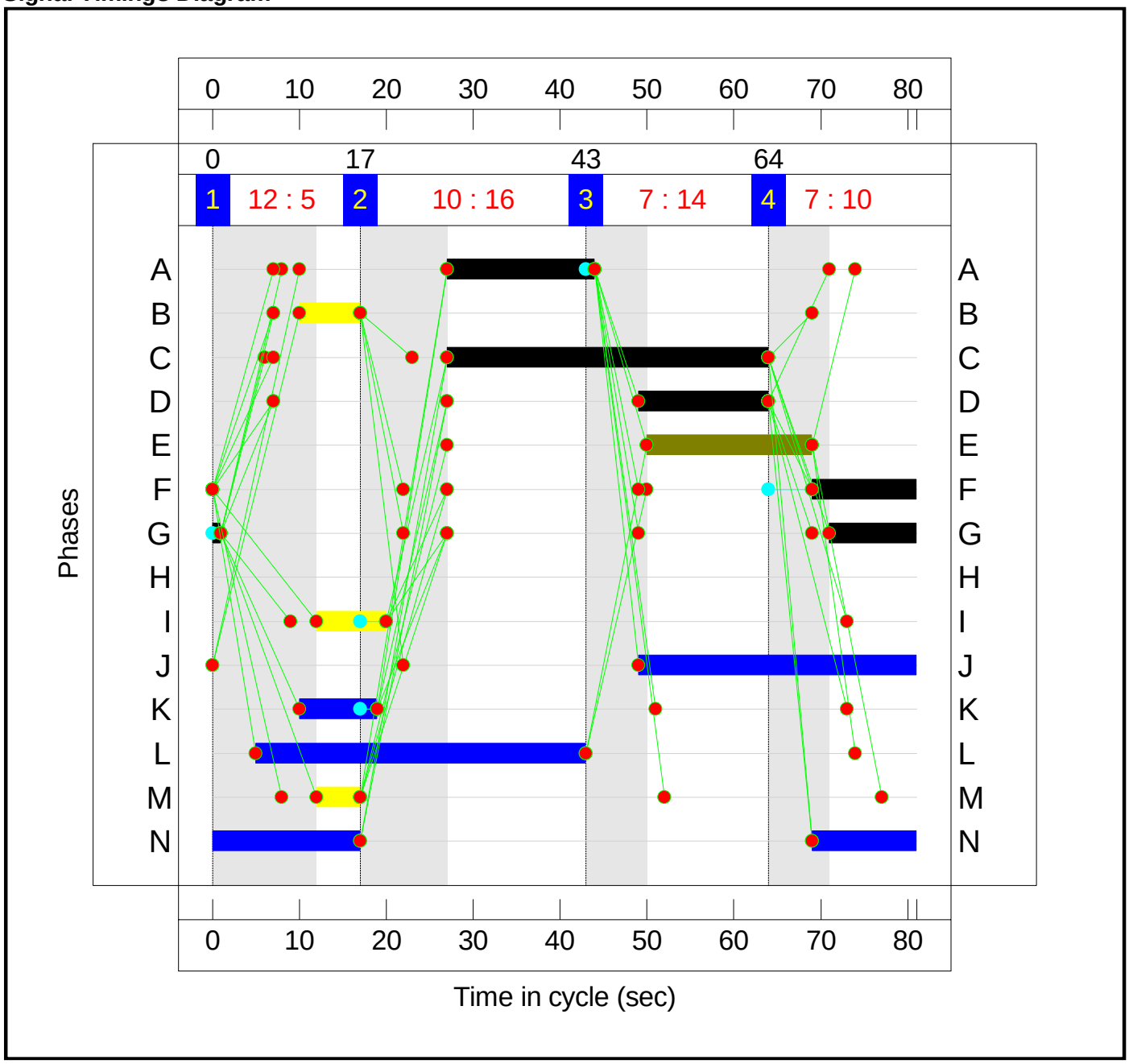


Full Input Data And Results

Stage Timings

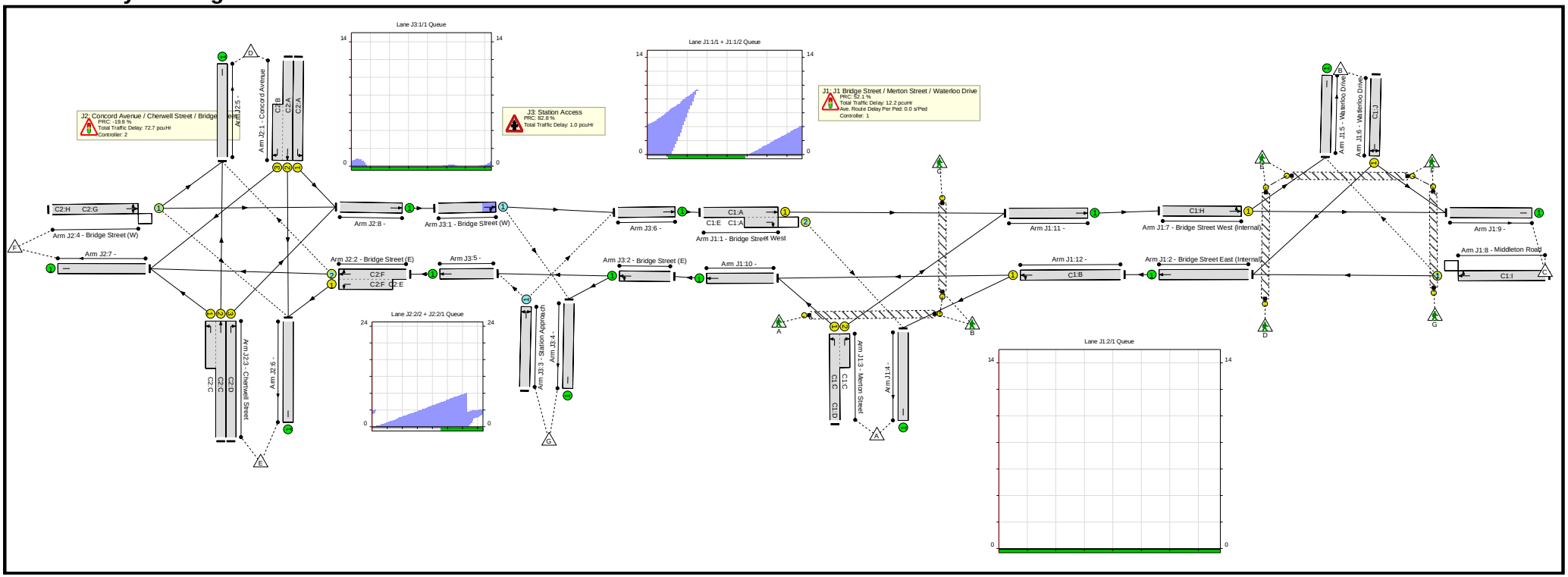
Stage	1	2	3	4
Duration	5	16	14	10
Change Point	0	17	43	64

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Full Input Data And 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: Bridge Street / Merton Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**107.8%**
J1: J1 Bridge Street / Merton Street / Waterloo Drive	-	-	**N/A**	-	-		-	-	-	-	-	-	**59.2%**
1/1+1/2	Bridge Street West Right Ahead	U+O	N/A	N/A	C1:A	C1:E	1	50	5	626	1915:1808	740+292	59.2 : 59.1%
2/1	Bridge Street East (Internal) Ahead	U	N/A	N/A	-		-	-	-	367	2075	2075	17.7%
3/1+3/2	Merton Street Left Right	U	N/A	N/A	C1:C	C1:D	1	21:11	10	230	1915:2055	345+177	44.1 : 44.1%
4/1		U	N/A	N/A	-		-	-	-	205	Inf	Inf	0.0%
5/1	Waterloo Drive	U	N/A	N/A	-		-	-	-	106	Inf	Inf	0.0%
6/1	Watlerloo Drive Right Left	U	N/A	N/A	C1:J		1	8	-	66	1651	147	44.9%
7/1	Bridge Street West (Internal) Left Ahead	U	N/A	N/A	C1:H		1	59	-	527	1971	1171	44.0%
8/1	Middleton Road Ahead Right	O	N/A	N/A	C1:I		1	47	-	338	1918	912	37.1%
9/1		U	N/A	N/A	-		-	-	-	458	Inf	Inf	0.0%
10/1	Ahead	U	N/A	N/A	-		-	-	-	491	Inf	Inf	0.0%
11/1	Ahead	U	N/A	N/A	-		-	-	-	527	Inf	Inf	0.0%
12/1	Left Ahead	U	N/A	N/A	C1:B		1	38	-	367	2052	792	46.3%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:G		1	14	-	0	-	2772	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:F		1	10	-	0	-	1980	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:M		1	8	-	0	-	1584	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:K		1	8	-	0	-	1584	0.0%

Full Input Data And Results

Ped Link: P5	Unnamed Ped Link	-	N/A	-	C1:L		1	13	-	0	-	2574	0.0%
J2: Concord Avenue / Cherwell Street / Bridge Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**107.8%**
1/1	Concord Avenue Left	U	N/A	N/A	C2:A		1	17	-	297	1895	421	70.5%
1/2+1/3	Concord Avenue Ahead Right	U	N/A	N/A	C2:A C2:B		1	17:7	-	522	2075:1701	457+29	107.4 : 107.4%
2/2+2/1	Bridge Street (E) Right Left Ahead	O+U	N/A	N/A	C2:F	C2:E	1	12:31	19	619	1747:1700	166+613	107.8 : 71.8%
3/2+3/1	Chertwell Street Ahead Left	U	N/A	N/A	C2:C		1	37	-	692	2055:1665	855+148	69.0 : 69.0%
3/3	Chertwell Street Right	U	N/A	N/A	C2:D		1	15	-	398	1915	378	105.2%
4/1	Bridge Street (W) Left Right Ahead	O	N/A	N/A	C2:G	C2:H	1	11	0	187	1860	276	67.9%
5/1		U	N/A	N/A	-		-	-	-	814	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	1001	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	175	Inf	Inf	0.0%
8/1	Ahead	U	N/A	N/A	-		-	-	-	725	Inf	Inf	0.0%
J3: Station Access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**49.2%**
1/1	Bridge Street (W) Right Ahead	O	N/A	N/A	-		-	-	-	725	1899	1433	49.2%
2/1	Bridge Street (E) Left Ahead	U	N/A	N/A	-		-	-	-	491	1926	1926	25.5%
3/1	Station Approach Left Right	O	N/A	N/A	-		-	-	-	183	1940	529	34.6%
4/1		U	N/A	N/A	-		-	-	-	154	Inf	Inf	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	619	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	626	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: Bridge Street / Merton Street	**-**	**-**	**458**	**233**	**6**	**31.0**	**54.9**	**0.0**	**85.9**	**-**	**-**	**-**	**-**
J1: J1 Bridge Street / Merton Street / Waterloo Drive	**-**	**-**	**18**	**167**	**5**	**9.5**	**2.7**	**0.0**	**12.2**	**-**	**-**	**-**	**-**
1/1+1/2	610	610	0	167	5	2.7	0.7	0.0	3.4	20.2	9.4	0.7	10.1
2/1	367	367	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
3/1+3/2	230	230	-	-	-	2.3	0.4	-	2.7	42.2	3.6	0.4	4.0
4/1	200	200	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	104	104	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	66	66	-	-	-	0.8	0.4	-	1.2	65.6	1.7	0.4	2.1
7/1	516	516	-	-	-	1.1	0.4	-	1.5	10.7	4.3	0.4	4.7
8/1	338	338	18	0	0	1.6	0.3	0.0	1.9	20.2	6.0	0.3	6.3
9/1	449	449	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	491	491	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	516	516	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	367	367	-	-	-	0.9	0.4	-	1.4	13.5	2.8	0.4	3.2
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P5	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
J2: Concord Avenue / Cherwell Street / Bridge Street	**-**	**-**	**130**	**66**	**1**	**21.4**	**51.3**	**0.0**	**72.7**	**-**	**-**	**-**	**-**
1/1	297	297	-	-	-	2.4	1.2	-	3.6	43.3	6.1	1.2	7.3
1/2+1/3	522	488	-	-	-	5.7	23.5	-	29.2	201.6	12.5	23.5	36.0

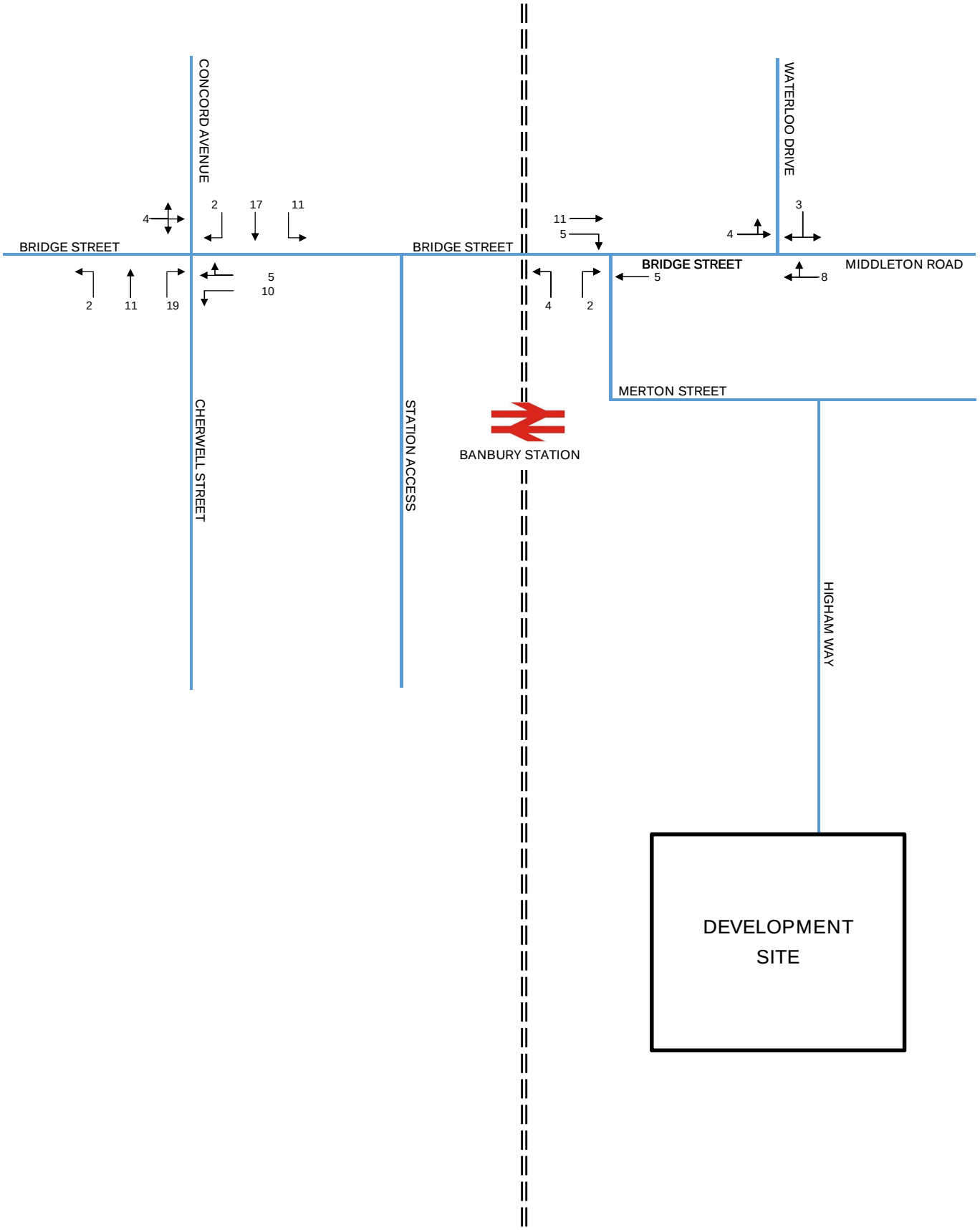
Full Input Data And Results

2/2+2/1	619	606	61	66	0	4.4	8.4	-	12.8	74.3	8.1	8.4	16.5
3/2+3/1	692	692	-	-	-	3.0	1.1	-	4.1	21.5	10.5	1.1	11.6
3/3	398	378	-	-	-	4.2	16.1	-	20.2	182.9	9.4	16.1	25.5
4/1	187	187	69	0	1	1.7	1.0	0.0	2.7	52.6	3.9	1.0	5.0
5/1	804	804	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	967	967	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	172	172	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	705	705	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Station Access	**-**	**-**	**310**	**0**	**0**	**0.1**	**0.9**	**0.0**	**1.0**	**-**	**-**	**-**	**-**
1/1	705	705	127	0	0	0.1	0.5	-	0.6	3.0	0.8	0.5	1.3
2/1	491	491	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
3/1	183	183	183	0	0	0.0	0.3	-	0.3	5.2	0.0	0.3	0.3
4/1	150	150	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	619	619	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	610	610	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

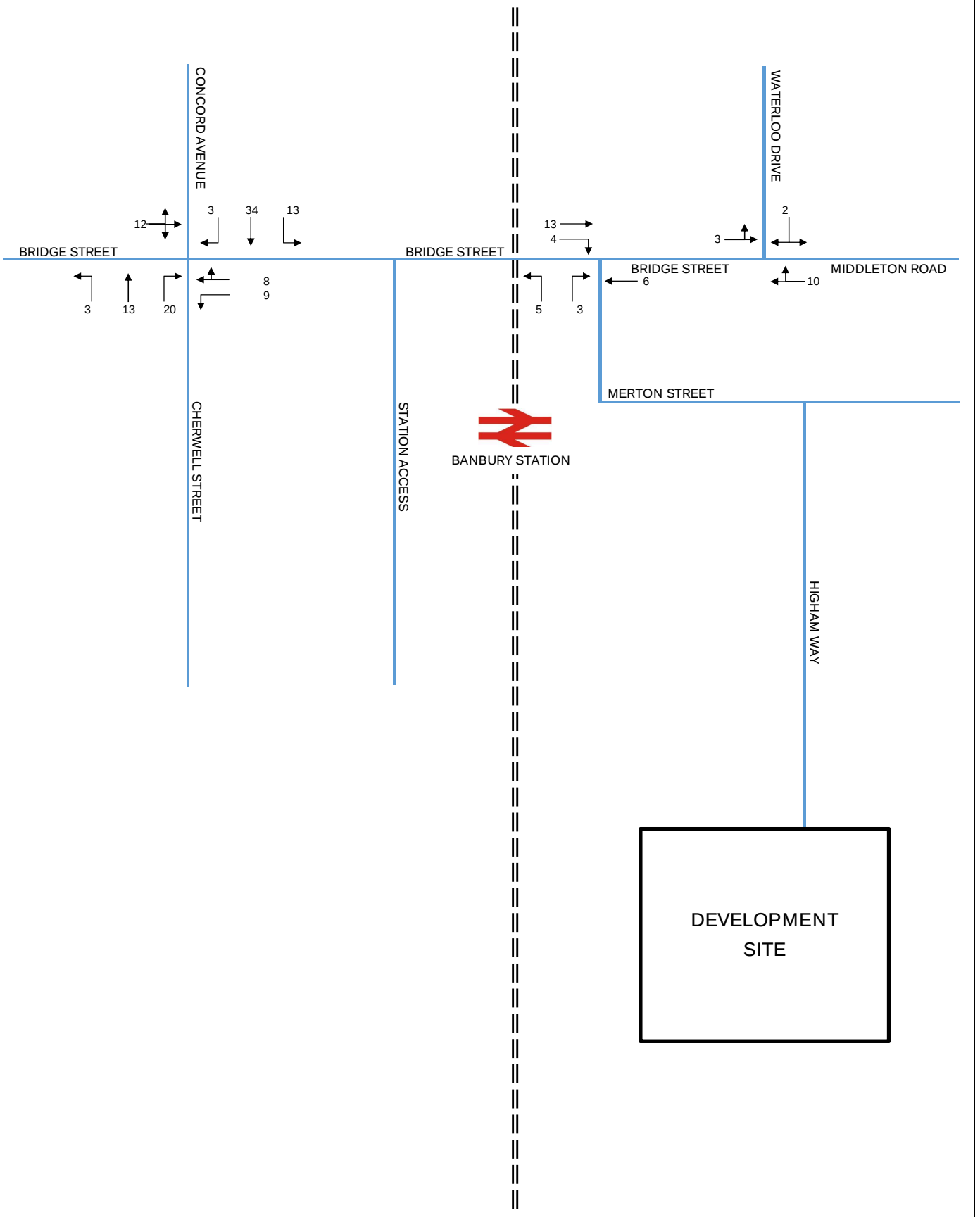
C1	PRC for Signalled Lanes (%):	52.1	Total Delay for Signalled Lanes (pcuHr):	12.13	Cycle Time (s): 101
C2	PRC for Signalled Lanes (%):	-19.8	Total Delay for Signalled Lanes (pcuHr):	72.67	Cycle Time (s): 81
	PRC Over All Lanes (%):	-19.8	Total Delay Over All Lanes(pcuHr):	85.93	

Appendix G

2015 Observed Queue Lengths



Drawing Title: Queue Lenghts AM Peak	Client: GRUNDON WASTE MANAGEMENT LTD	SWECO	File Extension: 171024_116150_Queue Lengths.xls
	Job Title: GRUNDON WASTE DEPOT	Designed by: SC / Scale: N.T.S. Drawn by: MT / 1st Issued: Oct '17 Ckd/appd: CW / Job number: 116150	Figure No.



Drawing Title: Queue Lenghts PM Peak	Client: GRUNDON WASTE MANAGEMENT LTD	SWECO	File Extension: 171024_116150_Queue Lengths.xls
	Job Title: GRUNDON WASTE DEPOT	Designed by: SC / Scale: N.T.S.	Figure No.
		Drawn by: MT / 1st Issued: Oct '17	
		Ckd/appd: CW / Job number: 116150	

Appendix H

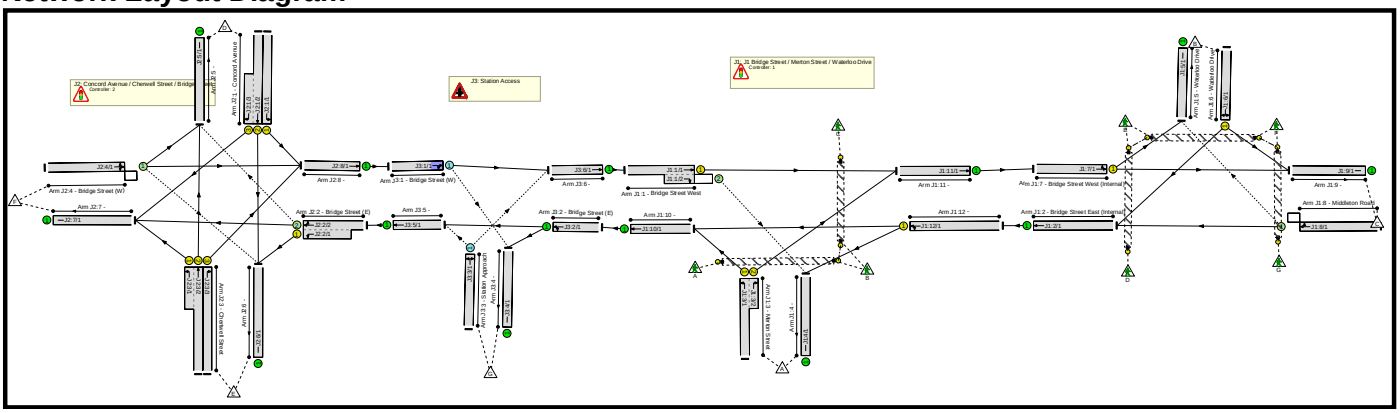
2015 Baseline AM and PM Peak Hour Traffic Flows Linsig Output Report

Full Input Data And Results

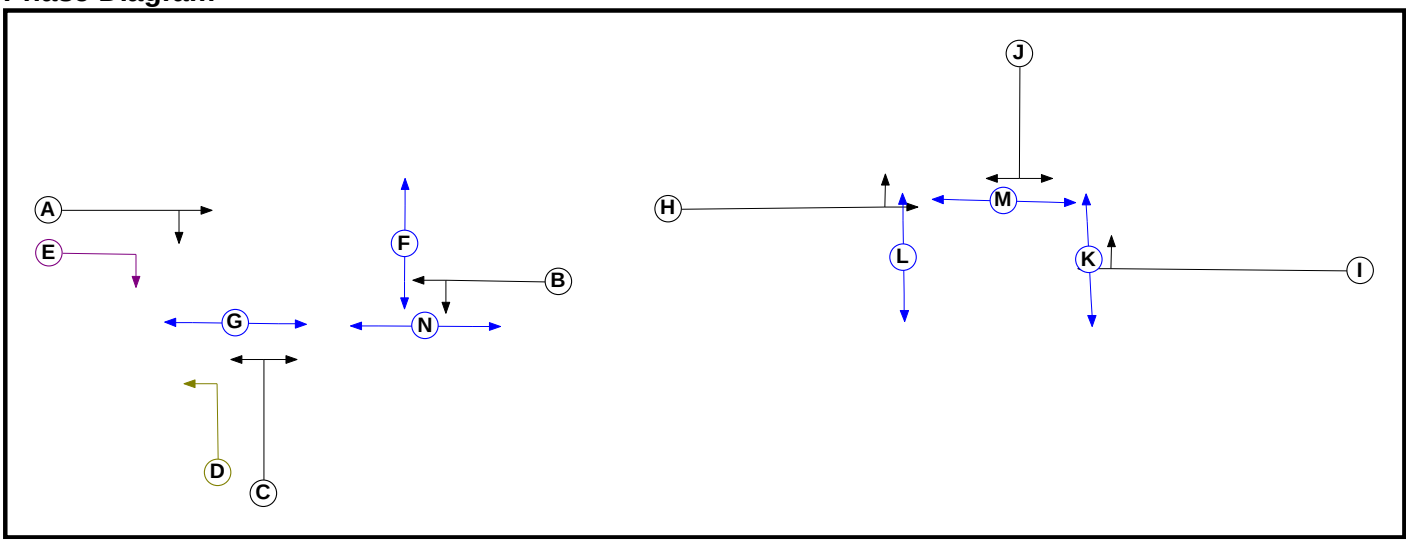
User and Project Details

Project:	**Banbury ICC Site Multi-Storey Car Park**
Title:	**Bridge Street / Merton Street**
Location:	Banbury, Oxfordshire
File name:	Grundon Waste Depot Local Roads V1.lsg3x
Author:	Matthew Thompson
Company:	Sweco
Address:	
Notes:	

Network Layout Diagram



C1
Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		3	3
D	Filter	C	4	0
E	Ind. Arrow	A	4	4
F	Pedestrian		8	8
G	Pedestrian		8	8
H	Traffic		7	7
I	Traffic		7	7
J	Traffic		7	7
K	Pedestrian		8	8
L	Pedestrian		8	8
M	Pedestrian		8	8
N	Pedestrian		8	8

Full Input Data And Results

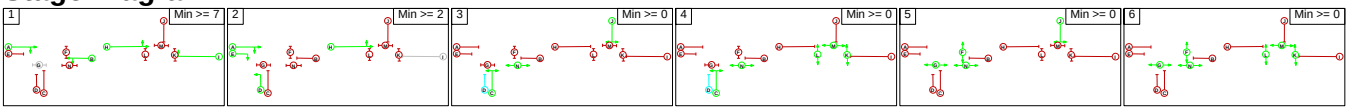
Phase Intergreens Matrix

		Starting Phase													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
Terminating Phase	A		-	7	-	-	8	-	-	-	-	-	-	-	9
	B	-		6	9	7	5	-	-	-	-	-	-	-	8
	C	9	7		-	6	9	5	-	-	-	-	-	-	-
	D	-	5	-		-	-	5	-	-	-	-	-	-	-
	E	-	6	7	-		-	-	-	-	-	-	-	-	9
	F	5	5	5	-	-		-	-	-	-	-	-	-	-
	G	-	-	14	14	-	-		-	-	-	-	-	-	-
	H	-	-	-	-	-	-	-		-	7	10	5	10	-
	I	-	-	-	-	-	-	-	-		7	5	10	10	-
	J	-	-	-	-	-	-	-	5	5		10	10	5	-
	K	-	-	-	-	-	-	-	11	11	11		-	-	-
	L	-	-	-	-	-	-	-	11	11	11	-		-	-
	M	-	-	-	-	-	-	-	11	11	11	-	-		-
	N	14	14	-	-	14	-	-	-	-	-	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A B H I
2	A D E H
3	C J N
4	C K L M N
5	F G J N
6	F G K L M N

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	4	A	Losing	3	3
1	4	B	Losing	4	4
1	4	H	Losing	5	5
1	4	I	Losing	5	5
3	2	E	Gaining absolute	9	9
4	2	E	Gaining absolute	9	9

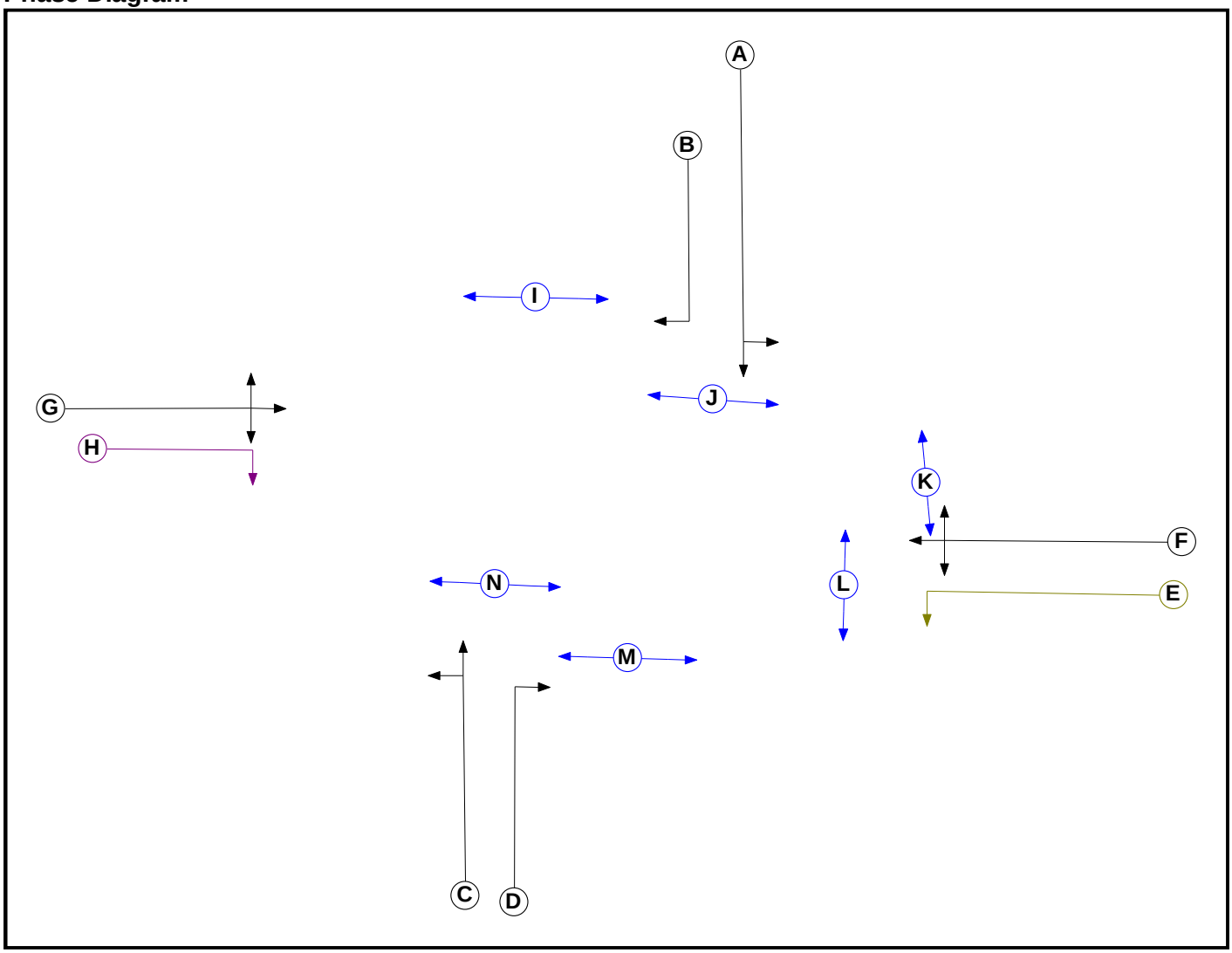
Full Input Data And Results

Prohibited Stage Change

		To Stage					
		1	2	3	4	5	6
From Stage	1		9	9	15	9	10
	2	X		9	10	X	X
	3	14	14		10	9	10
	4	14	14	11		11	9
	5	14	14	14	14		10
	6	14	14	14	14	11	

C2

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Filter	F	4	0
F	Traffic		7	7
G	Traffic		7	7
H	Ind. Arrow	G	5	5
I	Pedestrian		5	5
J	Pedestrian		5	5
K	Pedestrian		5	5
L	Pedestrian		5	5
M	Pedestrian		5	5
N	Pedestrian		5	5

Phase Intergreens Matrix

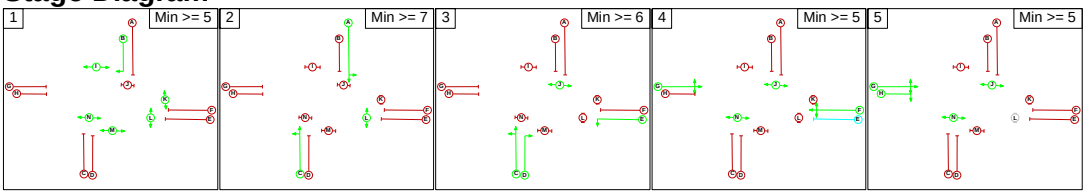
		Starting Phase														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
Terminating Phase	A		-	-	5	6	5	5	5	-	5	7	-	8	-
	B	-		6	-	-	5	5	5	-	5	-	-	-	-
	C	-	5		-	-	5	7	7	9	-	-	-	-	5
	D	7	-	-		-	5	5	5	-	-	9	-	-	5
	E	5	-	-	-		-	-	5	-	-	-	5	8	-
	F	7	7	7	7	-		-	7	12	-	-	5	8	-
	G	7	6	5	6	-	-		-	8	-	9	-	11	-
	H	7	6	5	6	5	7	-		8	-	9	-	11	-
	I	-	-	7	-	-	7	7	7		-	-	-	-	-
	J	10	10	-	-	-	-	-	-	-		-	-	-	-
	K	8	-	-	8	-	-	8	8	-	-		-	-	-
	L	-	-	-	-	7	7	-	-	-	-	-		-	-
	M	10	-	-	-	10	10	10	10	-	-	-	-		-
	N	-	-	10	10	-	-	-	-	-	-	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	B I K L M N
2	A C L
3	C D E J
4	F G J N
5	G H J N

Full Input Data And Results

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	I	Losing	3	3
1	2	K	Losing	2	2
1	4	B	Losing	5	5
1	4	I	Losing	3	3
1	4	L	Losing	3	3
2	1	A	Losing	1	1
2	3	A	Losing	1	1
2	4	A	Losing	1	1
3	4	F	Gaining absolute	5	5
4	1	G	Losing	1	1
4	2	F	Losing	3	3
4	2	G	Losing	3	3
4	3	F	Losing	3	3
4	3	G	Losing	4	4
5	2	G	Losing	3	3

Prohibited Stage Change

From Stage \ To Stage	1	2	3	4	5
1		10	10	10	10
2	9		7	7	7
3	X	X		7	X
4	12	10	10		7
5	11	10	10	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive

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)
J1:1/2 (Bridge Street West)	J1:4/1 (Right)	1439	0	J1:2/1	1.09	None	3.00	-	0.50	3	2.00
J1:8/1 (Middleton Road)	J1:5/1 (Right)	1440	0	J1:7/1	1.09	All	2.00	2.00	0.50	2	2.00

Junction: J2: Concord Avenue / Cherwell Street / Bridge Street

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)
J2:2/2 (Bridge Street (E))	J2:5/1 (Right)	1440	0	J2:4/1	1.09	To J2:5/1 (Left)	-	-	-	-	-
J2:4/1 (Bridge Street (W))	J2:6/1 (Right)	1440	0	J2:2/1 J2:2/2	1.09 1.09	All To J2:7/1 (Ahead)	2.00	2.00	0.50	2	2.00

Junction: J3: Station Access

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)
J3:1/1 (Bridge Street (W))	J3:4/1 (Right)	850	0	J3:2/1	0.35	All	-	-	-	-	-
J3:3/1 (Station Approach)	J3:5/1 (Left)	715	0	J3:2/1	0.22	All	-	-	-	-	-
	J3:6/1 (Right)	600	0	J3:2/1	0.22	All					
				J3:1/1	0.19	All					

Full Input Data And Results

Lane Input Data

Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive

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)
J1:1/1 (Bridge Street West)	U	A	2	3	25.7	Geom	-	3.00	0.00	Y	Arm J1:11 Ahead	Inf
J1:1/2 (Bridge Street West)	O	A E	2	3	5.0	Geom	-	3.00	0.00	N	Arm J1:4 Right	11.00
J1:2/1 (Bridge Street East (Internal))	U		2	3	5.9	Geom	-	4.60	0.00	Y	Arm J1:12 Ahead	Inf
J1:3/1 (Merton Street)	U	C D	2	3	5.0	Geom	-	3.00	0.00	Y	Arm J1:10 Left	Inf
J1:3/2 (Merton Street)	U	C	2	3	5.0	Geom	-	3.00	0.00	N	Arm J1:11 Right	Inf
J1:4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:5/1 (Waterloo Drive)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:6/1 (Watlerloo Drive)	U	J	2	3	60.0	Geom	-	3.75	0.00	Y	Arm J1:2 Right Arm J1:9 Left	8.00 6.00
J1:7/1 (Bridge Street West (Internal))	U	H	2	3	11.3	Geom	-	3.80	0.00	Y	Arm J1:5 Left Arm J1:9 Ahead	21.00 Inf
J1:8/1 (Middleton Road)	O	I	2	3	60.0	Geom	-	3.10	0.00	Y	Arm J1:2 Ahead Arm J1:5 Right	Inf 23.00
J1:9/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:10/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:11/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:12/1	U	B	2	3	10.4	Geom	-	4.60	0.00	Y	Arm J1:4 Left Arm J1:10 Ahead	10.00 Inf

Full Input Data And Results

Junction: J2: Concord Avenue / Cherwell Street / Bridge Street												
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)**
J2:1/1 (Concord Avenue)	U	A	2	3	60.0	Geom	-	2.80	0.00	Y	Arm J2:8 Left	Inf
J2:1/2 (Concord Avenue)	U	A	2	3	60.0	Geom	-	3.20	0.00	N	Arm J2:6 Ahead	Inf
J2:1/3 (Concord Avenue)	U	B	2	3	8.3	Geom	-	2.90	0.00	Y	Arm J2:7 Right	12.50
J2:2/1 (Bridge Street (E))	U	F E	2	3	10.1	Geom	-	2.50	0.00	Y	Arm J2:6 Left	15.50
J2:2/2 (Bridge Street (E))	O	F	2	3	10.4	Geom	-	2.50	0.00	Y	Arm J2:5 Right Arm J2:7 Ahead	17.00 Inf
J2:3/1 (Chertwell Street)	U	C	2	3	7.0	Geom	-	3.00	0.00	Y	Arm J2:7 Left	10.00
J2:3/2 (Chertwell Street)	U	C	2	3	60.0	Geom	-	3.00	0.00	N	Arm J2:5 Ahead	Inf
J2:3/3 (Chertwell Street)	U	D	2	3	60.0	Geom	-	3.00	0.00	Y	Arm J2:8 Right	Inf
J2:4/1 (Bridge Street (W))	O	G H	2	3	60.0	Geom	-	3.20	0.00	Y	Arm J2:5 Left Arm J2:6 Right Arm J2:8 Ahead	Inf 14.00 Inf
J2:5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J3: Station Access

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)
J3:1/1 (Bridge Street (W))	O		2	3	19.1	Geom	-	3.25	0.00	Y	Arm J3:4 Right Arm J3:6 Ahead	12.50 Inf
J3:2/1 (Bridge Street (E))	U		2	3	30.8	Geom	-	3.25	0.00	Y	Arm J3:4 Left Arm J3:5 Ahead	10.00 Inf
J3:3/1 (Station Approach)	O		2	3	60.0	Geom	-	3.25	0.00	Y	Arm J3:5 Left Arm J3:6 Right	Inf Inf
J3:4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:6/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
3: 'Future AM'	08:00	09:00	01:00	
4: 'Future - PM'	17:00	18:00	01:00	

Scenario 3: 'Future AM Peak (0800-0900)' (FG3: 'Future AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination							
		A	B	C	D	E	F	G	Tot.
Origin	A	0	3	41	28	131	10	2	215
	B	8	0	35	16	65	6	2	132
	C	37	14	0	64	237	23	10	385
	D	56	13	134	0	601	31	46	881
	E	106	24	227	632	0	91	98	1178
	F	4	1	12	53	43	0	2	115
	G	4	1	18	9	68	2	0	102
	Tot.	215	56	467	802	1145	163	160	3008

Full Input Data And Results

Traffic Lane Flows

Full Input Data And Results

Lane	Scenario 3: Future AM Peak (0800-0900)
Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive	
J1:1/1 (with short)	600(In) 430(Out)
J1:1/2 (short)	170
J1:2/1	468
J1:3/1 (with short)	215(In) 171(Out)
J1:3/2 (short)	44
J1:4/1	215
J1:5/1	56
J1:6/1	132
J1:7/1	474
J1:8/1	385
J1:9/1	467
J1:10/1	594
J1:11/1	474
J1:12/1	468
Junction: J2: Concord Avenue / Cherwell Street / Bridge Street	
J2:1/1	249
J2:1/2 (with short)	632(In) 601(Out)
J2:1/3 (short)	31
J2:2/1 (short)	501
J2:2/2 (with short)	659(In) 158(Out)
J2:3/1 (short)	91
J2:3/2 (with short)	723(In) 632(Out)
J2:3/3	455
J2:4/1	115
J2:5/1	802
J2:6/1	1145
J2:7/1	163
J2:8/1	723
Junction: J3: Station Access	
J3:1/1	723
J3:2/1	594
J3:3/1	102
J3:4/1	160
J3:5/1	659
J3:6/1	600

Full Input Data And Results

Lane Saturation Flows

Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Bridge Street West)	3.00	0.00	Y	Arm J1:11 Ahead	Inf	100.0 %	1915	1915
J1:1/2 (Bridge Street West)	3.00	0.00	N	Arm J1:4 Right	11.00	100.0 %	1808	1808
J1:2/1 (Bridge Street East (Internal))	4.60	0.00	Y	Arm J1:12 Ahead	Inf	100.0 %	2075	2075
J1:3/1 (Merton Street)	3.00	0.00	Y	Arm J1:10 Left	Inf	100.0 %	1915	1915
J1:3/2 (Merton Street)	3.00	0.00	N	Arm J1:11 Right	Inf	100.0 %	2055	2055
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Waterloo Drive Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1 (Watlerloo Drive)	3.75	0.00	Y	Arm J1:2 Right	8.00	73.5 %	1653	1653
				Arm J1:9 Left	6.00	26.5 %		
J1:7/1 (Bridge Street West (Internal))	3.80	0.00	Y	Arm J1:5 Left	21.00	8.9 %	1982	1982
				Arm J1:9 Ahead	Inf	91.1 %		
J1:8/1 (Middleton Road)	3.10	0.00	Y	Arm J1:2 Ahead	Inf	96.4 %	1920	1920
				Arm J1:5 Right	23.00	3.6 %		
J1:9/1	Infinite Saturation Flow						Inf	Inf
J1:10/1	Infinite Saturation Flow						Inf	Inf
J1:11/1	Infinite Saturation Flow						Inf	Inf
J1:12/1	4.60	0.00	Y	Arm J1:4 Left	10.00	9.6 %	2045	2045
				Arm J1:10 Ahead	Inf	90.4 %		

Full Input Data And Results

Junction: J2: Concord Avenue / Cherwell Street / Bridge Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (Concord Avenue)	2.80	0.00	Y	Arm J2:8 Left	Inf	100.0 %	1895	1895
J2:1/2 (Concord Avenue)	3.20	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2075	2075
J2:1/3 (Concord Avenue)	2.90	0.00	Y	Arm J2:7 Right	12.50	100.0 %	1701	1701
J2:2/1 (Bridge Street (E))	2.50	0.00	Y	Arm J2:6 Left	15.50	100.0 %	1700	1700
J2:2/2 (Bridge Street (E))	2.50	0.00	Y	Arm J2:5 Right	17.00	74.1 %	1751	1751
				Arm J2:7 Ahead	Inf	25.9 %		
J2:3/1 (Chertwell Street)	3.00	0.00	Y	Arm J2:7 Left	10.00	100.0 %	1665	1665
J2:3/2 (Chertwell Street)	3.00	0.00	N	Arm J2:5 Ahead	Inf	100.0 %	2055	2055
J2:3/3 (Chertwell Street)	3.00	0.00	Y	Arm J2:8 Right	Inf	100.0 %	1915	1915
J2:4/1 (Bridge Street (W))	3.20	0.00	Y	Arm J2:5 Left	Inf	46.1 %	1860	1860
				Arm J2:6 Right	14.00	37.4 %		
				Arm J2:8 Ahead	Inf	16.5 %		
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:7/1	Infinite Saturation Flow						Inf	Inf
J2:8/1	Infinite Saturation Flow						Inf	Inf

Junction: J3: Station Access

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J3:1/1 (Bridge Street (W))	3.25	0.00	Y	Arm J3:4 Right	12.50	20.2 %	1894	1894
				Arm J3:6 Ahead	Inf	79.8 %		
J3:2/1 (Bridge Street (E))	3.25	0.00	Y	Arm J3:4 Left	10.00	2.4 %	1933	1933
				Arm J3:5 Ahead	Inf	97.6 %		
J3:3/1 (Station Approach)	3.25	0.00	Y	Arm J3:5 Left	Inf	77.5 %	1940	1940
				Arm J3:6 Right	Inf	22.5 %		
J3:4/1	Infinite Saturation Flow						Inf	Inf
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 4: 'Future PM Peak (1700-1800)' (FG4: 'Future - PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination							
		A	B	C	D	E	F	G	Tot.
Origin	A	0	11	67	36	128	9	4	255
	B	2	0	19	11	35	3	2	72
	C	25	18	0	77	225	22	17	384
	D	72	32	151	0	580	31	51	917
	E	111	47	217	665	0	102	87	1229
	F	7	3	18	87	70	0	3	188
	G	5	4	23	32	136	7	0	207
	Tot.	222	115	495	908	1174	174	164	3252

Full Input Data And Results

Traffic Lane Flows

Full Input Data And Results

Lane	Scenario 4: Future PM Peak (1700-1800)
Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive	
J1:1/1 (with short)	690(In) 495(Out)
J1:1/2 (short)	195
J1:2/1	419
J1:3/1 (with short)	255(In) 177(Out)
J1:3/2 (short)	78
J1:4/1	222
J1:5/1	115
J1:6/1	72
J1:7/1	573
J1:8/1	384
J1:9/1	495
J1:10/1	569
J1:11/1	573
J1:12/1	419
Junction: J2: Concord Avenue / Cherwell Street / Bridge Street	
J2:1/1	306
J2:1/2 (with short)	611(In) 580(Out)
J2:1/3 (short)	31
J2:2/1 (short)	524
J2:2/2 (with short)	721(In) 197(Out)
J2:3/1 (short)	102
J2:3/2 (with short)	767(In) 665(Out)
J2:3/3	462
J2:4/1	188
J2:5/1	908
J2:6/1	1174
J2:7/1	174
J2:8/1	799
Junction: J3: Station Access	
J3:1/1	799
J3:2/1	569
J3:3/1	207
J3:4/1	164
J3:5/1	721
J3:6/1	690

Full Input Data And Results

Lane Saturation Flows

Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Bridge Street West)	3.00	0.00	Y	Arm J1:11 Ahead	Inf	100.0 %	1915	1915
J1:1/2 (Bridge Street West)	3.00	0.00	N	Arm J1:4 Right	11.00	100.0 %	1808	1808
J1:2/1 (Bridge Street East (Internal))	4.60	0.00	Y	Arm J1:12 Ahead	Inf	100.0 %	2075	2075
J1:3/1 (Merton Street)	3.00	0.00	Y	Arm J1:10 Left	Inf	100.0 %	1915	1915
J1:3/2 (Merton Street)	3.00	0.00	N	Arm J1:11 Right	Inf	100.0 %	2055	2055
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Waterloo Drive Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1 (Watlerloo Drive)	3.75	0.00	Y	Arm J1:2 Right	8.00	73.6 %	1653	1653
				Arm J1:9 Left	6.00	26.4 %		
J1:7/1 (Bridge Street West (Internal))	3.80	0.00	Y	Arm J1:5 Left	21.00	16.9 %	1971	1971
				Arm J1:9 Ahead	Inf	83.1 %		
J1:8/1 (Middleton Road)	3.10	0.00	Y	Arm J1:2 Ahead	Inf	95.3 %	1919	1919
				Arm J1:5 Right	23.00	4.7 %		
J1:9/1	Infinite Saturation Flow						Inf	Inf
J1:10/1	Infinite Saturation Flow						Inf	Inf
J1:11/1	Infinite Saturation Flow						Inf	Inf
J1:12/1	4.60	0.00	Y	Arm J1:4 Left	10.00	6.4 %	2055	2055
				Arm J1:10 Ahead	Inf	93.6 %		

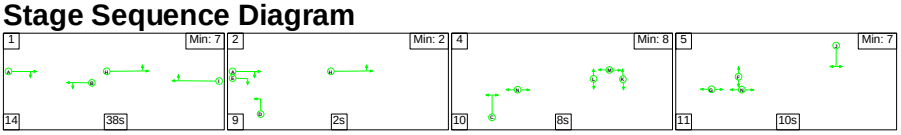
Full Input Data And Results

Junction: J2: Concord Avenue / Cherwell Street / Bridge Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Concord Avenue)	2.80	0.00	Y	Arm J2:8 Left	Inf	100.0 %	1895	1895
J2:1/2 (Concord Avenue)	3.20	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2075	2075
J2:1/3 (Concord Avenue)	2.90	0.00	Y	Arm J2:7 Right	12.50	100.0 %	1701	1701
J2:2/1 (Bridge Street (E))	2.50	0.00	Y	Arm J2:6 Left	15.50	100.0 %	1700	1700
J2:2/2 (Bridge Street (E))	2.50	0.00	Y	Arm J2:5 Right	17.00	79.2 %	1743	1743
				Arm J2:7 Ahead	Inf	20.8 %		
J2:3/1 (Chertwell Street)	3.00	0.00	Y	Arm J2:7 Left	10.00	100.0 %	1665	1665
J2:3/2 (Chertwell Street)	3.00	0.00	N	Arm J2:5 Ahead	Inf	100.0 %	2055	2055
J2:3/3 (Chertwell Street)	3.00	0.00	Y	Arm J2:8 Right	Inf	100.0 %	1915	1915
J2:4/1 (Bridge Street (W))	3.20	0.00	Y	Arm J2:5 Left	Inf	46.3 %	1861	1861
				Arm J2:6 Right	14.00	37.2 %		
				Arm J2:8 Ahead	Inf	16.5 %		
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:7/1	Infinite Saturation Flow						Inf	Inf
J2:8/1	Infinite Saturation Flow						Inf	Inf

Junction: J3: Station Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Bridge Street (W))	3.25	0.00	Y	Arm J3:4 Right	12.50	17.6 %	1900	1900
				Arm J3:6 Ahead	Inf	82.4 %		
J3:2/1 (Bridge Street (E))	3.25	0.00	Y	Arm J3:4 Left	10.00	4.0 %	1928	1928
				Arm J3:5 Ahead	Inf	96.0 %		
J3:3/1 (Station Approach)	3.25	0.00	Y	Arm J3:5 Left	Inf	84.5 %	1940	1940
				Arm J3:6 Right	Inf	15.5 %		
J3:4/1	Infinite Saturation Flow						Inf	Inf
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: 'Future AM Peak (0800-0900)' (FG3: 'Future AM', Plan 1: 'Network Control Plan 1')
C1

Stage Sequence Diagram

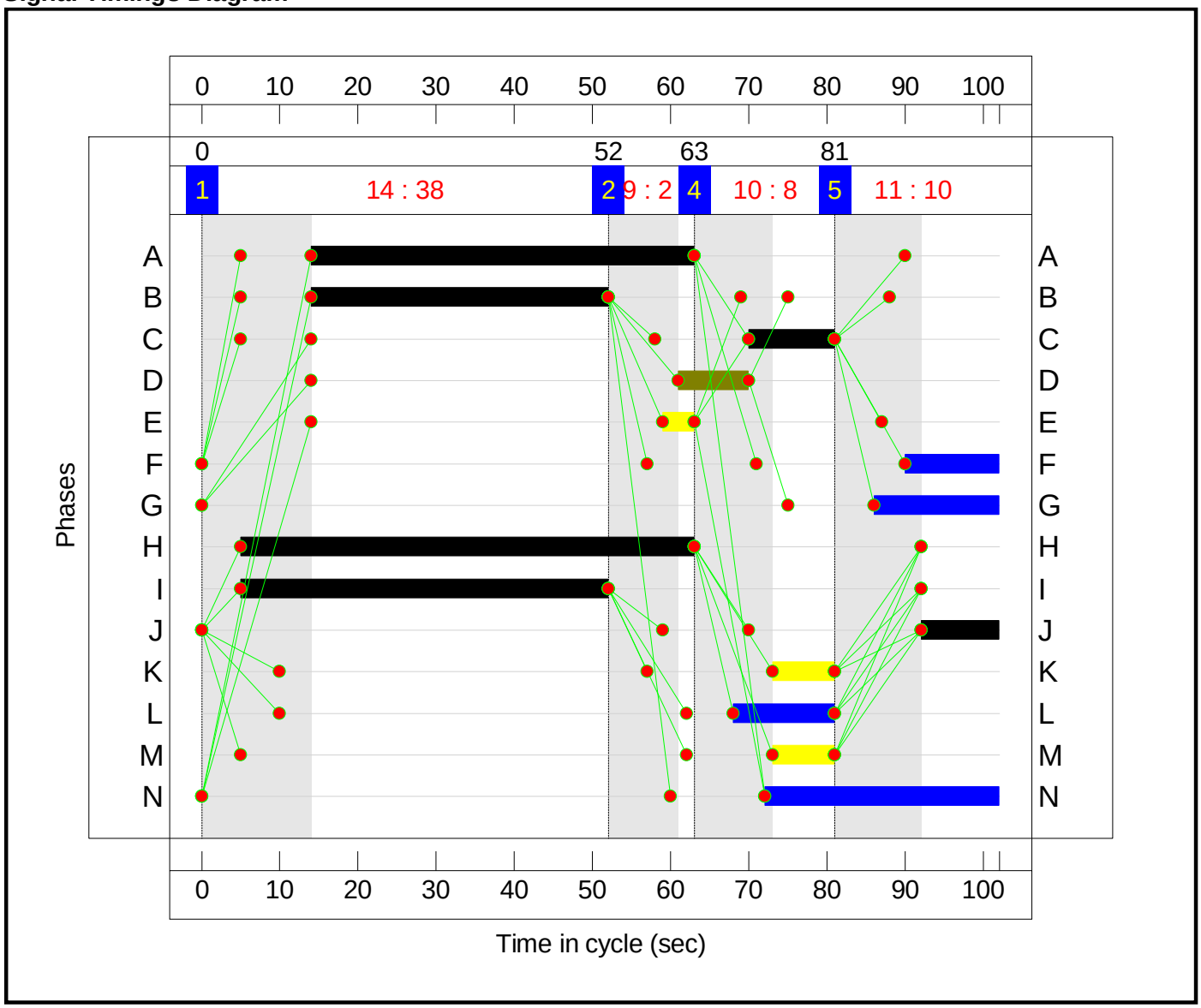


Full Input Data And Results

Stage Timings

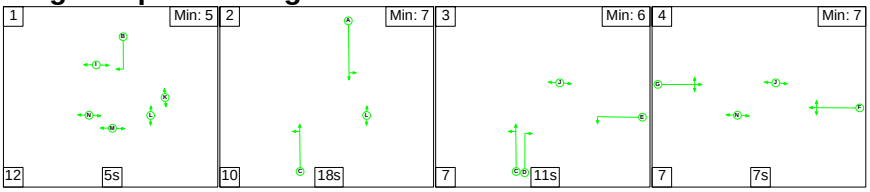
Stage	1	2	4	5
Duration	38	2	8	10
Change Point	0	52	63	81

Signal Timings Diagram



C2

Stage Sequence Diagram

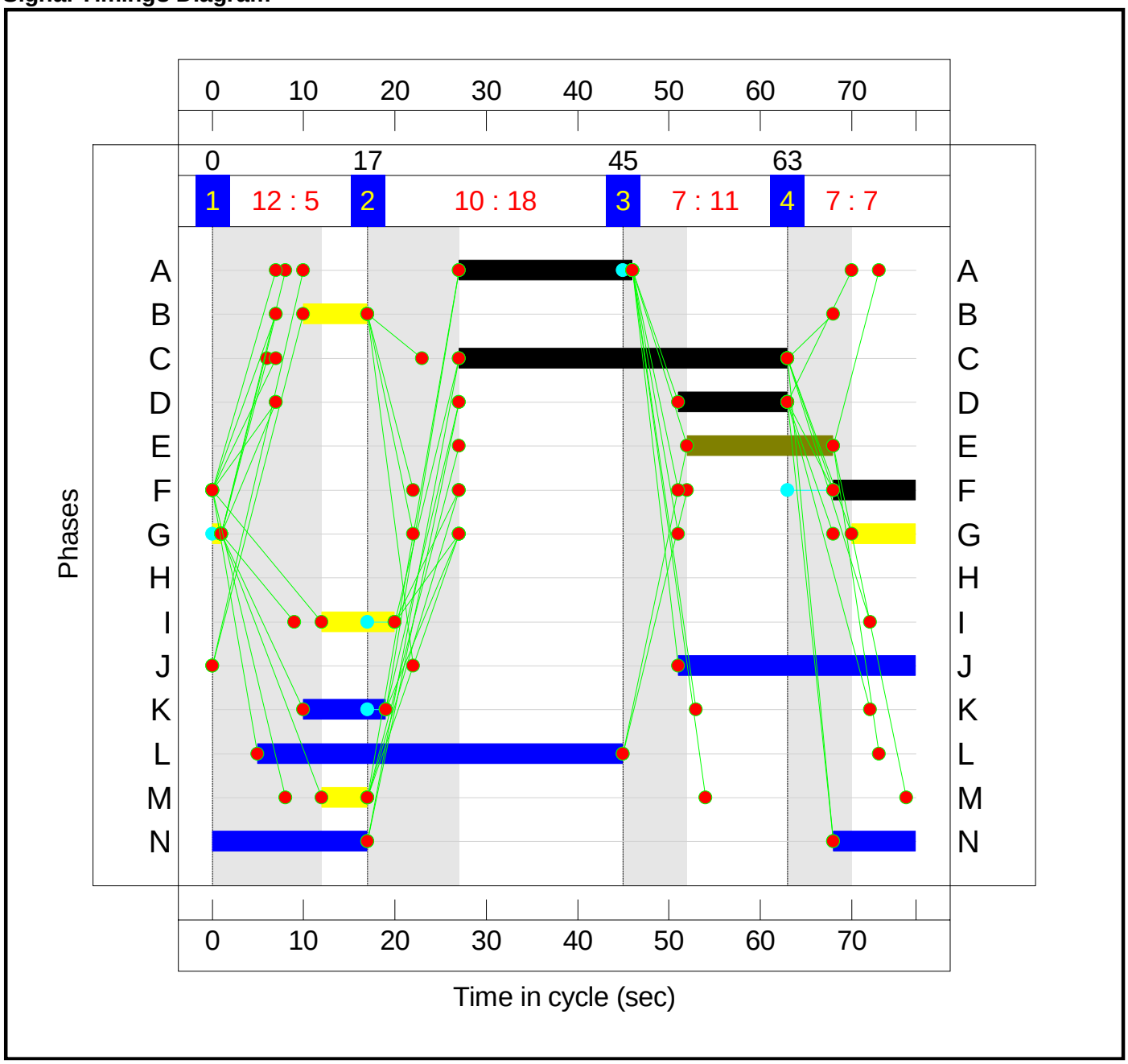


Full Input Data And Results

Stage Timings

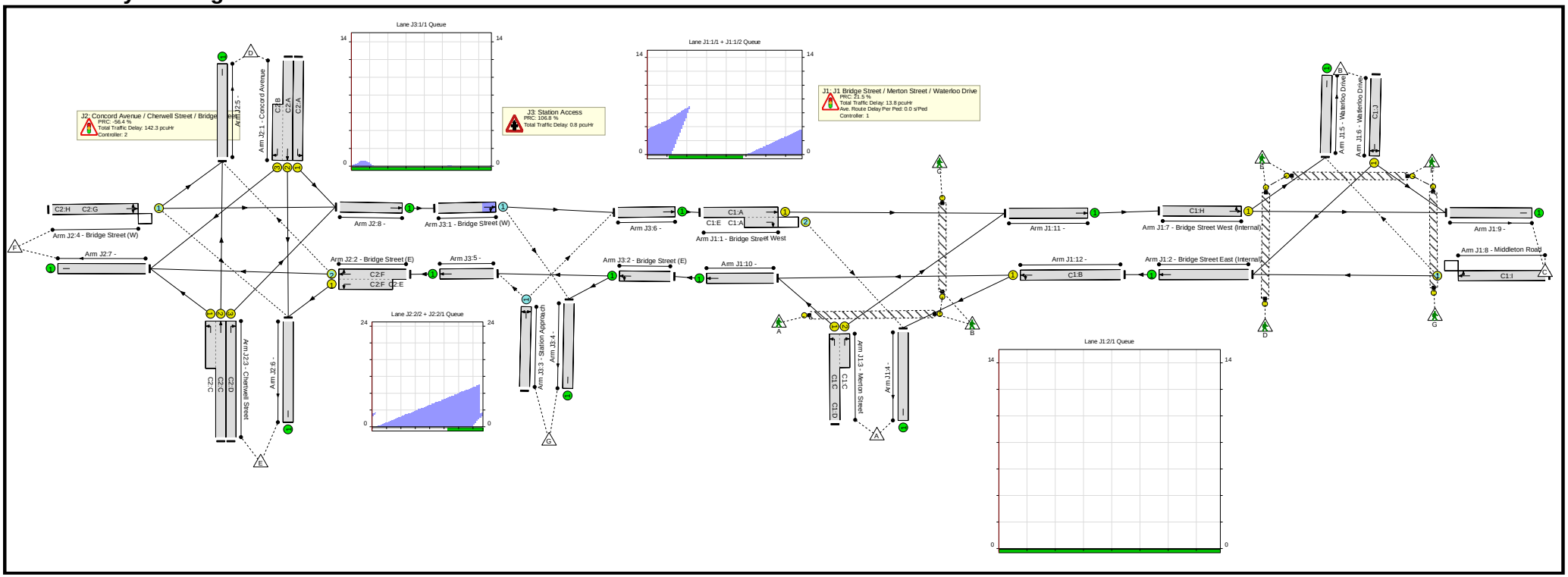
Stage	1	2	3	4
Duration	5	18	11	7
Change Point	0	17	45	63

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Full Input Data And 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: Bridge Street / Merton Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**140.7%**
J1: J1 Bridge Street / Merton Street / Waterloo Drive	-	-	**N/A**	-	-		-	-	-	-	-	-	**74.0%**
1/1+1/2	Bridge Street West Right Ahead	U+O	N/A	N/A	C1:A	C1:E	1	49	4	600	1915:1808	719+284	49.7 : 49.0%
2/1	Bridge Street East (Internal) Ahead	U	N/A	N/A	-		-	-	-	468	2075	2075	22.6%
3/1+3/2	Merton Street Left Right	U	N/A	N/A	C1:C	C1:D	1	20:11	9	215	1915:2055	358+92	47.7 : 47.7%
4/1		U	N/A	N/A	-		-	-	-	215	Inf	Inf	0.0%
5/1	Waterloo Drive	U	N/A	N/A	-		-	-	-	56	Inf	Inf	0.0%
6/1	Watlerloo Drive Right Left	U	N/A	N/A	C1:J		1	10	-	132	1653	178	74.0%
7/1	Bridge Street West (Internal) Left Ahead	U	N/A	N/A	C1:H		1	58	-	474	1982	1146	35.0%
8/1	Middleton Road Ahead Right	O	N/A	N/A	C1:I		1	47	-	385	1920	904	42.6%
9/1		U	N/A	N/A	-		-	-	-	467	Inf	Inf	0.0%
10/1	Ahead	U	N/A	N/A	-		-	-	-	594	Inf	Inf	0.0%
11/1	Ahead	U	N/A	N/A	-		-	-	-	474	Inf	Inf	0.0%
12/1	Left Ahead	U	N/A	N/A	C1:B		1	38	-	468	2045	782	59.9%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:G		1	16	-	0	-	3137	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:F		1	12	-	0	-	2353	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:M		1	8	-	0	-	1569	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:K		1	8	-	0	-	1569	0.0%

Full Input Data And Results

Ped Link: P5	Unnamed Ped Link	-	N/A	-	C1:L		1	13	-	0	-	2549	0.0%
J2: Concord Avenue / Cherwell Street / Bridge Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**140.7%**
1/1	Concord Avenue Left	U	N/A	N/A	C2:A		1	19	-	249	1895	492	50.6%
1/2+1/3	Concord Avenue Ahead Right	U	N/A	N/A	C2:A C2:B		1	19:7	-	632	2075:1701	533+27	112.8 : 112.8%
2/2+2/1	Bridge Street (E) Right Left Ahead	O+U	N/A	N/A	C2:F	C2:E	1	9:25	16	659	1751:1700	156+555	101.1 : 90.2%
3/2+3/1	Chertwell Street Ahead Left	U	N/A	N/A	C2:C		1	36	-	723	2055:1665	894+129	70.7 : 70.7%
3/3	Chertwell Street Right	U	N/A	N/A	C2:D		1	12	-	455	1915	323	140.7%
4/1	Bridge Street (W) Left Right Ahead	O	N/A	N/A	C2:G	C2:H	1	8	0	115	1860	217	52.9%
5/1		U	N/A	N/A	-		-	-	-	802	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	1145	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	163	Inf	Inf	0.0%
8/1	Ahead	U	N/A	N/A	-		-	-	-	723	Inf	Inf	0.0%
J3: Station Access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**43.5%**
1/1	Bridge Street (W) Right Ahead	O	N/A	N/A	-		-	-	-	723	1894	1359	43.5%
2/1	Bridge Street (E) Left Ahead	U	N/A	N/A	-		-	-	-	594	1933	1933	30.7%
3/1	Station Approach Left Right	O	N/A	N/A	-		-	-	-	102	1940	501	20.4%
4/1		U	N/A	N/A	-		-	-	-	160	Inf	Inf	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	659	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	600	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: Bridge Street / Merton Street	**-**	**-**	**319**	**203**	**11**	**36.7**	**120.2**	**0.0**	**156.9**	**-**	**-**	**-**	**-**
J1: J1 Bridge Street / Merton Street / Waterloo Drive	**-**	**-**	**14**	**135**	**4**	**10.0**	**3.8**	**0.0**	**13.8**	**-**	**-**	**-**	**-**
1/1+1/2	497	497	0	135	4	2.2	0.5	0.0	2.7	19.5	6.9	0.5	7.4
2/1	468	468	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
3/1+3/2	215	215	-	-	-	2.2	0.5	-	2.6	44.0	4.2	0.5	4.6
4/1	184	184	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	49	49	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	132	132	-	-	-	1.6	1.3	-	3.0	80.9	3.6	1.3	4.9
7/1	401	401	-	-	-	0.9	0.3	-	1.1	10.1	3.0	0.3	3.3
8/1	385	385	14	0	0	1.9	0.4	0.0	2.3	21.4	7.2	0.4	7.5
9/1	401	401	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	594	594	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	401	401	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	468	468	-	-	-	1.2	0.7	-	2.0	15.0	4.8	0.7	5.6
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P5	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
J2: Concord Avenue / Cherwell Street / Bridge Street	**-**	**-**	**85**	**67**	**6**	**26.7**	**115.7**	**0.0**	**142.3**	**-**	**-**	**-**	**-**
1/1	249	249	-	-	-	1.7	0.5	-	2.2	31.7	4.5	0.5	5.0
1/2+1/3	632	562	-	-	-	7.2	39.8	-	47.0	267.8	15.7	39.8	55.5

Full Input Data And Results

2/2+2/1	659	657	48	67	0	4.8	6.1	-	10.9	59.5	10.0	6.1	16.1
3/2+3/1	723	723	-	-	-	3.0	1.2	-	4.2	20.7	10.6	1.2	11.8
3/3	455	323	-	-	-	8.9	67.5	-	76.5	605.1	14.0	67.5	81.5
4/1	115	115	37	0	6	1.0	0.6	0.0	1.6	50.7	2.3	0.6	2.9
5/1	801	801	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	1077	1077	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	161	161	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	591	591	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Station Access	**-**	**-**	**220**	**0**	**0**	**0.1**	**0.7**	**0.0**	**0.8**	**-**	**-**	**-**	**-**
1/1	591	591	118	0	0	0.1	0.4	-	0.4	2.7	0.6	0.4	1.0
2/1	594	594	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
3/1	102	102	102	0	0	0.0	0.1	-	0.1	4.5	0.0	0.1	0.1
4/1	132	132	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	659	659	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	497	497	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

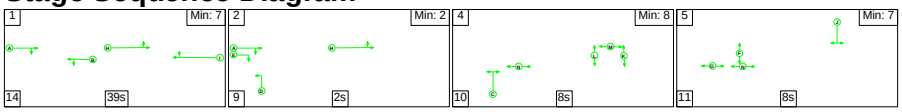
C1	PRC for Signalled Lanes (%):	21.5	Total Delay for Signalled Lanes (pcuHr):	13.66	Cycle Time (s): 102
C2	PRC for Signalled Lanes (%):	-56.4	Total Delay for Signalled Lanes (pcuHr):	142.35	Cycle Time (s): 77
	PRC Over All Lanes (%):	-56.4	Total Delay Over All Lanes(pcuHr):	156.94	

Full Input Data And Results

Scenario 4: 'Future PM Peak (1700-1800)' (FG4: 'Future - PM', Plan 1: 'Network Control Plan 1')

C1

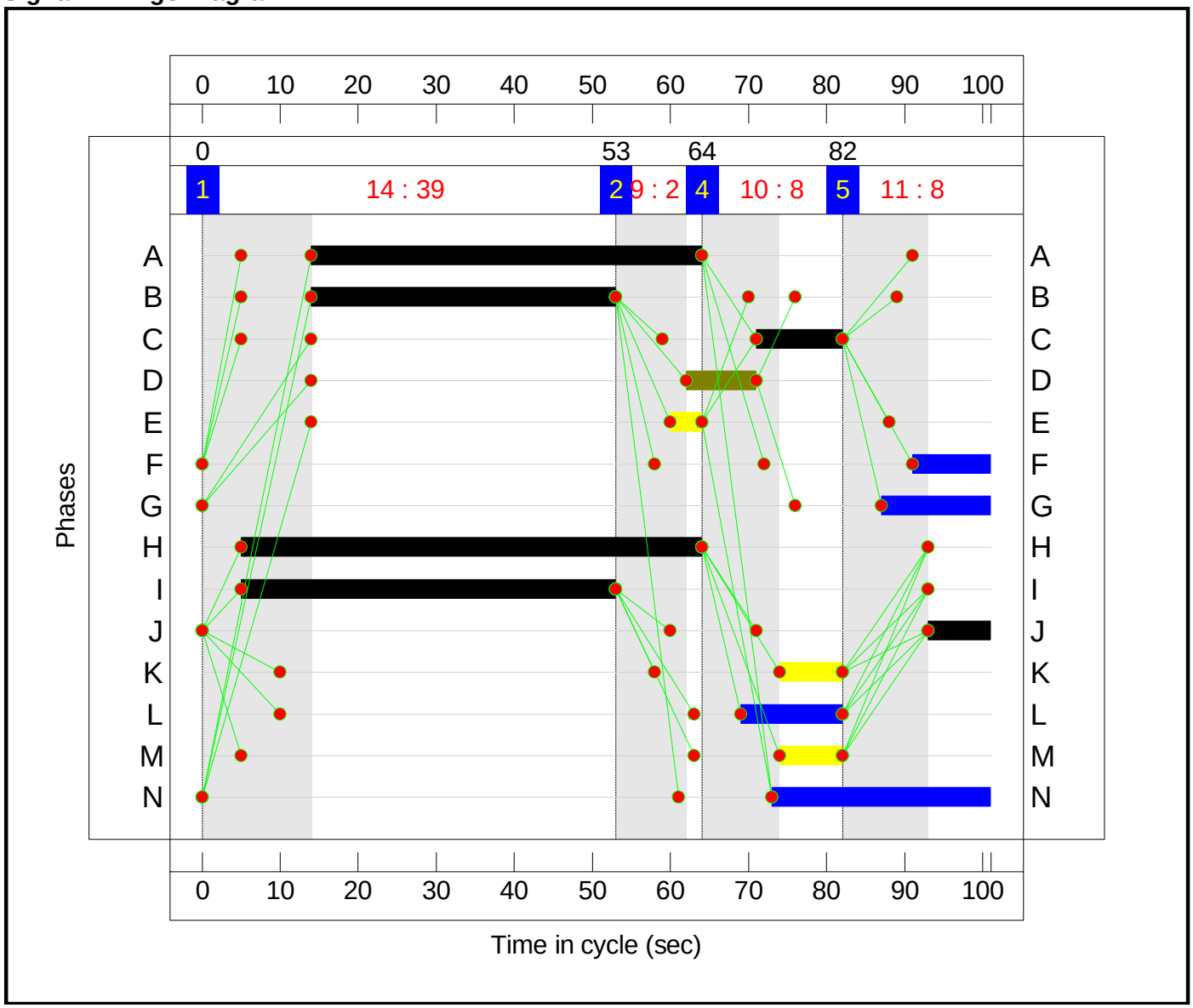
Stage Sequence Diagram



Stage Timings

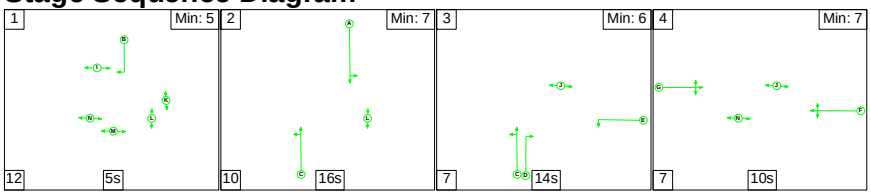
Stage	1	2	4	5
Duration	39	2	8	8
Change Point	0	53	64	82

Signal Timings Diagram



C2

Stage Sequence Diagram

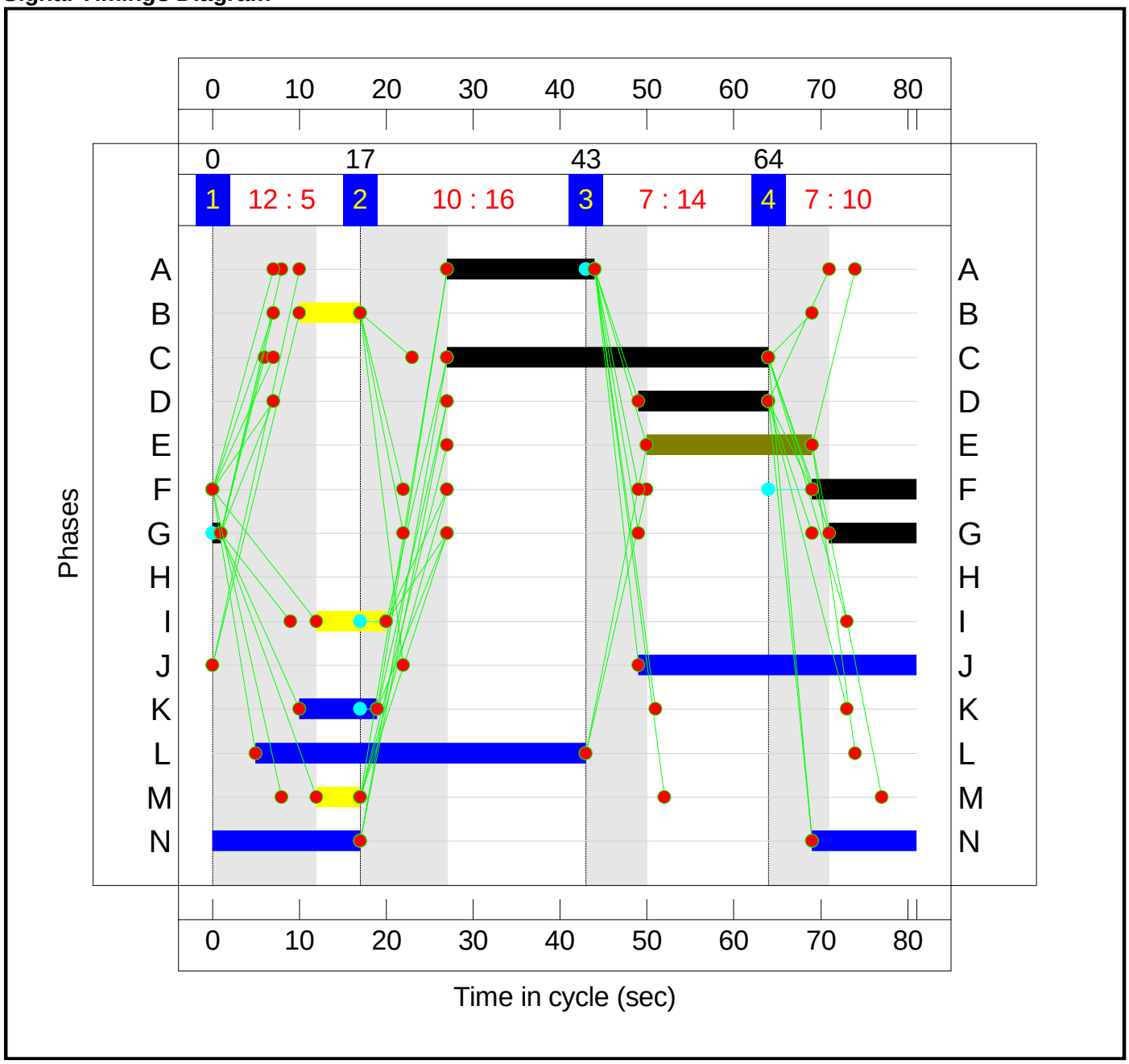


Full Input Data And Results

Stage Timings

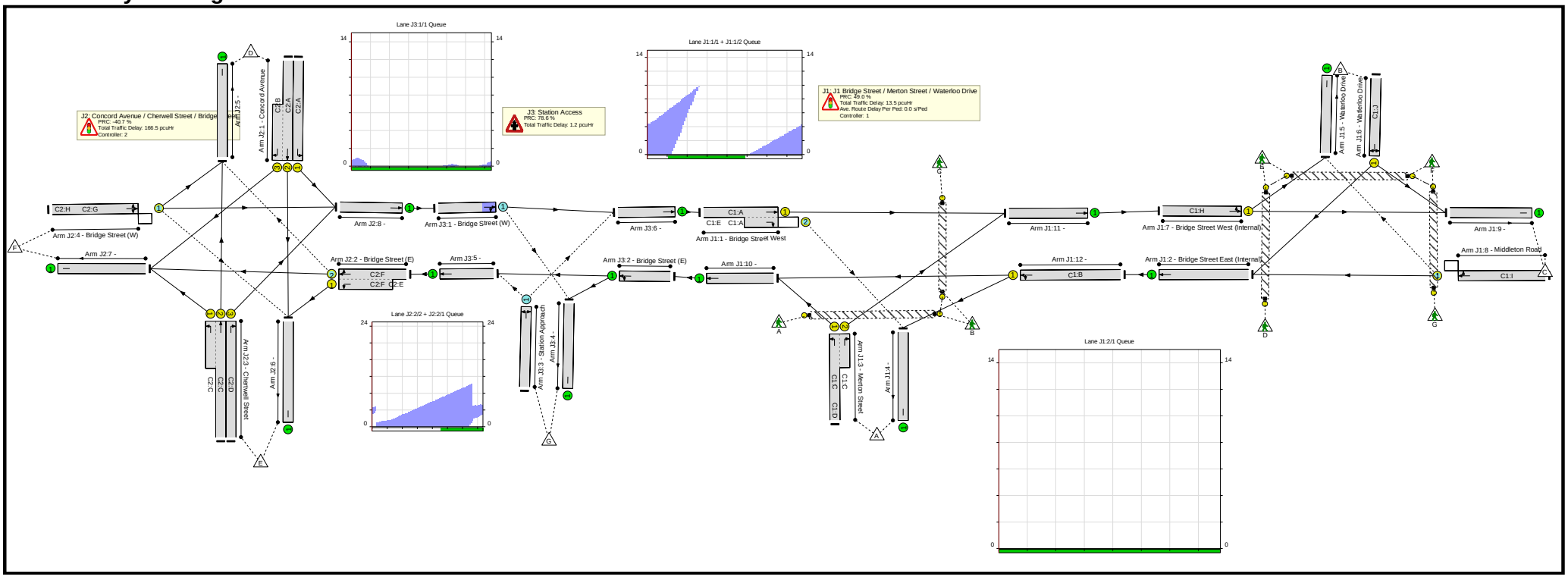
Stage	1	2	3	4
Duration	5	16	14	10
Change Point	0	17	43	64

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Full Input Data And 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: Bridge Street / Merton Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**126.6%**
J1: J1 Bridge Street / Merton Street / Waterloo Drive	-	-	**N/A**	-	-		-	-	-	-	-	-	**60.4%**
1/1+1/2	Bridge Street West Right Ahead	U+O	N/A	N/A	C1:A	C1:E	1	50	4	690	1915:1808	740+292	60.4 : 60.0%
2/1	Bridge Street East (Internal) Ahead	U	N/A	N/A	-		-	-	-	419	2075	2075	20.2%
3/1+3/2	Merton Street Left Right	U	N/A	N/A	C1:C	C1:D	1	20:11	9	255	1915:2055	340+150	52.1 : 52.1%
4/1		U	N/A	N/A	-		-	-	-	222	Inf	Inf	0.0%
5/1	Waterloo Drive	U	N/A	N/A	-		-	-	-	115	Inf	Inf	0.0%
6/1	Watlerloo Drive Right Left	U	N/A	N/A	C1:J		1	8	-	72	1653	147	48.9%
7/1	Bridge Street West (Internal) Left Ahead	U	N/A	N/A	C1:H		1	59	-	573	1971	1171	44.9%
8/1	Middleton Road Ahead Right	O	N/A	N/A	C1:I		1	48	-	384	1919	931	41.2%
9/1		U	N/A	N/A	-		-	-	-	495	Inf	Inf	0.0%
10/1	Ahead	U	N/A	N/A	-		-	-	-	569	Inf	Inf	0.0%
11/1	Ahead	U	N/A	N/A	-		-	-	-	573	Inf	Inf	0.0%
12/1	Left Ahead	U	N/A	N/A	C1:B		1	39	-	419	2055	814	51.5%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:G		1	14	-	0	-	2772	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:F		1	10	-	0	-	1980	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:M		1	8	-	0	-	1584	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:K		1	8	-	0	-	1584	0.0%

Full Input Data And Results

Ped Link: P5	Unnamed Ped Link	-	N/A	-	C1:L		1	13	-	0	-	2574	0.0%
J2: Concord Avenue / Cherwell Street / Bridge Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**126.6%**
1/1	Concord Avenue Left	U	N/A	N/A	C2:A		1	17	-	306	1895	421	72.7%
1/2+1/3	Concord Avenue Ahead Right	U	N/A	N/A	C2:A C2:B		1	17:7	-	611	2075:1701	458+24	126.6 : 126.6%
2/2+2/1	Bridge Street (E) Right Left Ahead	O+U	N/A	N/A	C2:F	C2:E	1	12:31	19	721	1743:1700	164+617	119.9 : 85.0%
3/2+3/1	Chertwell Street Ahead Left	U	N/A	N/A	C2:C		1	37	-	767	2055:1665	866+133	76.8 : 76.8%
3/3	Chertwell Street Right	U	N/A	N/A	C2:D		1	15	-	462	1915	378	122.1%
4/1	Bridge Street (W) Left Right Ahead	O	N/A	N/A	C2:G	C2:H	1	11	0	188	1861	276	68.2%
5/1		U	N/A	N/A	-		-	-	-	908	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	1174	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	174	Inf	Inf	0.0%
8/1	Ahead	U	N/A	N/A	-		-	-	-	799	Inf	Inf	0.0%
J3: Station Access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**50.4%**
1/1	Bridge Street (W) Right Ahead	O	N/A	N/A	-		-	-	-	799	1900	1419	50.4%
2/1	Bridge Street (E) Left Ahead	U	N/A	N/A	-		-	-	-	569	1928	1928	29.5%
3/1	Station Approach Left Right	O	N/A	N/A	-		-	-	-	207	1940	517	40.0%
4/1		U	N/A	N/A	-		-	-	-	164	Inf	Inf	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	721	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	690	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: Bridge Street / Merton Street	**-**	**-**	**481**	**238**	**6**	**40.5**	**140.6**	**0.0**	**181.1**	**-**	**-**	**-**	**-**
J1: J1 Bridge Street / Merton Street / Waterloo Drive	**-**	**-**	**18**	**170**	**5**	**10.3**	**3.2**	**0.0**	**13.5**	**-**	**-**	**-**	**-**
1/1+1/2	622	622	0	170	5	2.8	0.8	0.0	3.5	20.5	9.8	0.8	10.6
2/1	419	419	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
3/1+3/2	255	255	-	-	-	2.6	0.5	-	3.1	44.4	4.3	0.5	4.9
4/1	202	202	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	106	106	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	72	72	-	-	-	0.9	0.5	-	1.3	67.4	1.9	0.5	2.4
7/1	525	525	-	-	-	1.2	0.4	-	1.6	10.7	4.4	0.4	4.8
8/1	384	384	18	0	0	1.8	0.4	0.0	2.1	20.2	6.9	0.4	7.3
9/1	456	456	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	569	569	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	525	525	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	419	419	-	-	-	1.1	0.5	-	1.6	13.8	3.2	0.5	3.7
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P5	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
J2: Concord Avenue / Cherwell Street / Bridge Street	**-**	**-**	**131**	**68**	**1**	**30.1**	**136.4**	**0.0**	**166.5**	**-**	**-**	**-**	**-**
1/1	306	306	-	-	-	2.5	1.3	-	3.8	44.5	6.4	1.3	7.7
1/2+1/3	611	483	-	-	-	9.7	66.5	-	76.1	448.7	17.2	66.5	83.7

Full Input Data And Results

2/2+2/1	721	688	62	68	0	6.0	21.5	-	27.4	137.0	10.3	21.5	31.8
3/2+3/1	767	767	-	-	-	3.6	1.6	-	5.2	24.5	12.8	1.6	14.4
3/3	462	378	-	-	-	6.7	44.5	-	51.1	398.4	12.4	44.5	56.8
4/1	188	188	69	0	1	1.7	1.0	0.0	2.8	53.1	4.0	1.0	5.0
5/1	882	882	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	1052	1052	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	161	161	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	715	715	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Station Access	**-**	**-**	**332**	**0**	**0**	**0.1**	**1.0**	**0.0**	**1.2**	**-**	**-**	**-**	**-**
1/1	715	715	125	0	0	0.1	0.5	-	0.6	3.1	0.9	0.5	1.4
2/1	569	569	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
3/1	207	207	207	0	0	0.0	0.3	-	0.3	5.8	0.0	0.3	0.3
4/1	148	148	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	721	721	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	622	622	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1	PRC for Signalled Lanes (%):	49.0	Total Delay for Signalled Lanes (pcuHr):	13.35	Cycle Time (s): 101
C2	PRC for Signalled Lanes (%):	-40.7	Total Delay for Signalled Lanes (pcuHr):	166.49	Cycle Time (s): 81
	PRC Over All Lanes (%):	-40.7	Total Delay Over All Lanes(pcuHr):	181.13	

Appendix I

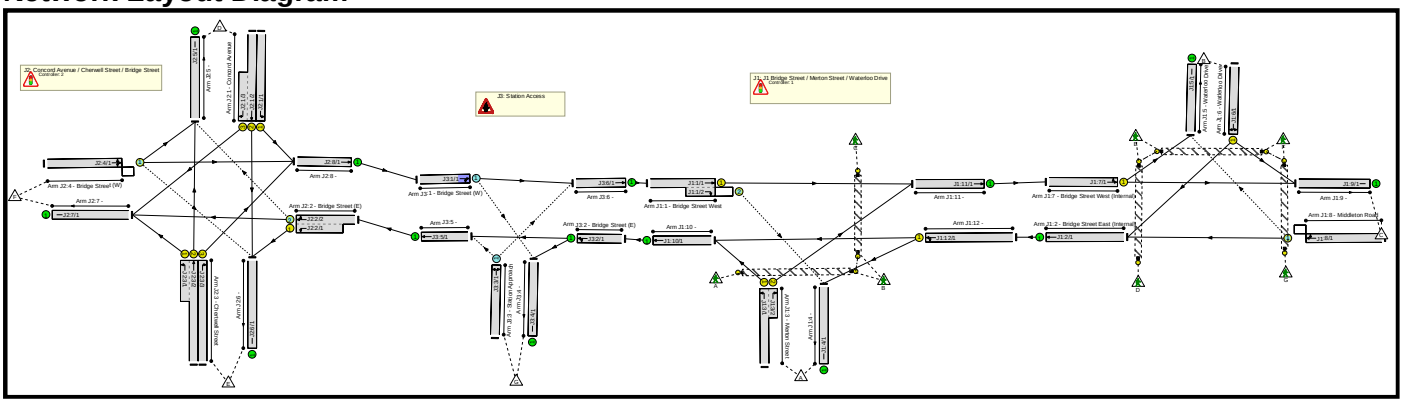
Future AM and PM Peak Hour Traffic Flows Linsig Output Report

Full Input Data And Results

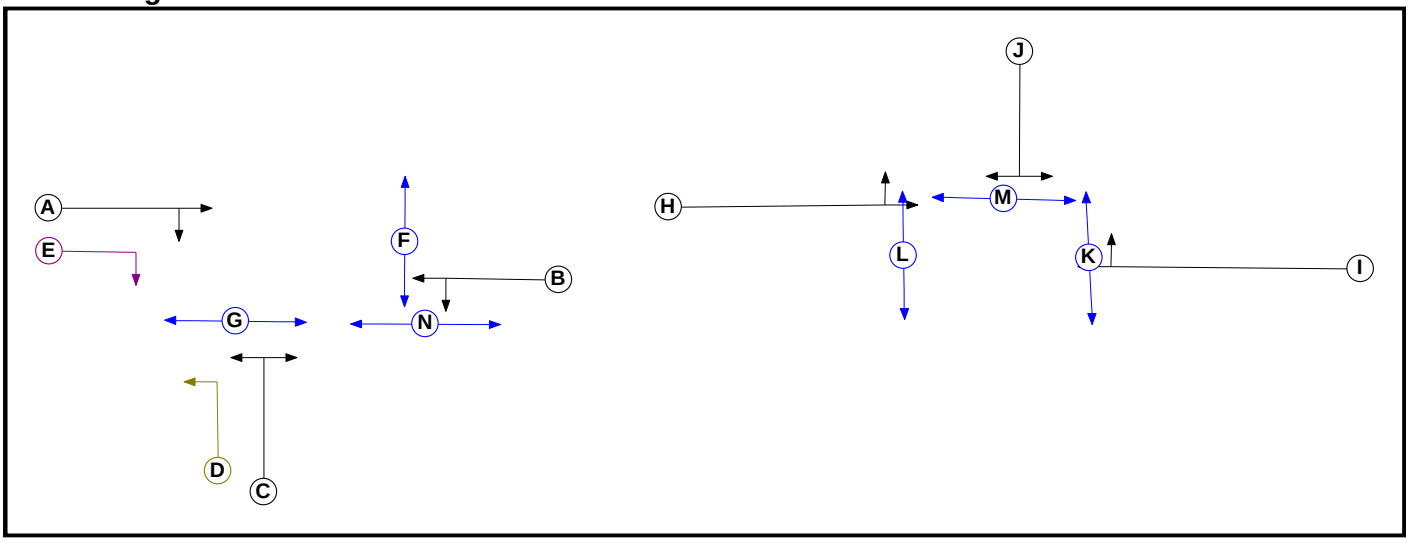
User and Project Details

Project:	**Banbury ICC Site Multi-Storey Car Park**
Title:	**Bridge Street / Merton Street**
Location:	Banbury, Oxfordshire
File name:	Grundon Waste Depot Local Roads V1.lsg3x
Author:	Matthew Thompson
Company:	Sweco
Address:	
Notes:	

Network Layout Diagram



C1
Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		3	3
D	Filter	C	4	0
E	Ind. Arrow	A	4	4
F	Pedestrian		8	8
G	Pedestrian		8	8
H	Traffic		7	7
I	Traffic		7	7
J	Traffic		7	7
K	Pedestrian		8	8
L	Pedestrian		8	8
M	Pedestrian		8	8
N	Pedestrian		8	8

Full Input Data And Results

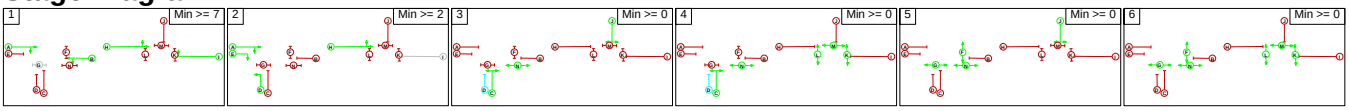
Phase Intergreens Matrix

		Starting Phase													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
Terminating Phase	A		-	7	-	-	8	-	-	-	-	-	-	-	9
	B	-		6	9	7	5	-	-	-	-	-	-	-	8
	C	9	7		-	6	9	5	-	-	-	-	-	-	-
	D	-	5	-		-	-	5	-	-	-	-	-	-	-
	E	-	6	7	-		-	-	-	-	-	-	-	-	9
	F	5	5	5	-	-		-	-	-	-	-	-	-	-
	G	-	-	14	14	-	-		-	-	-	-	-	-	-
	H	-	-	-	-	-	-	-		-	7	10	5	10	-
	I	-	-	-	-	-	-	-	-		7	5	10	10	-
	J	-	-	-	-	-	-	-	5	5		10	10	5	-
	K	-	-	-	-	-	-	-	11	11	11		-	-	-
	L	-	-	-	-	-	-	-	11	11	11	-		-	-
	M	-	-	-	-	-	-	-	11	11	11	-	-		-
	N	14	14	-	-	14	-	-	-	-	-	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A B H I
2	A D E H
3	C J N
4	C K L M N
5	F G J N
6	F G K L M N

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	4	A	Losing	3	3
1	4	B	Losing	4	4
1	4	H	Losing	5	5
1	4	I	Losing	5	5
3	2	E	Gaining absolute	9	9
4	2	E	Gaining absolute	9	9

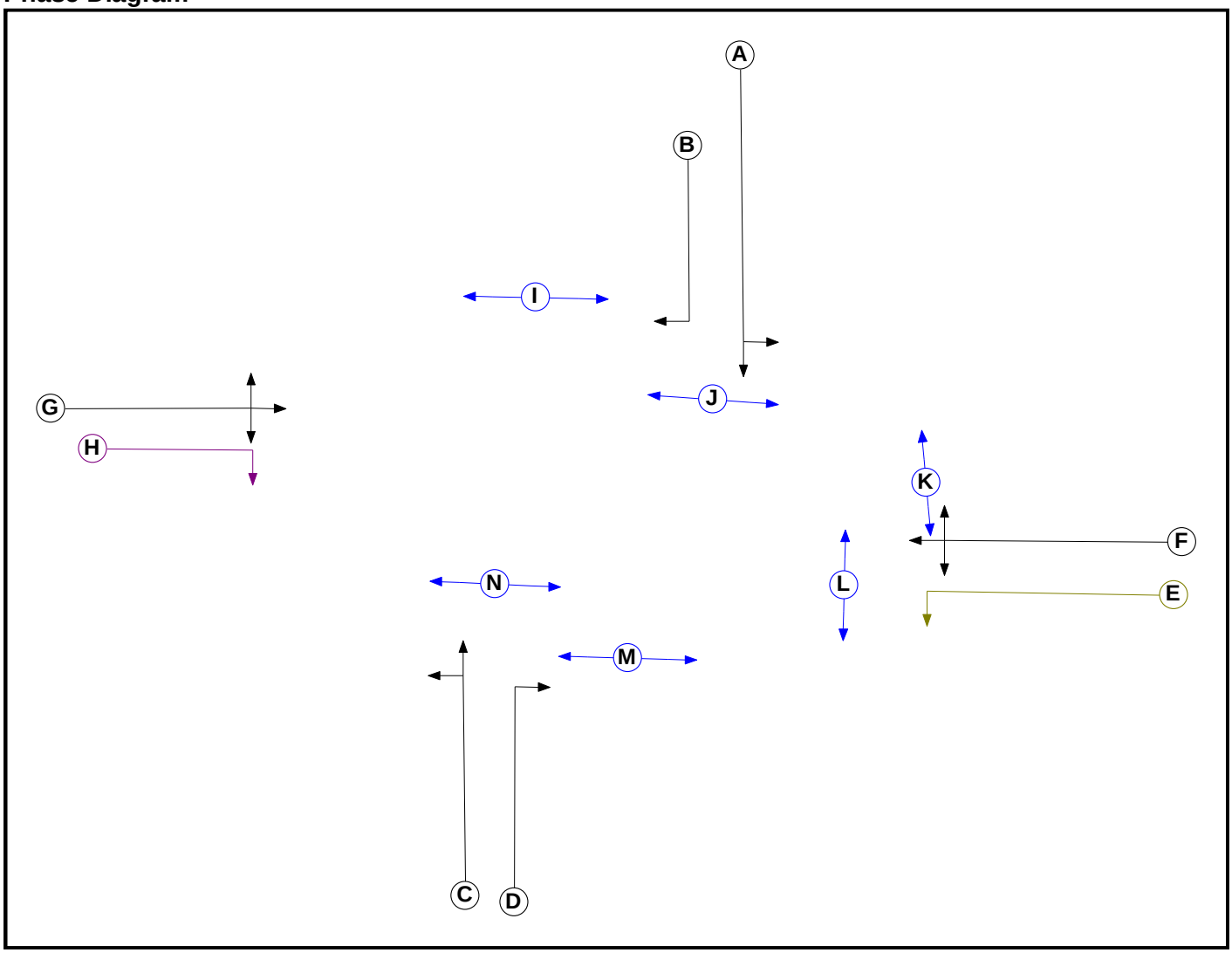
Full Input Data And Results

Prohibited Stage Change

		To Stage					
		1	2	3	4	5	6
From Stage	1		9	9	15	9	10
	2	X		9	10	X	X
	3	14	14		10	9	10
	4	14	14	11		11	9
	5	14	14	14	14		10
	6	14	14	14	14	11	

C2

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Filter	F	4	0
F	Traffic		7	7
G	Traffic		7	7
H	Ind. Arrow	G	5	5
I	Pedestrian		5	5
J	Pedestrian		5	5
K	Pedestrian		5	5
L	Pedestrian		5	5
M	Pedestrian		5	5
N	Pedestrian		5	5

Phase Intergreens Matrix

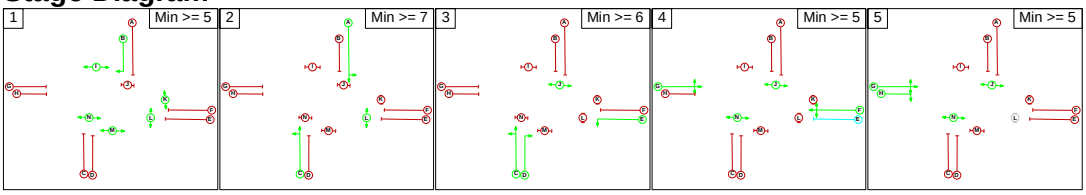
		Starting Phase														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
Terminating Phase	A		-	-	5	6	5	5	5	-	5	7	-	8	-
	B	-		6	-	-	5	5	5	-	5	-	-	-	-
	C	-	5		-	-	5	7	7	9	-	-	-	-	5
	D	7	-	-		-	5	5	5	-	-	9	-	-	5
	E	5	-	-	-		-	-	5	-	-	-	5	8	-
	F	7	7	7	7	-		-	7	12	-	-	5	8	-
	G	7	6	5	6	-	-		-	8	-	9	-	11	-
	H	7	6	5	6	5	7	-		8	-	9	-	11	-
	I	-	-	7	-	-	7	7	7		-	-	-	-	-
	J	10	10	-	-	-	-	-	-	-		-	-	-	-
	K	8	-	-	8	-	-	8	8	-	-		-	-	-
	L	-	-	-	-	7	7	-	-	-	-	-		-	-
	M	10	-	-	-	10	10	10	10	-	-	-	-		-
	N	-	-	10	10	-	-	-	-	-	-	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	B I K L M N
2	A C L
3	C D E J
4	F G J N
5	G H J N

Full Input Data And Results

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	I	Losing	3	3
1	2	K	Losing	2	2
1	4	B	Losing	5	5
1	4	I	Losing	3	3
1	4	L	Losing	3	3
2	1	A	Losing	1	1
2	3	A	Losing	1	1
2	4	A	Losing	1	1
3	4	F	Gaining absolute	5	5
4	1	G	Losing	1	1
4	2	F	Losing	3	3
4	2	G	Losing	3	3
4	3	F	Losing	3	3
4	3	G	Losing	4	4
5	2	G	Losing	3	3

Prohibited Stage Change

From Stage \ To Stage	1	2	3	4	5
1		10	10	10	10
2	9		7	7	7
3	X	X		7	X
4	12	10	10		7
5	11	10	10	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive

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)
J1:1/2 (Bridge Street West)	J1:4/1 (Right)	1439	0	J1:2/1	1.09	None	3.00	-	0.50	3	2.00
J1:8/1 (Middleton Road)	J1:5/1 (Right)	1440	0	J1:7/1	1.09	All	2.00	2.00	0.50	2	2.00

Junction: J2: Concord Avenue / Cherwell Street / Bridge Street

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)
J2:2/2 (Bridge Street (E))	J2:5/1 (Right)	1440	0	J2:4/1	1.09	To J2:5/1 (Left)	-	-	-	-	-
J2:4/1 (Bridge Street (W))	J2:6/1 (Right)	1440	0	J2:2/1 J2:2/2	1.09 1.09	All To J2:7/1 (Ahead)	2.00	2.00	0.50	2	2.00

Junction: J3: Station Access

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)
J3:1/1 (Bridge Street (W))	J3:4/1 (Right)	850	0	J3:2/1	0.35	All	-	-	-	-	-
J3:3/1 (Station Approach)	J3:5/1 (Left)	715	0	J3:2/1	0.22	All	-	-	-	-	-
	J3:6/1 (Right)	600	0	J3:2/1	0.22	All					
				J3:1/1	0.19	All					

Full Input Data And Results

Lane Input Data

Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive

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)
J1:1/1 (Bridge Street West)	U	A	2	3	25.7	Geom	-	3.00	0.00	Y	Arm J1:11 Ahead	Inf
J1:1/2 (Bridge Street West)	O	A E	2	3	5.0	Geom	-	3.00	0.00	N	Arm J1:4 Right	11.00
J1:2/1 (Bridge Street East (Internal))	U		2	3	5.9	Geom	-	4.60	0.00	Y	Arm J1:12 Ahead	Inf
J1:3/1 (Merton Street)	U	C D	2	3	5.0	Geom	-	3.00	0.00	Y	Arm J1:10 Left	Inf
J1:3/2 (Merton Street)	U	C	2	3	5.0	Geom	-	3.00	0.00	N	Arm J1:11 Right	Inf
J1:4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:5/1 (Waterloo Drive)	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:6/1 (Watlerloo Drive)	U	J	2	3	60.0	Geom	-	3.75	0.00	Y	Arm J1:2 Right Arm J1:9 Left	8.00 6.00
J1:7/1 (Bridge Street West (Internal))	U	H	2	3	11.3	Geom	-	3.80	0.00	Y	Arm J1:5 Left Arm J1:9 Ahead	21.00 Inf
J1:8/1 (Middleton Road)	O	I	2	3	60.0	Geom	-	3.10	0.00	Y	Arm J1:2 Ahead Arm J1:5 Right	Inf 23.00
J1:9/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:10/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:11/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J1:12/1	U	B	2	3	10.4	Geom	-	4.60	0.00	Y	Arm J1:4 Left Arm J1:10 Ahead	10.00 Inf

Full Input Data And Results

Junction: J2: Concord Avenue / Cherwell Street / Bridge Street												
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)**
J2:1/1 (Concord Avenue)	U	A	2	3	60.0	Geom	-	2.80	0.00	Y	Arm J2:8 Left	Inf
J2:1/2 (Concord Avenue)	U	A	2	3	60.0	Geom	-	3.20	0.00	N	Arm J2:6 Ahead	Inf
J2:1/3 (Concord Avenue)	U	B	2	3	8.3	Geom	-	2.90	0.00	Y	Arm J2:7 Right	12.50
J2:2/1 (Bridge Street (E))	U	F E	2	3	10.1	Geom	-	2.50	0.00	Y	Arm J2:6 Left	15.50
J2:2/2 (Bridge Street (E))	O	F	2	3	10.4	Geom	-	2.50	0.00	Y	Arm J2:5 Right Arm J2:7 Ahead	17.00 Inf
J2:3/1 (Chertwell Street)	U	C	2	3	7.0	Geom	-	3.00	0.00	Y	Arm J2:7 Left	10.00
J2:3/2 (Chertwell Street)	U	C	2	3	60.0	Geom	-	3.00	0.00	N	Arm J2:5 Ahead	Inf
J2:3/3 (Chertwell Street)	U	D	2	3	60.0	Geom	-	3.00	0.00	Y	Arm J2:8 Right	Inf
J2:4/1 (Bridge Street (W))	O	G H	2	3	60.0	Geom	-	3.20	0.00	Y	Arm J2:5 Left Arm J2:6 Right Arm J2:8 Ahead	Inf 14.00 Inf
J2:5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J2:8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Junction: J3: Station Access

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)
J3:1/1 (Bridge Street (W))	O		2	3	19.1	Geom	-	3.25	0.00	Y	Arm J3:4 Right Arm J3:6 Ahead	12.50 Inf
J3:2/1 (Bridge Street (E))	U		2	3	30.8	Geom	-	3.25	0.00	Y	Arm J3:4 Left Arm J3:5 Ahead	10.00 Inf
J3:3/1 (Station Approach)	O		2	3	60.0	Geom	-	3.25	0.00	Y	Arm J3:5 Left Arm J3:6 Right	Inf Inf
J3:4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
J3:6/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
5: 'Future - AM'	08:00	09:00	01:00	
6: 'Future - PM'	17:00	18:00	01:00	

Scenario 5: 'Future AM Peak (0800-0900)' (FG5: 'Future - AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination							
		A	B	C	D	E	F	G	Tot.
Origin	A	0	4	52	36	162	11	3	268
	B	8	0	35	16	65	6	2	132
	C	39	14	0	64	238	22	10	387
	D	58	13	134	0	600	31	46	882
	E	110	24	227	632	0	90	98	1181
	F	4	1	12	53	43	0	2	115
	G	4	1	18	9	68	2	0	102
	Tot.	223	57	478	810	1176	162	161	3067

Full Input Data And Results

Traffic Lane Flows

Full Input Data And Results

Lane	Scenario 5: Future AM Peak (0800-0900)
Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive	
J1:1/1 (with short)	606(In) 430(Out)
J1:1/2 (short)	176
J1:2/1	470
J1:3/1 (with short)	268(In) 212(Out)
J1:3/2 (short)	56
J1:4/1	223
J1:5/1	57
J1:6/1	132
J1:7/1	486
J1:8/1	387
J1:9/1	478
J1:10/1	635
J1:11/1	486
J1:12/1	470
Junction: J2: Concord Avenue / Cherwell Street / Bridge Street	
J2:1/1	251
J2:1/2 (with short)	631(In) 600(Out)
J2:1/3 (short)	31
J2:2/1 (short)	533
J2:2/2 (with short)	699(In) 166(Out)
J2:3/1 (short)	90
J2:3/2 (with short)	722(In) 632(Out)
J2:3/3	459
J2:4/1	115
J2:5/1	810
J2:6/1	1176
J2:7/1	162
J2:8/1	729
Junction: J3: Station Access	
J3:1/1	729
J3:2/1	635
J3:3/1	102
J3:4/1	161
J3:5/1	699
J3:6/1	606

Full Input Data And Results

Lane Saturation Flows

Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Bridge Street West)	3.00	0.00	Y	Arm J1:11 Ahead	Inf	100.0 %	1915	1915
J1:1/2 (Bridge Street West)	3.00	0.00	N	Arm J1:4 Right	11.00	100.0 %	1808	1808
J1:2/1 (Bridge Street East (Internal))	4.60	0.00	Y	Arm J1:12 Ahead	Inf	100.0 %	2075	2075
J1:3/1 (Merton Street)	3.00	0.00	Y	Arm J1:10 Left	Inf	100.0 %	1915	1915
J1:3/2 (Merton Street)	3.00	0.00	N	Arm J1:11 Right	Inf	100.0 %	2055	2055
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Waterloo Drive Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1 (Watlerloo Drive)	3.75	0.00	Y	Arm J1:2 Right	8.00	73.5 %	1653	1653
				Arm J1:9 Left	6.00	26.5 %		
J1:7/1 (Bridge Street West (Internal))	3.80	0.00	Y	Arm J1:5 Left	21.00	8.8 %	1982	1982
				Arm J1:9 Ahead	Inf	91.2 %		
J1:8/1 (Middleton Road)	3.10	0.00	Y	Arm J1:2 Ahead	Inf	96.4 %	1920	1920
				Arm J1:5 Right	23.00	3.6 %		
J1:9/1	Infinite Saturation Flow						Inf	Inf
J1:10/1	Infinite Saturation Flow						Inf	Inf
J1:11/1	Infinite Saturation Flow						Inf	Inf
J1:12/1	4.60	0.00	Y	Arm J1:4 Left	10.00	10.0 %	2044	2044
				Arm J1:10 Ahead	Inf	90.0 %		

Full Input Data And Results

Junction: J2: Concord Avenue / Cherwell Street / Bridge Street

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J2:1/1 (Concord Avenue)	2.80	0.00	Y	Arm J2:8 Left	Inf	100.0 %	1895	1895
J2:1/2 (Concord Avenue)	3.20	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2075	2075
J2:1/3 (Concord Avenue)	2.90	0.00	Y	Arm J2:7 Right	12.50	100.0 %	1701	1701
J2:2/1 (Bridge Street (E))	2.50	0.00	Y	Arm J2:6 Left	15.50	100.0 %	1700	1700
J2:2/2 (Bridge Street (E))	2.50	0.00	Y	Arm J2:5 Right	17.00	75.3 %	1749	1749
				Arm J2:7 Ahead	Inf	24.7 %		
J2:3/1 (Chertwell Street)	3.00	0.00	Y	Arm J2:7 Left	10.00	100.0 %	1665	1665
J2:3/2 (Chertwell Street)	3.00	0.00	N	Arm J2:5 Ahead	Inf	100.0 %	2055	2055
J2:3/3 (Chertwell Street)	3.00	0.00	Y	Arm J2:8 Right	Inf	100.0 %	1915	1915
J2:4/1 (Bridge Street (W))	3.20	0.00	Y	Arm J2:5 Left	Inf	46.1 %	1860	1860
				Arm J2:6 Right	14.00	37.4 %		
				Arm J2:8 Ahead	Inf	16.5 %		
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:7/1	Infinite Saturation Flow						Inf	Inf
J2:8/1	Infinite Saturation Flow						Inf	Inf

Junction: J3: Station Access

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
J3:1/1 (Bridge Street (W))	3.25	0.00	Y	Arm J3:4 Right	12.50	20.0 %	1894	1894
				Arm J3:6 Ahead	Inf	80.0 %		
J3:2/1 (Bridge Street (E))	3.25	0.00	Y	Arm J3:4 Left	10.00	2.4 %	1933	1933
				Arm J3:5 Ahead	Inf	97.6 %		
J3:3/1 (Station Approach)	3.25	0.00	Y	Arm J3:5 Left	Inf	77.5 %	1940	1940
				Arm J3:6 Right	Inf	22.5 %		
J3:4/1	Infinite Saturation Flow						Inf	Inf
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 6: 'Future PM Peak (1700-1800)' (FG6: 'Future - PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination							
		A	B	C	D	E	F	G	Tot.
Origin	A	0	12	73	38	137	10	5	275
	B	3	0	19	11	35	3	2	73
	C	31	18	0	76	225	22	17	389
	D	88	32	152	0	579	31	52	934
	E	134	47	216	664	0	101	87	1249
	F	8	3	17	87	70	0	3	188
	G	7	4	23	32	136	7	0	209
	Tot.	271	116	500	908	1182	174	166	3317

Full Input Data And Results

Traffic Lane Flows

Full Input Data And Results

Lane	Scenario 6: Future PM Peak (1700-1800)
Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive	
J1:1/1 (with short)	731(In) 494(Out)
J1:1/2 (short)	237
J1:2/1	425
J1:3/1 (with short)	275(In) 190(Out)
J1:3/2 (short)	85
J1:4/1	271
J1:5/1	116
J1:6/1	73
J1:7/1	579
J1:8/1	389
J1:9/1	500
J1:10/1	581
J1:11/1	579
J1:12/1	425
Junction: J2: Concord Avenue / Cherwell Street / Bridge Street	
J2:1/1	324
J2:1/2 (with short)	610(In) 579(Out)
J2:1/3 (short)	31
J2:2/1 (short)	533
J2:2/2 (with short)	732(In) 199(Out)
J2:3/1 (short)	101
J2:3/2 (with short)	765(In) 664(Out)
J2:3/3	484
J2:4/1	188
J2:5/1	908
J2:6/1	1182
J2:7/1	174
J2:8/1	839
Junction: J3: Station Access	
J3:1/1	839
J3:2/1	581
J3:3/1	209
J3:4/1	166
J3:5/1	732
J3:6/1	731

Full Input Data And Results

Lane Saturation Flows

Junction: J1: J1 Bridge Street / Merton Street / Waterloo Drive								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Bridge Street West)	3.00	0.00	Y	Arm J1:11 Ahead	Inf	100.0 %	1915	1915
J1:1/2 (Bridge Street West)	3.00	0.00	N	Arm J1:4 Right	11.00	100.0 %	1808	1808
J1:2/1 (Bridge Street East (Internal))	4.60	0.00	Y	Arm J1:12 Ahead	Inf	100.0 %	2075	2075
J1:3/1 (Merton Street)	3.00	0.00	Y	Arm J1:10 Left	Inf	100.0 %	1915	1915
J1:3/2 (Merton Street)	3.00	0.00	N	Arm J1:11 Right	Inf	100.0 %	2055	2055
J1:4/1	Infinite Saturation Flow						Inf	Inf
J1:5/1 (Waterloo Drive Lane 1)	Infinite Saturation Flow						Inf	Inf
J1:6/1 (Watlerloo Drive)	3.75	0.00	Y	Arm J1:2 Right	8.00	74.0 %	1653	1653
				Arm J1:9 Left	6.00	26.0 %		
J1:7/1 (Bridge Street West (Internal))	3.80	0.00	Y	Arm J1:5 Left	21.00	16.9 %	1971	1971
				Arm J1:9 Ahead	Inf	83.1 %		
J1:8/1 (Middleton Road)	3.10	0.00	Y	Arm J1:2 Ahead	Inf	95.4 %	1919	1919
				Arm J1:5 Right	23.00	4.6 %		
J1:9/1	Infinite Saturation Flow						Inf	Inf
J1:10/1	Infinite Saturation Flow						Inf	Inf
J1:11/1	Infinite Saturation Flow						Inf	Inf
J1:12/1	4.60	0.00	Y	Arm J1:4 Left	10.00	8.0 %	2050	2050
				Arm J1:10 Ahead	Inf	92.0 %		

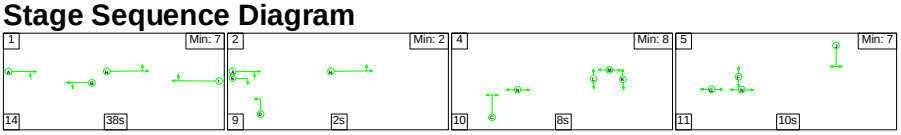
Full Input Data And Results

Junction: J2: Concord Avenue / Cherwell Street / Bridge Street								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Concord Avenue)	2.80	0.00	Y	Arm J2:8 Left	Inf	100.0 %	1895	1895
J2:1/2 (Concord Avenue)	3.20	0.00	N	Arm J2:6 Ahead	Inf	100.0 %	2075	2075
J2:1/3 (Concord Avenue)	2.90	0.00	Y	Arm J2:7 Right	12.50	100.0 %	1701	1701
J2:2/1 (Bridge Street (E))	2.50	0.00	Y	Arm J2:6 Left	15.50	100.0 %	1700	1700
J2:2/2 (Bridge Street (E))	2.50	0.00	Y	Arm J2:5 Right	17.00	78.9 %	1744	1744
				Arm J2:7 Ahead	Inf	21.1 %		
J2:3/1 (Chertwell Street)	3.00	0.00	Y	Arm J2:7 Left	10.00	100.0 %	1665	1665
J2:3/2 (Chertwell Street)	3.00	0.00	N	Arm J2:5 Ahead	Inf	100.0 %	2055	2055
J2:3/3 (Chertwell Street)	3.00	0.00	Y	Arm J2:8 Right	Inf	100.0 %	1915	1915
J2:4/1 (Bridge Street (W))	3.20	0.00	Y	Arm J2:5 Left	Inf	46.3 %	1861	1861
				Arm J2:6 Right	14.00	37.2 %		
				Arm J2:8 Ahead	Inf	16.5 %		
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:7/1	Infinite Saturation Flow						Inf	Inf
J2:8/1	Infinite Saturation Flow						Inf	Inf

Junction: J3: Station Access								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J3:1/1 (Bridge Street (W))	3.25	0.00	Y	Arm J3:4 Right	12.50	16.9 %	1901	1901
				Arm J3:6 Ahead	Inf	83.1 %		
J3:2/1 (Bridge Street (E))	3.25	0.00	Y	Arm J3:4 Left	10.00	4.1 %	1928	1928
				Arm J3:5 Ahead	Inf	95.9 %		
J3:3/1 (Station Approach)	3.25	0.00	Y	Arm J3:5 Left	Inf	83.7 %	1940	1940
				Arm J3:6 Right	Inf	16.3 %		
J3:4/1	Infinite Saturation Flow						Inf	Inf
J3:5/1	Infinite Saturation Flow						Inf	Inf
J3:6/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: 'Future AM Peak (0800-0900)' (FG5: 'Future - AM', Plan 1: 'Network Control Plan 1')
C1

Stage Sequence Diagram

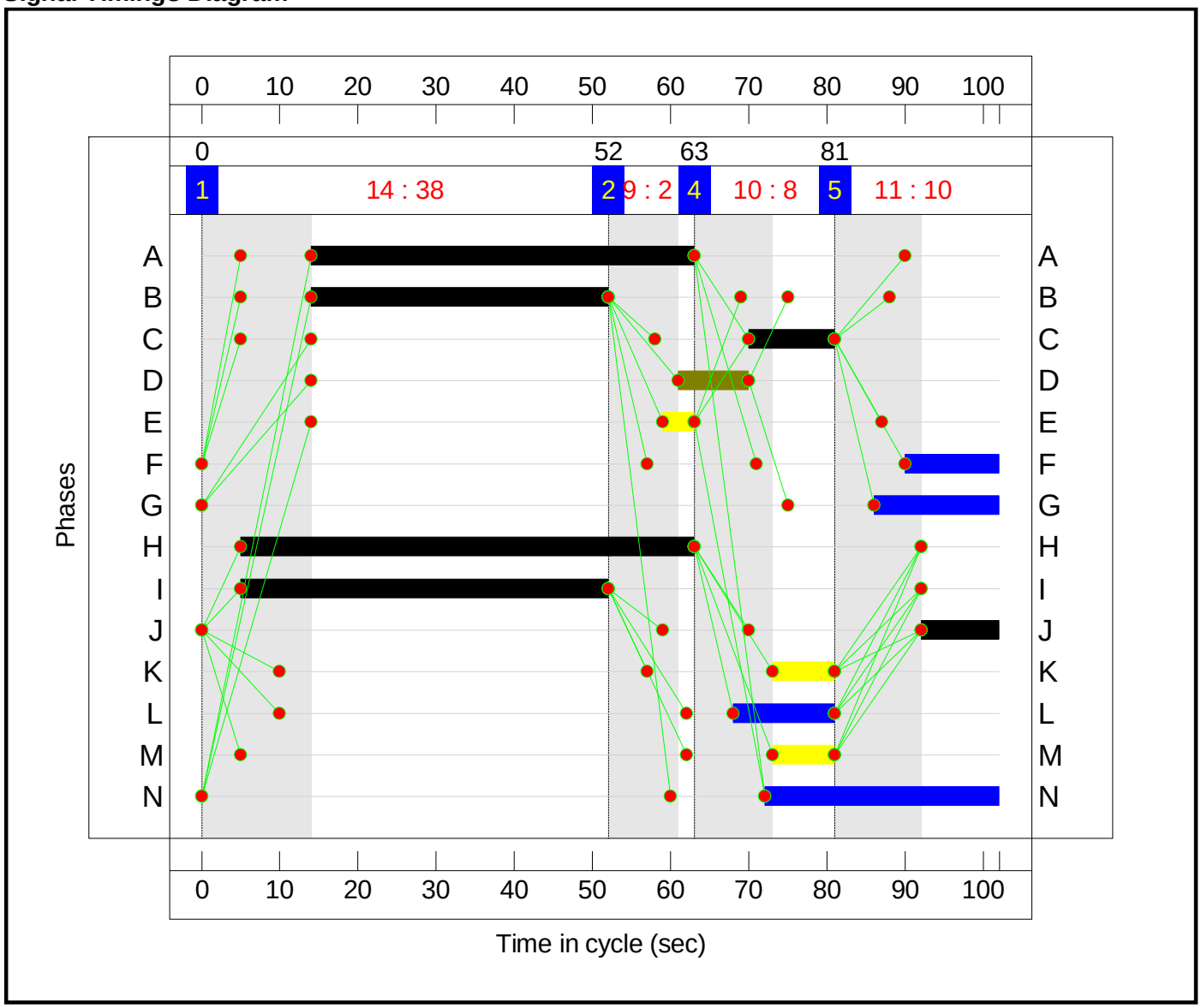


Full Input Data And Results

Stage Timings

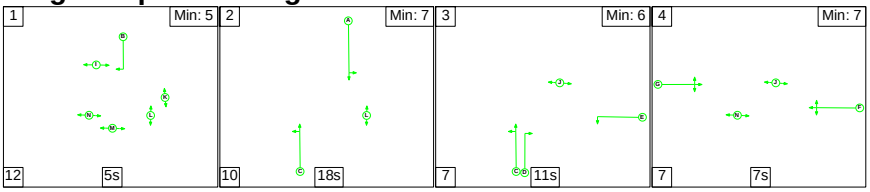
Stage	1	2	4	5
Duration	38	2	8	10
Change Point	0	52	63	81

Signal Timings Diagram



C2

Stage Sequence Diagram

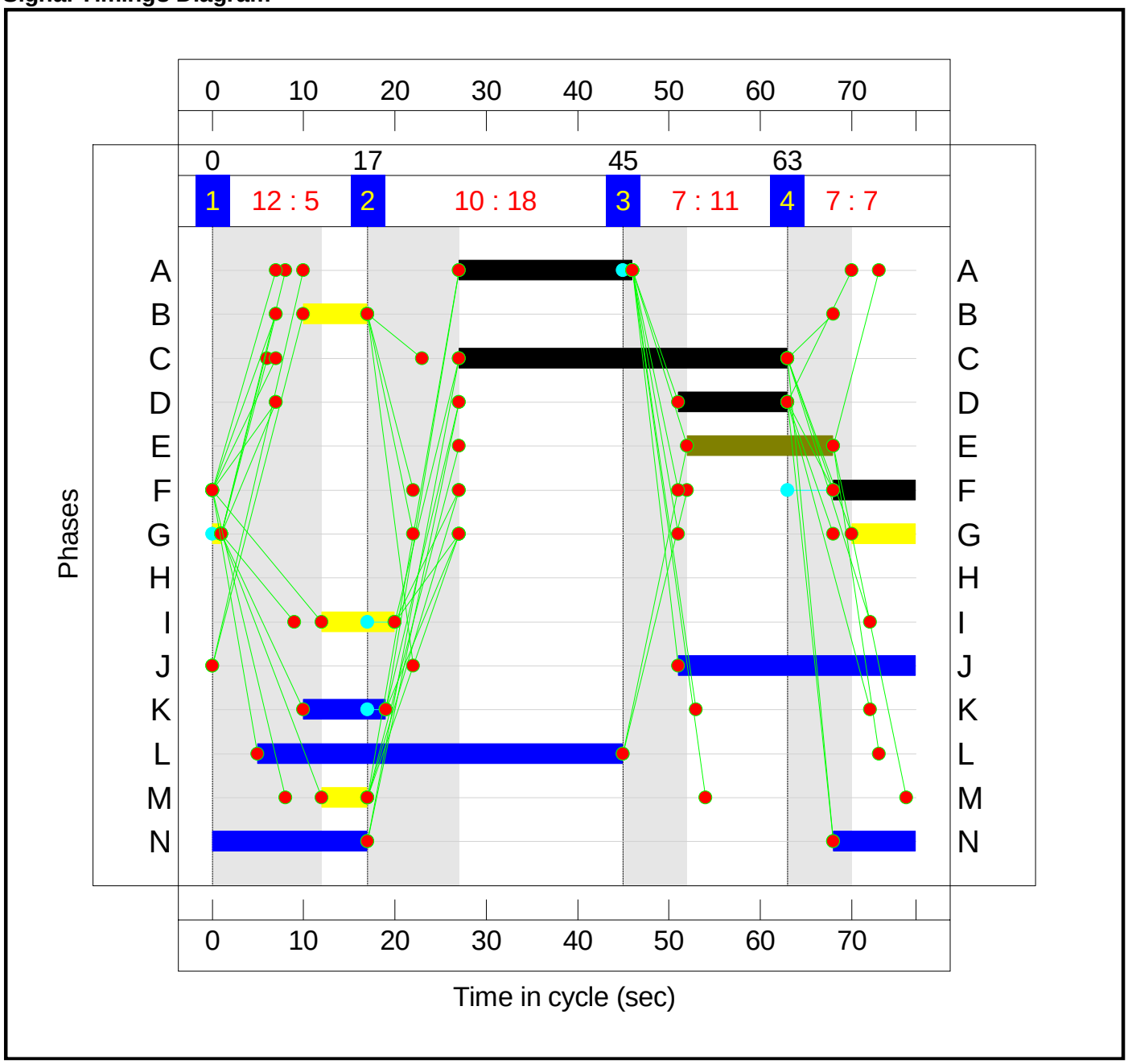


Full Input Data And Results

Stage Timings

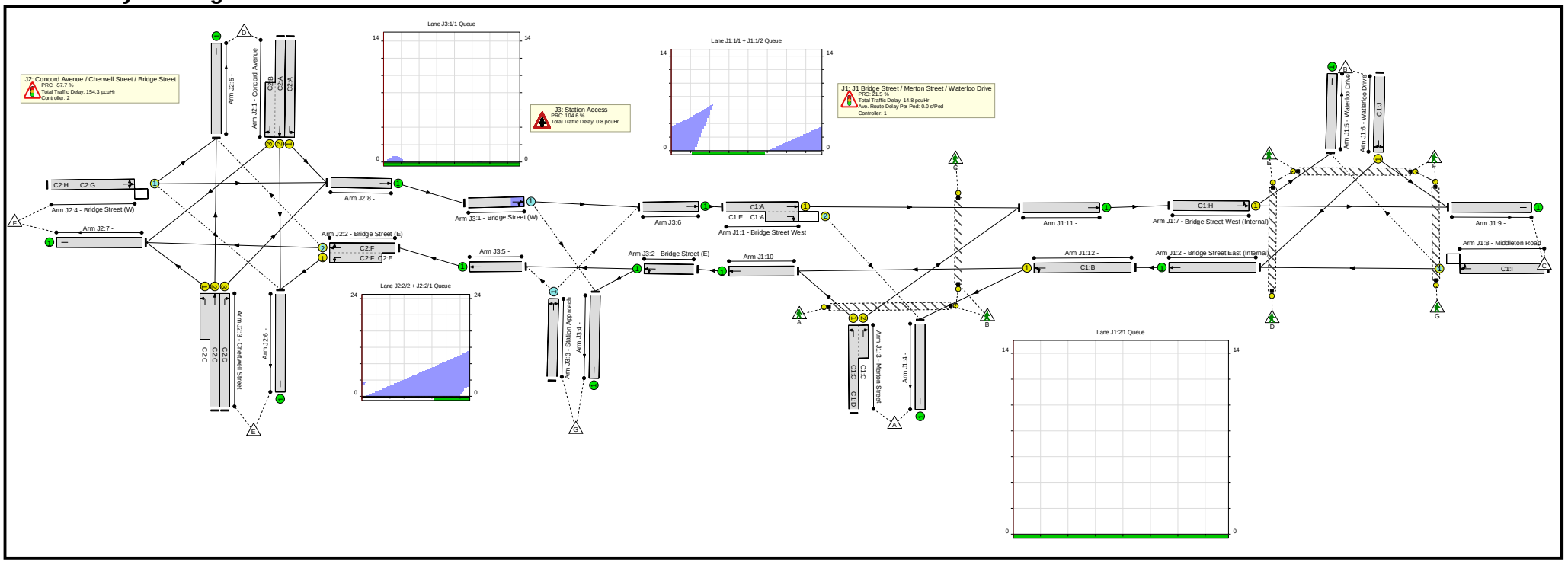
Stage	1	2	3	4
Duration	5	18	11	7
Change Point	0	17	45	63

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Full Input Data And 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: Bridge Street / Merton Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**142.0%**
J1: J1 Bridge Street / Merton Street / Waterloo Drive	-	-	**N/A**	-	-		-	-	-	-	-	-	**74.0%**
1/1+1/2	Bridge Street West Right Ahead	U+O	N/A	N/A	C1:A	C1:E	1	49	4	606	1915:1808	713+292	49.9 : 49.1%
2/1	Bridge Street East (Internal) Ahead	U	N/A	N/A	-		-	-	-	470	2075	2075	22.7%
3/1+3/2	Merton Street Left Right	U	N/A	N/A	C1:C	C1:D	1	20:11	9	268	1915:2055	357+94	59.3 : 59.3%
4/1		U	N/A	N/A	-		-	-	-	223	Inf	Inf	0.0%
5/1	Waterloo Drive	U	N/A	N/A	-		-	-	-	57	Inf	Inf	0.0%
6/1	Watlerloo Drive Right Left	U	N/A	N/A	C1:J		1	10	-	132	1653	178	74.0%
7/1	Bridge Street West (Internal) Left Ahead	U	N/A	N/A	C1:H		1	58	-	486	1982	1146	35.9%
8/1	Middleton Road Ahead Right	O	N/A	N/A	C1:I		1	47	-	387	1920	904	42.8%
9/1		U	N/A	N/A	-		-	-	-	478	Inf	Inf	0.0%
10/1	Ahead	U	N/A	N/A	-		-	-	-	635	Inf	Inf	0.0%
11/1	Ahead	U	N/A	N/A	-		-	-	-	486	Inf	Inf	0.0%
12/1	Left Ahead	U	N/A	N/A	C1:B		1	38	-	470	2044	782	60.1%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:G		1	16	-	0	-	3137	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:F		1	12	-	0	-	2353	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:M		1	8	-	0	-	1569	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:K		1	8	-	0	-	1569	0.0%

Full Input Data And Results

Ped Link: P5	Unnamed Ped Link	-	N/A	-	C1:L		1	13	-	0	-	2549	0.0%
J2: Concord Avenue / Cherwell Street / Bridge Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**142.0%**
1/1	Concord Avenue Left	U	N/A	N/A	C2:A		1	19	-	251	1895	492	51.0%
1/2+1/3	Concord Avenue Ahead Right	U	N/A	N/A	C2:A C2:B		1	19:7	-	631	2075:1701	533+28	112.6 : 112.6%
2/2+2/1	Bridge Street (E) Right Left Ahead	O+U	N/A	N/A	C2:F	C2:E	1	9:25	16	699	1749:1700	156+556	106.6 : 95.9%
3/2+3/1	Chertwell Street Ahead Left	U	N/A	N/A	C2:C		1	36	-	722	2055:1665	895+127	70.6 : 70.6%
3/3	Chertwell Street Right	U	N/A	N/A	C2:D		1	12	-	459	1915	323	142.0%
4/1	Bridge Street (W) Left Right Ahead	O	N/A	N/A	C2:G	C2:H	1	8	0	115	1860	203	56.8%
5/1		U	N/A	N/A	-		-	-	-	810	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	1176	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	162	Inf	Inf	0.0%
8/1	Ahead	U	N/A	N/A	-		-	-	-	729	Inf	Inf	0.0%
J3: Station Access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**44.0%**
1/1	Bridge Street (W) Right Ahead	O	N/A	N/A	-		-	-	-	729	1894	1349	44.0%
2/1	Bridge Street (E) Left Ahead	U	N/A	N/A	-		-	-	-	635	1933	1933	32.9%
3/1	Station Approach Left Right	O	N/A	N/A	-		-	-	-	102	1940	491	20.8%
4/1		U	N/A	N/A	-		-	-	-	161	Inf	Inf	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	699	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	606	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: Bridge Street / Merton Street	**-**	**-**	**296**	**208**	**33**	**38.1**	**131.7**	**0.1**	**169.9**	**-**	**-**	**-**	**-**
J1: J1 Bridge Street / Merton Street / Waterloo Drive	**-**	**-**	**14**	**139**	**4**	**10.7**	**4.1**	**0.0**	**14.8**	**-**	**-**	**-**	**-**
1/1+1/2	499	499	0	139	4	2.2	0.5	0.0	2.7	19.5	6.9	0.5	7.4
2/1	470	470	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
3/1+3/2	268	268	-	-	-	2.8	0.7	-	3.5	46.9	5.4	0.7	6.1
4/1	190	190	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	50	50	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	132	132	-	-	-	1.6	1.3	-	3.0	80.9	3.6	1.3	4.9
7/1	412	412	-	-	-	0.9	0.3	-	1.2	10.5	3.3	0.3	3.6
8/1	387	387	14	0	0	1.9	0.4	0.0	2.3	21.4	7.2	0.4	7.6
9/1	411	411	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	635	635	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	412	412	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	470	470	-	-	-	1.2	0.8	-	2.0	15.1	4.8	0.8	5.6
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P5	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
J2: Concord Avenue / Cherwell Street / Bridge Street	**-**	**-**	**63**	**68**	**29**	**27.4**	**126.8**	**0.1**	**154.3**	**-**	**-**	**-**	**-**
1/1	251	251	-	-	-	1.7	0.5	-	2.2	31.8	4.5	0.5	5.1
1/2+1/3	631	562	-	-	-	7.2	39.3	-	46.5	265.3	15.6	39.3	54.9

Full Input Data And Results

2/2+2/1	699	689	49	68	0	5.4	15.7	-	21.0	108.4	11.3	15.7	26.9
3/2+3/1	722	722	-	-	-	3.0	1.2	-	4.2	20.7	10.6	1.2	11.8
3/3	459	323	-	-	-	9.2	69.5	-	78.7	616.9	14.2	69.5	83.7
4/1	115	115	14	0	29	1.0	0.6	0.1	1.7	54.4	2.3	0.6	2.9
5/1	802	802	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	1109	1109	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	158	158	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	593	593	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Station Access	**-**	**-**	**219**	**0**	**0**	**0.1**	**0.8**	**0.0**	**0.8**	**-**	**-**	**-**	**-**
1/1	593	593	117	0	0	0.1	0.4	-	0.5	2.7	0.6	0.4	1.0
2/1	635	635	-	-	-	0.0	0.2	-	0.2	1.4	0.0	0.2	0.2
3/1	102	102	102	0	0	0.0	0.1	-	0.1	4.6	0.0	0.1	0.1
4/1	132	132	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	699	699	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	499	499	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

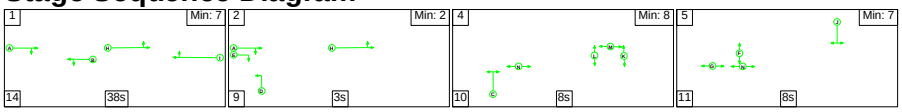
C1	PRC for Signalled Lanes (%):	21.5	Total Delay for Signalled Lanes (pcuHr):	14.64	Cycle Time (s): 102
C2	PRC for Signalled Lanes (%):	-57.7	Total Delay for Signalled Lanes (pcuHr):	154.30	Cycle Time (s): 77
	PRC Over All Lanes (%):	-57.7	Total Delay Over All Lanes(pcuHr):	169.91	

Full Input Data And Results

Scenario 6: 'Future PM Peak (1700-1800)' (FG6: 'Future - PM', Plan 1: 'Network Control Plan 1')

C1

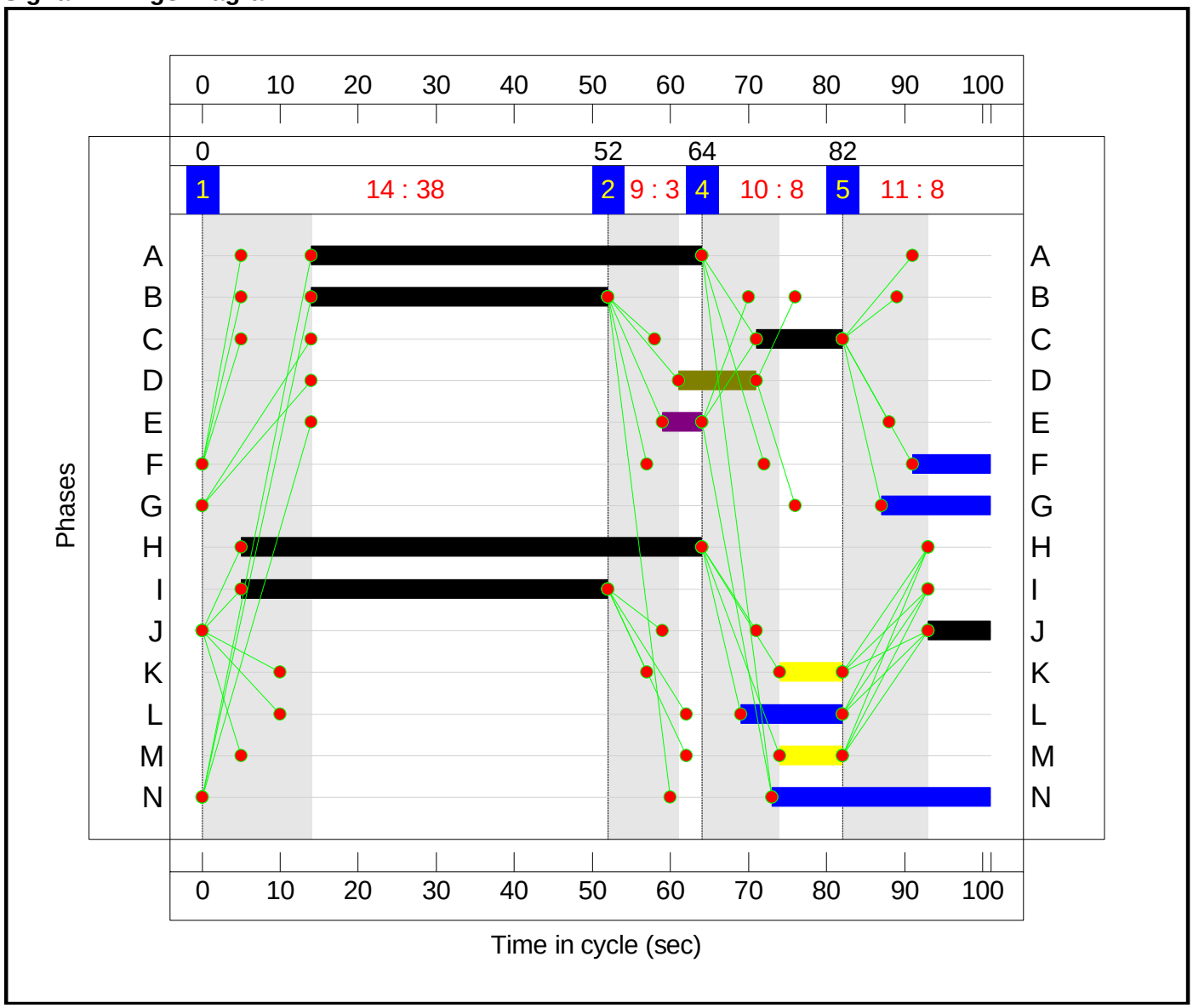
Stage Sequence Diagram



Stage Timings

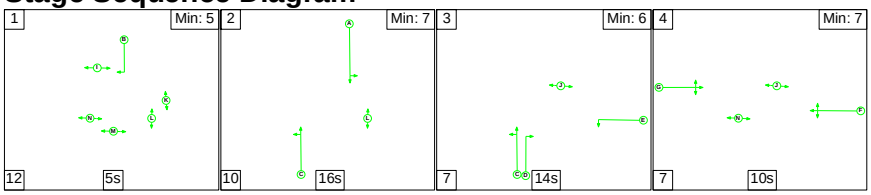
Stage	1	2	4	5
Duration	38	3	8	8
Change Point	0	52	64	82

Signal Timings Diagram



C2

Stage Sequence Diagram

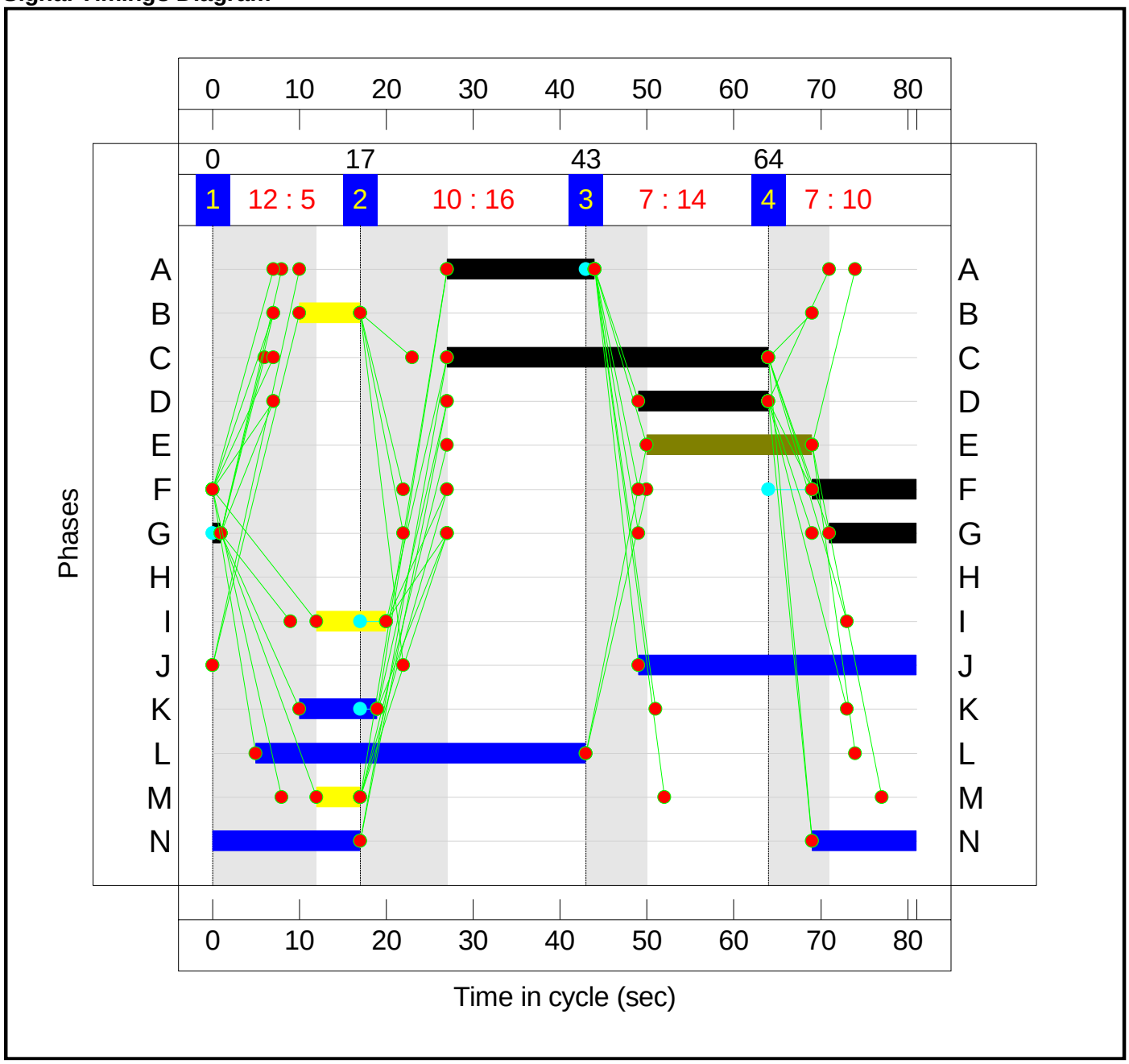


Full Input Data And Results

Stage Timings

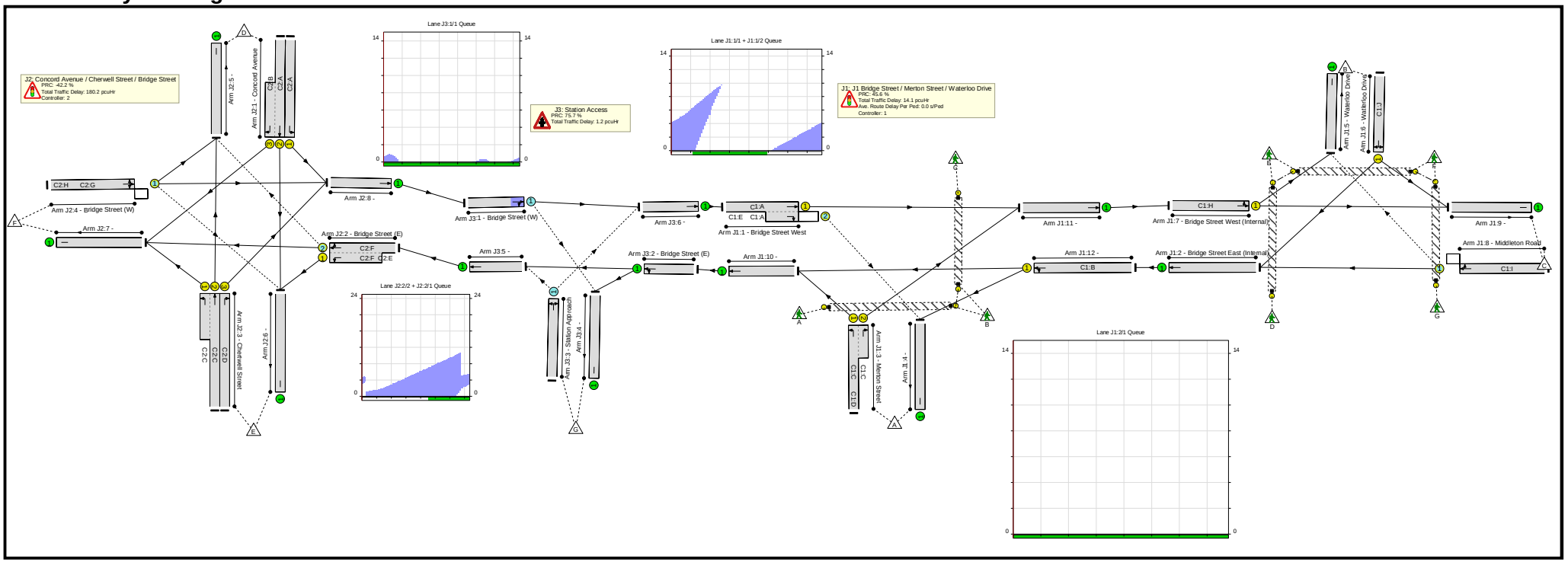
Stage	1	2	3	4
Duration	5	16	14	10
Change Point	0	17	43	64

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Full Input Data And 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: Bridge Street / Merton Street	-	-	**N/A**	-	-		-	-	-	-	-	-	**128.0%**
J1: J1 Bridge Street / Merton Street / Waterloo Drive	-	-	**N/A**	-	-		-	-	-	-	-	-	**61.8%**
1/1+1/2	Bridge Street West Right Ahead	U+O	N/A	N/A	C1:A	C1:E	1	50	5	731	1915:1808	706+339	61.8 : 61.3%
2/1	Bridge Street East (Internal) Ahead	U	N/A	N/A	-		-	-	-	425	2075	2075	20.5%
3/1+3/2	Merton Street Left Right	U	N/A	N/A	C1:C	C1:D	1	21:11	10	275	1915:2055	352+158	53.9 : 53.9%
4/1		U	N/A	N/A	-		-	-	-	271	Inf	Inf	0.0%
5/1	Waterloo Drive	U	N/A	N/A	-		-	-	-	116	Inf	Inf	0.0%
6/1	Watlerloo Drive Right Left	U	N/A	N/A	C1:J		1	8	-	73	1653	147	49.6%
7/1	Bridge Street West (Internal) Left Ahead	U	N/A	N/A	C1:H		1	59	-	579	1971	1171	44.5%
8/1	Middleton Road Ahead Right	O	N/A	N/A	C1:I		1	47	-	389	1919	912	42.7%
9/1		U	N/A	N/A	-		-	-	-	500	Inf	Inf	0.0%
10/1	Ahead	U	N/A	N/A	-		-	-	-	581	Inf	Inf	0.0%
11/1	Ahead	U	N/A	N/A	-		-	-	-	579	Inf	Inf	0.0%
12/1	Left Ahead	U	N/A	N/A	C1:B		1	38	-	425	2050	792	53.7%
Ped Link: P1	Unnamed Ped Link	-	N/A	-	C1:G		1	14	-	0	-	2772	0.0%
Ped Link: P2	Unnamed Ped Link	-	N/A	-	C1:F		1	10	-	0	-	1980	0.0%
Ped Link: P3	Unnamed Ped Link	-	N/A	-	C1:M		1	8	-	0	-	1584	0.0%
Ped Link: P4	Unnamed Ped Link	-	N/A	-	C1:K		1	8	-	0	-	1584	0.0%

Full Input Data And Results

Ped Link: P5	Unnamed Ped Link	-	N/A	-	C1:L		1	13	-	0	-	2574	0.0%
J2: Concord Avenue / Cherwell Street / Bridge Street	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**128.0%**
1/1	Concord Avenue Left	U	N/A	N/A	C2:A		1	17	-	324	1895	421	76.9%
1/2+1/3	Concord Avenue Ahead Right	U	N/A	N/A	C2:A C2:B		1	17:7	-	610	2075:1701	458+25	126.4 : 126.4%
2/2+2/1	Bridge Street (E) Right Left Ahead	O+U	N/A	N/A	C2:F	C2:E	1	12:31	19	732	1744:1700	165+617	120.9 : 86.4%
3/2+3/1	Chertwell Street Ahead Left	U	N/A	N/A	C2:C		1	37	-	765	2055:1665	866+132	76.6 : 76.6%
3/3	Chertwell Street Right	U	N/A	N/A	C2:D		1	15	-	484	1915	378	128.0%
4/1	Bridge Street (W) Left Right Ahead	O	N/A	N/A	C2:G	C2:H	1	11	0	188	1861	276	68.2%
5/1		U	N/A	N/A	-		-	-	-	908	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	1182	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	174	Inf	Inf	0.0%
8/1	Ahead	U	N/A	N/A	-		-	-	-	839	Inf	Inf	0.0%
J3: Station Access	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**51.2%**
1/1	Bridge Street (W) Right Ahead	O	N/A	N/A	-		-	-	-	839	1901	1431	51.2%
2/1	Bridge Street (E) Left Ahead	U	N/A	N/A	-		-	-	-	581	1928	1928	30.1%
3/1	Station Approach Left Right	O	N/A	N/A	-		-	-	-	209	1940	509	41.1%
4/1		U	N/A	N/A	-		-	-	-	166	Inf	Inf	0.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	732	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	731	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: Bridge Street / Merton Street	**-**	**-**	**481**	**270**	**7**	**42.5**	**152.9**	**0.0**	**195.4**	**-**	**-**	**-**	**-**
J1: J1 Bridge Street / Merton Street / Waterloo Drive	**-**	**-**	**18**	**202**	**6**	**10.7**	**3.3**	**0.0**	**14.1**	**-**	**-**	**-**	**-**
1/1+1/2	644	644	0	202	6	2.9	0.8	0.0	3.7	20.5	9.8	0.8	10.6
2/1	425	425	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1
3/1+3/2	275	275	-	-	-	2.8	0.6	-	3.4	44.0	4.6	0.6	5.2
4/1	242	242	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	106	106	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	73	73	-	-	-	0.9	0.5	-	1.4	67.8	1.9	0.5	2.4
7/1	522	522	-	-	-	1.2	0.4	-	1.6	10.9	4.5	0.4	4.9
8/1	389	389	18	0	0	1.9	0.4	0.0	2.3	21.0	7.1	0.4	7.5
9/1	453	453	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	581	581	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	522	522	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	425	425	-	-	-	1.1	0.6	-	1.7	14.3	3.2	0.6	3.8
Ped Link: P1	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P2	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P3	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P4	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
Ped Link: P5	0	0	-	-	-	-	-	-	0.0	0.0	-	-	0.0
J2: Concord Avenue / Cherwell Street / Bridge Street	**-**	**-**	**131**	**68**	**1**	**31.7**	**148.5**	**0.0**	**180.2**	**-**	**-**	**-**	**-**
1/1	324	324	-	-	-	2.7	1.6	-	4.3	47.5	6.7	1.6	8.4
1/2+1/3	610	483	-	-	-	9.6	66.0	-	75.6	446.2	17.2	66.0	83.1

Full Input Data And Results

2/2+2/1	732	698	62	68	0	6.2	23.2	-	29.3	144.3	10.7	23.2	33.9
3/2+3/1	765	765	-	-	-	3.6	1.6	-	5.2	24.4	12.7	1.6	14.4
3/3	484	378	-	-	-	7.9	55.1	-	63.0	468.4	13.8	55.1	68.8
4/1	188	188	69	0	1	1.7	1.0	0.0	2.8	53.4	4.0	1.0	5.0
5/1	881	881	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	1061	1061	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	160	160	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	733	733	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J3: Station Access	**-**	**-**	**332**	**0**	**0**	**0.1**	**1.1**	**0.0**	**1.2**	**-**	**-**	**-**	**-**
1/1	733	733	123	0	0	0.1	0.5	-	0.6	3.1	0.9	0.5	1.4
2/1	581	581	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
3/1	209	209	209	0	0	0.0	0.3	-	0.3	6.0	0.0	0.3	0.3
4/1	147	147	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	732	732	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	644	644	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1	PRC for Signalled Lanes (%):	45.6	Total Delay for Signalled Lanes (pcuHr):	13.95	Cycle Time (s): 101
C2	PRC for Signalled Lanes (%):	-42.2	Total Delay for Signalled Lanes (pcuHr):	180.15	Cycle Time (s): 81
	PRC Over All Lanes (%):	-42.2	Total Delay Over All Lanes(pcuHr):	195.43	