APPENDIX 18

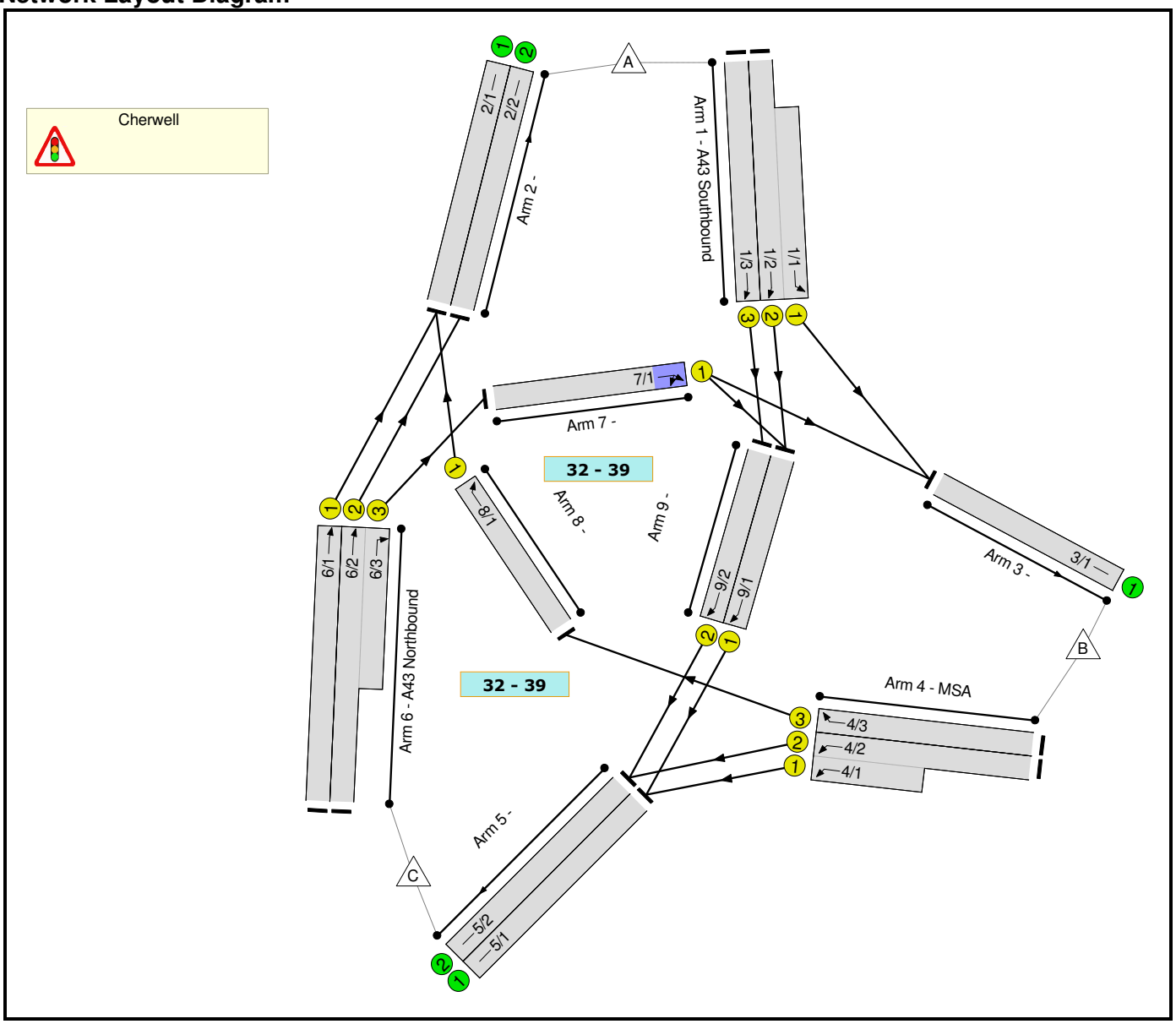
Cherwell Roundabout junction option C-5 – LinSig results

Full Input Data And Results

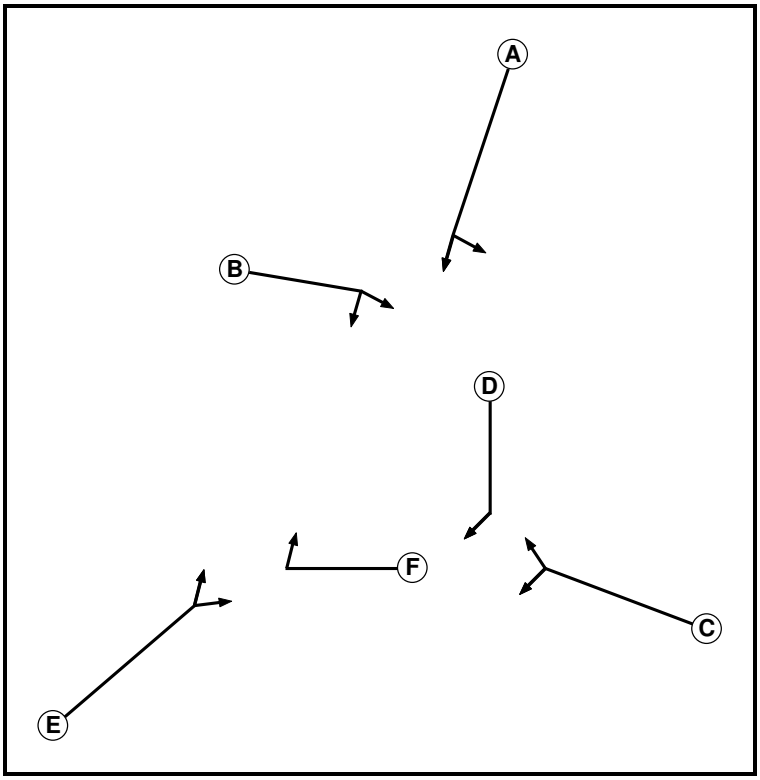
User and Project Details

Project:	**Oxfordshire SRFI**
Title:	**Cherwell hamburger gyratory - Junction options C-5**
Location:	
Additional detail:	
File name:	2031_DS_M40J10_Cherwell - Junction option C-5.lsg3x
Author:	Mark Higgins
Company:	ADC Infrastructure
Address:	Nottingham

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7
E	Traffic	3		7	7
F	Traffic	3		7	7

Phase Intergreens Matrix

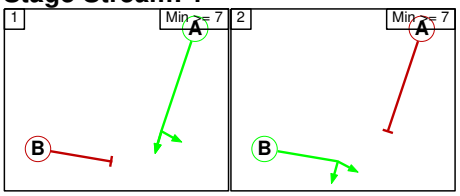
		Starting Phase					
		A	B	C	D	E	F
Terminating Phase	A		6	-	-	-	-
	B	6		-	-	-	-
	C	-	-		6	-	-
	D	-	-	6		-	-
	E	-	-	-	-		6
	F	-	-	-	-	6	

Phases in Stage

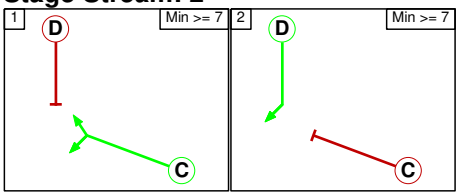
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D
3	1	E
3	2	F

Stage Diagram

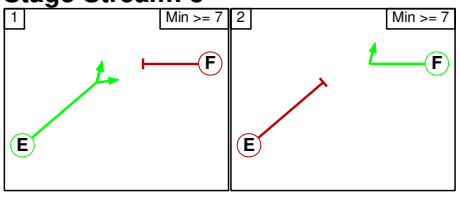
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Prohibited Stage Change

Stage Stream: 1

		To Stage	
		1	2
From Stage	1		6
	2	6	

Stage Stream: 2

	To Stage		
From Stage		1	2
	1		6
	2	6	

Stage Stream: 3

	To Stage		
From Stage		1	2
	1		6
	2	6	

Lane Input Data

Junction: Cherwell												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (A43 Southbound)	U	A	2	3	13.9	Geom	-	3.65	0.00	Y	Arm 3 Left	Inf
1/2 (A43 Southbound)	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 9 Ahead	Inf
1/3 (A43 Southbound)	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 9 Ahead	Inf
2/1	U		2	3	60.0	Inf	-	-	-	-	-	-
2/2	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (MSA)	U	C	2	3	7.0	Geom	-	3.50	0.00	Y	Arm 5 Left	30.00
4/2 (MSA)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 5 Left	30.00
4/3 (MSA)	U	C	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 8 Right	Inf
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (A43 Northbound)	U	E	2	3	62.6	Geom	-	3.65	0.00	Y	Arm 2 Ahead	40.00
6/2 (A43 Northbound)	U	E	2	3	62.6	Geom	-	3.65	0.00	Y	Arm 2 Ahead	45.00
6/3 (A43 Northbound)	U	E	2	3	10.1	Geom	-	3.65	0.00	Y	Arm 7 Right	30.00
7/1	U	B	2	3	6.1	User	1850	-	-	-	-	-
8/1	U	F	2	3	10.4	Geom	-	3.65	0.00	Y	Arm 2 Right	40.00
9/1	U	D	2	3	9.0	Geom	-	3.65	0.00	Y	Arm 5 Ahead	Inf
9/2	U	D	2	3	8.7	Geom	-	3.65	0.00	Y	Arm 5 Ahead	Inf

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Cherwell6_AM'	07:45	08:45	01:00	
2: 'Cherwell6_PM'	16:30	17:30	01:00	

Scenario 1: '2031 Cherwell10, 11, 13, 18, 19 AM' (FG1: 'Cherwell6_AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	343	1641	1984
	B	85	0	497	582
	C	1577	239	0	1816
	Tot.	1662	582	2138	4382

Traffic Lane Flows

Lane	Scenario 1: 2031 Cherwell10, 11, 13, 18, 19 AM
Junction: Cherwell	
1/1 (short)	343
1/2 (with short)	1169(In) 826(Out)
1/3	815
2/1	890
2/2	772
3/1	582
4/1 (short)	249
4/2 (with short)	497(In) 248(Out)
4/3	85
5/1	1075
5/2	1063
6/1	805
6/2 (with short)	1011(In) 772(Out)
6/3 (short)	239
7/1	239
8/1	85
9/1	826
9/2	815

Lane Saturation Flows

Junction: Cherwell

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A43 Southbound)	3.65	0.00	Y	Arm 3 Left	Inf	100.0 %	1980	1980
1/2 (A43 Southbound)	3.65	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1980	1980
1/3 (A43 Southbound)	3.65	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1980	1980
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1 (MSA)	3.50	0.00	Y	Arm 5 Left	30.00	100.0 %	1871	1871
4/2 (MSA)	3.50	0.00	Y	Arm 5 Left	30.00	100.0 %	1871	1871
4/3 (MSA)	3.65	0.00	Y	Arm 8 Right	Inf	100.0 %	1980	1980
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1 (A43 Northbound)	3.65	0.00	Y	Arm 2 Ahead	40.00	100.0 %	1908	1908
6/2 (A43 Northbound)	3.65	0.00	Y	Arm 2 Ahead	45.00	100.0 %	1916	1916
6/3 (A43 Northbound)	3.65	0.00	Y	Arm 7 Right	30.00	100.0 %	1886	1886
7/1	This lane uses a directly entered Saturation Flow						1850	1850
8/1	3.65	0.00	Y	Arm 2 Right	40.00	100.0 %	1908	1908
9/1	3.65	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1980	1980
9/2	3.65	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1980	1980

Scenario 2: '2031 Cherwell10, 11, 13, 18, 19 PM' (FG2: 'Cherwell6_PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	336	1056	1392
	B	129	0	471	600
	C	2346	268	0	2614
	Tot.	2475	604	1527	4606

Traffic Lane Flows

Lane	Scenario 2: 2031 Cherwell10, 11, 13, 18, 19 PM
Junction: Cherwell	
1/1 (short)	336
1/2 (with short)	903(In) 567(Out)
1/3	489
2/1	1359
2/2	1116
3/1	604
4/1 (short)	236
4/2 (with short)	471(In) 235(Out)
4/3	129
5/1	803
5/2	724
6/1	1230
6/2 (with short)	1384(In) 1116(Out)
6/3 (short)	268
7/1	268
8/1	129
9/1	567
9/2	489

Lane Saturation Flows

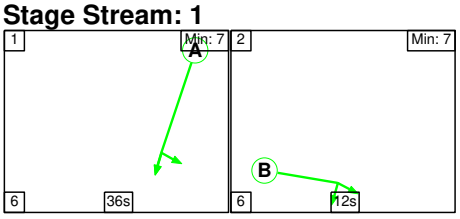
Junction: Cherwell

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A43 Southbound)	3.65	0.00	Y	Arm 3 Left	Inf	100.0 %	1980	1980
1/2 (A43 Southbound)	3.65	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1980	1980
1/3 (A43 Southbound)	3.65	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1980	1980
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1 (MSA)	3.50	0.00	Y	Arm 5 Left	30.00	100.0 %	1871	1871
4/2 (MSA)	3.50	0.00	Y	Arm 5 Left	30.00	100.0 %	1871	1871
4/3 (MSA)	3.65	0.00	Y	Arm 8 Right	Inf	100.0 %	1980	1980
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1 (A43 Northbound)	3.65	0.00	Y	Arm 2 Ahead	40.00	100.0 %	1908	1908
6/2 (A43 Northbound)	3.65	0.00	Y	Arm 2 Ahead	45.00	100.0 %	1916	1916
6/3 (A43 Northbound)	3.65	0.00	Y	Arm 7 Right	30.00	100.0 %	1886	1886
7/1	This lane uses a directly entered Saturation Flow						1850	1850
8/1	3.65	0.00	Y	Arm 2 Right	40.00	100.0 %	1908	1908
9/1	3.65	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1980	1980
9/2	3.65	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1980	1980

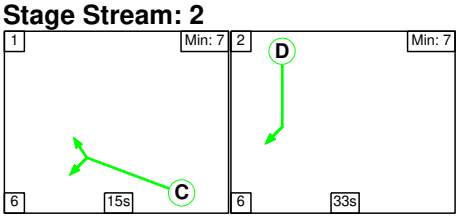
Scenario 1: '2031 Cherwell10, 11, 13, 18, 19 AM' (FG1: 'Cherwell6_AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

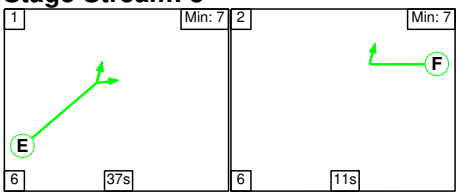
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	36	12
Change Point	0	42

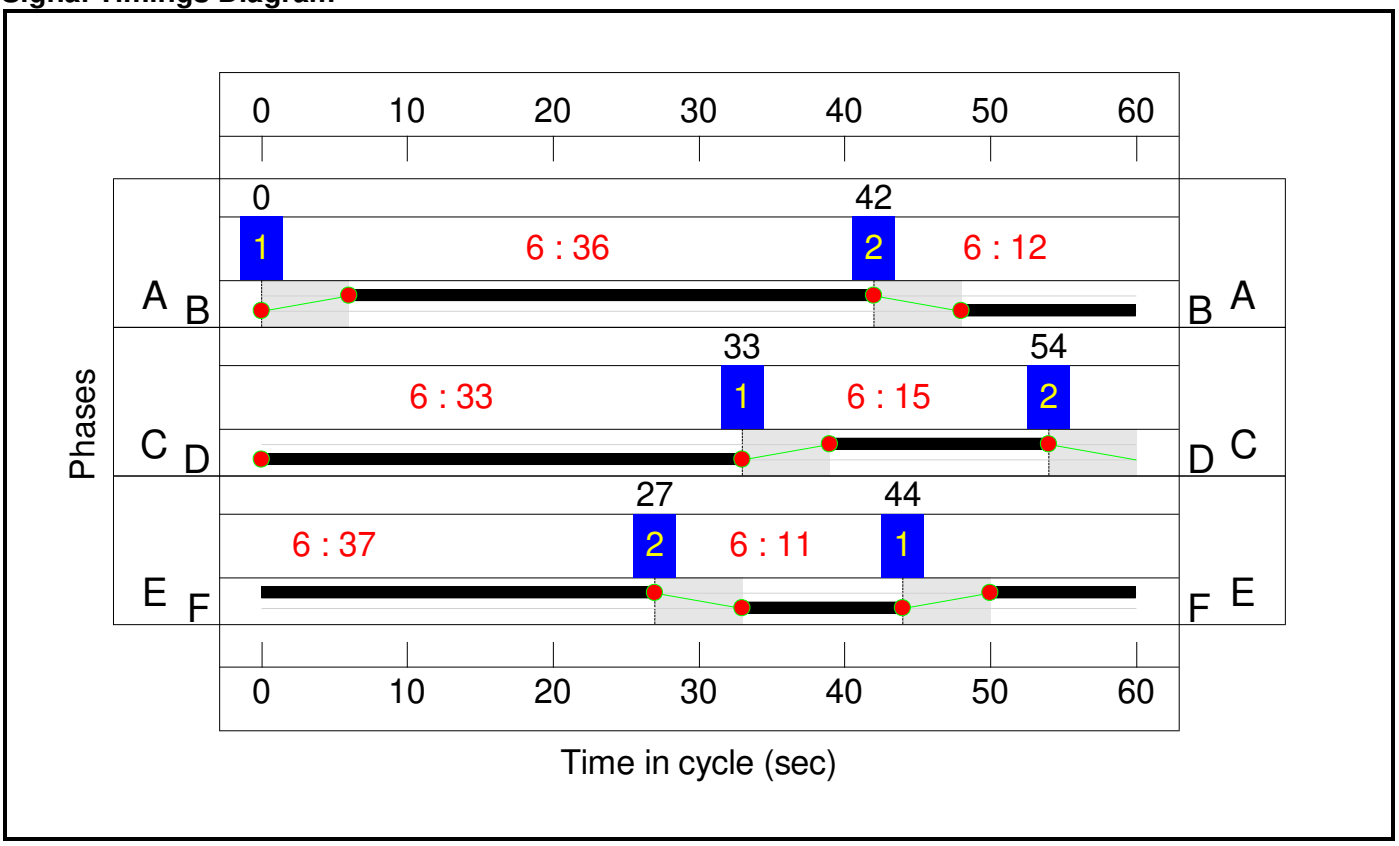
Stage Stream: 2

Stage	1	2
Duration	15	33
Change Point	33	54

Stage Stream: 3

Stage	1	2
Duration	37	11
Change Point	44	27

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Cherwell hamburger gyratory - Junction options C-5	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.9%**
Cherwell	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.9%**
1/2+1/1	A43 Southbound Left Ahead	U	1	N/A	A		1	36	-	1169	1980:1980	1117+464	73.9 : 73.9%
1/3	A43 Southbound Ahead	U	1	N/A	A		1	36	-	815	1980	1221	66.7%
4/2+4/1	MSA Left	U	2	N/A	C		1	15	-	497	1871:1871	465+467	53.3 : 53.3%
4/3	MSA Right	U	2	N/A	C		1	15	-	85	1980	528	16.1%
6/1	A43 Northbound Ahead	U	3	N/A	E		1	37	-	805	1908	1208	66.6%
6/2+6/3	A43 Northbound Ahead Right	U	3	N/A	E		1	37	-	1011	1916:1886	1066+330	72.4 : 72.4%
7/1	Ahead Right	U	1	N/A	B		1	12	-	239	1850	401	59.6%
8/1	Right	U	3	N/A	F		1	11	-	85	1908	382	22.3%
9/1	Ahead	U	2	N/A	D		1	33	-	826	1980	1122	73.6%
9/2	Ahead	U	2	N/A	D		1	33	-	815	1980	1122	72.6%

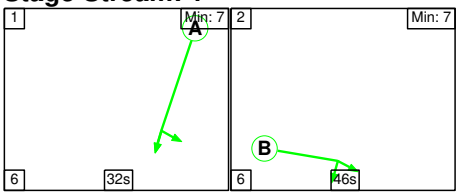
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Cherwell hamburger gyratory - Junction options C-5	**-**	**-**	**0**	**0**	**0**	**14.2**	**5.4**	**0.0**	**19.6**	**-**	**-**	**-**	**-**
Cherwell	**-**	**-**	**0**	**0**	**0**	**14.2**	**5.4**	**0.0**	**19.6**	**-**	**-**	**-**	**-**
1/2+1/1	1169	1169	-	-	-	2.2	1.4	-	3.7	11.3	8.9	1.4	10.4
1/3	815	815	-	-	-	1.7	1.0	-	2.7	11.9	8.8	1.0	9.8
4/2+4/1	497	497	-	-	-	2.6	0.6	-	3.1	22.7	3.5	0.6	4.0
4/3	85	85	-	-	-	0.4	0.1	-	0.5	20.9	1.1	0.1	1.2
6/1	805	805	-	-	-	1.6	1.0	-	2.6	11.4	8.5	1.0	9.5
6/2+6/3	1011	1011	-	-	-	1.8	1.3	-	3.1	10.9	7.7	1.3	9.0
7/1	239	239	-	-	-	1.1	0.0	-	1.1	17.0	2.0	0.0	2.0
8/1	85	85	-	-	-	0.7	0.0	-	0.7	28.6	0.9	0.0	0.9
9/1	826	826	-	-	-	1.1	0.0	-	1.1	4.8	3.0	0.0	3.0
9/2	815	815	-	-	-	1.1	0.0	-	1.1	4.8	2.9	0.0	2.9

C1 Stream: 1 PRC for Signalled Lanes (%): 21.7 Total Delay for Signalled Lanes (pcuHr): 7.48 Cycle Time (s): 60
C1 Stream: 2 PRC for Signalled Lanes (%): 22.3 Total Delay for Signalled Lanes (pcuHr): 5.83 Cycle Time (s): 60
C1 Stream: 3 PRC for Signalled Lanes (%): 24.2 Total Delay for Signalled Lanes (pcuHr): 6.29 Cycle Time (s): 60
PRC Over All Lanes (%): 21.7 Total Delay Over All Lanes(pcuHr): 19.59

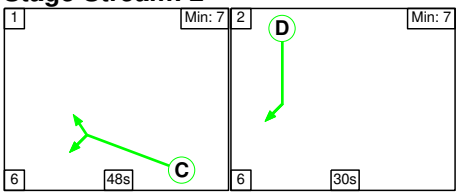
Scenario 2: '2031 Cherwell10, 11, 13, 18, 19 PM' (FG2: 'Cherwell6_PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

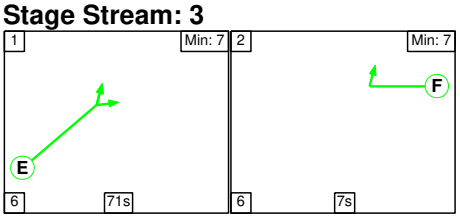
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	32	46
Change Point	0	38

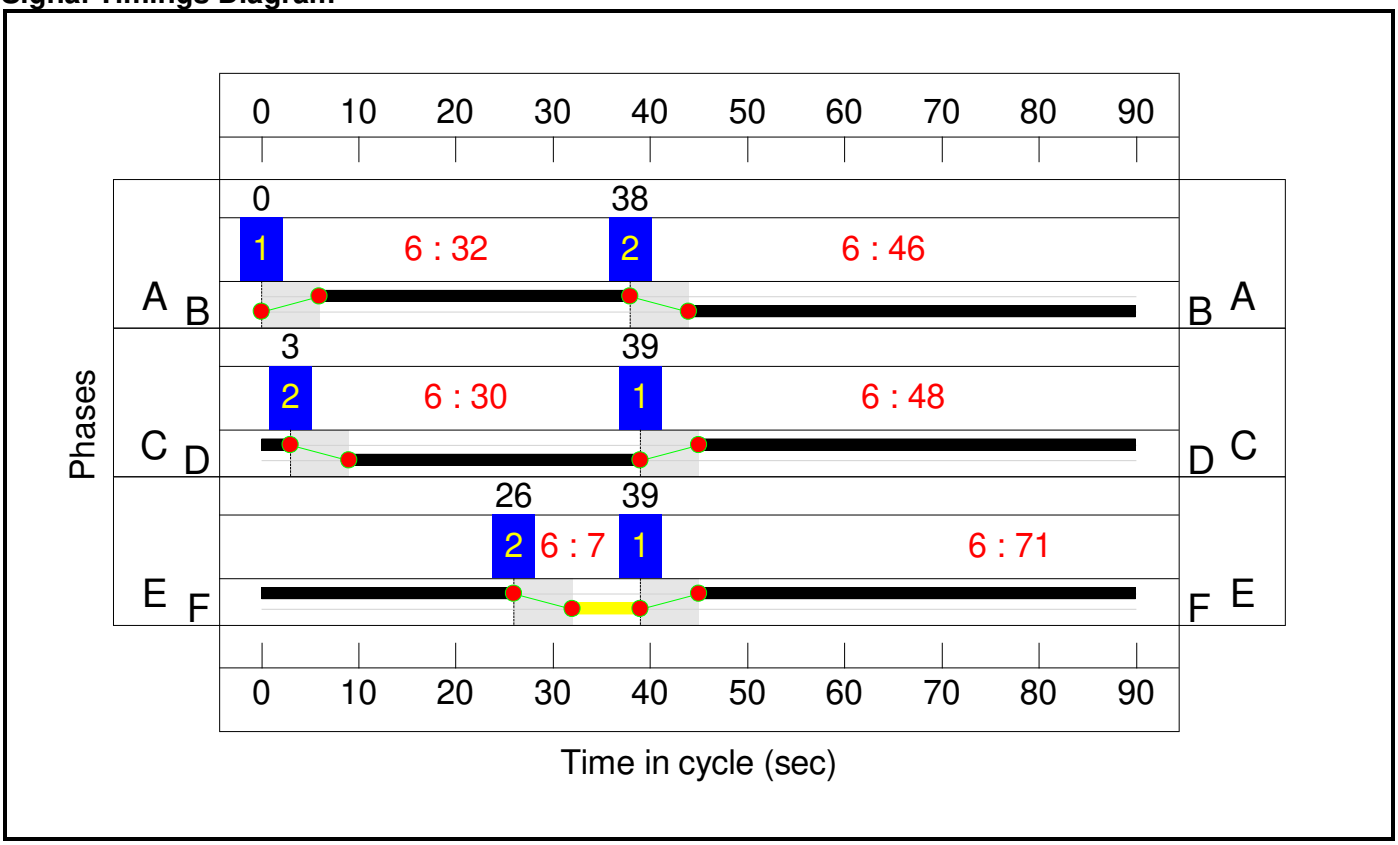
Stage Stream: 2

Stage	1	2
Duration	48	30
Change Point	39	3

Stage Stream: 3

Stage	1	2
Duration	71	7
Change Point	39	26

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Cherwell hamburger gyratory - Junction options C-5	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.2%**
Cherwell	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**85.2%**
1/2+1/1	A43 Southbound Left Ahead	U	1	N/A	A		1	32	-	903	1980:1980	669+396	84.8 : 84.8%
1/3	A43 Southbound Ahead	U	1	N/A	A		1	32	-	489	1980	726	67.4%
4/2+4/1	MSA Left	U	2	N/A	C		1	48	-	471	1871:1871	652+655	36.0 : 36.0%
4/3	MSA Right	U	2	N/A	C		1	48	-	129	1980	1078	12.0%
6/1	A43 Northbound Ahead	U	3	N/A	E		1	71	-	1230	1908	1526	80.6%
6/2+6/3	A43 Northbound Ahead Right	U	3	N/A	E		1	71	-	1384	1916:1886	1310+314	85.2 : 85.2%
7/1	Ahead Right	U	1	N/A	B		1	46	-	268	1850	966	27.7%
8/1	Right	U	3	N/A	F		1	7	-	129	1908	170	76.1%
9/1	Ahead	U	2	N/A	D		1	30	-	567	1980	682	83.1%
9/2	Ahead	U	2	N/A	D		1	30	-	489	1980	682	71.7%

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: Cherwell hamburger gyratory - Junction options C-5	**-**	**-**	**0**	**0**	**0**	**17.8**	**8.9**	**0.0**	**26.8**	**-**	**-**	**-**	**-**
Cherwell	**-**	**-**	**0**	**0**	**0**	**17.8**	**8.9**	**0.0**	**26.8**	**-**	**-**	**-**	**-**
1/2+1/1	903	903	-	-	-	6.0	2.7	-	8.7	34.7	12.4	2.7	15.1
1/3	489	489	-	-	-	3.3	1.0	-	4.3	31.5	10.2	1.0	11.2
4/2+4/1	471	471	-	-	-	1.4	0.3	-	1.7	12.8	3.0	0.3	3.3
4/3	129	129	-	-	-	0.4	0.1	-	0.4	11.9	1.5	0.1	1.6
6/1	1230	1230	-	-	-	1.7	2.0	-	3.8	11.1	17.1	2.0	19.1
6/2+6/3	1384	1384	-	-	-	1.6	2.8	-	4.4	11.4	16.3	2.8	19.1
7/1	268	268	-	-	-	0.7	0.0	-	0.7	9.9	2.7	0.0	2.7
8/1	129	129	-	-	-	2.2	0.0	-	2.2	61.0	3.2	0.0	3.2
9/1	567	567	-	-	-	0.3	0.0	-	0.3	1.9	0.5	0.0	0.5
9/2	489	489	-	-	-	0.3	0.0	-	0.3	1.9	0.4	0.0	0.4

C1 Stream: 1 PRC for Signalled Lanes (%):	6.1	Total Delay for Signalled Lanes (pcuHr):	13.73	Cycle Time (s):	90
C1 Stream: 2 PRC for Signalled Lanes (%):	8.3	Total Delay for Signalled Lanes (pcuHr):	2.67	Cycle Time (s):	90
C1 Stream: 3 PRC for Signalled Lanes (%):	5.6	Total Delay for Signalled Lanes (pcuHr):	10.35	Cycle Time (s):	90
PRC Over All Lanes (%):	5.6	Total Delay Over All Lanes(pcuHr):	26.76		

APPENDIX 19

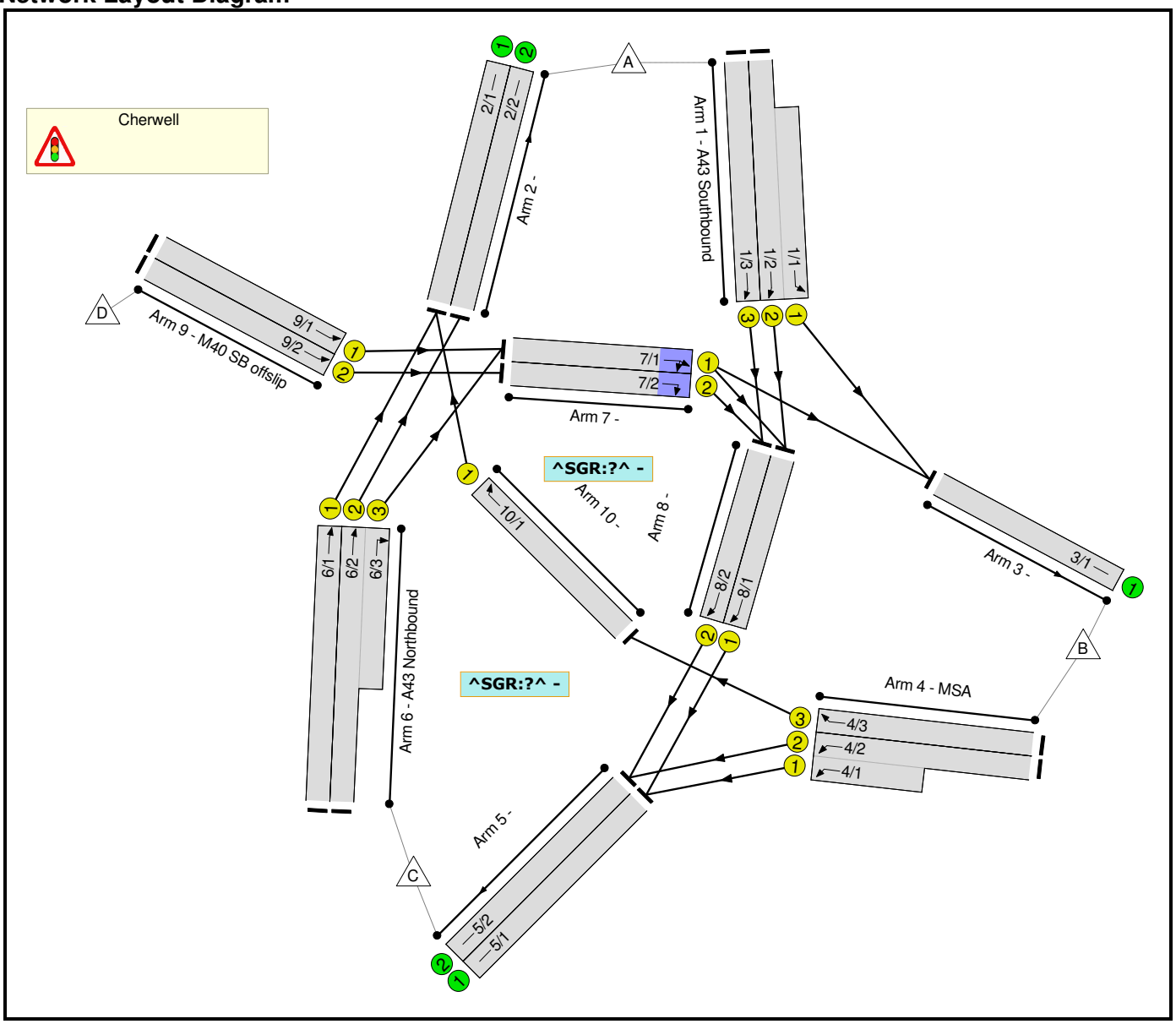
Cherwell Roundabout junction option C-6 – LinSig results

Full Input Data And Results

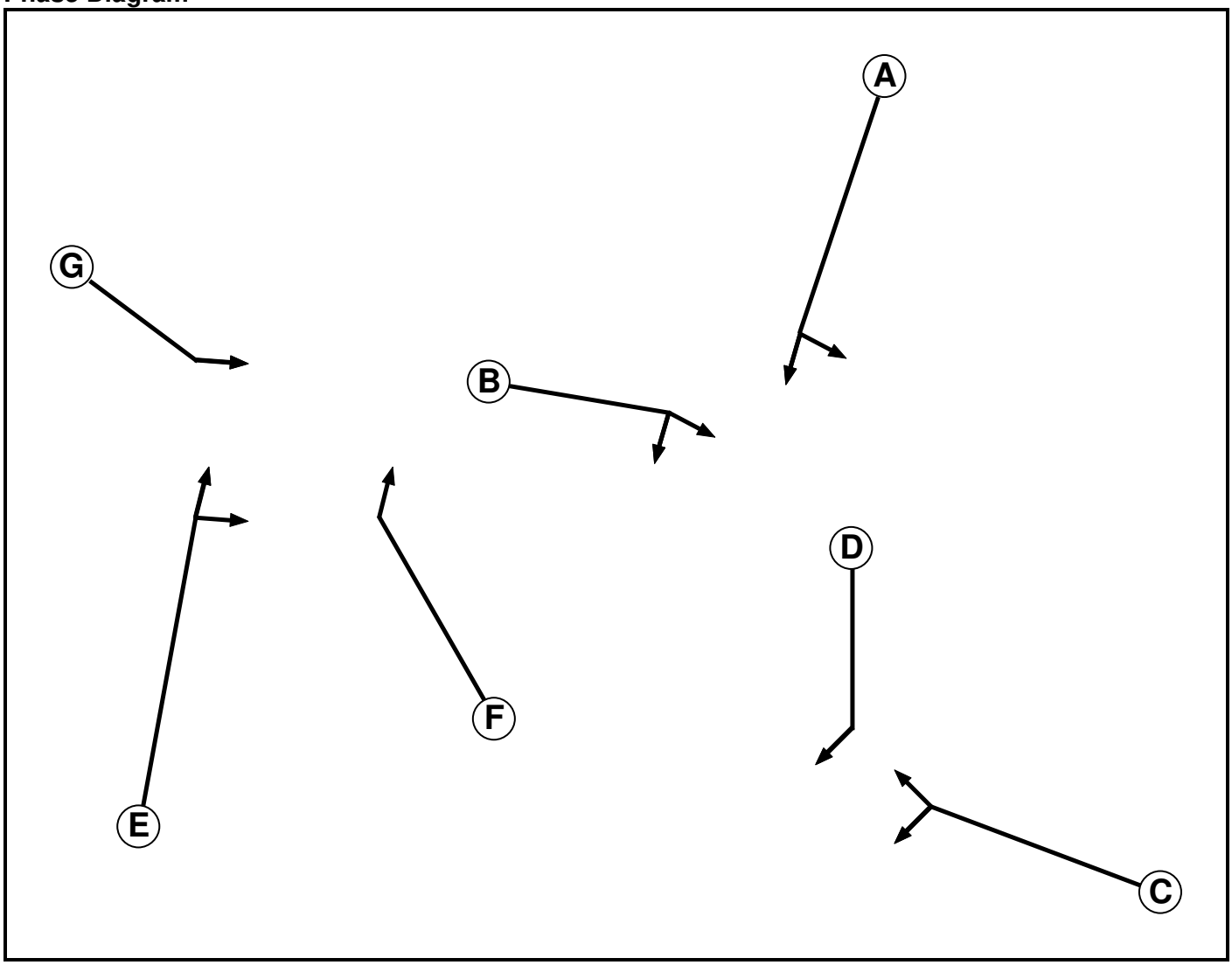
User and Project Details

Project:	**Oxfordshire SRFI**
Title:	**Cherwell hamburger gyratory - Junction option C-6**
Location:	
Additional detail:	
File name:	2031_DS_M40J10_Cherwell - Junction option C-6.lsg3x
Author:	
Company:	
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7
E	Traffic	3		7	7
F	Traffic	3		7	7
G	Traffic	3		7	7

Phase Intergreens Matrix

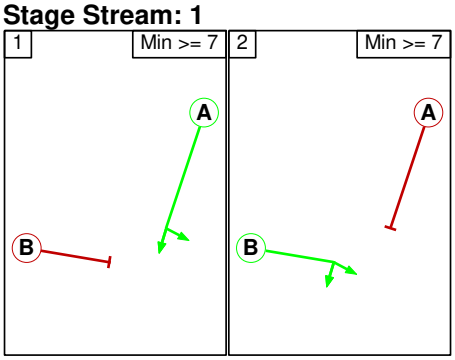
		Starting Phase						
		A	B	C	D	E	F	G
Terminating Phase	A		6	-	-	-	-	-
	B	6		-	-	-	-	-
	C	-	-		6	-	-	-
	D	-	-	6		-	-	-
	E	-	-	-	-		6	6
	F	-	-	-	-	6		6
	G	-	-	-	-	6	6	

Phases in Stage

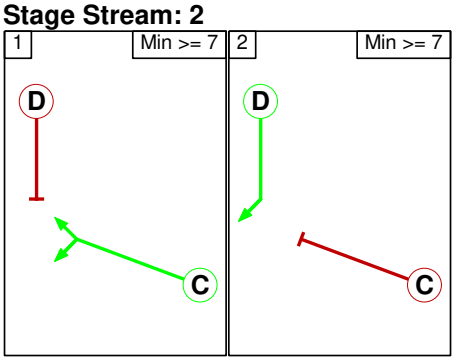
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D
3	1	E
3	2	F
3	3	G

Stage Diagram

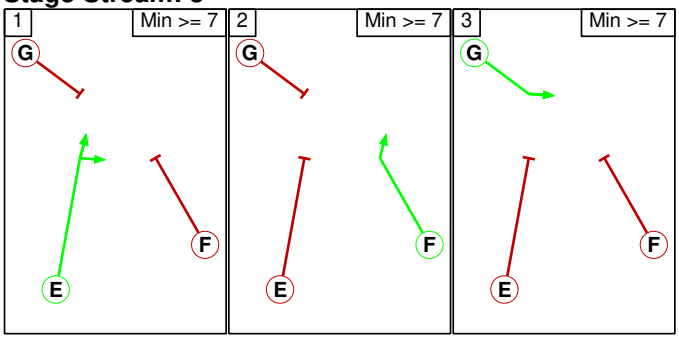
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Prohibited Stage Change

Stage Stream: 1

	To Stage		
From Stage		1	2
	1		6
	2	6	

Stage Stream: 2

	To Stage		
From Stage		1	2
	1		6
	2	6	

Stage Stream: 3

	To Stage			
From Stage		1	2	3
	1		6	6
	2	6		6
	3	6	6	

Lane Input Data

Junction: Cherwell												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (A43 Southbound)	U	A	2	3	13.9	Geom	-	3.65	0.00	Y	Arm 3 Left	Inf
1/2 (A43 Southbound)	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 8 Ahead	Inf
1/3 (A43 Southbound)	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 8 Ahead	Inf
2/1	U		2	3	60.0	Inf	-	-	-	-	-	-
2/2	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (MSA)	U	C	2	3	7.0	Geom	-	3.50	0.00	Y	Arm 5 Left	30.00
4/2 (MSA)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 5 Left	30.00
4/3 (MSA)	U	C	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 10 Ahead	Inf
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (A43 Northbound)	U	E	2	3	62.6	Geom	-	3.65	0.00	Y	Arm 2 Ahead	40.00
6/2 (A43 Northbound)	U	E	2	3	62.6	Geom	-	3.65	0.00	Y	Arm 2 Ahead	45.00
6/3 (A43 Northbound)	U	E	2	3	10.1	Geom	-	3.65	0.00	Y	Arm 7 Right	30.00
7/1	U	B	2	3	6.1	User	1850	-	-	-	-	-
7/2	U	B	2	3	6.1	User	1850	-	-	-	-	-
8/1	U	D	2	3	9.0	Geom	-	3.65	0.00	Y	Arm 5 Ahead	Inf
8/2	U	D	2	3	8.7	Geom	-	3.65	0.00	Y	Arm 5 Ahead	Inf
9/1 (M40 SB offslip)	U	G	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 7 Ahead	Inf
9/2 (M40 SB offslip)	U	G	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 7 Ahead	Inf
10/1	U	F	2	3	10.4	Geom	-	3.65	0.00	Y	Arm 2 Right	40.00

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Cherwell7_AM'	07:45	08:45	01:00	
2: 'Cherwell7_PM'	16:30	17:30	01:00	

Scenario 1: '2031 Cherwell12 AM' (FG1: 'Cherwell7_AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	124	1122	0	1246
	B	85	0	497	0	582
	C	1577	239	0	0	1816
	D	0	219	519	0	738
	Tot.	1662	582	2138	0	4382

Traffic Lane Flows

Lane	Scenario 1: 2031 Cherwell12 AM
Junction: Cherwell	
1/1 (short)	124
1/2 (with short)	687(In) 563(Out)
1/3	559
2/1	920
2/2	742
3/1	582
4/1 (short)	249
4/2 (with short)	497(In) 248(Out)
4/3	85
5/1	962
5/2	1176
6/1	835
6/2 (with short)	981(In) 742(Out)
6/3 (short)	239
7/1	608
7/2	369
8/1	713
8/2	928
9/1	369
9/2	369
10/1	85

Lane Saturation Flows

Junction: Cherwell

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A43 Southbound)	3.65	0.00	Y	Arm 3 Left	Inf	100.0 %	1980	1980
1/2 (A43 Southbound)	3.65	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1980	1980
1/3 (A43 Southbound)	3.65	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1980	1980
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1 (MSA)	3.50	0.00	Y	Arm 5 Left	30.00	100.0 %	1871	1871
4/2 (MSA)	3.50	0.00	Y	Arm 5 Left	30.00	100.0 %	1871	1871
4/3 (MSA)	3.65	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1980	1980
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1 (A43 Northbound)	3.65	0.00	Y	Arm 2 Ahead	40.00	100.0 %	1908	1908
6/2 (A43 Northbound)	3.65	0.00	Y	Arm 2 Ahead	45.00	100.0 %	1916	1916
6/3 (A43 Northbound)	3.65	0.00	Y	Arm 7 Right	30.00	100.0 %	1886	1886
7/1	This lane uses a directly entered Saturation Flow						1850	1850
7/2	This lane uses a directly entered Saturation Flow						1850	1850
8/1	3.65	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1980	1980
8/2	3.65	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1980	1980
9/1 (M40 SB offslip)	3.65	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1980	1980
9/2 (M40 SB offslip)	3.65	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1980	1980
10/1	3.65	0.00	Y	Arm 2 Right	40.00	100.0 %	1908	1908

Scenario 2: '2031 Cherwell12 PM' (FG2: 'Cherwell7_PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	107	676	0	783
	B	129	0	471	0	600
	C	2346	268	0	0	2614
	D	0	229	380	0	609
	Tot.	2475	604	1527	0	4606

Traffic Lane Flows

Lane	Scenario 2: 2031 Cherwell12 PM
Junction: Cherwell	
1/1 (short)	107
1/2 (with short)	462(In) 355(Out)
1/3	321
2/1	1381
2/2	1094
3/1	604
4/1 (short)	236
4/2 (with short)	471(In) 235(Out)
4/3	129
5/1	667
5/2	860
6/1	1252
6/2 (with short)	1362(In) 1094(Out)
6/3 (short)	268
7/1	573
7/2	304
8/1	431
8/2	625
9/1	305
9/2	304
10/1	129

Lane Saturation Flows

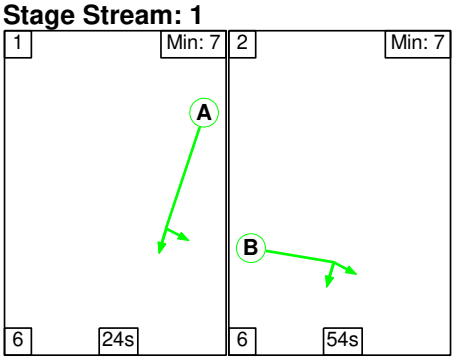
Junction: Cherwell

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A43 Southbound)	3.65	0.00	Y	Arm 3 Left	Inf	100.0 %	1980	1980
1/2 (A43 Southbound)	3.65	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1980	1980
1/3 (A43 Southbound)	3.65	0.00	Y	Arm 8 Ahead	Inf	100.0 %	1980	1980
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1 (MSA)	3.50	0.00	Y	Arm 5 Left	30.00	100.0 %	1871	1871
4/2 (MSA)	3.50	0.00	Y	Arm 5 Left	30.00	100.0 %	1871	1871
4/3 (MSA)	3.65	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1980	1980
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1 (A43 Northbound)	3.65	0.00	Y	Arm 2 Ahead	40.00	100.0 %	1908	1908
6/2 (A43 Northbound)	3.65	0.00	Y	Arm 2 Ahead	45.00	100.0 %	1916	1916
6/3 (A43 Northbound)	3.65	0.00	Y	Arm 7 Right	30.00	100.0 %	1886	1886
7/1	This lane uses a directly entered Saturation Flow						1850	1850
7/2	This lane uses a directly entered Saturation Flow						1850	1850
8/1	3.65	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1980	1980
8/2	3.65	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1980	1980
9/1 (M40 SB offslip)	3.65	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1980	1980
9/2 (M40 SB offslip)	3.65	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1980	1980
10/1	3.65	0.00	Y	Arm 2 Right	40.00	100.0 %	1908	1908

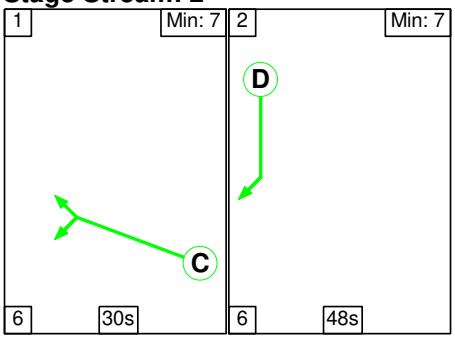
Scenario 1: '2031 Cherwell12 AM' (FG1: 'Cherwell7_AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

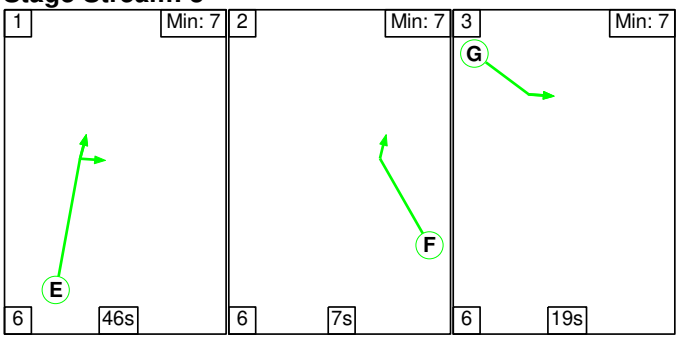
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	24	54
Change Point	0	30

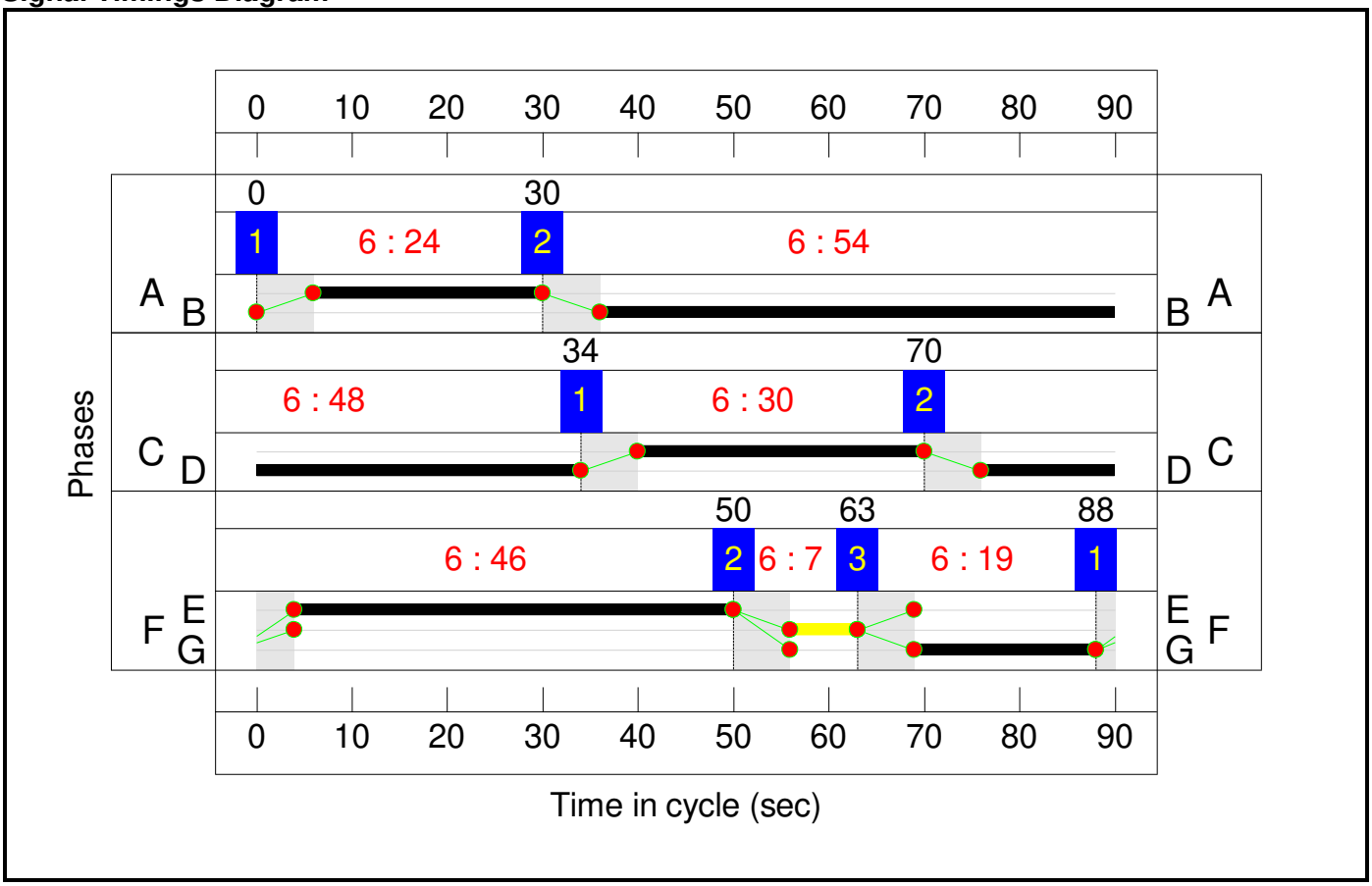
Stage Stream: 2

Stage	1	2
Duration	30	48
Change Point	34	70

Stage Stream: 3

Stage	1	2	3
Duration	46	7	19
Change Point	88	50	63

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Cherwell hamburger gyratory - Junction option C-6	-	-	**N/A**	-	-		-	-	-	-	-	-	**102.4%**
Cherwell	-	-	**N/A**	-	-		-	-	-	-	-	-	**102.4%**
1/2+1/1	A43 Southbound Left Ahead	U	1	N/A	A		1	24	-	687	1980:1980	550+121	102.4 : 102.4%
1/3	A43 Southbound Ahead	U	1	N/A	A		1	24	-	559	1980	550	101.6%
4/2+4/1	MSA Left	U	2	N/A	C		1	30	-	497	1871:1871	466+467	53.3 : 53.3%
4/3	MSA Ahead	U	2	N/A	C		1	30	-	85	1980	682	12.5%
6/1	A43 Northbound Ahead	U	3	N/A	E		1	46	-	835	1908	996	83.8%
6/2+6/3	A43 Northbound Ahead Right	U	3	N/A	E		1	46	-	981	1916:1886	852+274	87.1 : 87.1%
7/1	Ahead Right	U	1	N/A	B		1	54	-	608	1850	1131	53.8%
7/2	Right	U	1	N/A	B		1	54	-	369	1850	1131	32.6%
8/1	Ahead	U	2	N/A	D		1	48	-	713	1980	1078	64.9%
8/2	Ahead	U	2	N/A	D		1	48	-	928	1980	1078	85.3%
9/1	M40 SB offslip Ahead	U	3	N/A	G		1	19	-	369	1980	440	83.9%
9/2	M40 SB offslip Ahead	U	3	N/A	G		1	19	-	369	1980	440	83.9%
10/1	Right	U	3	N/A	F		1	7	-	85	1908	170	50.1%

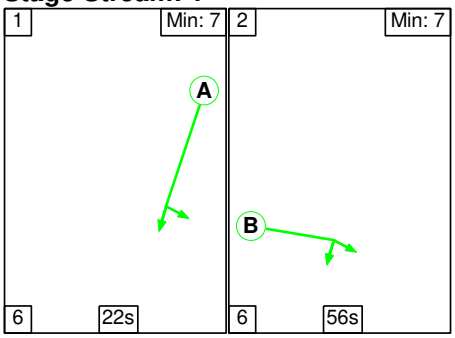
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Cherwell hamburger gyratory - Junction option C-6	**-**	**-**	**0**	**0**	**0**	**33.1**	**43.2**	**0.0**	**76.3**	**-**	**-**	**-**	**-**
Cherwell	**-**	**-**	**0**	**0**	**0**	**33.1**	**43.2**	**0.0**	**76.3**	**-**	**-**	**-**	**-**
1/2+1/1	687	671	-	-	-	6.6	17.7	-	24.2	127.1	14.9	17.7	32.5
1/3	559	550	-	-	-	5.4	14.3	-	19.7	127.1	14.2	14.3	28.5
4/2+4/1	497	497	-	-	-	3.1	0.6	-	3.6	26.4	4.7	0.6	5.3
4/3	85	85	-	-	-	0.5	0.1	-	0.5	23.2	1.4	0.1	1.5
6/1	835	835	-	-	-	4.2	2.5	-	6.7	29.1	17.6	2.5	20.1
6/2+6/3	981	981	-	-	-	4.5	3.2	-	7.7	28.2	17.2	3.2	20.4
7/1	608	608	-	-	-	1.4	0.0	-	1.4	8.2	5.5	0.0	5.5
7/2	369	369	-	-	-	0.1	0.0	-	0.1	0.9	2.2	0.0	2.2
8/1	700	700	-	-	-	0.0	0.0	-	0.0	0.1	0.0	0.0	0.0
8/2	919	919	-	-	-	0.0	0.0	-	0.0	0.2	1.1	0.0	1.1
9/1	369	369	-	-	-	3.4	2.4	-	5.9	57.2	8.8	2.4	11.2
9/2	369	369	-	-	-	3.4	2.4	-	5.9	57.2	8.8	2.4	11.2
10/1	85	85	-	-	-	0.4	0.0	-	0.4	18.9	2.0	0.0	2.0

C1 Stream: 1 PRC for Signalled Lanes (%):	-13.7	Total Delay for Signalled Lanes (pcuHr):	45.47	Cycle Time (s):	90
C1 Stream: 2 PRC for Signalled Lanes (%):	5.6	Total Delay for Signalled Lanes (pcuHr):	4.25	Cycle Time (s):	90
C1 Stream: 3 PRC for Signalled Lanes (%):	3.3	Total Delay for Signalled Lanes (pcuHr):	26.60	Cycle Time (s):	90
PRC Over All Lanes (%):	-13.7	Total Delay Over All Lanes(pcuHr):	76.33		

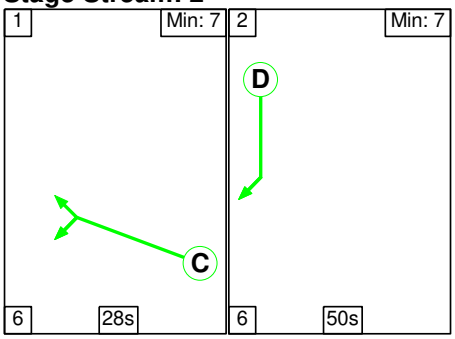
Scenario 2: '2031 Cherwell12 PM' (FG2: 'Cherwell7_PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

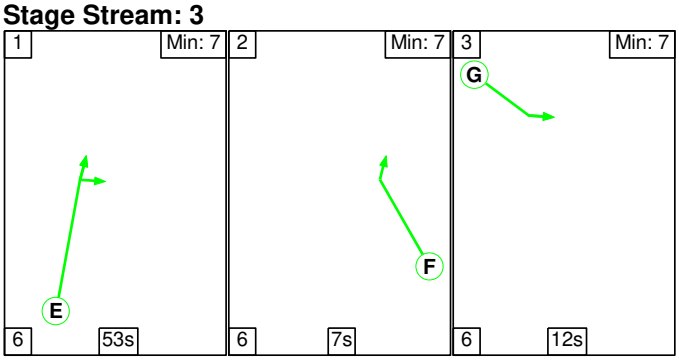
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	22	56
Change Point	55	83

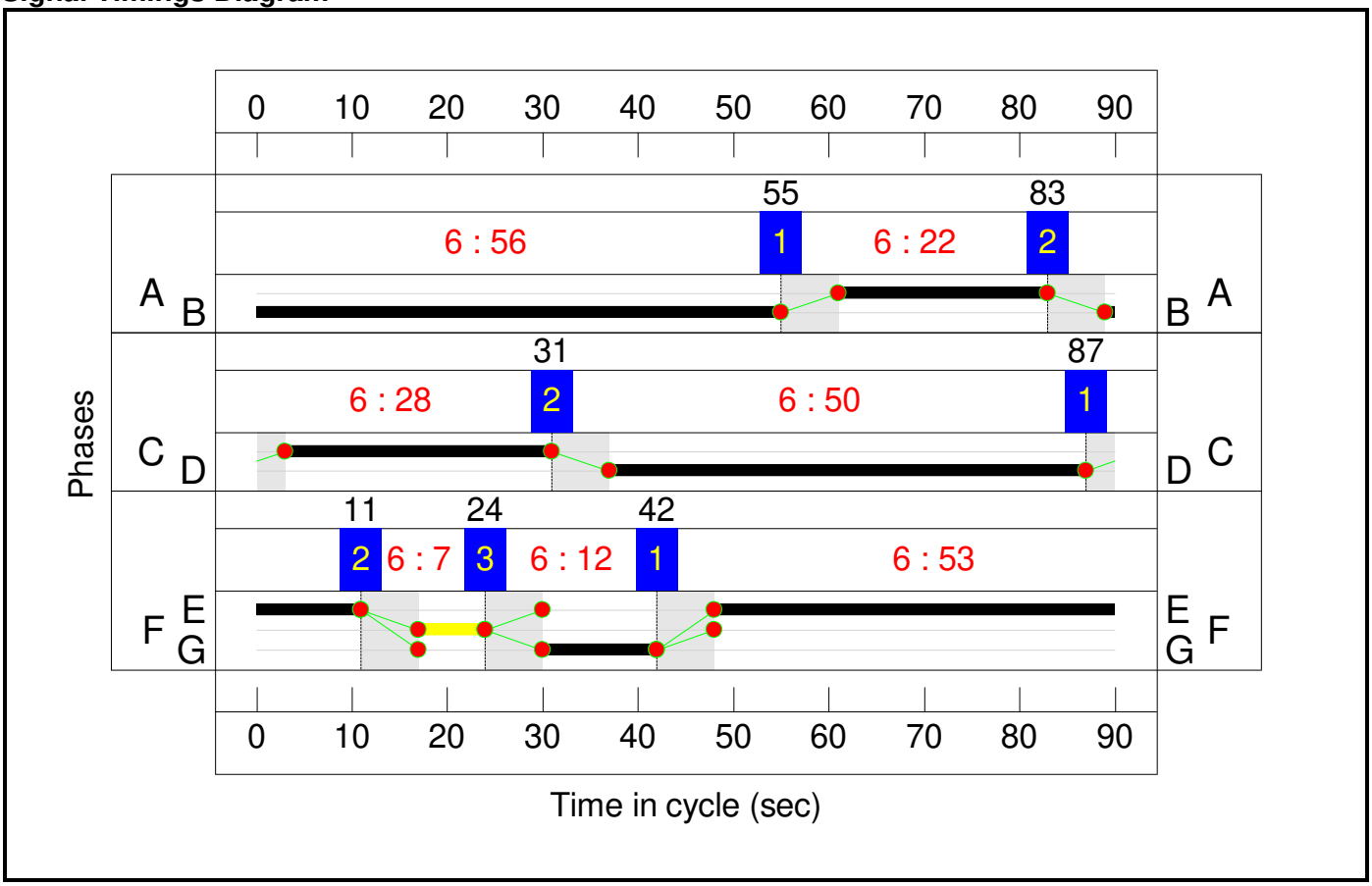
Stage Stream: 2

Stage	1	2
Duration	28	50
Change Point	87	31

Stage Stream: 3

Stage	1	2	3
Duration	53	7	12
Change Point	42	11	24

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Cherwell hamburger gyratory - Junction option C-6	-	-	**N/A**	-	-		-	-	-	-	-	-	**109.5%**
Cherwell	-	-	**N/A**	-	-		-	-	-	-	-	-	**109.5%**
1/2+1/1	A43 Southbound Left Ahead	U	1	N/A	A		1	22	-	462	1980:1980	506+153	70.2 : 70.2%
1/3	A43 Southbound Ahead	U	1	N/A	A		1	22	-	321	1980	506	63.4%
4/2+4/1	MSA Left	U	2	N/A	C		1	28	-	471	1871:1871	445+447	52.8 : 52.8%
4/3	MSA Ahead	U	2	N/A	C		1	28	-	129	1980	638	20.2%
6/1	A43 Northbound Ahead	U	3	N/A	E		1	53	-	1252	1908	1145	109.4%
6/2+6/3	A43 Northbound Ahead Right	U	3	N/A	E		1	53	-	1362	1916:1886	999+245	109.5 : 109.5%
7/1	Ahead Right	U	1	N/A	B		1	56	-	573	1850	1172	45.3%
7/2	Right	U	1	N/A	B		1	56	-	304	1850	1172	24.4%
8/1	Ahead	U	2	N/A	D		1	50	-	431	1980	1122	38.0%
8/2	Ahead	U	2	N/A	D		1	50	-	625	1980	1122	54.1%
9/1	M40 SB offslip Ahead	U	3	N/A	G		1	12	-	305	1980	286	106.6%
9/2	M40 SB offslip Ahead	U	3	N/A	G		1	12	-	304	1980	286	106.3%
10/1	Right	U	3	N/A	F		1	7	-	129	1908	170	76.1%

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: Cherwell hamburger gyratory - Junction option C-6	**-**	**-**	**0**	**0**	**0**	**43.8**	**154.9**	**0.0**	**198.7**	**-**	**-**	**-**	**-**
Cherwell	**-**	**-**	**0**	**0**	**0**	**43.8**	**154.9**	**0.0**	**198.7**	**-**	**-**	**-**	**-**
1/2+1/1	462	462	-	-	-	3.8	1.2	-	4.9	38.5	8.0	1.2	9.1
1/3	321	321	-	-	-	2.7	0.9	-	3.5	39.4	7.0	0.9	7.9
4/2+4/1	471	471	-	-	-	3.1	0.6	-	3.7	27.9	4.5	0.6	5.1
4/3	129	129	-	-	-	0.8	0.1	-	0.9	25.7	2.3	0.1	2.5
6/1	1252	1145	-	-	-	12.0	58.9	-	70.9	204.0	34.0	58.9	92.9
6/2+6/3	1362	1244	-	-	-	12.5	64.3	-	76.8	202.9	37.9	64.3	102.2
7/1	531	531	-	-	-	0.3	0.0	-	0.3	2.0	2.4	0.0	2.4
7/2	286	286	-	-	-	0.0	0.0	-	0.0	0.5	0.5	0.0	0.5
8/1	426	426	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	607	607	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	305	286	-	-	-	4.0	14.7	-	18.7	220.7	8.1	14.7	22.8
9/2	304	286	-	-	-	4.0	14.3	-	18.3	216.4	8.0	14.3	22.4
10/1	129	129	-	-	-	0.6	0.0	-	0.6	17.9	3.1	0.0	3.1

C1	Stream: 1 PRC for Signalled Lanes (%):	28.3	Total Delay for Signalled Lanes (pcuHr):	8.79	Cycle Time (s): 90
C1	Stream: 2 PRC for Signalled Lanes (%):	66.4	Total Delay for Signalled Lanes (pcuHr):	4.57	Cycle Time (s): 90
C1	Stream: 3 PRC for Signalled Lanes (%):	-21.6	Total Delay for Signalled Lanes (pcuHr):	185.31	Cycle Time (s): 90
	PRC Over All Lanes (%):	-21.6	Total Delay Over All Lanes(pcuHr):	198.68	

APPENDIX 20

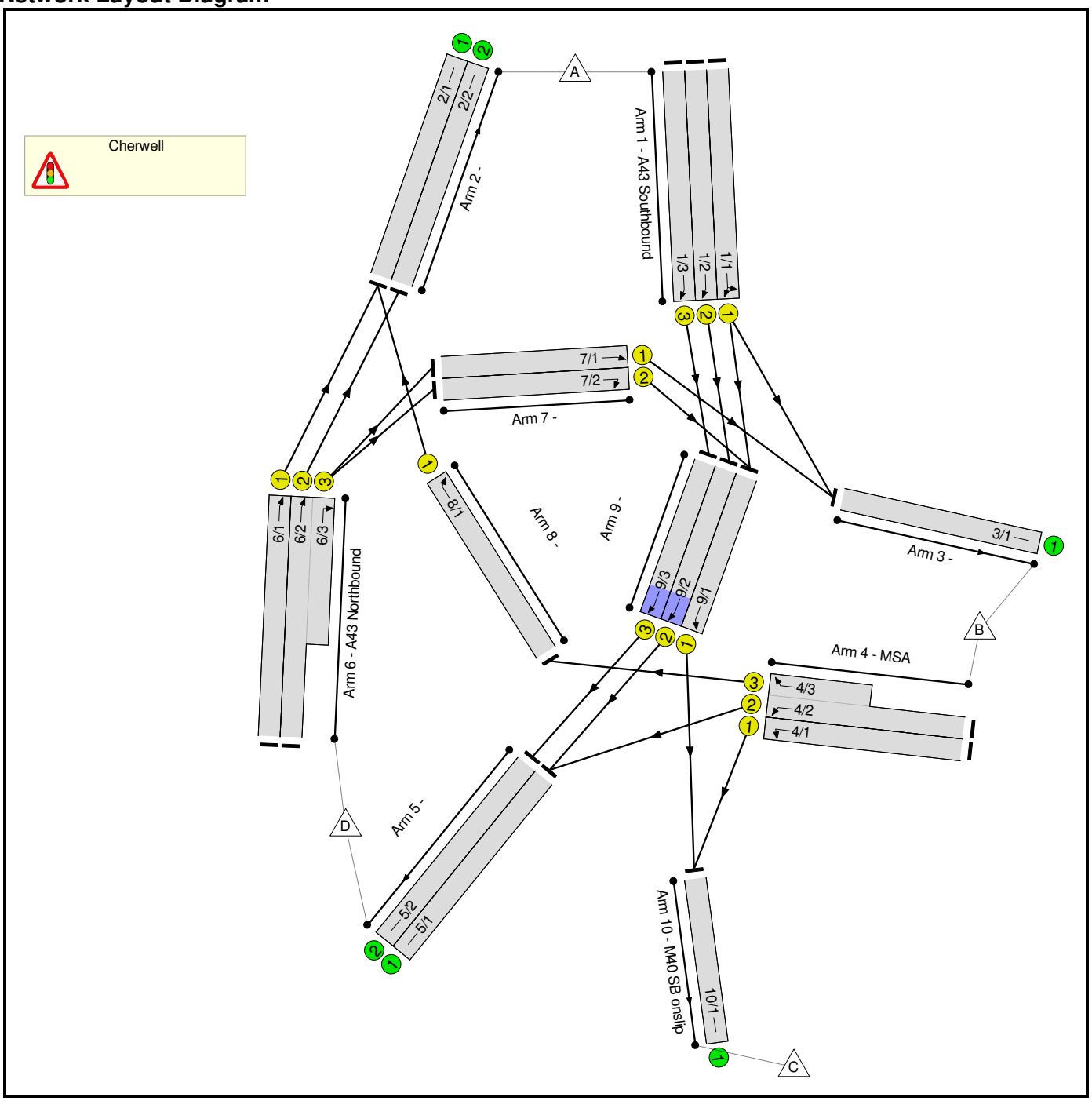
Cherwell Roundabout junction option C-7 – LinSig results

Full Input Data And Results

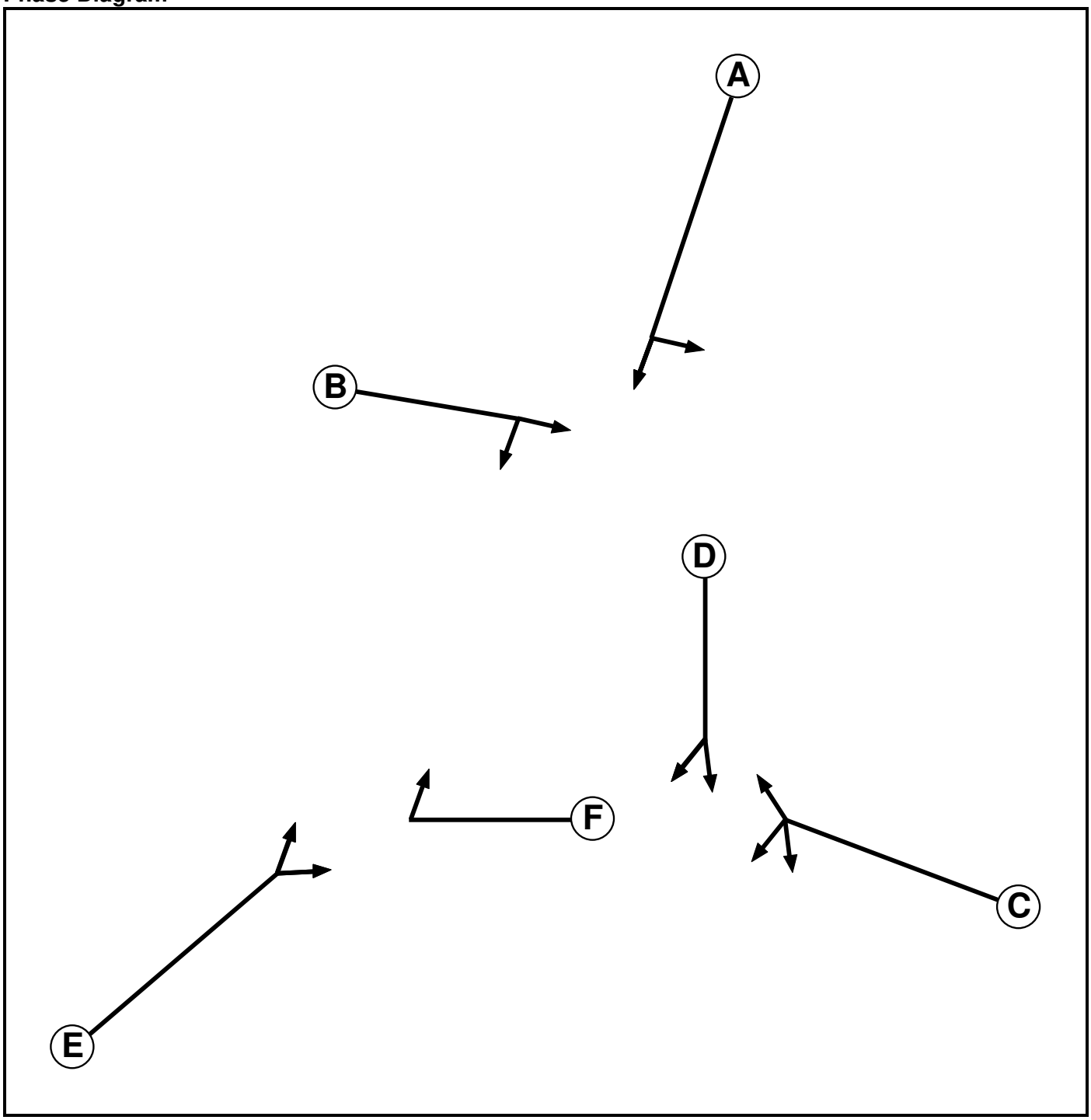
User and Project Details

Project:	**Oxfordshire SRFI**
Title:	**Cherwell hambuger gyratory - Junction option C-7**
Location:	
Additional detail:	
File name:	2031_DS_M40J10_Cherwell - Junction option C-7.lsg3x
Author:	Mark Higgins
Company:	ADC Infrastructure
Address:	Nottingham

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7
E	Traffic	3		7	7
F	Traffic	3		7	7

Phase Intergreens Matrix

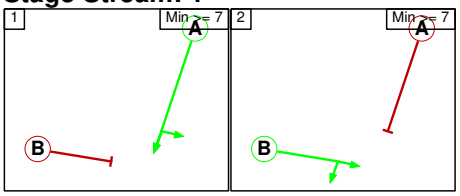
		Starting Phase					
		A	B	C	D	E	F
Terminating Phase	A		6	-	-	-	-
	B	6		-	-	-	-
	C	-	-		6	-	-
	D	-	-	6		-	-
	E	-	-	-	-		6
	F	-	-	-	-	6	

Phases in Stage

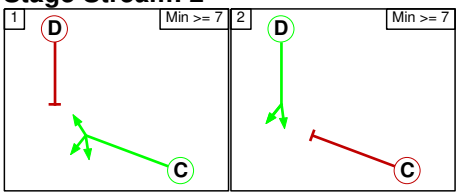
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D
3	1	E
3	2	F

Stage Diagram

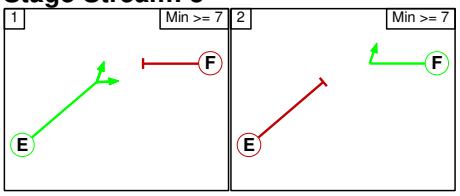
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Prohibited Stage Change

Stage Stream: 1

		To Stage	
		1	2
From Stage	1		6
	2	6	

Stage Stream: 2

	To Stage		
From Stage		1	2
	1		6
	2	6	

Stage Stream: 3

	To Stage		
From Stage		1	2
	1		6
	2	6	

Lane Input Data

Junction: Cherwell												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (A43 Southbound)	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 3 Left	20.00
											Arm 9 Ahead	Inf
1/2 (A43 Southbound)	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 9 Ahead	Inf
1/3 (A43 Southbound)	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 9 Ahead	Inf
2/1	U		2	3	60.0	Inf	-	-	-	-	-	-
2/2	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (MSA)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 10 Left	Inf
4/2 (MSA)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 5 Left	20.00
4/3 (MSA)	U	C	2	3	7.0	Geom	-	3.50	0.00	Y	Arm 8 Right	Inf
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (A43 Northbound)	U	E	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 2 Ahead	45.00
6/2 (A43 Northbound)	U	E	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 2 Ahead	45.00
6/3 (A43 Northbound)	U	E	2	3	10.1	Geom	-	3.65	0.00	Y	Arm 7 Right	35.00
7/1	U	B	2	3	5.2	User	1850	-	-	-	-	-
7/2	U	B	2	3	5.2	User	1850	-	-	-	-	-
8/1	U	F	2	3	7.0	User	1850	-	-	-	-	-
9/1	U	D	2	3	8.7	User	1850	-	-	-	-	-
9/2	U	D	2	3	8.7	User	1850	-	-	-	-	-
9/3	U	D	2	3	8.7	User	1850	-	-	-	-	-
10/1 (M40 SB onslip)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Cherwell8_AM'	07:45	08:45	01:00	
2: 'Cherwell8_PM'	16:30	17:30	01:00	

Scenario 1: '2031 Cherwell14+15 AM' (FG1: 'Cherwell8_AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	343	0	1641	1984
	B	85	0	295	202	582
	C	0	0	0	0	0
	D	1577	239	282	0	2098
	Tot.	1662	582	577	1843	4664

Traffic Lane Flows

Lane	Scenario 1: 2031 Cherwell14+15 AM
Junction: Cherwell	
1/1	343
1/2	820
1/3	821
2/1	908
2/2	754
3/1	582
4/1	295
4/2 (with short)	287(In) 202(Out)
4/3 (short)	85
5/1	1022
5/2	821
6/1	823
6/2 (with short)	1275(In) 754(Out)
6/3 (short)	521
7/1	239
7/2	282
8/1	85
9/1	282
9/2	820
9/3	821
10/1	577

Lane Saturation Flows

Junction: Cherwell

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A43 Southbound)	3.65	0.00	Y	Arm 3 Left	20.00	100.0 %	1842	1842
				Arm 9 Ahead	Inf	0.0 %		
1/2 (A43 Southbound)	3.65	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1980	1980
1/3 (A43 Southbound)	3.65	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1980	1980
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1 (MSA)	3.50	0.00	Y	Arm 10 Left	Inf	100.0 %	1965	1965
4/2 (MSA)	3.50	0.00	Y	Arm 5 Left	20.00	100.0 %	1828	1828
4/3 (MSA)	3.50	0.00	Y	Arm 8 Right	Inf	100.0 %	1965	1965
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1 (A43 Northbound)	3.65	0.00	Y	Arm 2 Ahead	45.00	100.0 %	1916	1916
6/2 (A43 Northbound)	3.65	0.00	Y	Arm 2 Ahead	45.00	100.0 %	1916	1916
6/3 (A43 Northbound)	3.65	0.00	Y	Arm 7 Right	35.00	100.0 %	1899	1899
7/1	This lane uses a directly entered Saturation Flow						1850	1850
7/2	This lane uses a directly entered Saturation Flow						1850	1850
8/1	This lane uses a directly entered Saturation Flow						1850	1850
9/1	This lane uses a directly entered Saturation Flow						1850	1850
9/2	This lane uses a directly entered Saturation Flow						1850	1850
9/3	This lane uses a directly entered Saturation Flow						1850	1850
10/1 (M40 SB onslip Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2031 Cherwell14+15 PM' (FG2: 'Cherwell8_PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	336	0	1056	1392
	B	129	0	258	213	600
	C	0	0	0	0	0
	D	2346	268	472	0	3086
	Tot.	2475	604	730	1269	5078

Traffic Lane Flows

Lane	Scenario 2: 2031 Cherwell14+15 PM
Junction: Cherwell	
1/1	336
1/2	528
1/3	528
2/1	1502
2/2	973
3/1	604
4/1	258
4/2 (with short)	342(In) 213(Out)
4/3 (short)	129
5/1	741
5/2	528
6/1	1373
6/2 (with short)	1713(In) 973(Out)
6/3 (short)	740
7/1	268
7/2	472
8/1	129
9/1	472
9/2	528
9/3	528
10/1	730

Lane Saturation Flows

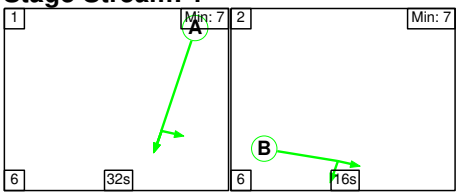
Junction: Cherwell

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A43 Southbound)	3.65	0.00	Y	Arm 3 Left	20.00	100.0 %	1842	1842
				Arm 9 Ahead	Inf	0.0 %		
1/2 (A43 Southbound)	3.65	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1980	1980
1/3 (A43 Southbound)	3.65	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1980	1980
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1	Infinite Saturation Flow						Inf	Inf
4/1 (MSA)	3.50	0.00	Y	Arm 10 Left	Inf	100.0 %	1965	1965
4/2 (MSA)	3.50	0.00	Y	Arm 5 Left	20.00	100.0 %	1828	1828
4/3 (MSA)	3.50	0.00	Y	Arm 8 Right	Inf	100.0 %	1965	1965
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1 (A43 Northbound)	3.65	0.00	Y	Arm 2 Ahead	45.00	100.0 %	1916	1916
6/2 (A43 Northbound)	3.65	0.00	Y	Arm 2 Ahead	45.00	100.0 %	1916	1916
6/3 (A43 Northbound)	3.65	0.00	Y	Arm 7 Right	35.00	100.0 %	1899	1899
7/1	This lane uses a directly entered Saturation Flow						1850	1850
7/2	This lane uses a directly entered Saturation Flow						1850	1850
8/1	This lane uses a directly entered Saturation Flow						1850	1850
9/1	This lane uses a directly entered Saturation Flow						1850	1850
9/2	This lane uses a directly entered Saturation Flow						1850	1850
9/3	This lane uses a directly entered Saturation Flow						1850	1850
10/1 (M40 SB onslip Lane 1)	Infinite Saturation Flow						Inf	Inf

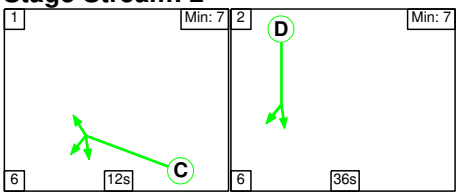
Scenario 1: '2031 Cherwell14+15 AM' (FG1: 'Cherwell8_AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

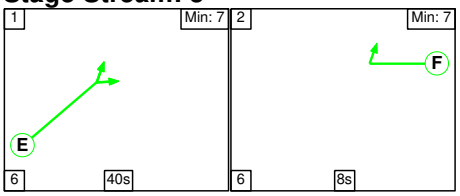
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	32	16
Change Point	0	38

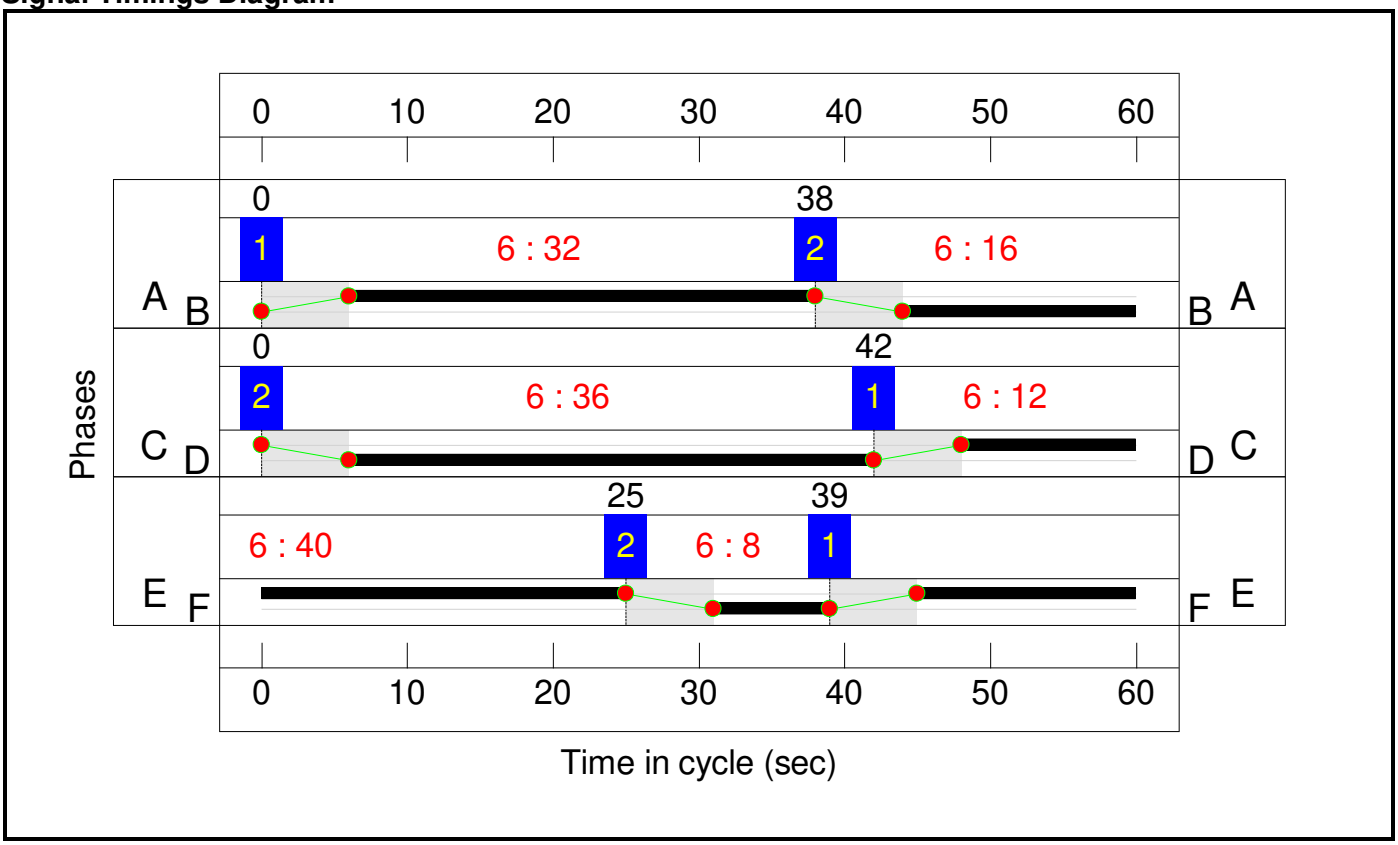
Stage Stream: 2

Stage	1	2
Duration	12	36
Change Point	42	0

Stage Stream: 3

Stage	1	2
Duration	40	8
Change Point	39	25

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Cherwell hambuger gyratory - Junction option C-7	-	-	**N/A**	-	-		-	-	-	-	-	-	**75.4%**
Cherwell	-	-	**N/A**	-	-		-	-	-	-	-	-	**75.4%**
1/1	A43 Southbound Left Ahead	U	1	N/A	A		1	32	-	343	1842	1013	33.9%
1/2	A43 Southbound Ahead	U	1	N/A	A		1	32	-	820	1980	1089	75.3%
1/3	A43 Southbound Ahead	U	1	N/A	A		1	32	-	821	1980	1089	75.4%
4/1	MSA Left	U	2	N/A	C		1	12	-	295	1965	426	69.3%
4/2+4/3	MSA Left Right	U	2	N/A	C		1	12	-	287	1828:1965	396+167	51.0 : 51.0%
6/1	A43 Northbound Ahead	U	3	N/A	E		1	40	-	823	1916	1309	62.9%
6/2+6/3	A43 Northbound Ahead Right	U	3	N/A	E		1	40	-	1275	1916:1899	1019+704	74.0 : 74.0%
7/1	Ahead	U	1	N/A	B		1	16	-	239	1850	524	45.6%
7/2	Right	U	1	N/A	B		1	16	-	282	1850	524	53.8%
8/1	Right	U	3	N/A	F		1	8	-	85	1850	277	30.6%
9/1	Ahead	U	2	N/A	D		1	36	-	282	1850	1141	24.7%
9/2	Ahead	U	2	N/A	D		1	36	-	820	1850	1141	71.9%
9/3	Ahead	U	2	N/A	D		1	36	-	821	1850	1141	72.0%

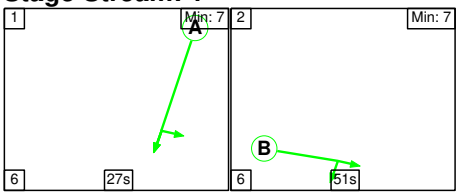
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Cherwell hambuger gyratory - Junction option C-7	**-**	**-**	**0**	**0**	**0**	**16.2**	**8.3**	**0.0**	**24.6**	**-**	**-**	**-**	**-**
Cherwell	**-**	**-**	**0**	**0**	**0**	**16.2**	**8.3**	**0.0**	**24.6**	**-**	**-**	**-**	**-**
1/1	343	343	-	-	-	0.7	0.3	-	1.0	10.2	3.1	0.3	3.4
1/2	820	820	-	-	-	2.4	1.5	-	3.9	17.0	10.5	1.5	12.0
1/3	821	821	-	-	-	2.4	1.5	-	3.9	17.0	10.5	1.5	12.0
4/1	295	295	-	-	-	1.8	1.1	-	2.9	35.2	4.5	1.1	5.6
4/2+4/3	287	287	-	-	-	1.6	0.5	-	2.1	26.8	2.9	0.5	3.4
6/1	823	823	-	-	-	1.2	0.8	-	2.0	9.0	7.5	0.8	8.4
6/2+6/3	1275	1275	-	-	-	1.6	1.4	-	3.1	8.6	6.5	1.4	7.9
7/1	239	239	-	-	-	0.9	0.4	-	1.4	20.4	1.8	0.4	2.2
7/2	282	282	-	-	-	1.1	0.6	-	1.7	21.7	2.7	0.6	3.3
8/1	85	85	-	-	-	0.9	0.0	-	0.9	39.2	1.4	0.0	1.4
9/1	282	282	-	-	-	1.3	0.2	-	1.5	19.2	4.7	0.2	4.9
9/2	820	820	-	-	-	0.1	0.0	-	0.1	0.5	4.3	0.0	4.3
9/3	821	821	-	-	-	0.1	0.0	-	0.1	0.5	4.3	0.0	4.3

C1	Stream: 1 PRC for Signalled Lanes (%):	19.4	Total Delay for Signalled Lanes (pcuHr):	11.77	Cycle Time (s): 60
C1	Stream: 2 PRC for Signalled Lanes (%):	25.1	Total Delay for Signalled Lanes (pcuHr):	6.77	Cycle Time (s): 60
C1	Stream: 3 PRC for Signalled Lanes (%):	21.6	Total Delay for Signalled Lanes (pcuHr):	6.03	Cycle Time (s): 60
	PRC Over All Lanes (%):	19.4	Total Delay Over All Lanes(pcuHr):	24.57	

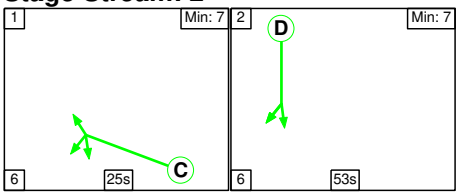
Scenario 2: '2031 Cherwell14+15 PM' (FG2: 'Cherwell8_PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

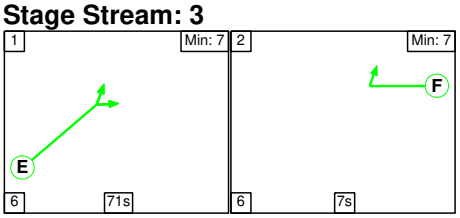
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	27	51
Change Point	0	33

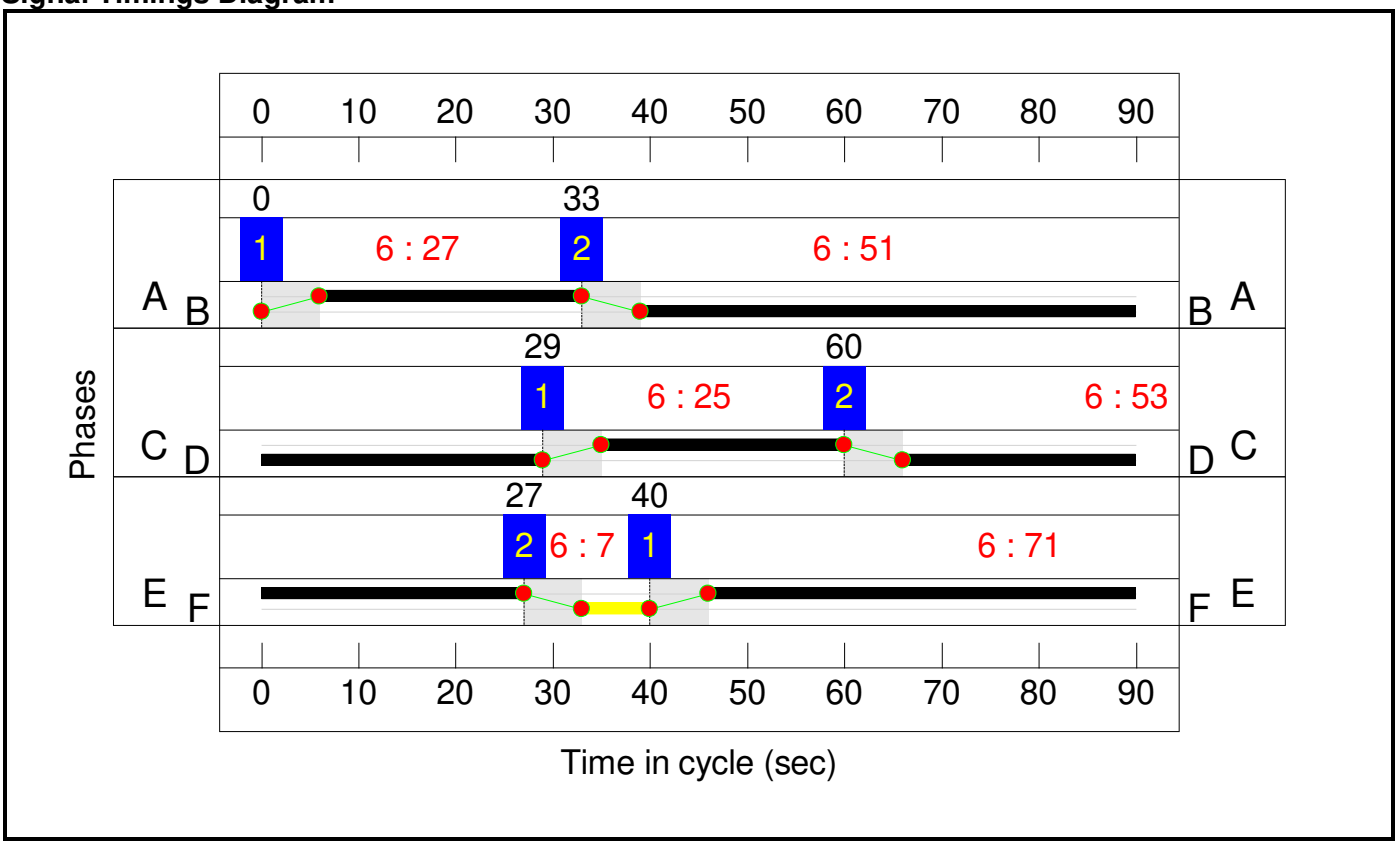
Stage Stream: 2

Stage	1	2
Duration	25	53
Change Point	29	60

Stage Stream: 3

Stage	1	2
Duration	71	7
Change Point	40	27

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Cherwell hambuger gyratory - Junction option C-7	-	-	**N/A**	-	-		-	-	-	-	-	-	**93.4%**
Cherwell	-	-	**N/A**	-	-		-	-	-	-	-	-	**93.4%**
1/1	A43 Southbound Left Ahead	U	1	N/A	A		1	27	-	336	1842	573	58.6%
1/2	A43 Southbound Ahead	U	1	N/A	A		1	27	-	528	1980	616	85.7%
1/3	A43 Southbound Ahead	U	1	N/A	A		1	27	-	528	1980	616	85.7%
4/1	MSA Left	U	2	N/A	C		1	25	-	258	1965	568	45.4%
4/2+4/3	MSA Left Right	U	2	N/A	C		1	25	-	342	1828:1965	436+264	48.9 : 48.9%
6/1	A43 Northbound Ahead	U	3	N/A	E		1	71	-	1373	1916	1533	89.6%
6/2+6/3	A43 Northbound Ahead Right	U	3	N/A	E		1	71	-	1713	1916:1899	1042+792	93.4 : 93.4%
7/1	Ahead	U	1	N/A	B		1	51	-	268	1850	1069	25.1%
7/2	Right	U	1	N/A	B		1	51	-	472	1850	1069	44.2%
8/1	Right	U	3	N/A	F		1	7	-	129	1850	164	78.4%
9/1	Ahead	U	2	N/A	D		1	53	-	472	1850	1110	42.5%
9/2	Ahead	U	2	N/A	D		1	53	-	528	1850	1110	47.6%
9/3	Ahead	U	2	N/A	D		1	53	-	528	1850	1110	47.6%

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: Cherwell hambuger gyratory - Junction option C-7	**-**	**-**	**0**	**0**	**0**	**27.1**	**18.7**	**0.0**	**45.8**	**-**	**-**	**-**	**-**
Cherwell	**-**	**-**	**0**	**0**	**0**	**27.1**	**18.7**	**0.0**	**45.8**	**-**	**-**	**-**	**-**
1/1	336	336	-	-	-	2.4	0.7	-	3.1	33.7	7.0	0.7	7.7
1/2	528	528	-	-	-	4.3	2.8	-	7.1	48.3	12.3	2.8	15.1
1/3	528	528	-	-	-	4.3	2.8	-	7.1	48.3	12.3	2.8	15.1
4/1	258	258	-	-	-	1.9	0.4	-	2.3	32.0	5.2	0.4	5.6
4/2+4/3	342	342	-	-	-	2.4	0.5	-	2.9	30.3	4.3	0.5	4.7
6/1	1373	1373	-	-	-	2.4	4.1	-	6.5	17.1	24.0	4.1	28.1
6/2+6/3	1713	1713	-	-	-	1.6	6.4	-	8.0	16.8	9.7	6.4	16.1
7/1	268	268	-	-	-	0.6	0.2	-	0.8	10.5	2.2	0.2	2.3
7/2	472	472	-	-	-	1.1	0.4	-	1.5	11.8	3.8	0.4	4.2
8/1	129	129	-	-	-	1.5	0.0	-	1.5	40.6	1.7	0.0	1.7
9/1	472	472	-	-	-	2.1	0.4	-	2.5	18.9	10.6	0.4	11.0
9/2	528	528	-	-	-	1.3	0.0	-	1.3	8.7	4.3	0.0	4.3
9/3	528	528	-	-	-	1.3	0.0	-	1.3	8.7	4.3	0.0	4.3

C1	Stream: 1 PRC for Signalled Lanes (%):	5.0	Total Delay for Signalled Lanes (pcuHr):	19.65	Cycle Time (s): 90
C1	Stream: 2 PRC for Signalled Lanes (%):	84.2	Total Delay for Signalled Lanes (pcuHr):	10.19	Cycle Time (s): 90
C1	Stream: 3 PRC for Signalled Lanes (%):	-3.8	Total Delay for Signalled Lanes (pcuHr):	15.96	Cycle Time (s): 90
	PRC Over All Lanes (%):	-3.8	Total Delay Over All Lanes(pcuHr):	45.80	

APPENDIX 21

Ardley Roundabout junction option A-1 – Arcady results

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 2031_DS_M40J10_Ardley_OpA_Ardley1.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M40 J10 options\Options Report\Ardley
Report generation date: 27/04/2021 10:50:09

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	1.8	7.01	0.65						
Arm B	0.6	8.19	0.39						
Arm D	5.5	11.10	0.85						
Arm E	5.8	13.31	0.86						
	2031_DS - 2031_DS_0745								
Arm A				2.4	9.10	0.71			
Arm B				0.9	11.22	0.47			
Arm D				6.0	11.90	0.86			
Arm E				9.5	20.32	0.92			
	2031_DS - 2031_DS_1630								
Arm A							266.4	634.18	1.46
Arm B							10.6	175.13	1.02
Arm D							1.4	4.06	0.59
Arm E							8.0	13.61	0.90

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_Ardley_OpA_Ardley1
Location	M40 J10
Site number	
Date	06/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout A BWB Options: 1, 2, 14, 15 Flowset: Ardley1

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D, E	10.85	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road	
B	B430	
C	M40 J10 NB On	
D	A43 Bridge	
E	M40 J10 NB Off	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.30	10.50	50.0	40.0	85.0	35.0	
B	3.50	8.50	96.0	30.0	85.0	34.0	
C							✓
D	7.30	8.62	10.0	30.0	85.0	35.0	
E	11.30	14.00	40.0	40.0	85.0	40.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.657	3038
B	0.559	2365
C		
D	0.576	2490
E	0.799	4055

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	872	100.000
B		✓	254	100.000
C				
D		✓	1685	100.000
E		✓	1484	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	66	346	460	0
	B	215	0	20	19	0
	C	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	D	1372	16	297	0	0
	E	341	1	0	1142	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	2	10	37	0
	B	0	0	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	D	7	0	12	0	0
	E	28	0	0	17	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.65	7.01	1.8	A
B	0.39	8.19	0.6	A
C				
D	0.85	11.10	5.5	B
E	0.86	13.31	5.8	B

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	656	1092	1785	0.368	654	0.6	3.175	A
B	191	1684	1243	0.154	191	0.2	3.420	A
C		1378						
D	1269	161	2217	0.572	1263	1.3	3.754	A
E	1117	1425	2379	0.470	1114	0.9	2.836	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	784	1306	1655	0.474	783	0.9	4.123	A
B	228	2014	1023	0.223	228	0.3	4.526	A
C		1647						
D	1515	193	2200	0.689	1511	2.2	5.202	A
E	1334	1704	2178	0.613	1331	1.6	4.239	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	960	1589	1481	0.648	956	1.8	6.810	A
B	280	2454	730	0.383	278	0.6	7.953	A
C		2006						
D	1855	236	2177	0.852	1843	5.4	10.383	B
E	1634	2078	1909	0.856	1618	5.4	11.813	B

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	960	1602	1473	0.652	960	1.8	7.007	A
B	280	2470	719	0.389	280	0.6	8.188	A
C		2020						
D	1855	237	2177	0.852	1854	5.5	11.103	B
E	1634	2091	1900	0.860	1632	5.8	13.311	B

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	784	1324	1643	0.477	788	0.9	4.224	A
B	228	2037	1008	0.227	230	0.3	4.634	A
C		1667						
D	1515	194	2199	0.689	1528	2.3	5.467	A
E	1334	1722	2165	0.616	1351	1.6	4.512	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	656	1099	1781	0.369	658	0.6	3.207	A
B	191	1694	1236	0.155	192	0.2	3.447	A
C		1386						
D	1269	162	2216	0.572	1272	1.4	3.826	A
E	1117	1434	2372	0.471	1120	0.9	2.883	A

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D, E	14.37	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	887	100.000
B		✓	254	100.000
C				
D		✓	1697	100.000
E		✓	1618	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	66	332	489	0
	B	215	0	19	20	0
	C	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	D	1288	16	393	0	0
	E	352	1	0	1265	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	2	12	35	0
	B	0	0	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	D	9	0	7	0	0
	E	26	0	0	12	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.71	9.10	2.4	A
B	0.47	11.22	0.9	B
C				
D	0.86	11.90	6.0	B
E	0.92	20.32	9.5	C

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	668	1257	1715	0.389	665	0.6	3.419	A
B	191	1860	1161	0.165	190	0.2	3.706	A
C		1492						
D	1278	161	2207	0.579	1272	1.4	3.827	A
E	1218	1433	2446	0.498	1214	1.0	2.912	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	797	1502	1570	0.508	796	1.0	4.638	A
B	228	2224	925	0.247	228	0.3	5.160	A
C		1784						
D	1526	193	2191	0.696	1522	2.3	5.356	A
E	1455	1715	2236	0.650	1451	1.8	4.566	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	977	1820	1383	0.706	971	2.3	8.635	A
B	280	2701	616	0.454	278	0.8	10.588	B
C		2165						
D	1868	235	2168	0.862	1855	5.7	11.015	B
E	1781	2090	1957	0.910	1755	8.4	16.159	C

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	977	1841	1371	0.712	976	2.4	9.098	A
B	280	2725	600	0.466	279	0.9	11.218	B
C		2186						
D	1868	237	2167	0.862	1867	6.0	11.903	B
E	1781	2104	1946	0.916	1777	9.5	20.321	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	797	1533	1552	0.514	803	1.1	4.836	A
B	228	2261	902	0.253	230	0.3	5.379	A
C		1817						
D	1526	195	2189	0.697	1540	2.3	5.663	A
E	1455	1735	2221	0.655	1485	1.9	5.088	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	668	1265	1710	0.390	669	0.6	3.463	A
B	191	1872	1153	0.166	192	0.2	3.746	A
C		1502						
D	1278	162	2207	0.579	1281	1.4	3.907	A
E	1218	1444	2438	0.500	1222	1.0	2.970	A

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D, E	207.40	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1486	100.000
B		✓	198	100.000
C				
D		✓	1136	100.000
E		✓	2004	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	132	390	964	0
	B	175	0	7	16	0
	C	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	D	667	24	445	0	0
	E	217	3	0	1784	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	1	8	14	0
	B	1	0	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	D	14	0	9	0	0
	E	37	0	0	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	1.46	634.18	266.4	F
B	1.02	175.13	10.6	F
C				
D	0.59	4.06	1.4	A
E	0.90	13.61	8.0	B

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1119	1693	1633	0.685	1110	2.1	6.786	A
B	149	2685	694	0.215	148	0.3	6.575	A
C		2202						
D	855	131	2162	0.396	853	0.7	2.744	A
E	1509	983	2812	0.537	1504	1.2	2.745	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1336	2024	1417	0.943	1302	10.6	26.032	D
B	178	3187	386	0.461	176	0.8	16.929	C
C		2615						
D	1021	155	2149	0.475	1020	0.9	3.186	A
E	1802	1176	2662	0.677	1798	2.1	4.147	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1636	2464	1131	1.446	1129	137.2	244.248	F
B	218	3463	219	0.995	194	6.9	101.050	F
C		2865						
D	1251	171	2141	0.584	1249	1.4	4.028	A
E	2206	1420	2471	0.893	2185	7.4	11.808	B

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1636	2482	1120	1.461	1120	266.4	597.648	F
B	218	3472	214	1.019	203	10.6	175.128	F
C		2884						
D	1251	179	2136	0.585	1251	1.4	4.065	A
E	2206	1430	2464	0.896	2204	8.0	13.612	B

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1336	2049	1401	0.954	1396	251.4	634.178	F
B	178	3297	318	0.559	215	1.4	45.281	E
C		2737						
D	1021	190	2131	0.479	1023	0.9	3.257	A
E	1802	1213	2635	0.684	1825	2.2	4.563	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1119	1703	1627	0.688	1620	126.1	420.617	F
B	149	3158	400	0.372	152	0.6	14.667	B
C		2544						
D	855	134	2160	0.396	856	0.7	2.765	A
E	1509	991	2806	0.538	1513	1.2	2.791	A

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 2031_DS_M40J10_Ardley_OpA_Ardley2.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M40 J10 options\Options Report\Ardley
Report generation date: 27/04/2021 10:56:28

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	1.0	4.69	0.51						
Arm B	0.5	6.14	0.32						
Arm D	5.5	11.10	0.85						
Arm E	5.8	13.31	0.86						
	2031_DS - 2031_DS_0745								
Arm A				1.2	5.58	0.56			
Arm B				0.6	7.70	0.37			
Arm D				6.0	11.91	0.86			
Arm E				9.5	20.34	0.92			
	2031_DS - 2031_DS_1630								
Arm A							65.7	162.52	1.10
Arm B							6.3	107.99	0.93
Arm D							1.4	4.08	0.59
Arm E							8.1	13.82	0.90

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_Ardley_OpA_Ardley2
Location	M40 J10
Site number	
Date	06/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout A BWB Options: 4, 5 Flowset: Ardley2

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D, E	10.52	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road	
B	B430	
C	M40 J10 NB On	
D	A43 Bridge	
E	M40 J10 NB Off	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.30	10.50	50.0	40.0	85.0	35.0	
B	3.50	8.50	96.0	30.0	85.0	34.0	
C							✓
D	7.30	8.62	10.0	30.0	85.0	35.0	
E	11.30	14.00	40.0	40.0	85.0	40.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.657	3038
B	0.559	2365
C		
D	0.576	2490
E	0.799	4055

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	718	100.000
B		✓	254	100.000
C				
D		✓	1685	100.000
E		✓	1484	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	66	346	306	0
	B	215	0	20	19	0
	C	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	D	1372	16	297	0	0
	E	341	1	0	1142	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	2	10	28	0
	B	0	0	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	D	7	0	12	0	0
	E	28	0	0	17	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.51	4.69	1.0	A
B	0.32	6.14	0.5	A
C				
D	0.85	11.10	5.5	B
E	0.86	13.31	5.8	B

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	541	1092	1889	0.286	539	0.4	2.663	A
B	191	1569	1343	0.142	191	0.2	3.123	A
C		1262						
D	1269	161	2217	0.572	1263	1.3	3.754	A
E	1117	1425	2379	0.470	1114	0.9	2.836	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	645	1306	1750	0.369	645	0.6	3.255	A
B	228	1876	1143	0.200	228	0.2	3.935	A
C		1509						
D	1515	193	2200	0.689	1511	2.2	5.203	A
E	1334	1704	2178	0.613	1331	1.6	4.239	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	791	1589	1567	0.504	789	1.0	4.616	A
B	280	2286	875	0.319	279	0.5	6.024	A
C		1838						
D	1855	236	2177	0.852	1842	5.4	10.387	B
E	1634	2078	1909	0.856	1618	5.4	11.821	B

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	791	1602	1559	0.507	790	1.0	4.687	A
B	280	2301	866	0.323	280	0.5	6.137	A
C		1851						
D	1855	237	2177	0.852	1854	5.5	11.104	B
E	1634	2091	1900	0.860	1632	5.8	13.312	B

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	645	1324	1738	0.371	647	0.6	3.306	A
B	228	1897	1130	0.202	229	0.3	4.003	A
C		1526						
D	1515	194	2199	0.689	1528	2.3	5.465	A
E	1334	1722	2165	0.616	1351	1.6	4.509	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	541	1099	1884	0.287	541	0.4	2.683	A
B	191	1578	1337	0.143	192	0.2	3.142	A
C		1269						
D	1269	162	2216	0.572	1272	1.4	3.826	A
E	1117	1434	2372	0.471	1120	0.9	2.881	A

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D, E	13.82	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	736	100.000
B		✓	254	100.000
C				
D		✓	1697	100.000
E		✓	1618	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	66	332	338	0
	B	215	0	19	20	0
	C	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	D	1288	16	393	0	0
	E	352	1	0	1265	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	2	12	24	0
	B	0	0	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	D	9	0	7	0	0
	E	26	0	0	12	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.56	5.58	1.2	A
B	0.37	7.70	0.6	A
C				
D	0.86	11.91	6.0	B
E	0.92	20.34	9.5	C

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	554	1257	1820	0.305	552	0.4	2.837	A
B	191	1747	1261	0.152	191	0.2	3.362	A
C		1379						
D	1278	161	2207	0.579	1272	1.4	3.828	A
E	1218	1433	2446	0.498	1214	1.0	2.913	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	662	1502	1666	0.397	661	0.7	3.577	A
B	228	2089	1045	0.219	228	0.3	4.406	A
C		1649						
D	1526	193	2190	0.696	1522	2.3	5.356	A
E	1455	1715	2236	0.651	1451	1.8	4.566	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	810	1820	1467	0.552	808	1.2	5.442	A
B	280	2537	761	0.368	278	0.6	7.445	A
C		2001						
D	1868	236	2168	0.862	1854	5.7	11.026	B
E	1781	2090	1956	0.911	1755	8.4	16.184	C

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	810	1841	1455	0.557	810	1.2	5.584	A
B	280	2559	747	0.374	280	0.6	7.700	A
C		2020						
D	1868	237	2167	0.862	1867	6.0	11.907	B
E	1781	2104	1946	0.916	1777	9.5	20.336	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	662	1533	1647	0.402	664	0.7	3.672	A
B	228	2122	1024	0.223	230	0.3	4.539	A
C		1678						
D	1526	194	2190	0.697	1540	2.3	5.660	A
E	1455	1734	2221	0.655	1485	1.9	5.083	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	554	1265	1815	0.305	555	0.4	2.859	A
B	191	1757	1254	0.152	192	0.2	3.389	A
C		1387						
D	1278	162	2207	0.579	1281	1.4	3.907	A
E	1218	1444	2438	0.500	1222	1.0	2.967	A

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D, E	52.26	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1157	100.000
B		✓	198	100.000
C				
D		✓	1136	100.000
E		✓	2004	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	132	390	635	0
	B	175	0	7	16	0
	C	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	D	667	24	445	0	0
	E	217	3	0	1784	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	1	8	9	0
	B	1	0	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only
	D	14	0	9	0	0
	E	37	0	0	11	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	1.10	162.52	65.7	F
B	0.93	107.99	6.3	F
C				
D	0.59	4.08	1.4	A
E	0.90	13.82	8.1	B

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	871	1693	1685	0.517	867	1.1	4.375	A
B	149	2441	861	0.173	148	0.2	5.047	A
C		1958						
D	855	131	2162	0.396	853	0.7	2.744	A
E	1509	984	2812	0.537	1504	1.2	2.745	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1040	2024	1463	0.711	1035	2.4	8.307	A
B	178	2917	572	0.311	177	0.4	9.095	A
C		2339						
D	1021	156	2148	0.475	1020	0.9	3.188	A
E	1802	1177	2661	0.677	1798	2.1	4.151	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1274	2464	1168	1.090	1143	35.2	70.818	F
B	218	3446	250	0.871	203	4.2	64.045	F
C		2768						
D	1251	180	2136	0.586	1249	1.4	4.047	A
E	2206	1428	2465	0.895	2185	7.5	12.004	B

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1274	2482	1156	1.102	1152	65.7	162.517	F
B	218	3473	234	0.932	209	6.3	107.993	F
C		2797						
D	1251	185	2133	0.586	1251	1.4	4.078	A
E	2206	1436	2460	0.897	2204	8.1	13.822	B

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1040	2050	1446	0.719	1292	2.8	58.787	F
B	178	3170	420	0.424	200	0.8	17.995	C
C		2527						
D	1021	177	2138	0.478	1023	0.9	3.235	A
E	1802	1200	2645	0.681	1825	2.2	4.519	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	871	1702	1679	0.519	878	1.1	4.530	A
B	149	2460	849	0.175	151	0.2	5.173	A
C		1974						
D	855	134	2160	0.396	856	0.7	2.764	A
E	1509	990	2807	0.538	1513	1.2	2.792	A

APPENDIX 22

Ardley Roundabout junction option A-2 – Arcady results

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 2031_DS_M40J10_Ardley_OpB_Ardley3.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M40 J10 options\Options Report\Ardley
Report generation date: 27/04/2021 11:01:58

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	4.5	8.28	0.82						
Arm B	0.3	4.37	0.25						
Arm C	4.6	9.16	0.83						
	2031_DS - 2031_DS_0745								
Arm A				6.3	10.89	0.87			
Arm B				0.4	4.80	0.27			
Arm C				4.9	9.68	0.83			
	2031_DS - 2031_DS_1630								
Arm A							319.2	445.59	1.23
Arm B							0.3	5.77	0.26
Arm C							1.3	3.69	0.56

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_Ardley_OpB_Ardley3
Location	M40 J10
Site number	
Date	06/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout B BWB Options: 6, 7 Flowset: Ardley3

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	8.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road	
B	B430	
C	A43 Bridge	
D	M40 J10 NB On	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.30	10.50	20.0	30.0	85.0	35.0	
B	3.50	8.50	96.0	30.0	85.0	34.0	
C	7.30	10.50	20.0	30.0	85.0	35.0	
D							✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.628	2850
B	0.559	2365
C	0.628	2850
D		

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1817	100.000
B		✓	254	100.000
C		✓	1685	100.000
D				

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	67	1404	346
	B	219	0	15	20
	C	1372	16	0	297
	D	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	19	10
	B	0	0	0	0
	C	7	0	0	12
	D	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.82	8.28	4.5	A
B	0.25	4.37	0.3	A
C	0.83	9.16	4.6	A
D				

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1368	12	2437	0.561	1363	1.3	3.338	A
B	191	1313	1505	0.127	191	0.1	2.737	A
C	1269	439	2373	0.535	1264	1.1	3.233	A
D		1206						

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1633	14	2435	0.671	1630	2.0	4.456	A
B	228	1570	1336	0.171	228	0.2	3.248	A
C	1515	525	2320	0.653	1512	1.9	4.440	A
D		1442						

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2001	18	2434	0.822	1991	4.4	7.961	A
B	280	1918	1109	0.252	279	0.3	4.335	A
C	1855	642	2248	0.825	1845	4.5	8.711	A
D		1760						

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2001	18	2434	0.822	2000	4.5	8.282	A
B	280	1926	1103	0.254	280	0.3	4.371	A
C	1855	644	2246	0.826	1855	4.6	9.159	A
D		1769						

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1633	14	2435	0.671	1643	2.1	4.598	A
B	228	1583	1328	0.172	229	0.2	3.275	A
C	1515	528	2318	0.654	1526	1.9	4.605	A
D		1454						

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1368	12	2437	0.561	1371	1.3	3.387	A
B	191	1320	1500	0.127	191	0.1	2.751	A
C	1269	441	2371	0.535	1272	1.2	3.283	A
D		1213						

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	10.02	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1964	100.000
B		✓	254	100.000
C		✓	1697	100.000
D				

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	67	1565	332
	B	218	0	17	19
	C	1288	16	0	393
	D	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	15	12
	B	0	0	0	0
	C	9	0	0	7
	D	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.87	10.89	6.3	B
B	0.27	4.80	0.4	A
C	0.83	9.68	4.9	A
D				

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1479	12	2492	0.593	1473	1.4	3.511	A
B	191	1423	1455	0.131	191	0.2	2.845	A
C	1278	427	2362	0.541	1273	1.2	3.294	A
D		1142						

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1766	14	2491	0.709	1762	2.4	4.910	A
B	228	1702	1276	0.179	228	0.2	3.434	A
C	1526	511	2310	0.660	1523	1.9	4.555	A
D		1366						

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2162	18	2489	0.869	2148	6.1	10.115	B
B	280	2074	1038	0.269	279	0.4	4.736	A
C	1868	623	2240	0.834	1857	4.7	9.142	A
D		1667						

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2162	18	2489	0.869	2161	6.3	10.893	B
B	280	2088	1029	0.272	280	0.4	4.800	A
C	1868	626	2238	0.835	1868	4.9	9.677	A
D		1675						

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1766	14	2491	0.709	1781	2.5	5.177	A
B	228	1720	1265	0.181	229	0.2	3.480	A
C	1526	515	2307	0.661	1537	2.0	4.743	A
D		1378						

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1479	12	2492	0.593	1483	1.5	3.581	A
B	191	1432	1449	0.132	191	0.2	2.863	A
C	1278	429	2360	0.541	1281	1.2	3.344	A
D		1149						

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	305.32	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	2877	100.000
B		✓	198	100.000
C		✓	1136	100.000
D				

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	135	2352	390
	B	176	0	15	7
	C	667	24	0	445
	D	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	1	11	8
	B	1	0	0	0
	C	14	0	0	9
	D	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	1.23	445.59	319.2	F
B	0.26	5.77	0.3	A
C	0.56	3.69	1.3	A
D				

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2166	18	2588	0.837	2147	4.9	7.835	A
B	149	2046	1096	0.136	148	0.2	3.799	A
C	855	428	2298	0.372	853	0.6	2.487	A
D		651						

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2586	22	2586	1.000	2504	25.5	29.428	D
B	178	2386	888	0.200	178	0.2	5.065	A
C	1021	504	2253	0.453	1020	0.8	2.919	A
D		779						

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	3168	26	2584	1.226	2581	172.1	142.997	F
B	218	2460	843	0.259	218	0.3	5.750	A
C	1251	551	2226	0.562	1249	1.3	3.679	A
D		953						

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	3168	26	2584	1.226	2583	318.2	344.663	F
B	218	2462	842	0.259	218	0.3	5.769	A
C	1251	552	2225	0.562	1251	1.3	3.692	A
D		955						

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2586	22	2586	1.000	2582	319.2	445.585	F
B	178	2461	843	0.211	178	0.3	5.421	A
C	1021	515	2246	0.455	1023	0.8	2.948	A
D		781						

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2166	18	2588	0.837	2580	215.6	373.561	F
B	149	2459	844	0.177	149	0.2	5.187	A
C	855	488	2262	0.378	856	0.6	2.562	A
D		653						

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 2031_DS_M40J10_Ardley_OpB_Ardley4.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M40 J10 options\Options Report\Ardley
Report generation date: 27/04/2021 11:18:55

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	3.6	6.60	0.79						
Arm B	0.3	4.37	0.25						
Arm C	10.9	19.94	0.93						
	2031_DS - 2031_DS_0745								
Arm A				4.8	8.13	0.83			
Arm B				0.4	4.80	0.27			
Arm C				13.2	23.66	0.94			
	2031_DS - 2031_DS_1630								
Arm A							248.9	314.68	1.17
Arm B							0.4	6.48	0.28
Arm C							1.9	4.65	0.66

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_Ardley_OpB_Ardley4
Location	M40 J10
Site number	
Date	06/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout B BWB Options: 13 Flowset: Ardley4

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	12.73	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road	
B	B430	
C	A43 Bridge	
D	M40 J10 NB On	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.30	10.50	40.0	30.0	85.0	35.0	
B	3.50	8.50	96.0	30.0	85.0	34.0	
C	7.30	10.50	30.0	30.0	85.0	35.0	
D							✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.647	2981
B	0.559	2365
C	0.640	2932
D		

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1817	100.000
B		✓	254	100.000
C		✓	1904	100.000
D				

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	67	1404	346
	B	219	0	15	20
	C	1591	16	0	297
	D	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	19	10
	B	0	0	0	0
	C	10	0	0	12
	D	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.79	6.60	3.6	A
B	0.25	4.37	0.3	A
C	0.93	19.94	10.9	C
D				

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1368	12	2548	0.537	1363	1.2	3.027	A
B	191	1313	1505	0.127	191	0.1	2.737	A
C	1433	439	2390	0.600	1427	1.5	3.718	A
D		1369						

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1633	14	2547	0.641	1631	1.8	3.919	A
B	228	1571	1336	0.171	228	0.2	3.249	A
C	1712	525	2337	0.732	1707	2.7	5.671	A
D		1637						

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2001	17	2545	0.786	1993	3.6	6.438	A
B	280	1920	1107	0.253	279	0.3	4.343	A
C	2096	642	2265	0.926	2067	9.9	16.275	C
D		1986						

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2001	18	2545	0.786	2000	3.6	6.597	A
B	280	1927	1103	0.254	280	0.3	4.372	A
C	2096	644	2264	0.926	2092	10.9	19.943	C
D		2007						

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1633	15	2547	0.641	1641	1.8	4.002	A
B	228	1580	1330	0.172	229	0.2	3.273	A
C	1712	528	2335	0.733	1744	2.8	6.414	A
D		1669						

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1368	12	2548	0.537	1371	1.2	3.064	A
B	191	1320	1500	0.127	191	0.1	2.752	A
C	1433	441	2389	0.600	1439	1.5	3.809	A
D		1379						

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	15.12	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1964	100.000
B		✓	254	100.000
C		✓	1942	100.000
D				

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	67	1565	332
	B	218	0	17	19
	C	1533	16	0	393
	D	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	15	12
	B	0	0	0	0
	C	11	0	0	7
	D	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.83	8.13	4.8	A
B	0.27	4.80	0.4	A
C	0.94	23.66	13.2	C
D				

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1479	12	2607	0.567	1473	1.3	3.162	A
B	191	1423	1455	0.131	191	0.2	2.846	A
C	1462	427	2396	0.610	1456	1.5	3.806	A
D		1325						

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1766	14	2605	0.678	1763	2.1	4.256	A
B	228	1702	1276	0.179	228	0.2	3.435	A
C	1746	511	2344	0.745	1741	2.8	5.920	A
D		1584						

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2162	17	2604	0.831	2152	4.7	7.795	A
B	280	2079	1035	0.270	279	0.4	4.756	A
C	2138	624	2273	0.941	2103	11.6	18.305	C
D		1917						

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2162	18	2604	0.831	2162	4.8	8.129	A
B	280	2088	1029	0.272	280	0.4	4.802	A
C	2138	626	2272	0.941	2132	13.2	23.659	C
D		1940						

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1766	15	2605	0.678	1776	2.1	4.396	A
B	228	1716	1268	0.180	229	0.2	3.470	A
C	1746	514	2342	0.746	1787	3.0	6.946	A
D		1622						

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1479	12	2607	0.567	1482	1.3	3.208	A
B	191	1431	1449	0.132	191	0.2	2.864	A
C	1462	429	2394	0.611	1468	1.6	3.910	A
D		1335						

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	205.24	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	2877	100.000
B		✓	198	100.000
C		✓	1351	100.000
D				

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	135	2352	390
	B	176	0	15	7
	C	882	24	0	445
	D	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	1	11	8
	B	1	0	0	0
	C	15	0	0	9
	D	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	1.17	314.68	248.9	F
B	0.28	6.48	0.4	A
C	0.66	4.65	1.9	A
D				

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2166	18	2707	0.800	2150	3.9	6.302	A
B	149	2050	1093	0.136	148	0.2	3.808	A
C	1017	429	2343	0.434	1014	0.8	2.703	A
D		812						

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2586	22	2705	0.956	2544	14.5	18.717	C
B	178	2425	865	0.206	178	0.3	5.236	A
C	1215	509	2295	0.529	1213	1.1	3.322	A
D		971						

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	3168	26	2702	1.172	2696	132.4	103.899	F
B	218	2569	777	0.281	217	0.4	6.434	A
C	1487	566	2262	0.658	1484	1.9	4.614	A
D		1189						

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	3168	26	2702	1.172	2702	248.9	257.499	F
B	218	2575	773	0.282	218	0.4	6.483	A
C	1487	568	2261	0.658	1487	1.9	4.654	A
D		1191						

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2586	22	2705	0.956	2694	221.9	314.676	F
B	178	2568	778	0.229	178	0.3	6.011	A
C	1215	530	2282	0.532	1218	1.1	3.392	A
D		975						

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2166	18	2707	0.800	2695	89.7	209.341	F
B	149	2569	777	0.192	149	0.2	5.735	A
C	1017	503	2298	0.443	1018	0.8	2.818	A
D		816						

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 2031_DS_M40J10_Ardley_OpC_Ardley7.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M40 J10 options\Options Report\Ardley
Report generation date: 27/04/2021 11:41:00

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	1.3	3.92	0.57						
Arm B	0.3	3.31	0.20						
Arm D	5.5	11.10	0.85						
	2031_DS - 2031_DS_0745								
Arm A				1.4	4.11	0.58			
Arm B				0.3	3.47	0.21			
Arm D				6.0	11.91	0.86			
	2031_DS - 2031_DS_1630								
Arm A							6.3	12.06	0.87
Arm B							0.3	5.05	0.23
Arm D							1.4	4.10	0.59

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_Ardley_OpC_Ardley7
Location	M40 J10
Site number	
Date	06/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout C BWB Options: 16 Flowset: Ardley7

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	7.69	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road	
B	B430	
C	M40 J10 NB On	
D	A43 Bridge	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.30	10.50	20.0	30.0	85.0	35.0	
B	3.50	8.50	96.0	30.0	85.0	34.0	
C							✓
D	7.30	8.62	10.0	30.0	85.0	35.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.628	2850
B	0.559	2365
C		
D	0.576	2490

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1118	100.000
B		✓	254	100.000
C				
D		✓	1685	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	67	346	705
	B	215	0	20	19
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	1372	16	297	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	10	29
	B	0	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	7	0	12	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.57	3.92	1.3	A
B	0.20	3.31	0.3	A
C				
D	0.85	11.10	5.5	B

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	842	235	2212	0.381	839	0.6	2.618	A
B	191	1012	1685	0.114	191	0.1	2.410	A
C		705						
D	1269	161	2217	0.572	1263	1.3	3.754	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1005	281	2185	0.460	1004	0.8	3.044	A
B	228	1210	1551	0.147	228	0.2	2.721	A
C		843						
D	1515	193	2200	0.689	1511	2.2	5.203	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1231	342	2150	0.573	1229	1.3	3.902	A
B	280	1480	1369	0.204	279	0.3	3.302	A
C		1032						
D	1855	236	2177	0.852	1842	5.4	10.392	B

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1231	344	2149	0.573	1231	1.3	3.923	A
B	280	1484	1367	0.205	280	0.3	3.310	A
C		1034						
D	1855	237	2177	0.852	1854	5.5	11.104	B

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1005	284	2183	0.460	1007	0.9	3.064	A
B	228	1216	1547	0.148	229	0.2	2.732	A
C		846						
D	1515	194	2200	0.689	1528	2.3	5.461	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	842	236	2211	0.381	843	0.6	2.632	A
B	191	1016	1681	0.114	191	0.1	2.417	A
C		708						
D	1269	162	2216	0.572	1272	1.4	3.826	A

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	8.24	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1110	100.000
B		✓	254	100.000
C				
D		✓	1697	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	67	332	711
	B	215	0	19	20
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	1288	16	393	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	12	28
	B	0	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	9	0	7	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.58	4.11	1.4	A
B	0.21	3.47	0.3	A
C				
D	0.86	11.91	6.0	B

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	836	307	2176	0.384	833	0.6	2.676	A
B	191	1078	1651	0.116	191	0.1	2.465	A
C		710						
D	1278	161	2207	0.579	1272	1.4	3.828	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	998	367	2143	0.466	997	0.9	3.137	A
B	228	1289	1511	0.151	228	0.2	2.806	A
C		850						
D	1526	193	2190	0.696	1522	2.3	5.357	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1222	447	2099	0.582	1220	1.4	4.087	A
B	280	1576	1321	0.212	279	0.3	3.457	A
C		1040						
D	1868	236	2167	0.862	1854	5.7	11.037	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1222	450	2097	0.583	1222	1.4	4.114	A
B	280	1581	1318	0.212	280	0.3	3.467	A
C		1042						
D	1868	237	2167	0.862	1867	6.0	11.911	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	998	371	2141	0.466	1000	0.9	3.160	A
B	228	1296	1506	0.152	229	0.2	2.818	A
C		852						
D	1526	194	2190	0.697	1540	2.3	5.659	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	836	309	2175	0.384	837	0.6	2.691	A
B	191	1083	1647	0.116	191	0.1	2.474	A
C		713						
D	1278	162	2207	0.579	1281	1.4	3.906	A

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	8.71	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1757	100.000
B		✓	198	100.000
C				
D		✓	1136	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	135	390	1232
	B	175	0	7	16
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	667	24	445	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	1	8	15
	B	1	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	14	0	9	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.87	12.06	6.3	B
B	0.23	5.05	0.3	A
C				
D	0.59	4.10	1.4	A

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1323	352	2329	0.568	1318	1.3	3.539	A
B	149	1550	1380	0.108	149	0.1	2.924	A
C		1067						
D	855	131	2161	0.396	853	0.7	2.744	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1580	421	2287	0.691	1576	2.2	5.037	A
B	178	1855	1191	0.149	178	0.2	3.552	A
C		1277						
D	1021	157	2148	0.475	1020	0.9	3.189	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1934	516	2230	0.868	1919	6.0	11.089	B
B	218	2261	939	0.232	218	0.3	4.987	A
C		1556						
D	1251	192	2130	0.587	1249	1.4	4.078	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1934	516	2229	0.868	1933	6.3	12.060	B
B	218	2275	930	0.234	218	0.3	5.053	A
C		1566						
D	1251	193	2129	0.587	1251	1.4	4.096	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1580	422	2286	0.691	1595	2.3	5.328	A
B	178	1874	1179	0.151	179	0.2	3.601	A
C		1291						
D	1021	158	2148	0.476	1023	0.9	3.206	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1323	354	2328	0.568	1327	1.3	3.606	A
B	149	1560	1374	0.109	149	0.1	2.941	A
C		1074						
D	855	132	2161	0.396	856	0.7	2.760	A

APPENDIX 23

Ardley Roundabout junction option A-3 – Arcady results

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 2031_DS_M40J10_Ardley_OpC_Ardley5.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M40 J10 options\Options Report\Ardley
Report generation date: 27/04/2021 11:27:51

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	8.1	15.19	0.90						
Arm B	0.5	5.84	0.31						
Arm D	5.6	11.18	0.85						
	2031_DS - 2031_DS_0745								
Arm A				19.3	33.83	0.97			
Arm B				0.6	7.21	0.36			
Arm D				6.0	11.97	0.86			
	2031_DS - 2031_DS_1630								
Arm A							582.3	844.05	1.39
Arm B							0.4	7.12	0.30
Arm D							1.4	4.10	0.59

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_Ardley_OpC_Ardley5
Location	M40 J10
Site number	
Date	06/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout C BWB Options: 8, 9 Flowset: Ardley5

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	12.89	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road	
B	B430	
C	M40 J10 NB On	
D	A43 Bridge	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.30	10.50	20.0	30.0	85.0	35.0	
B	3.50	8.50	96.0	30.0	85.0	34.0	
C							✓
D	7.30	8.62	10.0	30.0	85.0	35.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.628	2850
B	0.559	2365
C		
D	0.576	2490

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1817	100.000
B		✓	254	100.000
C				
D		✓	1685	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	67	346	1404
	B	219	0	20	15
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	1372	16	297	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	10	19
	B	0	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	7	0	12	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.90	15.19	8.1	C
B	0.31	5.84	0.5	A
C				
D	0.85	11.18	5.6	B

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1368	235	2296	0.596	1362	1.5	3.830	A
B	191	1535	1364	0.140	191	0.2	3.067	A
C		1228						
D	1269	164	2215	0.573	1263	1.3	3.760	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1633	281	2269	0.720	1629	2.5	5.592	A
B	228	1836	1167	0.196	228	0.2	3.832	A
C		1469						
D	1515	197	2198	0.689	1511	2.2	5.217	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2001	342	2232	0.896	1980	7.6	13.357	B
B	280	2232	909	0.308	279	0.4	5.708	A
C		1787						
D	1855	240	2175	0.853	1842	5.4	10.453	B

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2001	344	2231	0.897	1999	8.1	15.194	C
B	280	2252	896	0.312	280	0.5	5.840	A
C		1802						
D	1855	241	2174	0.853	1854	5.6	11.183	B

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1633	284	2267	0.721	1655	2.6	6.084	A
B	228	1863	1149	0.199	229	0.2	3.917	A
C		1490						
D	1515	198	2197	0.689	1528	2.3	5.483	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1368	236	2295	0.596	1373	1.5	3.920	A
B	191	1546	1356	0.141	192	0.2	3.091	A
C		1237						
D	1269	165	2215	0.573	1272	1.4	3.833	A

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	22.98	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1964	100.000
B		✓	254	100.000
C				
D		✓	1697	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	67	332	1565
	B	218	0	19	17
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	1288	16	393	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	12	15
	B	0	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	9	0	7	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.97	33.83	19.3	D
B	0.36	7.21	0.6	A
C				
D	0.86	11.97	6.0	B

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1479	307	2319	0.638	1472	1.7	4.216	A
B	191	1716	1279	0.150	191	0.2	3.306	A
C		1349						
D	1278	164	2206	0.579	1272	1.4	3.833	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1766	367	2283	0.773	1759	3.3	6.792	A
B	228	2052	1066	0.214	228	0.3	4.291	A
C		1613						
D	1526	196	2189	0.697	1522	2.3	5.368	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2162	447	2236	0.967	2113	15.6	23.272	C
B	280	2470	802	0.349	279	0.5	6.868	A
C		1942						
D	1868	239	2166	0.863	1854	5.8	11.081	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2162	450	2234	0.968	2148	19.3	33.835	D
B	280	2507	778	0.359	280	0.6	7.215	A
C		1970						
D	1868	240	2166	0.863	1867	6.0	11.975	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1766	371	2281	0.774	1828	3.6	9.033	A
B	228	2123	1021	0.224	229	0.3	4.554	A
C		1669						
D	1526	197	2188	0.697	1540	2.3	5.674	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1479	309	2317	0.638	1486	1.8	4.364	A
B	191	1732	1269	0.151	192	0.2	3.342	A
C		1361						
D	1278	165	2206	0.579	1281	1.4	3.911	A

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	577.39	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	2877	100.000
B		✓	198	100.000
C				
D		✓	1136	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	135	390	2352
	B	176	0	7	15
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	667	24	445	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	1	8	11
	B	1	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	14	0	9	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	1.39	844.05	582.3	F
B	0.30	7.12	0.4	A
C				
D	0.59	4.10	1.4	A

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2166	352	2380	0.910	2132	8.6	13.078	B
B	149	2366	903	0.165	148	0.2	4.766	A
C		1886						
D	855	132	2161	0.396	853	0.7	2.745	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2586	421	2337	1.107	2321	74.9	72.532	F
B	178	2612	753	0.236	178	0.3	6.250	A
C		2069						
D	1021	158	2148	0.476	1020	0.9	3.190	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	3168	516	2278	1.390	2278	297.3	297.942	F
B	218	2660	724	0.301	218	0.4	7.100	A
C		2072						
D	1251	193	2129	0.587	1249	1.4	4.080	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	3168	516	2278	1.391	2278	519.7	641.478	F
B	218	2661	724	0.301	218	0.4	7.116	A
C		2073						
D	1251	194	2129	0.588	1251	1.4	4.099	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2586	422	2336	1.107	2336	582.3	844.053	F
B	178	2627	744	0.239	178	0.3	6.373	A
C		2082						
D	1021	159	2147	0.476	1023	0.9	3.208	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2166	354	2379	0.910	2375	530.0	843.048	F
B	149	2599	761	0.196	149	0.2	5.894	A
C		2086						
D	855	133	2161	0.396	856	0.7	2.763	A

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 2031_DS_M40J10_Ardley_OpC_Ardley6.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M40 J10 options\Options Report\Ardley
Report generation date: 27/04/2021 11:35:42

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	8.0	15.04	0.90						
Arm B	0.4	5.82	0.31						
Arm D	24.2	42.97	0.98						
	2031_DS - 2031_DS_0745								
Arm A				18.6	32.64	0.97			
Arm B				0.6	7.15	0.36			
Arm D				33.3	55.52	1.00			
	2031_DS - 2031_DS_1630								
Arm A							581.9	843.53	1.39
Arm B							0.4	7.12	0.30
Arm D							2.4	5.79	0.71

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_Ardley_OpC_Ardley6
Location	M40 J10
Site number	
Date	06/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout C BWB Options: 10, 11, 12 Flowset: Ardley6

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	27.61	D

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road	
B	B430	
C	M40 J10 NB On	
D	A43 Bridge	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.30	10.50	20.0	30.0	85.0	35.0	
B	3.50	8.50	96.0	30.0	85.0	34.0	
C							✓
D	7.30	8.62	10.0	30.0	85.0	35.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.628	2850
B	0.559	2365
C		
D	0.576	2490

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1817	100.000
B		✓	254	100.000
C				
D		✓	1904	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	67	346	1404
	B	219	0	20	15
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	1591	16	297	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	10	19
	B	0	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	10	0	12	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.90	15.04	8.0	C
B	0.31	5.82	0.4	A
C				
D	0.98	42.97	24.2	E

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1368	234	2296	0.596	1362	1.5	3.829	A
B	191	1534	1364	0.140	191	0.2	3.066	A
C		1228						
D	1433	164	2173	0.660	1426	1.9	4.770	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1633	280	2269	0.720	1629	2.5	5.590	A
B	228	1835	1168	0.196	228	0.2	3.831	A
C		1469						
D	1712	197	2156	0.794	1704	3.7	7.844	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2001	335	2236	0.895	1981	7.4	13.177	B
B	280	2226	913	0.306	279	0.4	5.671	A
C		1788						
D	2096	240	2133	0.983	2037	18.6	27.609	D

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2001	341	2233	0.896	1998	8.0	15.045	C
B	280	2248	898	0.311	280	0.4	5.819	A
C		1802						
D	2096	241	2133	0.983	2074	24.2	42.971	E

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1633	295	2260	0.723	1655	2.7	6.142	A
B	228	1873	1143	0.200	229	0.3	3.943	A
C		1490						
D	1712	198	2156	0.794	1792	4.0	12.011	B

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1368	237	2295	0.596	1373	1.5	3.924	A
B	191	1547	1356	0.141	192	0.2	3.094	A
C		1237						
D	1433	165	2173	0.660	1442	2.0	4.980	A

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	41.81	E

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1964	100.000
B		✓	254	100.000
C				
D		✓	1942	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	67	332	1565
	B	218	0	19	17
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	1533	16	393	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	12	15
	B	0	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	11	0	7	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.97	32.64	18.6	D
B	0.36	7.15	0.6	A
C				
D	1.00	55.52	33.3	F

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1479	306	2319	0.638	1472	1.7	4.215	A
B	191	1716	1279	0.150	191	0.2	3.305	A
C		1349						
D	1462	164	2175	0.672	1454	2.0	4.941	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1766	366	2284	0.773	1759	3.3	6.785	A
B	228	2051	1067	0.214	228	0.3	4.289	A
C		1613						
D	1746	196	2158	0.809	1738	4.0	8.403	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2162	434	2244	0.964	2115	15.1	22.592	C
B	280	2460	808	0.346	279	0.5	6.792	A
C		1943						
D	2138	239	2135	1.001	2061	23.4	32.471	D

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2162	442	2239	0.966	2148	18.6	32.644	D
B	280	2500	783	0.357	280	0.6	7.152	A
C		1971						
D	2138	240	2135	1.002	2099	33.3	55.519	F

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1766	392	2268	0.778	1825	3.6	9.176	A
B	228	2140	1011	0.226	229	0.3	4.610	A
C		1667						
D	1746	197	2157	0.809	1861	4.5	16.605	C

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1479	310	2317	0.638	1486	1.8	4.371	A
B	191	1733	1268	0.151	192	0.2	3.345	A
C		1361						
D	1462	165	2174	0.672	1472	2.1	5.194	A

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	547.64	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	2877	100.000
B		✓	198	100.000
C				
D		✓	1351	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	135	390	2352
	B	176	0	7	15
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	882	24	445	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	1	8	11
	B	1	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	15	0	9	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	1.39	843.53	581.9	F
B	0.30	7.12	0.4	A
C				
D	0.71	5.79	2.4	A

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2166	352	2380	0.910	2132	8.6	13.061	B
B	149	2365	903	0.165	148	0.2	4.766	A
C		1886						
D	1017	132	2141	0.475	1014	0.9	3.183	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2586	421	2337	1.106	2321	74.8	72.435	F
B	178	2612	753	0.236	178	0.3	6.252	A
C		2069						
D	1215	158	2127	0.571	1213	1.3	3.930	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	3168	515	2279	1.390	2279	297.0	297.581	F
B	218	2660	724	0.301	218	0.4	7.101	A
C		2073						
D	1487	193	2109	0.705	1483	2.3	5.718	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	3168	516	2278	1.390	2278	519.4	640.962	F
B	218	2661	724	0.301	218	0.4	7.118	A
C		2073						
D	1487	194	2109	0.705	1487	2.4	5.792	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2586	423	2336	1.107	2336	581.9	843.525	F
B	178	2628	743	0.239	178	0.3	6.376	A
C		2082						
D	1215	159	2127	0.571	1219	1.3	3.983	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	2166	354	2379	0.910	2375	529.6	842.450	F
B	149	2599	760	0.196	149	0.2	5.896	A
C		2086						
D	1017	133	2140	0.475	1019	0.9	3.214	A

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 2031_DS_M40J10_Ardley_OpC_Ardley8.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M40 J10 options\Options Report\Ardley
Report generation date: 27/04/2021 11:46:30

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	0.5	2.51	0.36						
Arm B	0.2	2.56	0.17						
Arm D	5.6	11.18	0.85						
	2031_DS - 2031_DS_0745								
Arm A				0.6	2.62	0.37			
Arm B				0.2	2.69	0.17			
Arm D				6.0	11.98	0.86			
	2031_DS - 2031_DS_1630								
Arm A							1.2	3.46	0.55
Arm B							0.2	3.13	0.16
Arm D							1.4	4.10	0.59

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_Ardley_OpC_Ardley8
Location	M40 J10
Site number	
Date	06/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout C BWB Options: 17 Flowset: Ardley8

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	7.93	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road	
B	B430	
C	M40 J10 NB On	
D	A43 Bridge	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.30	10.50	20.0	30.0	85.0	35.0	
B	3.50	8.50	96.0	30.0	85.0	34.0	
C							✓
D	7.30	8.62	10.0	30.0	85.0	35.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.628	2850
B	0.559	2365
C		
D	0.576	2490

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	719	100.000
B		✓	254	100.000
C				
D		✓	1685	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	67	346	306
	B	219	0	20	15
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	1372	16	297	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	10	28
	B	0	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	7	0	12	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.36	2.51	0.5	A
B	0.17	2.56	0.2	A
C				
D	0.85	11.18	5.6	B

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	541	235	2294	0.236	540	0.3	2.052	A
B	191	712	1901	0.101	191	0.1	2.105	A
C		406						
D	1269	164	2215	0.573	1263	1.3	3.761	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	646	281	2266	0.285	646	0.4	2.222	A
B	228	852	1810	0.126	228	0.1	2.276	A
C		485						
D	1515	197	2198	0.689	1511	2.2	5.218	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	792	342	2229	0.355	791	0.5	2.501	A
B	280	1042	1686	0.166	279	0.2	2.559	A
C		594						
D	1855	241	2174	0.853	1842	5.4	10.459	B

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	792	344	2228	0.355	792	0.5	2.505	A
B	280	1045	1684	0.166	280	0.2	2.562	A
C		595						
D	1855	241	2174	0.853	1854	5.6	11.184	B

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	646	284	2264	0.285	647	0.4	2.226	A
B	228	856	1807	0.126	229	0.1	2.282	A
C		486						
D	1515	197	2198	0.689	1528	2.3	5.479	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	541	236	2293	0.236	542	0.3	2.056	A
B	191	715	1899	0.101	191	0.1	2.108	A
C		407						
D	1269	165	2215	0.573	1272	1.4	3.835	A

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	8.46	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	737	100.000
B		✓	254	100.000
C				
D		✓	1697	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	67	332	338
	B	218	0	19	17
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	1288	16	393	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	12	24
	B	0	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	9	0	7	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.37	2.62	0.6	A
B	0.17	2.69	0.2	A
C				
D	0.86	11.98	6.0	B

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	555	307	2269	0.245	554	0.3	2.098	A
B	191	798	1856	0.103	191	0.1	2.162	A
C		430						
D	1278	164	2206	0.579	1272	1.4	3.833	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	663	367	2234	0.297	662	0.4	2.290	A
B	228	954	1756	0.130	228	0.1	2.355	A
C		515						
D	1526	196	2189	0.697	1522	2.3	5.368	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	811	447	2188	0.371	811	0.6	2.613	A
B	280	1167	1621	0.173	279	0.2	2.683	A
C		630						
D	1868	240	2166	0.863	1854	5.8	11.092	B

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	811	450	2186	0.371	811	0.6	2.618	A
B	280	1170	1619	0.173	280	0.2	2.687	A
C		631						
D	1868	240	2166	0.863	1867	6.0	11.979	B

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	663	371	2231	0.297	663	0.4	2.296	A
B	228	960	1753	0.130	229	0.2	2.361	A
C		516						
D	1526	196	2189	0.697	1540	2.3	5.673	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	555	309	2267	0.245	555	0.3	2.104	A
B	191	802	1854	0.103	191	0.1	2.165	A
C		432						
D	1278	164	2206	0.579	1281	1.4	3.912	A

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	M40 J10 - Ardley Rbt	Standard Roundabout		A, B, C, D	3.73	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1160	100.000
B		✓	198	100.000
C				
D		✓	1136	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	135	390	635
	B	176	0	7	15
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	667	24	445	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	1	8	9
	B	1	0	0	0
	C	Exit-only	Exit-only	Exit-only	Exit-only
	D	14	0	9	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.55	3.46	1.2	A
B	0.16	3.13	0.2	A
C				
D	0.59	4.10	1.4	A

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	873	352	2422	0.361	871	0.6	2.318	A
B	149	1104	1678	0.089	149	0.1	2.354	A
C		620						
D	855	132	2161	0.396	853	0.7	2.745	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1043	421	2379	0.438	1042	0.8	2.692	A
B	178	1320	1547	0.115	178	0.1	2.628	A
C		742						
D	1021	158	2147	0.476	1020	0.9	3.190	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1277	516	2319	0.551	1275	1.2	3.444	A
B	218	1616	1369	0.159	218	0.2	3.126	A
C		908						
D	1251	194	2129	0.588	1249	1.4	4.081	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1277	516	2318	0.551	1277	1.2	3.456	A
B	218	1618	1368	0.159	218	0.2	3.130	A
C		909						
D	1251	194	2129	0.588	1251	1.4	4.099	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1043	422	2378	0.439	1045	0.8	2.703	A
B	178	1324	1545	0.115	178	0.1	2.633	A
C		744						
D	1021	158	2147	0.476	1023	0.9	3.207	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	873	354	2421	0.361	874	0.6	2.327	A
B	149	1108	1675	0.089	149	0.1	2.360	A
C		622						
D	855	133	2161	0.396	856	0.7	2.763	A

APPENDIX 24

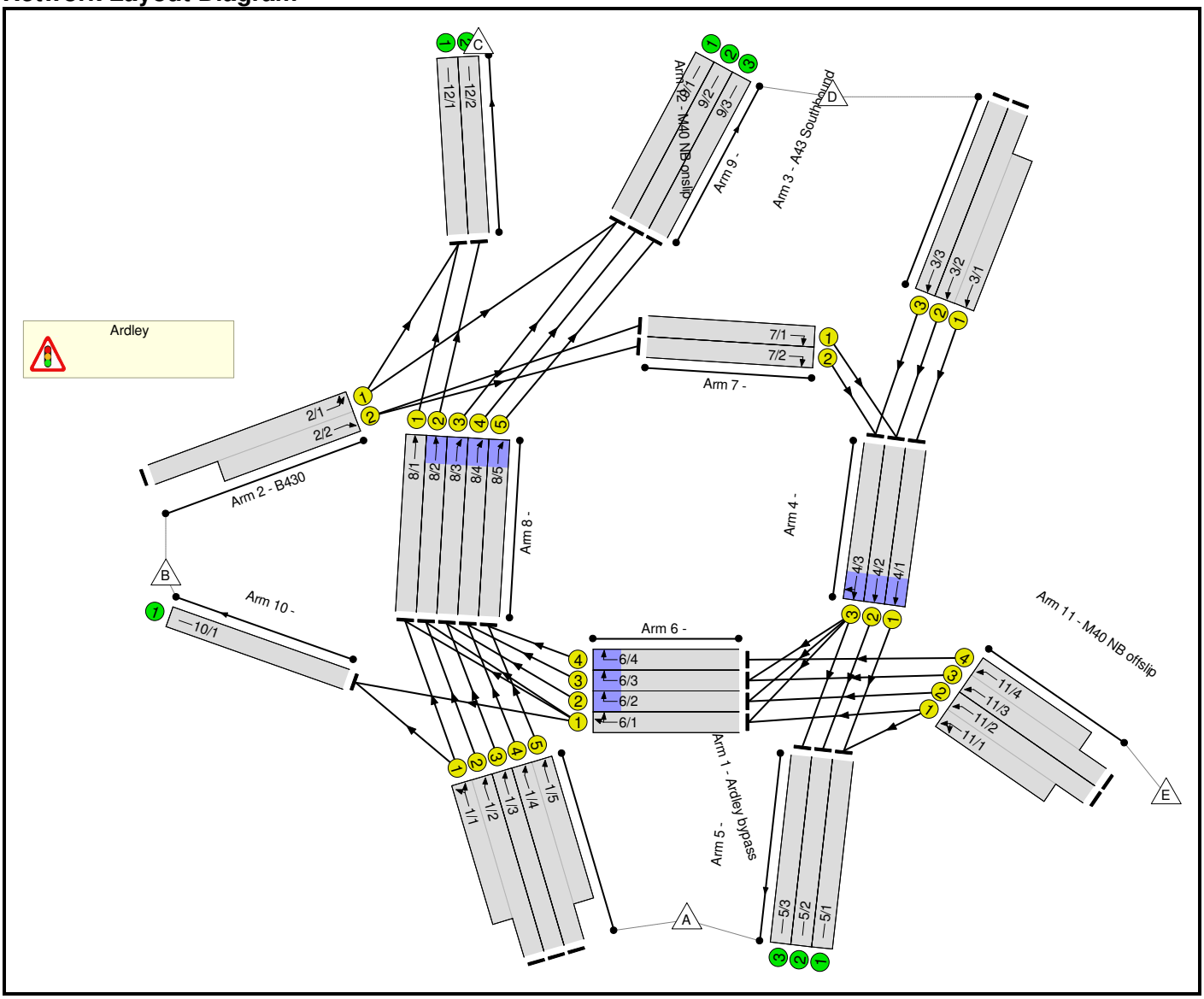
Ardley Roundabout junction option A-1 – LinSig results

Full Input Data And Results

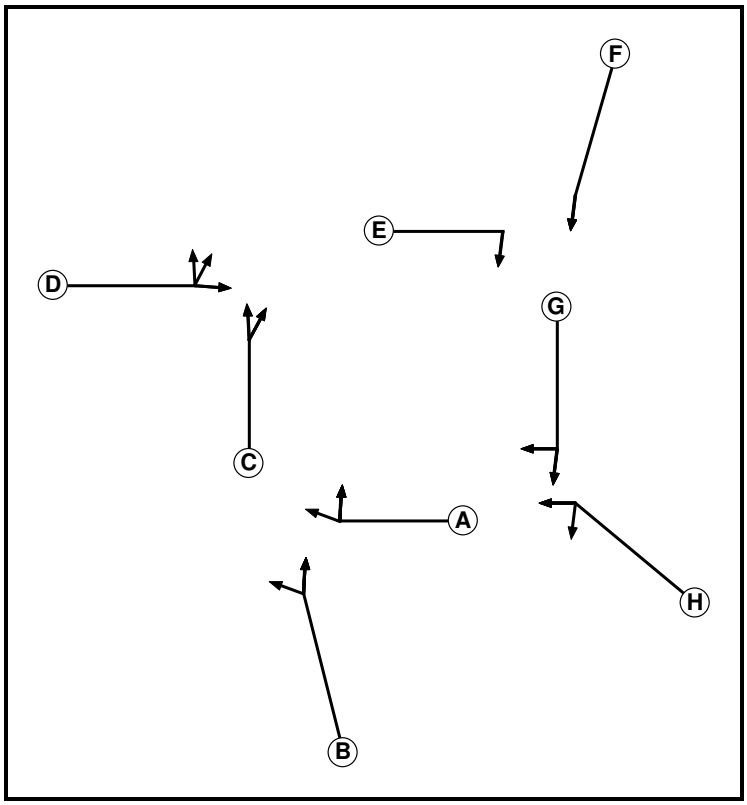
User and Project Details

Project:	**Oxfordshire SRFI**
Title:	**Ardley roundabout - 5-arm signalised roundabout A-1**
Location:	
Additional detail:	
File name:	2031_DS_M40J10_Ardley - 5-arm signalised roundabout A-1.lsg3x
Author:	Mark Higgins
Company:	ADC Infrastructure
Address:	Nottingham

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7
E	Traffic	3		7	7
F	Traffic	3		7	7
G	Traffic	4		7	7
H	Traffic	4		7	7

Phase Intergreens Matrix

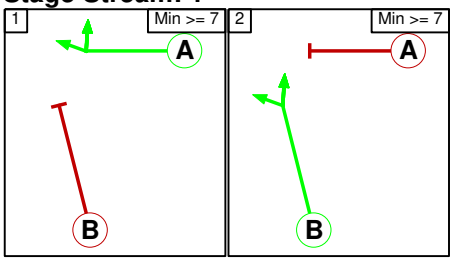
		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		6	-	-	-	-	-	-
	B	6		-	-	-	-	-	-
	C	-	-		6	-	-	-	-
	D	-	-	6		-	-	-	-
	E	-	-	-	-		6	-	-
	F	-	-	-	-	6		-	-
	G	-	-	-	-	-	-		6
	H	-	-	-	-	-	-	6	

Phases in Stage

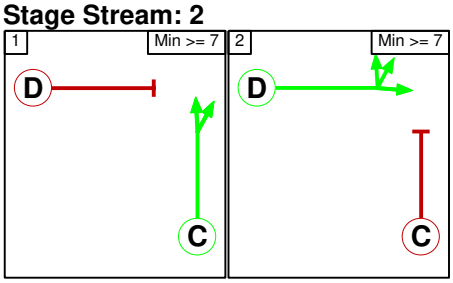
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D
3	1	E
3	2	F
4	1	G
4	2	H

Stage Diagram

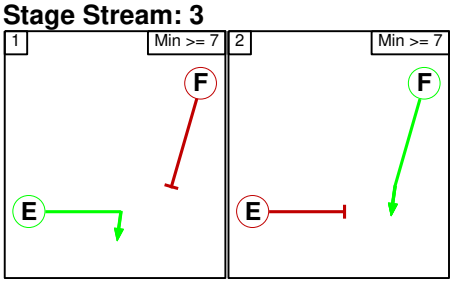
Stage Stream: 1



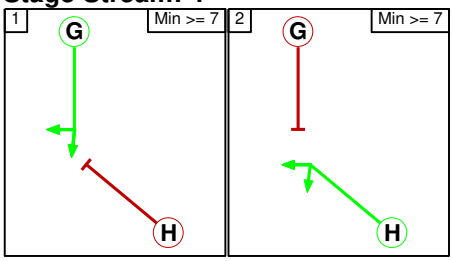
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Prohibited Stage Change

Stage Stream: 1

	To Stage		
		1	2
From Stage	1		6
	2	6	

Stage Stream: 2

	To Stage		
		1	2
From Stage	1		6
	2	6	

Stage Stream: 3

	To Stage		
		1	2
From Stage	1		6
	2	6	

Stage Stream: 4

	To Stage		
		1	2
From Stage	1		6
	2	6	

Lane Input Data

Junction: Ardley												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Ardley bypass)	U	B	2	3	10.4	Geom	-	3.65	0.00	Y	Arm 8 Ahead	Inf
											Arm 10 Left	40.00
1/2 (Ardley bypass)	U	B	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 8 Ahead	50.00
1/3 (Ardley bypass)	U	B	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 8 Ahead	50.00
1/4 (Ardley bypass)	U	B	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 8 Ahead	50.00
1/5 (Ardley bypass)	U	B	2	3	34.8	Geom	-	3.65	0.00	Y	Arm 8 Ahead	50.00
2/1 (B430)	U	D	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 9 Ahead	50.00
											Arm 12 Left	Inf
2/2 (B430)	U	D	2	3	10.4	Geom	-	3.50	0.00	Y	Arm 7 Ahead	50.00
3/1 (A43 Southbound)	U	F	2	3	13.9	Geom	-	3.65	0.00	Y	Arm 4 Ahead	Inf
3/2 (A43 Southbound)	U	F	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 4 Ahead	50.00
3/3 (A43 Southbound)	U	F	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 4 Ahead	50.00
4/1	U	G	2	3	7.0	User	1850	-	-	-	-	-
4/2	U	G	2	3	7.0	User	1850	-	-	-	-	-
4/3	U	G	2	3	7.0	User	1850	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
5/3	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U	A	2	3	8.7	User	1850	-	-	-	-	-
6/2	U	A	2	3	8.7	User	1850	-	-	-	-	-
6/3	U	A	2	3	8.7	User	1850	-	-	-	-	-
6/4	U	A	2	3	8.7	User	1850	-	-	-	-	-
7/1	U	E	2	3	8.7	User	1850	-	-	-	-	-
7/2	U	E	2	3	8.7	User	1850	-	-	-	-	-
8/1	U	C	2	3	8.7	User	1850	-	-	-	-	-
8/2	U	C	2	3	8.7	User	1850	-	-	-	-	-

8/3	U	C	2	3	8.7	User	1850	-	-	-	-	-
8/4	U	C	2	3	10.4	User	1850	-	-	-	-	-
8/5	U	C	2	3	10.4	User	1850	-	-	-	-	-
9/1	U		2	3	60.0	Inf	-	-	-	-	-	-
9/2	U		2	3	60.0	Inf	-	-	-	-	-	-
9/3	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1	U		2	3	60.0	Inf	-	-	-	-	-	-
11/1 (M40 NB offslip)	U	H	2	3	20.9	Geom	-	3.65	0.00	Y	Arm 5 Left	40.00
											Arm 6 Ahead	Inf
11/2 (M40 NB offslip)	U	H	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 6 Ahead	Inf
11/3 (M40 NB offslip)	U	H	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 6 Ahead	Inf
11/4 (M40 NB offslip)	U	H	2	3	20.9	Geom	-	3.65	0.00	Y	Arm 6 Ahead	Inf
12/1 (M40 NB onslip)	U		2	3	60.0	Inf	-	-	-	-	-	-
12/2 (M40 NB onslip)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Ardley1_AM'	07:45	08:45	01:00	
2: 'Ardley1_PM'	16:30	17:30	01:00	

Scenario 1: '2031 Ardley14, 15 AM' (FG1: 'Ardley1_AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	67	372	658	0	1097
	B	215	0	19	20	0	254
	C	0	0	0	0	0	0
	D	1405	16	422	0	0	1843
	E	445	1	0	1420	0	1866
	Tot.	2065	84	813	2098	0	5060

Traffic Lane Flows

Lane	Scenario 1: 2031 Ardley14, 15 AM
Junction: Ardley	
1/1 (short)	226
1/2 (with short)	439(In) 213(Out)
1/3	174
1/4 (with short)	484(In) 242(Out)
1/5 (short)	242
2/1 (with short)	254(In) 39(Out)
2/2 (short)	215
3/1 (short)	651
3/2 (with short)	1302(In) 651(Out)
3/3	541
4/1	651
4/2	759
4/3	648
5/1	1096
5/2	759
5/3	210
6/1	439
6/2	493
6/3	489
6/4	438
7/1	108
7/2	107
8/1	370
8/2	424
8/3	667
8/4	731
8/5	680
9/1	687
9/2	731
9/3	680
10/1	84
11/1 (short)	446
11/2 (with short)	939(In) 493(Out)
11/3 (with short)	927(In) 489(Out)

11/4 (short)	438
12/1	389
12/2	424

Lane Saturation Flows

Junction: Ardley

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	Inf	70.4 %	1958	1958
				Arm 10 Left	40.00	29.6 %		
1/2 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
1/3 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
1/4 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
1/5 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
2/1 (B430)	3.50	0.00	Y	Arm 9 Ahead	50.00	51.3 %	1935	1935
				Arm 12 Left	Inf	48.7 %		
2/2 (B430)	3.50	0.00	Y	Arm 7 Ahead	50.00	100.0 %	1908	1908
3/1 (A43 Southbound)	3.65	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1980	1980
3/2 (A43 Southbound)	3.65	0.00	Y	Arm 4 Ahead	50.00	100.0 %	1922	1922
3/3 (A43 Southbound)	3.65	0.00	Y	Arm 4 Ahead	50.00	100.0 %	1922	1922
4/1	This lane uses a directly entered Saturation Flow						1850	1850
4/2	This lane uses a directly entered Saturation Flow						1850	1850
4/3	This lane uses a directly entered Saturation Flow						1850	1850
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
5/3	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						1850	1850
6/2	This lane uses a directly entered Saturation Flow						1850	1850
6/3	This lane uses a directly entered Saturation Flow						1850	1850
6/4	This lane uses a directly entered Saturation Flow						1850	1850
7/1	This lane uses a directly entered Saturation Flow						1850	1850
7/2	This lane uses a directly entered Saturation Flow						1850	1850
8/1	This lane uses a directly entered Saturation Flow						1850	1850
8/2	This lane uses a directly entered Saturation Flow						1850	1850
8/3	This lane uses a directly entered Saturation Flow						1850	1850
8/4	This lane uses a directly entered Saturation Flow						1850	1850
8/5	This lane uses a directly entered Saturation Flow						1850	1850
9/1	Infinite Saturation Flow						Inf	Inf
9/2	Infinite Saturation Flow						Inf	Inf
9/3	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf

11/1 (M40 NB offslip)	3.65	0.00	Y	Arm 5 Left	40.00	99.8 %	1909	1909
				Arm 6 Ahead	Inf	0.2 %		
11/2 (M40 NB offslip)	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
11/3 (M40 NB offslip)	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
11/4 (M40 NB offslip)	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
12/1 (M40 NB onslip Lane 1)	Infinite Saturation Flow						Inf	Inf
12/2 (M40 NB onslip Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2031 Ardley14, 15 PM' (FG2: 'Ardley1_PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	133	420	1098	0	1651
	B	177	0	7	16	0	200
	C	0	0	0	0	0	0
	D	760	24	485	0	0	1269
	E	298	3	0	1972	0	2273
	Tot.	1235	160	912	3086	0	5393

Traffic Lane Flows

Lane	Scenario 2: 2031 Ardley14, 15 PM
Junction: Ardley	
1/1 (short)	303
1/2 (with short)	553(In) 250(Out)
1/3	341
1/4 (with short)	757(In) 379(Out)
1/5 (short)	378
2/1 (with short)	200(In) 23(Out)
2/2 (short)	177
3/1 (short)	380
3/2 (with short)	760(In) 380(Out)
3/3	509
4/1	380
4/2	485
4/3	581
5/1	678
5/2	485
5/3	72
6/1	512
6/2	656
6/3	659
6/4	657
7/1	105
7/2	72
8/1	413
8/2	492
8/3	997
8/4	1038
8/5	1035
9/1	1013
9/2	1038
9/3	1035
10/1	160
11/1 (short)	301
11/2 (with short)	957(In) 656(Out)
11/3 (with short)	1316(In) 659(Out)

11/4 (short)	657
12/1	420
12/2	492

Lane Saturation Flows

Junction: Ardley

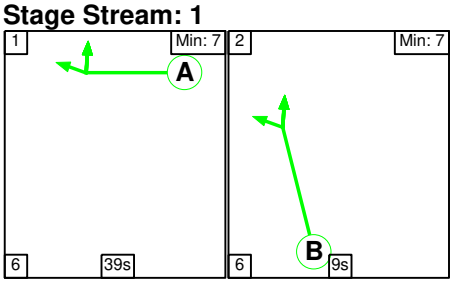
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	Inf	56.1 %	1948	1948
				Arm 10 Left	40.00	43.9 %		
1/2 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
1/3 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
1/4 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
1/5 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
2/1 (B430)	3.50	0.00	Y	Arm 9 Ahead	50.00	69.6 %	1925	1925
				Arm 12 Left	Inf	30.4 %		
2/2 (B430)	3.50	0.00	Y	Arm 7 Ahead	50.00	100.0 %	1908	1908
3/1 (A43 Southbound)	3.65	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1980	1980
3/2 (A43 Southbound)	3.65	0.00	Y	Arm 4 Ahead	50.00	100.0 %	1922	1922
3/3 (A43 Southbound)	3.65	0.00	Y	Arm 4 Ahead	50.00	100.0 %	1922	1922
4/1	This lane uses a directly entered Saturation Flow						1850	1850
4/2	This lane uses a directly entered Saturation Flow						1850	1850
4/3	This lane uses a directly entered Saturation Flow						1850	1850
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
5/3	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						1850	1850
6/2	This lane uses a directly entered Saturation Flow						1850	1850
6/3	This lane uses a directly entered Saturation Flow						1850	1850
6/4	This lane uses a directly entered Saturation Flow						1850	1850
7/1	This lane uses a directly entered Saturation Flow						1850	1850
7/2	This lane uses a directly entered Saturation Flow						1850	1850
8/1	This lane uses a directly entered Saturation Flow						1850	1850
8/2	This lane uses a directly entered Saturation Flow						1850	1850
8/3	This lane uses a directly entered Saturation Flow						1850	1850
8/4	This lane uses a directly entered Saturation Flow						1850	1850
8/5	This lane uses a directly entered Saturation Flow						1850	1850
9/1	Infinite Saturation Flow						Inf	Inf
9/2	Infinite Saturation Flow						Inf	Inf
9/3	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf

11/1 (M40 NB offslip)	3.65	0.00	Y	Arm 5 Left	40.00	99.0 %	1909	1909
				Arm 6 Ahead	Inf	1.0 %		
11/2 (M40 NB offslip)	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
11/3 (M40 NB offslip)	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
11/4 (M40 NB offslip)	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
12/1 (M40 NB onslip Lane 1)	Infinite Saturation Flow						Inf	Inf
12/2 (M40 NB onslip Lane 2)	Infinite Saturation Flow						Inf	Inf

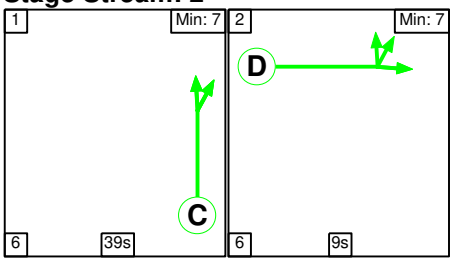
Scenario 1: '2031 Ardley14, 15 AM' (FG1: 'Ardley1_AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

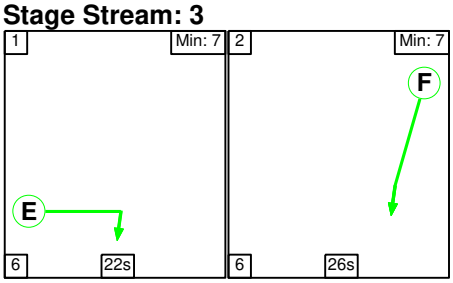
Stage Stream: 1



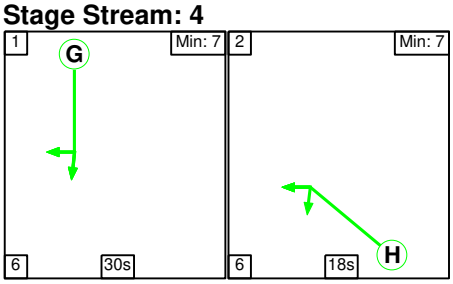
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	39	9
Change Point	0	45

Stage Stream: 2

Stage	1	2
Duration	39	9
Change Point	34	19

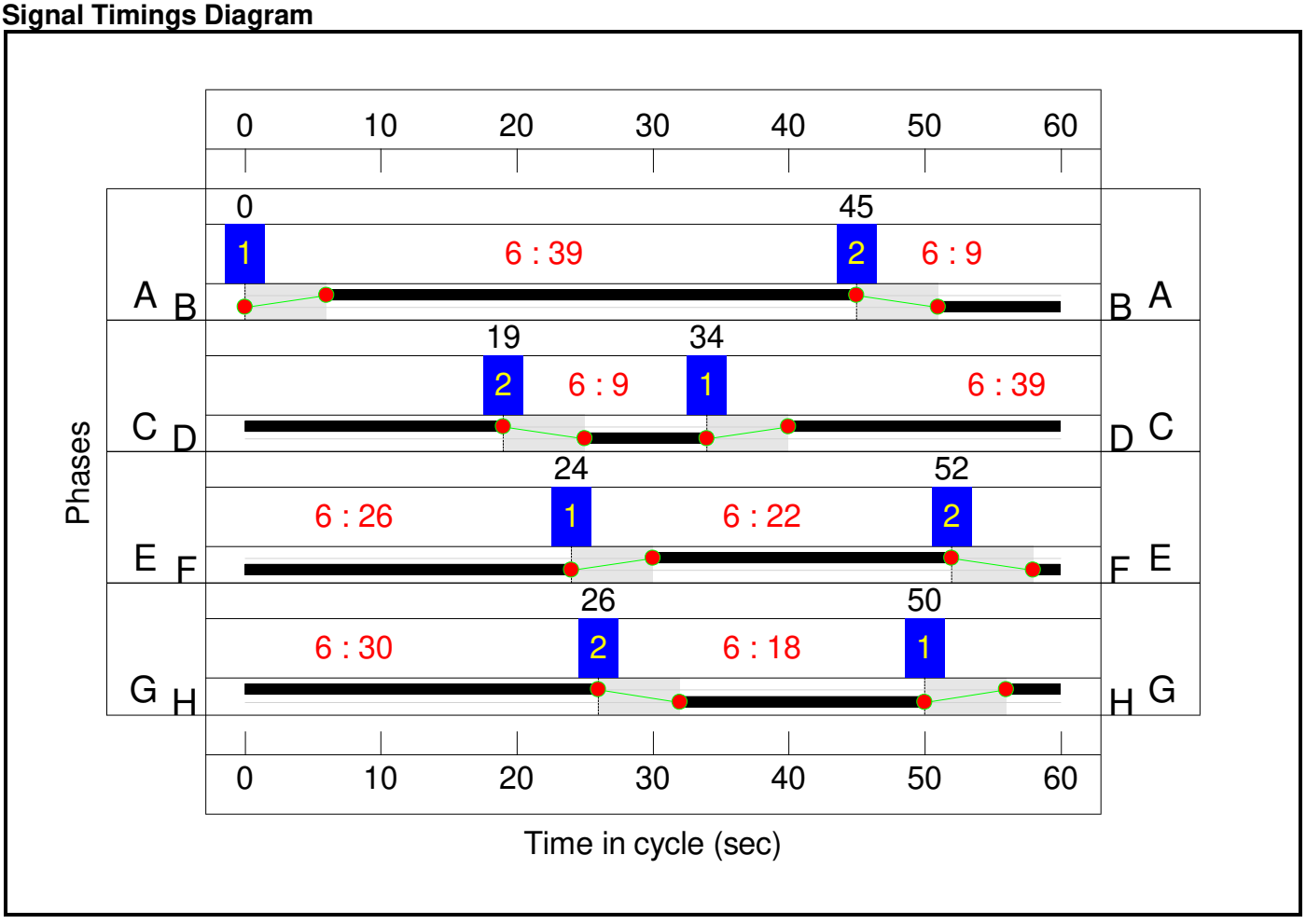
Stage Stream: 3

Stage	1	2
Duration	22	26
Change Point	24	52

Stage Stream: 4

Stage	1	2
Duration	30	18
Change Point	50	26

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley roundabout - 5-arm signalised roundabout A-1	-	-	**N/A**	-	-		-	-	-	-	-	-	**79.4%**
Ardley	-	-	**N/A**	-	-		-	-	-	-	-	-	**79.4%**
1/2+1/1	Ardley bypass Ahead Left	U	1	N/A	B		1	9	-	439	1922:1958	320+326	66.5 : 69.3%
1/3	Ardley bypass Ahead	U	1	N/A	B		1	9	-	174	1922	320	54.3%
1/4+1/5	Ardley bypass Ahead	U	1	N/A	B		1	9	-	484	1922:1922	320+320	75.5 : 75.5%
2/1+2/2	B430 Ahead Ahead2 Left	U	2	N/A	D		1	9	-	254	1935:1908	58+318	67.6 : 67.6%
3/2+3/1	A43 Southbound Ahead	U	3	N/A	F		1	26	-	1302	1922:1980	865+866	75.3 : 75.2%
3/3	A43 Southbound Ahead	U	3	N/A	F		1	26	-	541	1922	865	62.6%
4/1	Ahead	U	4	N/A	G		1	30	-	651	1850	956	68.1%
4/2	Ahead	U	4	N/A	G		1	30	-	759	1850	956	79.4%
4/3	Ahead Right	U	4	N/A	G		1	30	-	648	1850	956	67.8%
6/1	Right Ahead	U	1	N/A	A		1	39	-	439	1850	1233	35.6%
6/2	Right	U	1	N/A	A		1	39	-	493	1850	1233	40.0%
6/3	Right	U	1	N/A	A		1	39	-	489	1850	1233	39.6%
6/4	Right	U	1	N/A	A		1	39	-	438	1850	1233	35.5%
7/1	Right	U	3	N/A	E		1	22	-	108	1850	709	15.2%
7/2	Right	U	3	N/A	E		1	22	-	107	1850	709	15.1%
8/1	Ahead	U	2	N/A	C		1	39	-	370	1850	1233	30.0%
8/2	Ahead	U	2	N/A	C		1	39	-	424	1850	1233	34.4%
8/3	Ahead	U	2	N/A	C		1	39	-	667	1850	1233	54.1%
8/4	Ahead	U	2	N/A	C		1	39	-	731	1850	1233	59.3%
8/5	Ahead	U	2	N/A	C		1	39	-	680	1850	1233	55.1%

11/2+11/1	M40 NB offslip Left Ahead	U	4	N/A	H		1	18	-	939	1980:1909	627+605	78.6 : 73.8%
11/3+11/4	M40 NB offslip Ahead	U	4	N/A	H		1	18	-	927	1980:1980	627+627	78.0 : 69.9%

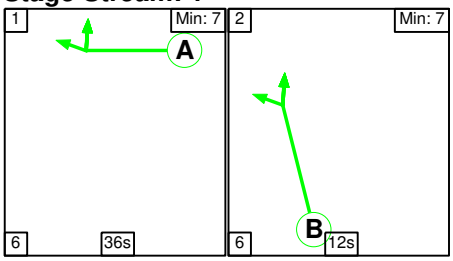
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Ardley roundabout - 5-arm signalised roundabout A-1	**-**	**-**	**0**	**0**	**0**	**30.5**	**9.8**	**0.0**	**40.3**	**-**	**-**	**-**	**-**
Ardley	**-**	**-**	**0**	**0**	**0**	**30.5**	**9.8**	**0.0**	**40.3**	**-**	**-**	**-**	**-**
1/2+1/1	439	439	-	-	-	2.9	1.0	-	3.9	32.1	3.5	1.0	4.6
1/3	174	174	-	-	-	1.1	0.6	-	1.7	35.1	2.6	0.6	3.2
1/4+1/5	484	484	-	-	-	3.2	1.5	-	4.7	35.1	3.8	1.5	5.3
2/1+2/2	254	254	-	-	-	1.6	1.0	-	2.7	37.7	3.3	1.0	4.4
3/2+3/1	1302	1302	-	-	-	4.9	1.5	-	6.4	17.8	8.9	1.5	10.4
3/3	541	541	-	-	-	1.9	0.8	-	2.7	18.2	6.8	0.8	7.6
4/1	651	651	-	-	-	0.2	0.0	-	0.2	1.0	0.6	0.0	0.6
4/2	759	759	-	-	-	0.8	0.0	-	0.8	3.8	2.0	0.0	2.0
4/3	648	648	-	-	-	0.8	0.0	-	0.8	4.3	1.9	0.0	1.9
6/1	439	439	-	-	-	0.0	0.0	-	0.0	0.3	2.6	0.0	2.6
6/2	493	493	-	-	-	1.1	0.0	-	1.1	7.8	3.1	0.0	3.1
6/3	489	489	-	-	-	1.0	0.0	-	1.0	7.7	3.0	0.0	3.0
6/4	438	438	-	-	-	0.7	0.3	-	1.0	8.3	2.2	0.3	2.4
7/1	108	108	-	-	-	0.0	0.0	-	0.0	0.2	0.5	0.0	0.5
7/2	107	107	-	-	-	0.0	0.0	-	0.0	0.2	0.5	0.0	0.5
8/1	370	370	-	-	-	0.3	0.0	-	0.3	3.2	1.3	0.0	1.3
8/2	424	424	-	-	-	0.3	0.0	-	0.3	2.8	1.3	0.0	1.3
8/3	667	667	-	-	-	0.0	0.0	-	0.0	0.0	0.1	0.0	0.1
8/4	731	731	-	-	-	0.0	0.0	-	0.0	0.0	0.1	0.0	0.1
8/5	680	680	-	-	-	0.0	0.0	-	0.0	0.0	0.1	0.0	0.1
11/2+11/1	939	939	-	-	-	4.8	1.6	-	6.4	24.6	7.4	1.6	9.0
11/3+11/4	927	927	-	-	-	4.7	1.4	-	6.1	23.8	7.3	1.4	8.7

C1	Stream: 1	PRC for Signalled Lanes (%):	19.1	Total Delay for Signalled Lanes (pcuHr):	13.50	Cycle Time (s):	60
C1	Stream: 2	PRC for Signalled Lanes (%):	33.1	Total Delay for Signalled Lanes (pcuHr):	3.34	Cycle Time (s):	60
C1	Stream: 3	PRC for Signalled Lanes (%):	19.6	Total Delay for Signalled Lanes (pcuHr):	9.17	Cycle Time (s):	60
C1	Stream: 4	PRC for Signalled Lanes (%):	13.3	Total Delay for Signalled Lanes (pcuHr):	14.28	Cycle Time (s):	60
		PRC Over All Lanes (%):	13.3	Total Delay Over All Lanes(pcuHr):	40.30		

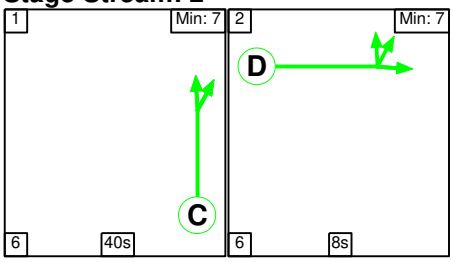
Scenario 2: '2031 Ardley14, 15 PM' (FG2: 'Ardley1_PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

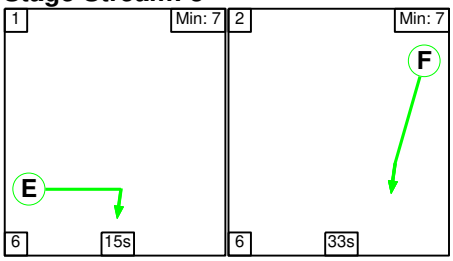
Stage Stream: 1



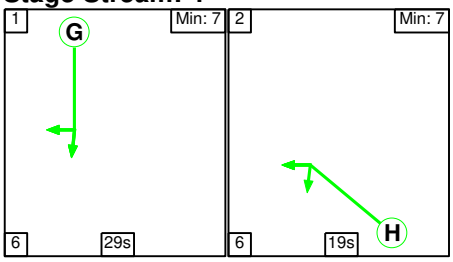
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	36	12
Change Point	0	42

Stage Stream: 2

Stage	1	2
Duration	40	8
Change Point	44	30

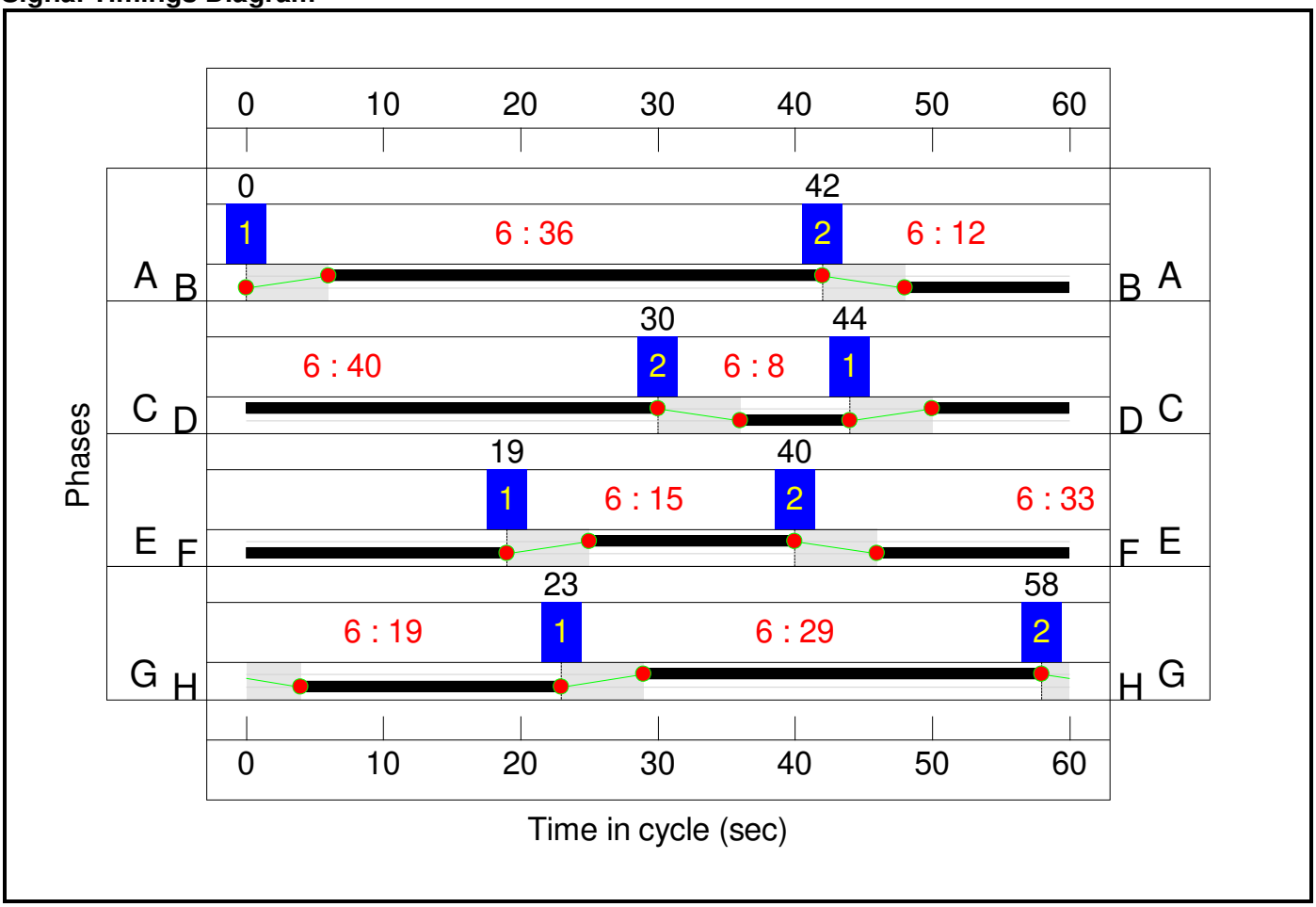
Stage Stream: 3

Stage	1	2
Duration	15	33
Change Point	19	40

Stage Stream: 4

Stage	1	2
Duration	29	19
Change Point	23	58

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley roundabout - 5-arm signalised roundabout A-1	-	-	**N/A**	-	-		-	-	-	-	-	-	**99.8%**
Ardley	-	-	**N/A**	-	-		-	-	-	-	-	-	**99.8%**
1/2+1/1	Ardley bypass Ahead Left	U	1	N/A	B		1	12	-	553	1922:1948	416+422	60.0 : 71.8%
1/3	Ardley bypass Ahead	U	1	N/A	B		1	12	-	341	1922	416	81.9%
1/4+1/5	Ardley bypass Ahead	U	1	N/A	B		1	12	-	757	1922:1922	416+416	91.0 : 90.8%
2/1+2/2	B430 Ahead Ahead2 Left	U	2	N/A	D		1	8	-	200	1925:1908	37+286	61.8 : 61.8%
3/2+3/1	A43 Southbound Ahead	U	3	N/A	F		1	33	-	760	1922:1980	975+975	39.0 : 39.0%
3/3	A43 Southbound Ahead	U	3	N/A	F		1	33	-	509	1922	1089	46.7%
4/1	Ahead	U	4	N/A	G		1	29	-	380	1850	925	41.1%
4/2	Ahead	U	4	N/A	G		1	29	-	485	1850	925	52.4%
4/3	Ahead Right	U	4	N/A	G		1	29	-	581	1850	925	62.8%
6/1	Right Ahead	U	1	N/A	A		1	36	-	512	1850	1141	44.9%
6/2	Right	U	1	N/A	A		1	36	-	656	1850	1141	57.5%
6/3	Right	U	1	N/A	A		1	36	-	659	1850	1141	57.8%
6/4	Right	U	1	N/A	A		1	36	-	657	1850	1141	57.6%
7/1	Right	U	3	N/A	E		1	15	-	105	1850	493	21.3%
7/2	Right	U	3	N/A	E		1	15	-	72	1850	493	14.6%
8/1	Ahead	U	2	N/A	C		1	40	-	413	1850	1264	32.7%
8/2	Ahead	U	2	N/A	C		1	40	-	492	1850	1264	38.9%
8/3	Ahead	U	2	N/A	C		1	40	-	997	1850	1264	78.9%
8/4	Ahead	U	2	N/A	C		1	40	-	1038	1850	1264	82.1%
8/5	Ahead	U	2	N/A	C		1	40	-	1035	1850	1264	81.9%

11/2+11/1	M40 NB offslip Left Ahead	U	4	N/A	H		1	19	-	957	1980:1909	660+303	99.4 : 99.4%
11/3+11/4	M40 NB offslip Ahead	U	4	N/A	H		1	19	-	1316	1980:1980	660+660	99.8 : 99.5%

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: Ardley roundabout - 5-arm signalised roundabout A-1	**-**	**-**	**0**	**0**	**0**	**35.1**	**41.0**	**0.0**	**76.2**	**-**	**-**	**-**	**-**
Ardley	**-**	**-**	**0**	**0**	**0**	**35.1**	**41.0**	**0.0**	**76.2**	**-**	**-**	**-**	**-**
1/2+1/1	553	553	-	-	-	3.3	1.0	-	4.3	27.8	4.6	1.0	5.6
1/3	341	341	-	-	-	2.1	2.1	-	4.3	45.0	5.4	2.1	7.5
1/4+1/5	757	757	-	-	-	4.8	4.5	-	9.3	44.2	6.1	4.5	10.6
2/1+2/2	200	200	-	-	-	1.3	0.8	-	2.1	38.1	2.8	0.8	3.6
3/2+3/1	760	760	-	-	-	1.5	0.3	-	1.8	8.5	3.4	0.3	3.7
3/3	509	509	-	-	-	1.1	0.4	-	1.5	10.8	4.9	0.4	5.4
4/1	380	380	-	-	-	0.9	0.0	-	0.9	8.3	2.5	0.0	2.5
4/2	485	485	-	-	-	1.0	0.0	-	1.0	7.5	4.0	0.0	4.0
4/3	581	581	-	-	-	1.3	0.0	-	1.3	8.3	4.4	0.0	4.4
6/1	512	512	-	-	-	1.1	0.0	-	1.1	7.8	5.1	0.0	5.1
6/2	656	656	-	-	-	0.1	0.0	-	0.1	0.7	0.7	0.0	0.7
6/3	659	659	-	-	-	0.1	0.0	-	0.1	0.7	0.7	0.0	0.7
6/4	657	657	-	-	-	0.1	0.7	-	0.8	4.4	0.7	0.7	1.4
7/1	105	105	-	-	-	1.0	0.0	-	1.0	35.3	1.4	0.0	1.4
7/2	72	72	-	-	-	0.7	0.0	-	0.7	34.9	1.0	0.0	1.0
8/1	413	413	-	-	-	0.3	0.0	-	0.3	2.7	2.2	0.0	2.2
8/2	492	492	-	-	-	0.4	0.0	-	0.4	2.8	5.4	0.0	5.4
8/3	997	997	-	-	-	0.4	0.0	-	0.4	1.5	1.7	0.0	1.7
8/4	1038	1038	-	-	-	0.6	0.0	-	0.6	2.1	2.3	0.0	2.3
8/5	1035	1035	-	-	-	0.6	0.0	-	0.6	2.1	2.2	0.0	2.2
11/2+11/1	957	957	-	-	-	5.0	14.1	-	19.0	71.6	10.8	14.1	24.8
11/3+11/4	1316	1316	-	-	-	7.3	17.2	-	24.5	66.9	10.8	17.2	28.0

C1	Stream: 1	PRC for Signalled Lanes (%):	-1.1	Total Delay for Signalled Lanes (pcuHr):	19.98	Cycle Time (s):	60
C1	Stream: 2	PRC for Signalled Lanes (%):	9.6	Total Delay for Signalled Lanes (pcuHr):	4.43	Cycle Time (s):	60
C1	Stream: 3	PRC for Signalled Lanes (%):	92.6	Total Delay for Signalled Lanes (pcuHr):	5.05	Cycle Time (s):	60
C1	Stream: 4	PRC for Signalled Lanes (%):	-10.9	Total Delay for Signalled Lanes (pcuHr):	46.74	Cycle Time (s):	60
		PRC Over All Lanes (%):	-10.9	Total Delay Over All Lanes(pcuHr):	76.19		

APPENDIX 25

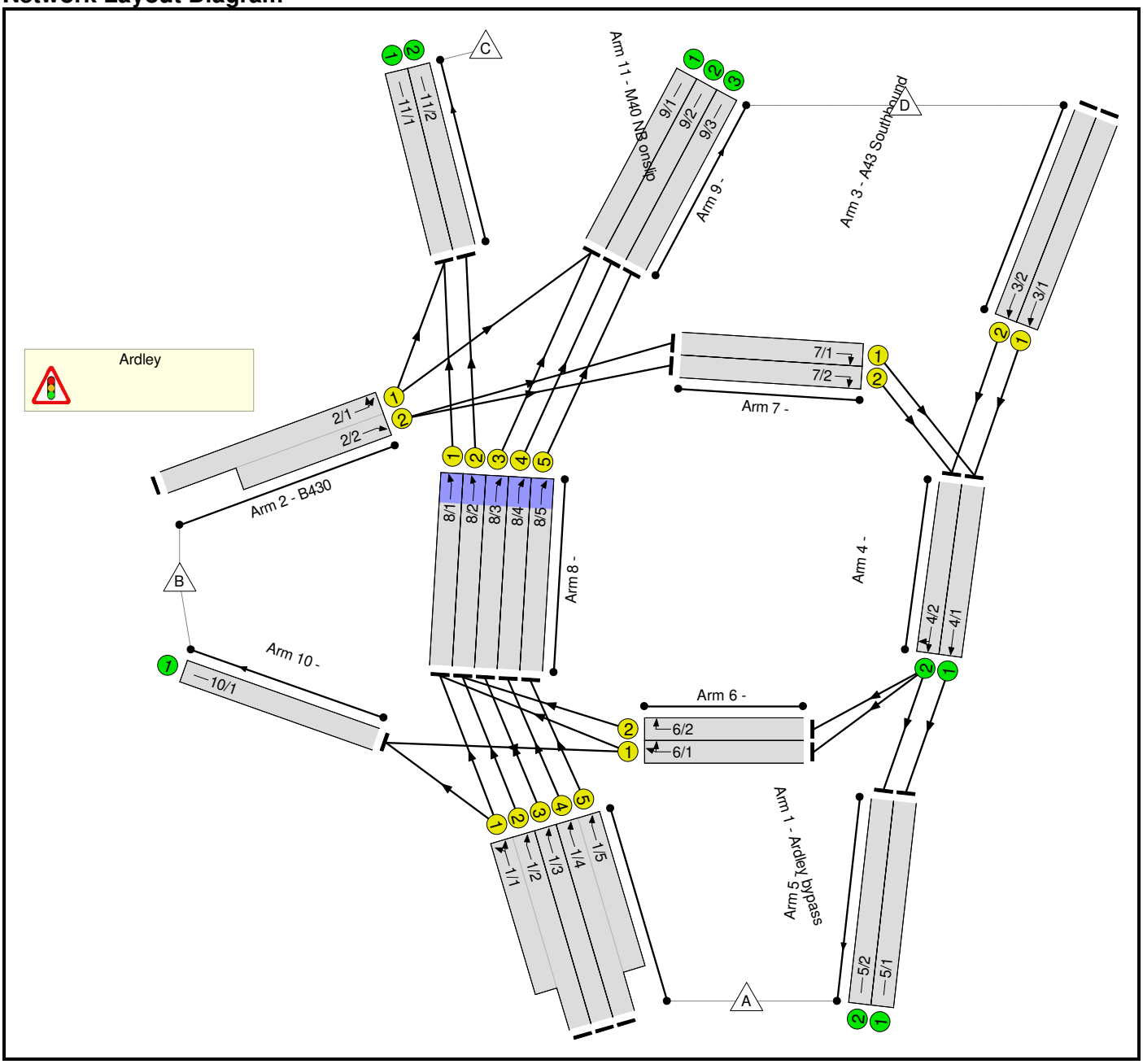
Ardley Roundabout junction option A-2 – LinSig results

Full Input Data And Results

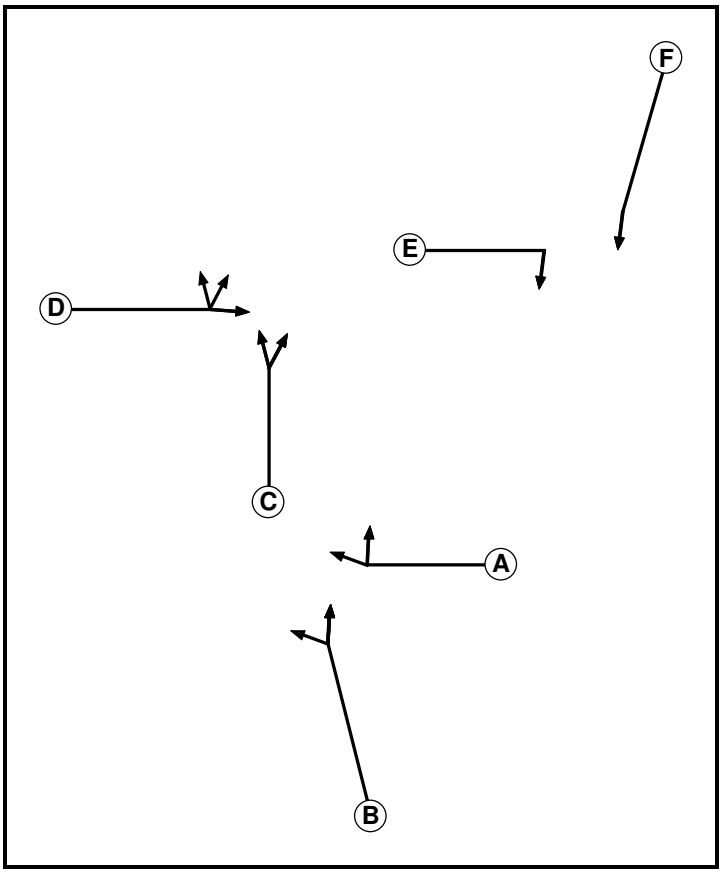
User and Project Details

Project:	**Oxfordshire SRFI**
Title:	**Ardley roundabout - 4-arm signalised roundabout A-3**
Location:	
Additional detail:	
File name:	2031_DS_M40J10_Ardley - 4-arm signalised roundabout A-3.lsg3x
Author:	Mark Higgins
Company:	ADC Infrastructure
Address:	Nottingham

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7
E	Traffic	3		7	7
F	Traffic	3		7	7

Phase Intergreens Matrix

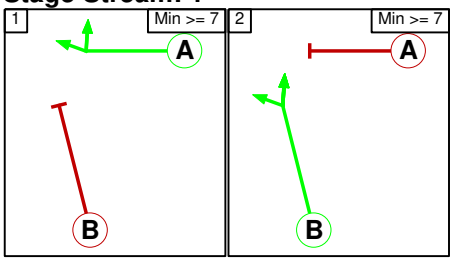
		Starting Phase					
		A	B	C	D	E	F
Terminating Phase	A		6	-	-	-	-
	B	6		-	-	-	-
	C	-	-		6	-	-
	D	-	-	6		-	-
	E	-	-	-	-		6
	F	-	-	-	-	6	

Phases in Stage

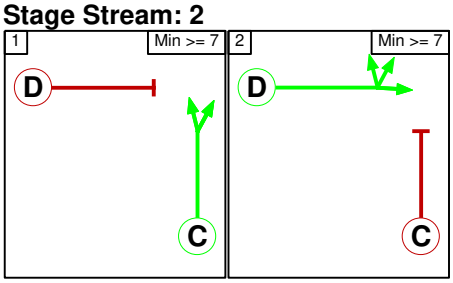
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D
3	1	E
3	2	F

Stage Diagram

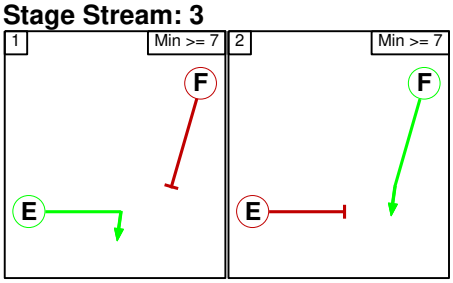
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Prohibited Stage Change

Stage Stream: 1

From Stage \ To Stage		1	2
	1		6
	2	6	

Stage Stream: 2

From Stage \ To Stage		1	2
	1		6
	2	6	

Stage Stream: 3

From Stage \ To Stage		1	2
	1		6
	2	6	

Lane Input Data

Junction: Ardley												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Ardley bypass)	U	B	2	3	10.4	Geom	-	3.65	0.00	Y	Arm 8 Ahead	Inf
											Arm 10 Left	40.00
1/2 (Ardley bypass)	U	B	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 8 Ahead	50.00
1/3 (Ardley bypass)	U	B	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 8 Ahead	50.00
1/4 (Ardley bypass)	U	B	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 8 Ahead	50.00
1/5 (Ardley bypass)	U	B	2	3	27.8	Geom	-	3.65	0.00	Y	Arm 8 Ahead	50.00
2/1 (B430)	U	D	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 9 Ahead	50.00
											Arm 11 Left	Inf
2/2 (B430)	U	D	2	3	10.4	Geom	-	3.50	0.00	Y	Arm 7 Ahead	50.00
3/1 (A43 Southbound)	U	F	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 4 Ahead	50.00
3/2 (A43 Southbound)	U	F	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 4 Ahead	50.00
4/1	U		2	3	7.0	Inf	-	-	-	-	-	-
4/2	U		2	3	7.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U	A	2	3	8.7	User	1850	-	-	-	-	-
6/2	U	A	2	3	8.7	User	1850	-	-	-	-	-
7/1	U	E	2	3	8.7	User	1850	-	-	-	-	-
7/2	U	E	2	3	8.7	User	1850	-	-	-	-	-
8/1	U	C	2	3	8.7	User	1850	-	-	-	-	-
8/2	U	C	2	3	8.7	User	1850	-	-	-	-	-
8/3	U	C	2	3	8.7	User	1850	-	-	-	-	-
8/4	U	C	2	3	10.4	User	1850	-	-	-	-	-
8/5	U	C	2	3	10.4	User	1850	-	-	-	-	-
9/1	U		2	3	60.0	Inf	-	-	-	-	-	-
9/2	U		2	3	60.0	Inf	-	-	-	-	-	-
9/3	U		2	3	60.0	Inf	-	-	-	-	-	-

10/1	U		2	3	60.0	Inf	-	-	-	-	-	-
11/1 (M40 NB onslip)	U		2	3	60.0	Inf	-	-	-	-	-	-
11/2 (M40 NB onslip)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Ardley6_AM'	07:45	08:45	01:00	
2: 'Ardley6_PM'	16:30	17:30	01:00	

Scenario 1: '2031 Ardley8 AM' (FG3: 'Ardley5_AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	68	372	1799	2239
	B	218	0	19	17	254
	C	0	0	0	0	0
	D	1405	16	422	0	1843
	Tot.	1623	84	813	1816	4336

Traffic Lane Flows

Lane	Scenario 1: 2031 Ardley8 AM
Junction: Ardley	
1/1 (short)	239
1/2 (with short)	440(In) 201(Out)
1/3	617
1/4 (with short)	1182(In) 591(Out)
1/5 (short)	591
2/1 (with short)	254(In) 36(Out)
2/2 (short)	218
3/1	922
3/2	921
4/1	1031
4/2	1030
5/1	1031
5/2	592
6/1	222
6/2	216
7/1	109
7/2	109
8/1	377
8/2	417
8/3	617
8/4	591
8/5	591
9/1	634
9/2	591
9/3	591
10/1	84
11/1	396
11/2	417

Lane Saturation Flows

Junction: Ardley

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	Inf	71.5 %	1959	1959
				Arm 10 Left	40.00	28.5 %		
1/2 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
1/3 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
1/4 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
1/5 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
2/1 (B430)	3.50	0.00	Y	Arm 9 Ahead	50.00	47.2 %	1938	1938
				Arm 11 Left	Inf	52.8 %		
2/2 (B430)	3.50	0.00	Y	Arm 7 Ahead	50.00	100.0 %	1908	1908
3/1 (A43 Southbound)	3.65	0.00	Y	Arm 4 Ahead	50.00	100.0 %	1922	1922
3/2 (A43 Southbound)	3.65	0.00	Y	Arm 4 Ahead	50.00	100.0 %	1922	1922
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						1850	1850
6/2	This lane uses a directly entered Saturation Flow						1850	1850
7/1	This lane uses a directly entered Saturation Flow						1850	1850
7/2	This lane uses a directly entered Saturation Flow						1850	1850
8/1	This lane uses a directly entered Saturation Flow						1850	1850
8/2	This lane uses a directly entered Saturation Flow						1850	1850
8/3	This lane uses a directly entered Saturation Flow						1850	1850
8/4	This lane uses a directly entered Saturation Flow						1850	1850
8/5	This lane uses a directly entered Saturation Flow						1850	1850
9/1	Infinite Saturation Flow						Inf	Inf
9/2	Infinite Saturation Flow						Inf	Inf
9/3	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf
11/1 (M40 NB onslip Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (M40 NB onslip Lane 2)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2031 Ardley8 PM' (FG4: 'Ardley5_PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	136	420	2599	3155
	B	178	0	7	15	200
	C	0	0	0	0	0
	D	760	24	485	0	1269
	Tot.	938	160	912	2614	4624

Traffic Lane Flows

Lane	Scenario 2: 2031 Ardley8 PM
Junction: Ardley	
1/1 (short)	291
1/2 (with short)	556(In) 265(Out)
1/3	877
1/4 (with short)	1722(In) 861(Out)
1/5 (short)	861
2/1 (with short)	200(In) 22(Out)
2/2 (short)	178
3/1	635
3/2	634
4/1	724
4/2	723
5/1	724
5/2	214
6/1	259
6/2	250
7/1	89
7/2	89
8/1	390
8/2	515
8/3	877
8/4	861
8/5	861
9/1	892
9/2	861
9/3	861
10/1	160
11/1	397
11/2	515

Lane Saturation Flows

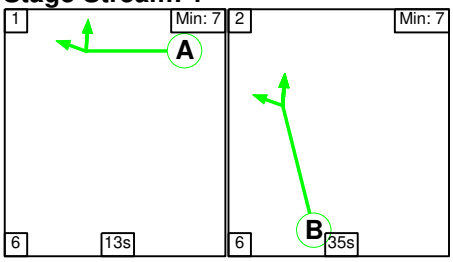
Junction: Ardley

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	Inf	53.3 %	1946	1946
				Arm 10 Left	40.00	46.7 %		
1/2 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
1/3 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
1/4 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
1/5 (Ardley bypass)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
2/1 (B430)	3.50	0.00	Y	Arm 9 Ahead	50.00	68.2 %	1926	1926
				Arm 11 Left	Inf	31.8 %		
2/2 (B430)	3.50	0.00	Y	Arm 7 Ahead	50.00	100.0 %	1908	1908
3/1 (A43 Southbound)	3.65	0.00	Y	Arm 4 Ahead	50.00	100.0 %	1922	1922
3/2 (A43 Southbound)	3.65	0.00	Y	Arm 4 Ahead	50.00	100.0 %	1922	1922
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						1850	1850
6/2	This lane uses a directly entered Saturation Flow						1850	1850
7/1	This lane uses a directly entered Saturation Flow						1850	1850
7/2	This lane uses a directly entered Saturation Flow						1850	1850
8/1	This lane uses a directly entered Saturation Flow						1850	1850
8/2	This lane uses a directly entered Saturation Flow						1850	1850
8/3	This lane uses a directly entered Saturation Flow						1850	1850
8/4	This lane uses a directly entered Saturation Flow						1850	1850
8/5	This lane uses a directly entered Saturation Flow						1850	1850
9/1	Infinite Saturation Flow						Inf	Inf
9/2	Infinite Saturation Flow						Inf	Inf
9/3	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf
11/1 (M40 NB onslip Lane 1)	Infinite Saturation Flow						Inf	Inf
11/2 (M40 NB onslip Lane 2)	Infinite Saturation Flow						Inf	Inf

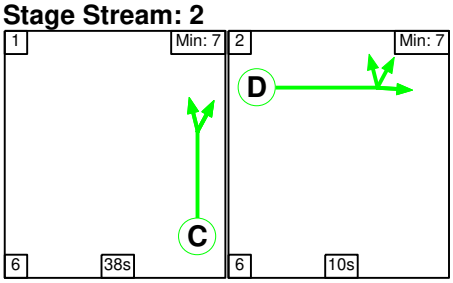
Scenario 1: '2031 Ardley8 AM' (FG3: 'Ardley5_AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

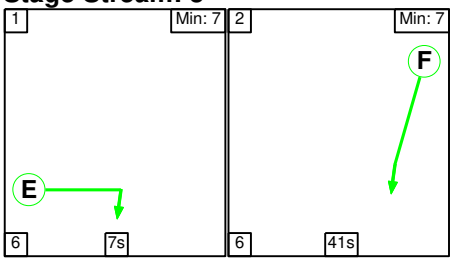
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	13	35
Change Point	0	19

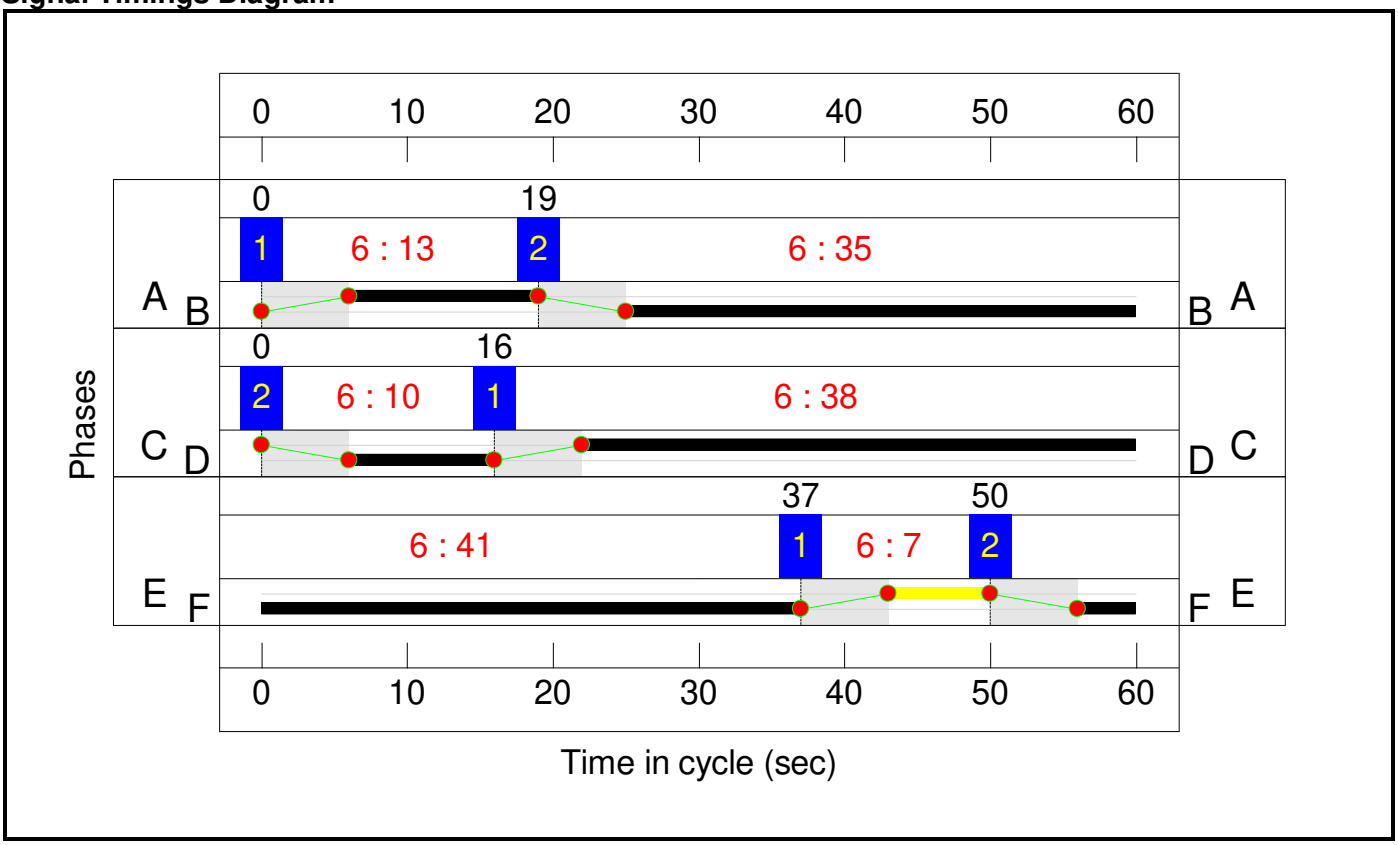
Stage Stream: 2

Stage	1	2
Duration	38	10
Change Point	16	0

Stage Stream: 3

Stage	1	2
Duration	7	41
Change Point	37	50

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley roundabout - 4-arm signalised roundabout A-3	-	-	**N/A**	-	-		-	-	-	-	-	-	**68.5%**
Ardley	-	-	**N/A**	-	-		-	-	-	-	-	-	**68.5%**
1/2+1/1	Ardley bypass Ahead Left	U	1	N/A	B		1	35	-	440	1922:1959	787+936	25.5 : 25.5%
1/3	Ardley bypass Ahead	U	1	N/A	B		1	35	-	617	1922	1153	53.5%
1/4+1/5	Ardley bypass Ahead	U	1	N/A	B		1	35	-	1182	1922:1922	961+961	61.5 : 61.5%
2/1+2/2	B430 Ahead Ahead2 Left	U	2	N/A	D		1	10	-	254	1938:1908	58+350	62.3 : 62.3%
3/1	A43 Southbound Ahead	U	3	N/A	F		1	41	-	922	1922	1345	68.5%
3/2	A43 Southbound Ahead	U	3	N/A	F		1	41	-	921	1922	1345	68.5%
6/1	Right Ahead	U	1	N/A	A		1	13	-	222	1850	432	51.4%
6/2	Right	U	1	N/A	A		1	13	-	216	1850	432	50.0%
7/1	Right	U	3	N/A	E		1	7	-	109	1850	247	44.2%
7/2	Right	U	3	N/A	E		1	7	-	109	1850	247	44.2%
8/1	Ahead	U	2	N/A	C		1	38	-	377	1850	1203	31.4%
8/2	Ahead	U	2	N/A	C		1	38	-	417	1850	1203	34.7%
8/3	Ahead	U	2	N/A	C		1	38	-	617	1850	1203	51.3%
8/4	Ahead	U	2	N/A	C		1	38	-	591	1850	1203	49.1%
8/5	Ahead	U	2	N/A	C		1	38	-	591	1850	1203	49.1%

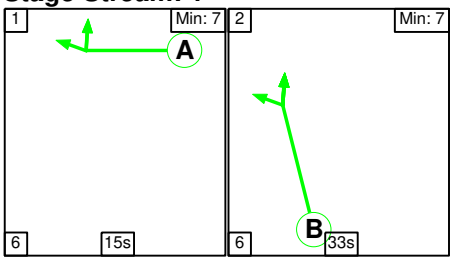
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Ardley roundabout - 4-arm signalised roundabout A-3	**-**	**-**	**0**	**0**	**0**	**14.4**	**5.5**	**0.0**	**20.0**	**-**	**-**	**-**	**-**
Ardley	**-**	**-**	**0**	**0**	**0**	**14.4**	**5.5**	**0.0**	**20.0**	**-**	**-**	**-**	**-**
1/2+1/1	440	440	-	-	-	0.7	0.2	-	0.8	6.8	1.8	0.2	2.0
1/3	617	617	-	-	-	1.2	0.6	-	1.8	10.4	6.0	0.6	6.6
1/4+1/5	1182	1182	-	-	-	2.3	0.8	-	3.1	9.4	5.6	0.8	6.4
2/1+2/2	254	254	-	-	-	1.6	0.8	-	2.4	33.9	3.3	0.8	4.1
3/1	922	922	-	-	-	1.3	1.1	-	2.4	9.4	8.7	1.1	9.8
3/2	921	921	-	-	-	1.3	1.1	-	2.4	9.4	8.7	1.1	9.8
6/1	222	222	-	-	-	1.0	0.5	-	1.5	24.0	2.6	0.5	3.1
6/2	216	216	-	-	-	0.9	0.5	-	1.4	23.7	2.4	0.5	2.9
7/1	109	109	-	-	-	0.9	0.0	-	0.9	31.2	1.8	0.0	1.8
7/2	109	109	-	-	-	0.9	0.0	-	0.9	31.2	1.8	0.0	1.8
8/1	377	377	-	-	-	0.7	0.0	-	0.7	6.7	3.6	0.0	3.6
8/2	417	417	-	-	-	0.8	0.0	-	0.8	6.6	4.4	0.0	4.4
8/3	617	617	-	-	-	0.2	0.0	-	0.2	1.4	0.7	0.0	0.7
8/4	591	591	-	-	-	0.3	0.0	-	0.3	1.7	0.8	0.0	0.8
8/5	591	591	-	-	-	0.3	0.0	-	0.3	1.7	0.8	0.0	0.8

C1	Stream: 1 PRC for Signalled Lanes (%):	46.3	Total Delay for Signalled Lanes (pcuHr):	8.59	Cycle Time (s): 60
C1	Stream: 2 PRC for Signalled Lanes (%):	44.4	Total Delay for Signalled Lanes (pcuHr):	4.67	Cycle Time (s): 60
C1	Stream: 3 PRC for Signalled Lanes (%):	31.3	Total Delay for Signalled Lanes (pcuHr):	6.71	Cycle Time (s): 60
	PRC Over All Lanes (%):	31.3	Total Delay Over All Lanes(pcuHr):	19.98	

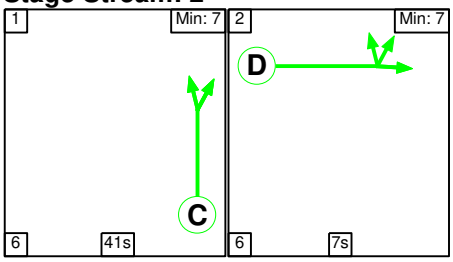
Scenario 2: '2031 Ardley8 PM' (FG4: 'Ardley5_PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

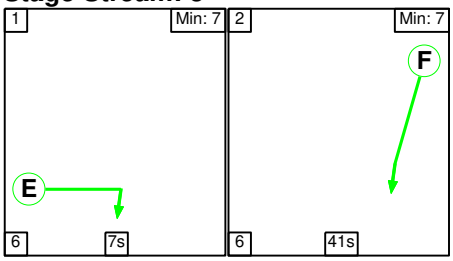
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	15	33
Change Point	0	21

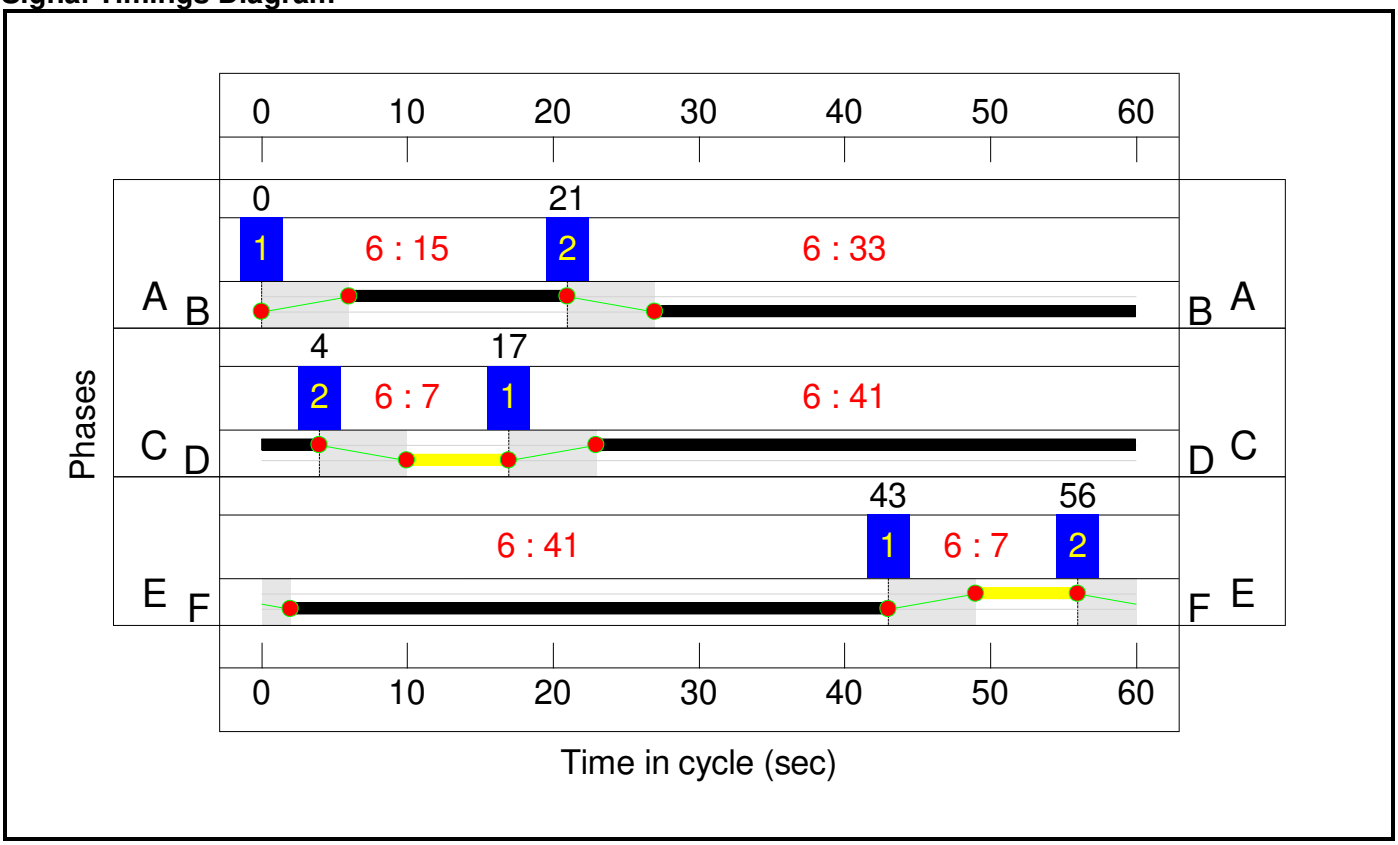
Stage Stream: 2

Stage	1	2
Duration	41	7
Change Point	17	4

Stage Stream: 3

Stage	1	2
Duration	7	41
Change Point	43	56

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley roundabout - 4-arm signalised roundabout A-3	-	-	**N/A**	-	-		-	-	-	-	-	-	**89.6%**
Ardley	-	-	**N/A**	-	-		-	-	-	-	-	-	**89.6%**
1/2+1/1	Ardley bypass Ahead Left	U	1	N/A	B		1	33	-	556	1922:1946	810+890	32.7 : 32.7%
1/3	Ardley bypass Ahead	U	1	N/A	B		1	33	-	877	1922	1089	80.5%
1/4+1/5	Ardley bypass Ahead	U	1	N/A	B		1	33	-	1722	1922:1922	961+961	89.6 : 89.6%
2/1+2/2	B430 Ahead Ahead2 Left	U	2	N/A	D		1	7	-	200	1926:1908	31+254	70.0 : 70.0%
3/1	A43 Southbound Ahead	U	3	N/A	F		1	41	-	635	1922	1345	47.2%
3/2	A43 Southbound Ahead	U	3	N/A	F		1	41	-	634	1922	1345	47.1%
6/1	Right Ahead	U	1	N/A	A		1	15	-	259	1850	493	52.5%
6/2	Right	U	1	N/A	A		1	15	-	250	1850	493	50.7%
7/1	Right	U	3	N/A	E		1	7	-	89	1850	247	36.1%
7/2	Right	U	3	N/A	E		1	7	-	89	1850	247	36.1%
8/1	Ahead	U	2	N/A	C		1	41	-	390	1850	1295	30.1%
8/2	Ahead	U	2	N/A	C		1	41	-	515	1850	1295	39.8%
8/3	Ahead	U	2	N/A	C		1	41	-	877	1850	1295	67.7%
8/4	Ahead	U	2	N/A	C		1	41	-	861	1850	1295	66.5%
8/5	Ahead	U	2	N/A	C		1	41	-	861	1850	1295	66.5%

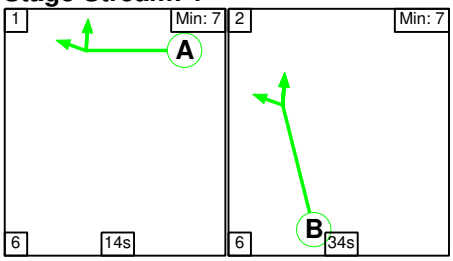
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Ardley roundabout - 4-arm signalised roundabout A-3	**-**	**-**	**0**	**0**	**0**	**17.0**	**9.5**	**0.0**	**26.5**	**-**	**-**	**-**	**-**
Ardley	**-**	**-**	**0**	**0**	**0**	**17.0**	**9.5**	**0.0**	**26.5**	**-**	**-**	**-**	**-**
1/2+1/1	556	556	-	-	-	1.0	0.2	-	1.3	8.2	2.4	0.2	2.7
1/3	877	877	-	-	-	2.5	2.0	-	4.6	18.7	11.4	2.0	13.5
1/4+1/5	1722	1722	-	-	-	4.9	4.1	-	9.0	18.8	11.2	4.1	15.4
2/1+2/2	200	200	-	-	-	1.4	1.1	-	2.5	45.1	2.8	1.1	4.0
3/1	635	635	-	-	-	0.7	0.4	-	1.2	6.6	4.6	0.4	5.0
3/2	634	634	-	-	-	0.7	0.4	-	1.2	6.6	4.6	0.4	5.0
6/1	259	259	-	-	-	1.1	0.6	-	1.7	22.9	2.3	0.6	2.9
6/2	250	250	-	-	-	1.1	0.5	-	1.6	22.6	2.2	0.5	2.7
7/1	89	89	-	-	-	0.8	0.0	-	0.8	33.6	1.5	0.0	1.5
7/2	89	89	-	-	-	0.8	0.0	-	0.8	33.6	1.5	0.0	1.5
8/1	390	390	-	-	-	0.8	0.0	-	0.8	6.9	3.9	0.0	3.9
8/2	515	515	-	-	-	0.8	0.0	-	0.8	5.8	4.7	0.0	4.7
8/3	877	877	-	-	-	0.1	0.0	-	0.1	0.4	0.4	0.0	0.4
8/4	861	861	-	-	-	0.2	0.0	-	0.2	0.6	0.4	0.0	0.4
8/5	861	861	-	-	-	0.2	0.0	-	0.2	0.6	0.4	0.0	0.4

C1	Stream: 1 PRC for Signalled Lanes (%):	0.5	Total Delay for Signalled Lanes (pcuHr):	18.05	Cycle Time (s): 60
C1	Stream: 2 PRC for Signalled Lanes (%):	28.6	Total Delay for Signalled Lanes (pcuHr):	4.47	Cycle Time (s): 60
C1	Stream: 3 PRC for Signalled Lanes (%):	90.7	Total Delay for Signalled Lanes (pcuHr):	3.97	Cycle Time (s): 60
	PRC Over All Lanes (%):	0.5	Total Delay Over All Lanes(pcuHr):	26.49	

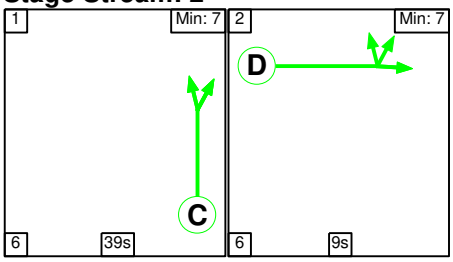
Scenario 3: '2031 Ardley11 AM' (FG1: 'Ardley6_AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

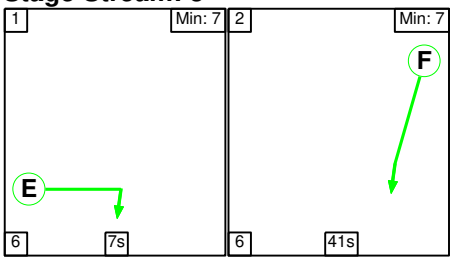
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	14	34
Change Point	0	20

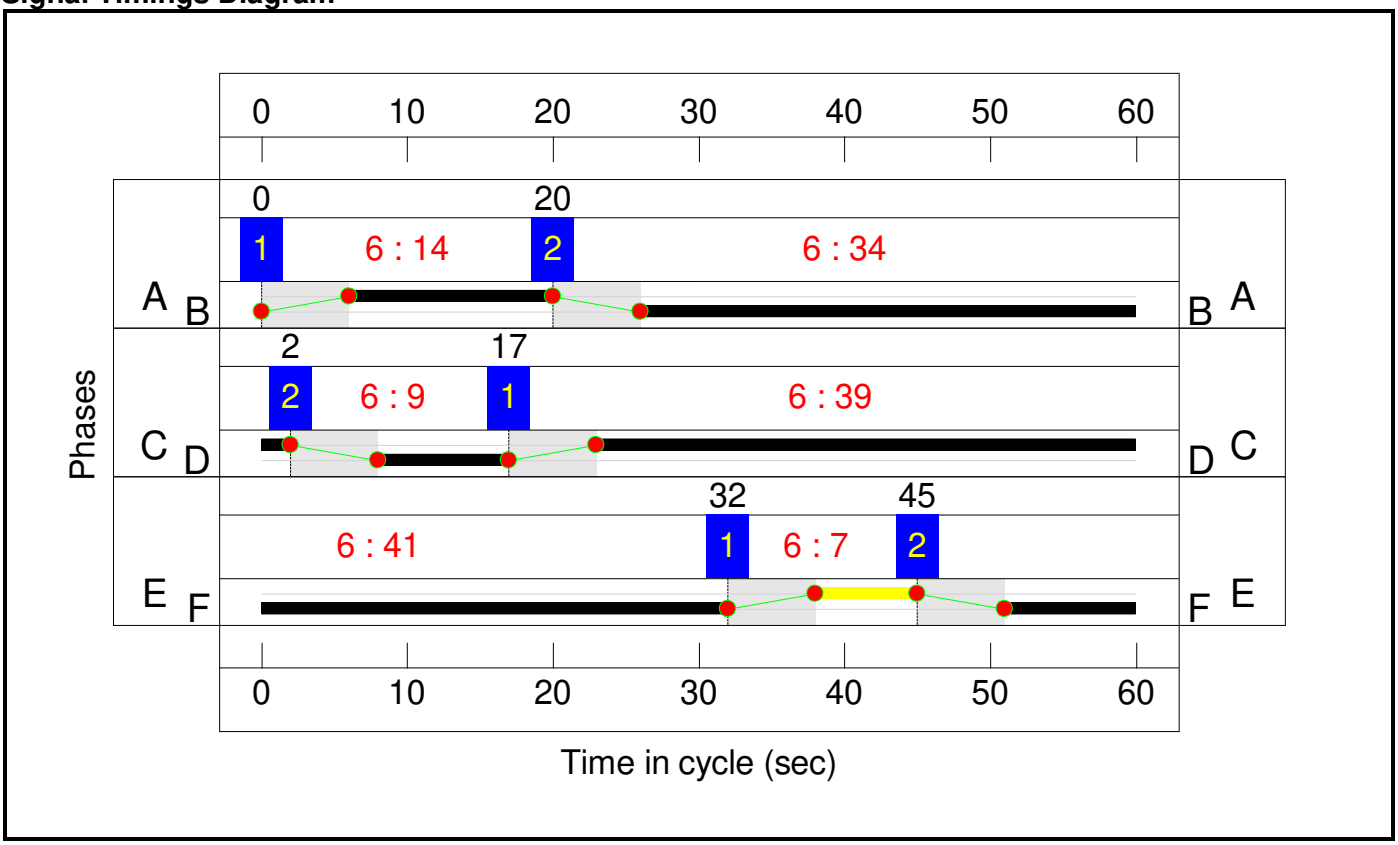
Stage Stream: 2

Stage	1	2
Duration	39	9
Change Point	17	2

Stage Stream: 3

Stage	1	2
Duration	7	41
Change Point	32	45

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley roundabout - 4-arm signalised roundabout A-3	-	-	**N/A**	-	-		-	-	-	-	-	-	**79.5%**
Ardley	-	-	**N/A**	-	-		-	-	-	-	-	-	**79.5%**
1/2+1/1	Ardley bypass Ahead Left	U	1	N/A	B		1	34	-	440	1922:1959	772+918	26.0 : 26.0%
1/3	Ardley bypass Ahead	U	1	N/A	B		1	34	-	617	1922	1121	55.0%
1/4+1/5	Ardley bypass Ahead	U	1	N/A	B		1	34	-	1182	1922:1922	961+961	61.5 : 61.5%
2/1+2/2	B430 Ahead Ahead2 Left	U	2	N/A	D		1	9	-	254	1938:1908	53+318	68.6 : 68.6%
3/1	A43 Southbound Ahead	U	3	N/A	F		1	41	-	1069	1922	1345	79.5%
3/2	A43 Southbound Ahead	U	3	N/A	F		1	41	-	1069	1922	1345	79.5%
6/1	Right Ahead	U	1	N/A	A		1	14	-	222	1850	462	48.0%
6/2	Right	U	1	N/A	A		1	14	-	216	1850	462	46.7%
7/1	Right	U	3	N/A	E		1	7	-	109	1850	247	44.2%
7/2	Right	U	3	N/A	E		1	7	-	109	1850	247	44.2%
8/1	Ahead	U	2	N/A	C		1	39	-	377	1850	1233	30.6%
8/2	Ahead	U	2	N/A	C		1	39	-	417	1850	1233	33.8%
8/3	Ahead	U	2	N/A	C		1	39	-	617	1850	1233	50.0%
8/4	Ahead	U	2	N/A	C		1	39	-	591	1850	1233	47.9%
8/5	Ahead	U	2	N/A	C		1	39	-	591	1850	1233	47.9%

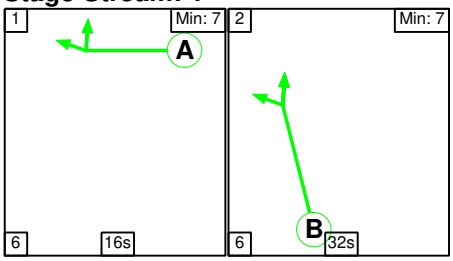
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Ardley roundabout - 4-arm signalised roundabout A-3	**-**	**-**	**0**	**0**	**0**	**14.8**	**7.4**	**0.0**	**22.2**	**-**	**-**	**-**	**-**
Ardley	**-**	**-**	**0**	**0**	**0**	**14.8**	**7.4**	**0.0**	**22.2**	**-**	**-**	**-**	**-**
1/2+1/1	440	440	-	-	-	0.7	0.2	-	0.9	7.3	1.9	0.2	2.0
1/3	617	617	-	-	-	1.3	0.6	-	1.9	11.2	6.2	0.6	6.8
1/4+1/5	1182	1182	-	-	-	2.5	0.8	-	3.3	9.9	5.9	0.8	6.7
2/1+2/2	254	254	-	-	-	1.6	1.1	-	2.7	38.4	3.4	1.1	4.5
3/1	1069	1069	-	-	-	1.8	1.9	-	3.7	12.5	11.9	1.9	13.8
3/2	1069	1069	-	-	-	1.8	1.9	-	3.7	12.5	11.9	1.9	13.8
6/1	222	222	-	-	-	0.8	0.5	-	1.3	21.1	2.6	0.5	3.1
6/2	216	216	-	-	-	0.8	0.4	-	1.3	20.9	2.4	0.4	2.9
7/1	109	109	-	-	-	0.7	0.0	-	0.7	24.3	1.8	0.0	1.8
7/2	109	109	-	-	-	0.7	0.0	-	0.7	24.3	1.8	0.0	1.8
8/1	377	377	-	-	-	0.7	0.0	-	0.7	6.7	3.5	0.0	3.5
8/2	417	417	-	-	-	0.8	0.0	-	0.8	6.6	4.2	0.0	4.2
8/3	617	617	-	-	-	0.1	0.0	-	0.1	0.8	0.3	0.0	0.3
8/4	591	591	-	-	-	0.2	0.0	-	0.2	1.1	0.5	0.0	0.5
8/5	591	591	-	-	-	0.2	0.0	-	0.2	1.1	0.5	0.0	0.5

C1 Stream: 1 PRC for Signalled Lanes (%): 46.3 Total Delay for Signalled Lanes (pcuHr): 8.64 Cycle Time (s): 60
C1 Stream: 2 PRC for Signalled Lanes (%): 31.3 Total Delay for Signalled Lanes (pcuHr): 4.67 Cycle Time (s): 60
C1 Stream: 3 PRC for Signalled Lanes (%): 13.3 Total Delay for Signalled Lanes (pcuHr): 8.90 Cycle Time (s): 60
PRC Over All Lanes (%): 13.3 Total Delay Over All Lanes(pcuHr): 22.21

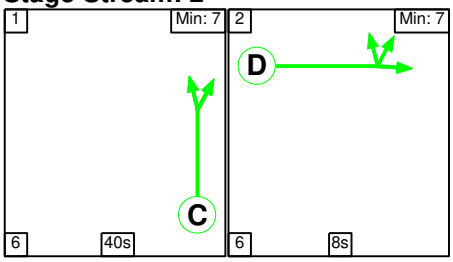
Scenario 4: '2031 Ardley11 PM' (FG2: 'Ardley6_PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

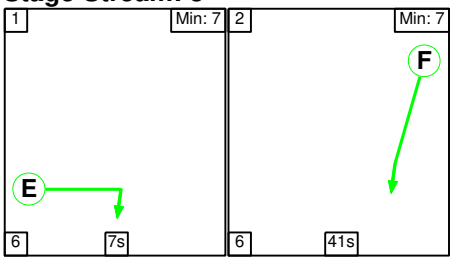
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	16	32
Change Point	0	22

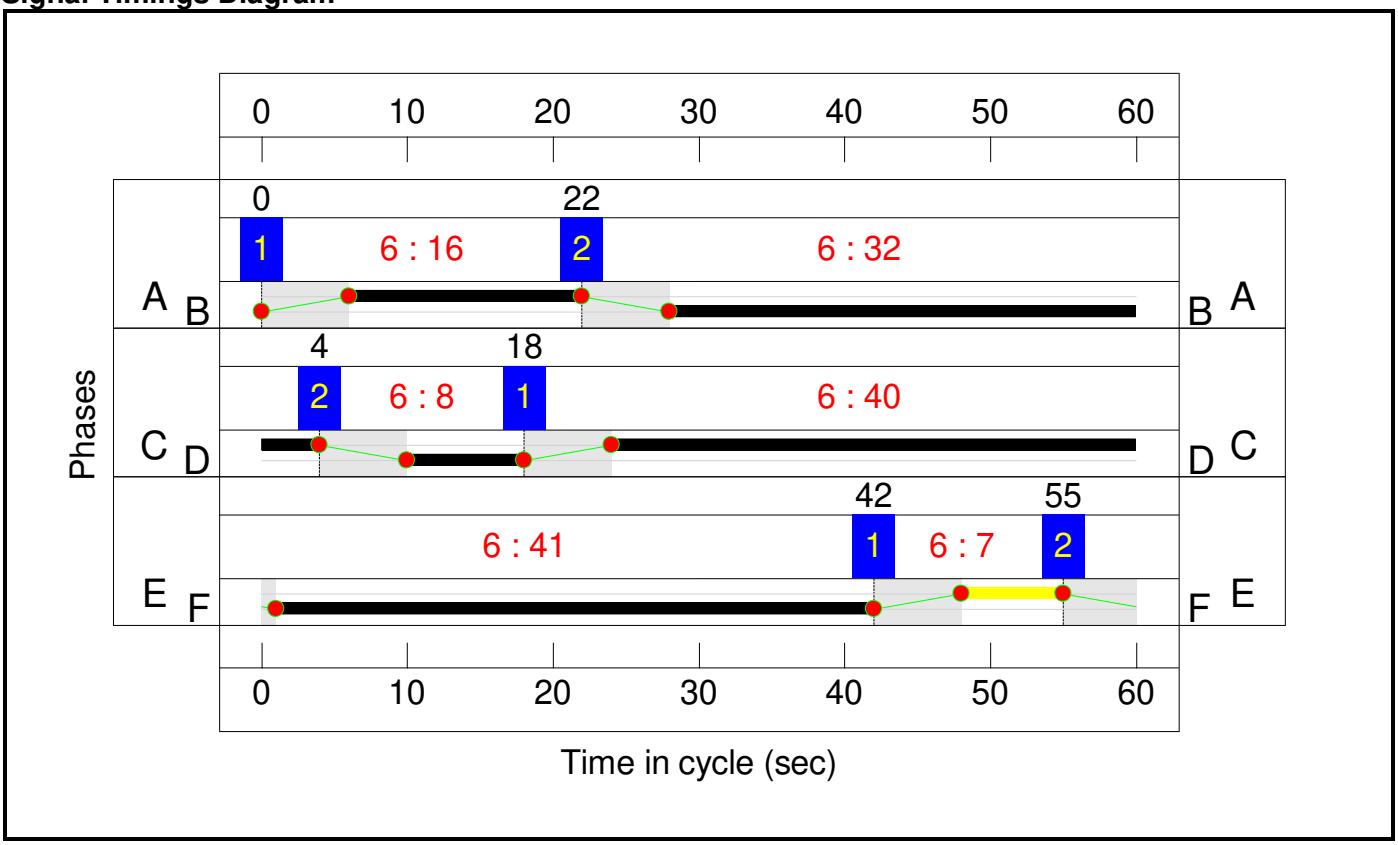
Stage Stream: 2

Stage	1	2
Duration	40	8
Change Point	18	4

Stage Stream: 3

Stage	1	2
Duration	7	41
Change Point	42	55

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley roundabout - 4-arm signalised roundabout A-3	-	-	**N/A**	-	-		-	-	-	-	-	-	**89.6%**
Ardley	-	-	**N/A**	-	-		-	-	-	-	-	-	**89.6%**
1/2+1/1	Ardley bypass Ahead Left	U	1	N/A	B		1	32	-	556	1922:1946	795+873	33.3 : 33.3%
1/3	Ardley bypass Ahead	U	1	N/A	B		1	32	-	877	1922	1057	83.0%
1/4+1/5	Ardley bypass Ahead	U	1	N/A	B		1	32	-	1722	1922:1922	961+961	89.6 : 89.6%
2/1+2/2	B430 Ahead Ahead2 Left	U	2	N/A	D		1	8	-	200	1926:1908	35+286	62.2 : 62.2%
3/1	A43 Southbound Ahead	U	3	N/A	F		1	41	-	764	1922	1345	56.8%
3/2	A43 Southbound Ahead	U	3	N/A	F		1	41	-	763	1922	1345	56.7%
6/1	Right Ahead	U	1	N/A	A		1	16	-	259	1850	524	49.4%
6/2	Right	U	1	N/A	A		1	16	-	250	1850	524	47.7%
7/1	Right	U	3	N/A	E		1	7	-	89	1850	247	36.1%
7/2	Right	U	3	N/A	E		1	7	-	89	1850	247	36.1%
8/1	Ahead	U	2	N/A	C		1	40	-	390	1850	1264	30.9%
8/2	Ahead	U	2	N/A	C		1	40	-	515	1850	1264	40.7%
8/3	Ahead	U	2	N/A	C		1	40	-	877	1850	1264	69.4%
8/4	Ahead	U	2	N/A	C		1	40	-	861	1850	1264	68.1%
8/5	Ahead	U	2	N/A	C		1	40	-	861	1850	1264	68.1%

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: Ardley roundabout - 4-arm signalised roundabout A-3	**-**	**-**	**0**	**0**	**0**	**18.0**	**9.8**	**0.0**	**27.8**	**-**	**-**	**-**	**-**
Ardley	**-**	**-**	**0**	**0**	**0**	**18.0**	**9.8**	**0.0**	**27.8**	**-**	**-**	**-**	**-**
1/2+1/1	556	556	-	-	-	1.1	0.2	-	1.3	8.7	2.5	0.2	2.8
1/3	877	877	-	-	-	2.7	2.4	-	5.1	20.9	11.9	2.4	14.3
1/4+1/5	1722	1722	-	-	-	5.3	4.1	-	9.4	19.6	11.5	4.1	15.6
2/1+2/2	200	200	-	-	-	1.3	0.8	-	2.1	38.3	2.8	0.8	3.6
3/1	764	764	-	-	-	1.0	0.7	-	1.6	7.6	6.2	0.7	6.8
3/2	763	763	-	-	-	0.9	0.7	-	1.6	7.6	6.1	0.7	6.8
6/1	259	259	-	-	-	1.0	0.5	-	1.5	21.0	2.3	0.5	2.8
6/2	250	250	-	-	-	1.0	0.5	-	1.4	20.7	2.2	0.5	2.7
7/1	89	89	-	-	-	0.8	0.0	-	0.8	32.5	1.5	0.0	1.5
7/2	89	89	-	-	-	0.8	0.0	-	0.8	32.5	1.5	0.0	1.5
8/1	390	390	-	-	-	0.8	0.0	-	0.8	7.3	3.9	0.0	3.9
8/2	515	515	-	-	-	0.9	0.0	-	0.9	6.1	4.7	0.0	4.7
8/3	877	877	-	-	-	0.1	0.0	-	0.1	0.4	0.4	0.0	0.4
8/4	861	861	-	-	-	0.2	0.0	-	0.2	0.7	0.4	0.0	0.4
8/5	861	861	-	-	-	0.2	0.0	-	0.2	0.7	0.4	0.0	0.4

C1	Stream: 1 PRC for Signalled Lanes (%):	0.5	Total Delay for Signalled Lanes (pcuHr):	18.79	Cycle Time (s): 60
C1	Stream: 2 PRC for Signalled Lanes (%):	29.7	Total Delay for Signalled Lanes (pcuHr):	4.20	Cycle Time (s): 60
C1	Stream: 3 PRC for Signalled Lanes (%):	58.5	Total Delay for Signalled Lanes (pcuHr):	4.82	Cycle Time (s): 60
	PRC Over All Lanes (%):	0.5	Total Delay Over All Lanes(pcuHr):	27.81	

APPENDIX 26

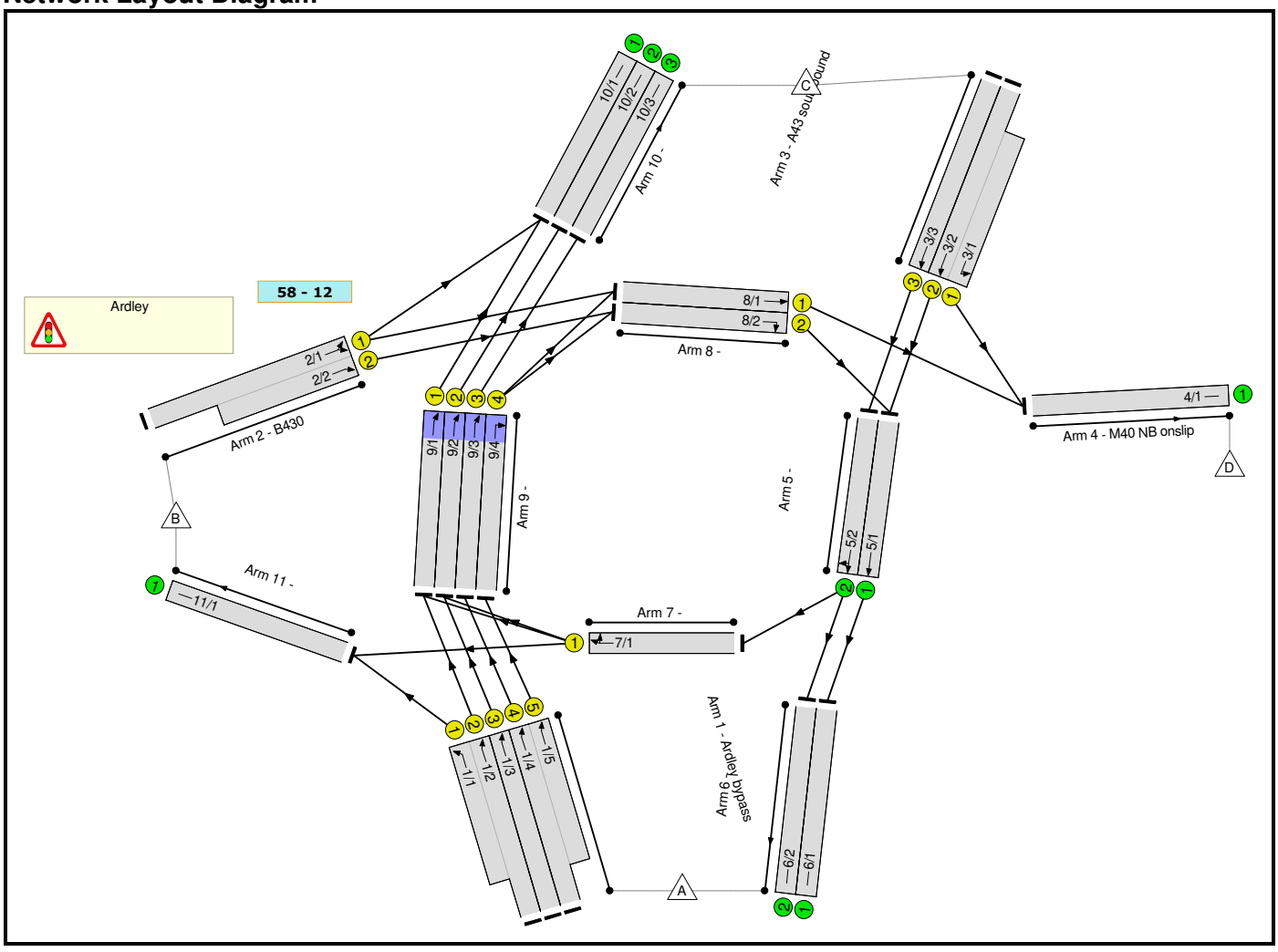
Ardley Roundabout junction option A-3 – LinSig results

Full Input Data And Results

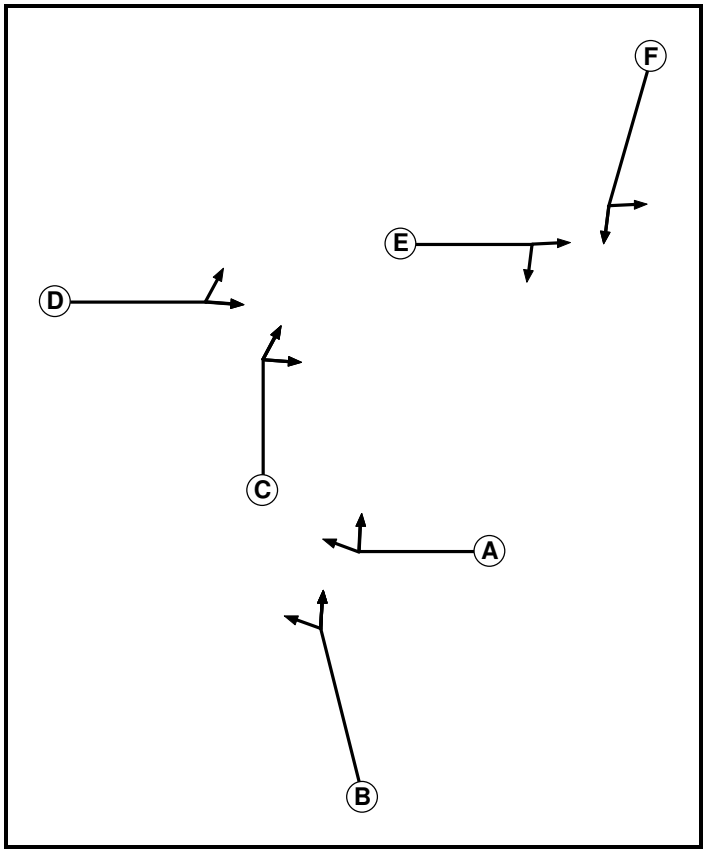
User and Project Details

Project:	**Oxfordshire SRFI**
Title:	**Ardley improvements - 4-arm signalised roundabout A-1**
Location:	
Additional detail:	
File name:	2031_DS_M40J10_Ardley - 4-arm signalised roundabout A-2.lsg3x
Author:	Mark Higgins
Company:	ADC Infrastructure
Address:	Nottingham

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7
E	Traffic	3		7	7
F	Traffic	3		7	7

Phase Intergreens Matrix

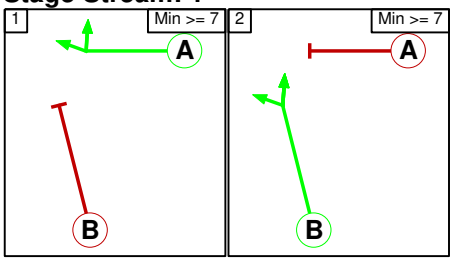
		Starting Phase					
		A	B	C	D	E	F
Terminating Phase	A		6	-	-	-	-
	B	6		-	-	-	-
	C	-	-		6	-	-
	D	-	-	6		-	-
	E	-	-	-	-		6
	F	-	-	-	-	6	

Phases in Stage

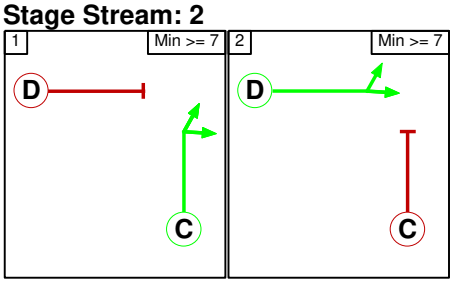
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D
3	1	E
3	2	F

Stage Diagram

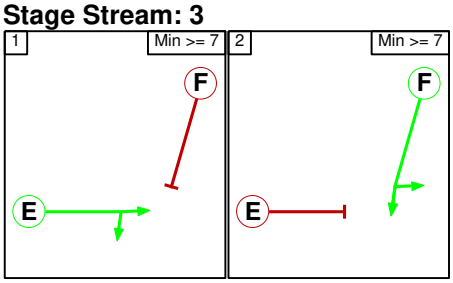
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Prohibited Stage Change

Stage Stream: 1

From Stage \ To Stage		1	2
	1		6
	2	6	

Stage Stream: 2

From Stage \ To Stage		1	2
	1		6
	2	6	

Stage Stream: 3

From Stage \ To Stage		1	2
	1		6
	2	6	

Lane Input Data

Junction: Ardley												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (Ardley bypass)	U	B	2	3	10.4	Geom	-	3.65	0.00	Y	Arm 11 Left	40.00
1/2 (Ardley bypass)	U	B	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 9 Ahead	50.00
1/3 (Ardley bypass)	U	B	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 9 Ahead	50.00
1/4 (Ardley bypass)	U	B	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 9 Ahead	50.00
1/5 (Ardley bypass)	U	B	2	3	20.9	Geom	-	3.65	0.00	Y	Arm 9 Ahead	50.00
2/1 (B430)	U	D	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 8 Ahead	50.00
											Arm 10 Ahead	50.00
2/2 (B430)	U	D	2	3	10.4	Geom	-	3.62	0.00	Y	Arm 8 Ahead	50.00
3/1 (A43 southbound)	U	F	2	3	17.4	Geom	-	3.65	0.00	Y	Arm 4 Left	40.00
3/2 (A43 southbound)	U	F	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 5 Ahead	54.00
3/3 (A43 southbound)	U	F	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 5 Ahead	54.00
4/1 (M40 NB onslip)	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	10.4	Inf	-	-	-	-	-	-
5/2	U		2	3	10.4	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/2	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U	A	2	3	5.2	User	1850	-	-	-	-	-
8/1	U	E	2	3	10.4	User	1850	-	-	-	-	-
8/2	U	E	2	3	10.4	User	1850	-	-	-	-	-
9/1	U	C	2	3	7.8	User	1850	-	-	-	-	-
9/2	U	C	2	3	7.8	User	1850	-	-	-	-	-
9/3	U	C	2	3	7.8	User	1850	-	-	-	-	-
9/4	U	C	2	3	7.8	User	1850	-	-	-	-	-
10/1	U		2	3	60.0	Inf	-	-	-	-	-	-
10/2	U		2	3	60.0	Inf	-	-	-	-	-	-

10/3	U		2	3	60.0	Inf	-	-	-	-	-	-
11/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Ardley4_AM'	07:45	08:45	01:00	
2: 'Ardley4_PM'	16:30	17:30	01:00	

Scenario 1: '2031 Ardley13, 19 AM' (FG1: 'Ardley4_AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	68	1799	372	2239
	B	218	0	17	19	254
	C	1700	16	0	422	2138
	D	0	0	0	0	0
	Tot.	1918	84	1816	813	4631

Traffic Lane Flows

Lane	Scenario 1: 2031 Ardley13, 19 AM
Junction: Ardley	
1/1 (short)	68
1/2 (with short)	642(In) 574(Out)
1/3	571
1/4 (with short)	1026(In) 654(Out)
1/5 (short)	372
2/1 (with short)	254(In) 36(Out)
2/2 (short)	218
3/1 (short)	422
3/2 (with short)	1307(In) 885(Out)
3/3	831
4/1	813
5/1	1103
5/2	831
6/1	1103
6/2	815
7/1	16
8/1	391
8/2	218
9/1	574
9/2	571
9/3	654
9/4	372
10/1	591
10/2	571
10/3	654
11/1	84

Lane Saturation Flows

Junction: Ardley

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Ardley bypass)	3.65	0.00	Y	Arm 11 Left	40.00	100.0 %	1908	1908
1/2 (Ardley bypass)	3.65	0.00	Y	Arm 9 Ahead	50.00	100.0 %	1922	1922
1/3 (Ardley bypass)	3.65	0.00	Y	Arm 9 Ahead	50.00	100.0 %	1922	1922
1/4 (Ardley bypass)	3.65	0.00	Y	Arm 9 Ahead	50.00	100.0 %	1922	1922
1/5 (Ardley bypass)	3.65	0.00	Y	Arm 9 Ahead	50.00	100.0 %	1922	1922
2/1 (B430)	3.65	0.00	Y	Arm 8 Ahead	50.00	52.8 %	1922	1922
				Arm 10 Ahead	50.00	47.2 %		
2/2 (B430)	3.62	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1919	1919
3/1 (A43 southbound)	3.65	0.00	Y	Arm 4 Left	40.00	100.0 %	1908	1908
3/2 (A43 southbound)	3.65	0.00	Y	Arm 5 Ahead	54.00	100.0 %	1926	1926
3/3 (A43 southbound)	3.65	0.00	Y	Arm 5 Ahead	54.00	100.0 %	1926	1926
4/1 (M40 NB onslip Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	This lane uses a directly entered Saturation Flow						1850	1850
8/1	This lane uses a directly entered Saturation Flow						1850	1850
8/2	This lane uses a directly entered Saturation Flow						1850	1850
9/1	This lane uses a directly entered Saturation Flow						1850	1850
9/2	This lane uses a directly entered Saturation Flow						1850	1850
9/3	This lane uses a directly entered Saturation Flow						1850	1850
9/4	This lane uses a directly entered Saturation Flow						1850	1850
10/1	Infinite Saturation Flow						Inf	Inf
10/2	Infinite Saturation Flow						Inf	Inf
10/3	Infinite Saturation Flow						Inf	Inf
11/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2031 Ardley13, 19 PM' (FG2: 'Ardley4_PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	136	2599	420	3155
	B	178	0	15	7	200
	C	1018	24	0	485	1527
	D	0	0	0	0	0
	Tot.	1196	160	2614	912	4882

Traffic Lane Flows

Lane	Scenario 2: 2031 Ardley13, 19 PM
Junction: Ardley	
1/1 (short)	136
1/2 (with short)	962(In) 826(Out)
1/3	844
1/4 (with short)	1349(In) 929(Out)
1/5 (short)	420
2/1 (with short)	200(In) 22(Out)
2/2 (short)	178
3/1 (short)	485
3/2 (with short)	1077(In) 592(Out)
3/3	450
4/1	912
5/1	770
5/2	450
6/1	770
6/2	426
7/1	24
8/1	427
8/2	178
9/1	826
9/2	844
9/3	929
9/4	420
10/1	841
10/2	844
10/3	929
11/1	160

Lane Saturation Flows

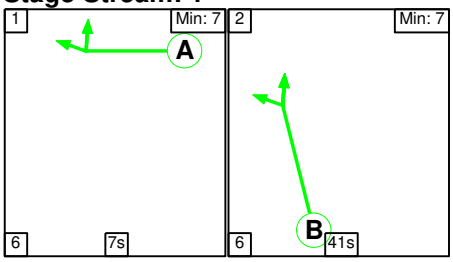
Junction: Ardley

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Ardley bypass)	3.65	0.00	Y	Arm 11 Left	40.00	100.0 %	1908	1908
1/2 (Ardley bypass)	3.65	0.00	Y	Arm 9 Ahead	50.00	100.0 %	1922	1922
1/3 (Ardley bypass)	3.65	0.00	Y	Arm 9 Ahead	50.00	100.0 %	1922	1922
1/4 (Ardley bypass)	3.65	0.00	Y	Arm 9 Ahead	50.00	100.0 %	1922	1922
1/5 (Ardley bypass)	3.65	0.00	Y	Arm 9 Ahead	50.00	100.0 %	1922	1922
2/1 (B430)	3.65	0.00	Y	Arm 8 Ahead	50.00	31.8 %	1922	1922
				Arm 10 Ahead	50.00	68.2 %		
2/2 (B430)	3.62	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1919	1919
3/1 (A43 southbound)	3.65	0.00	Y	Arm 4 Left	40.00	100.0 %	1908	1908
3/2 (A43 southbound)	3.65	0.00	Y	Arm 5 Ahead	54.00	100.0 %	1926	1926
3/3 (A43 southbound)	3.65	0.00	Y	Arm 5 Ahead	54.00	100.0 %	1926	1926
4/1 (M40 NB onslip Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
7/1	This lane uses a directly entered Saturation Flow						1850	1850
8/1	This lane uses a directly entered Saturation Flow						1850	1850
8/2	This lane uses a directly entered Saturation Flow						1850	1850
9/1	This lane uses a directly entered Saturation Flow						1850	1850
9/2	This lane uses a directly entered Saturation Flow						1850	1850
9/3	This lane uses a directly entered Saturation Flow						1850	1850
9/4	This lane uses a directly entered Saturation Flow						1850	1850
10/1	Infinite Saturation Flow						Inf	Inf
10/2	Infinite Saturation Flow						Inf	Inf
10/3	Infinite Saturation Flow						Inf	Inf
11/1	Infinite Saturation Flow						Inf	Inf

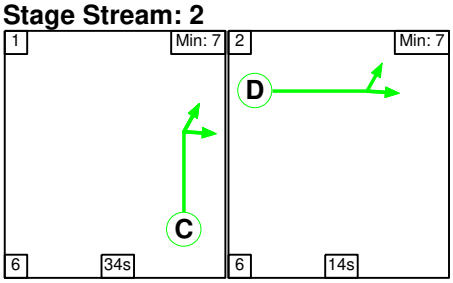
Scenario 1: '2031 Ardley13, 19 AM' (FG1: 'Ardley4_AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

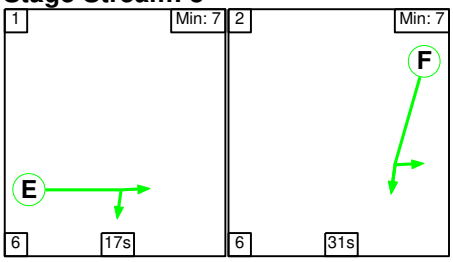
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	7	41
Change Point	0	13

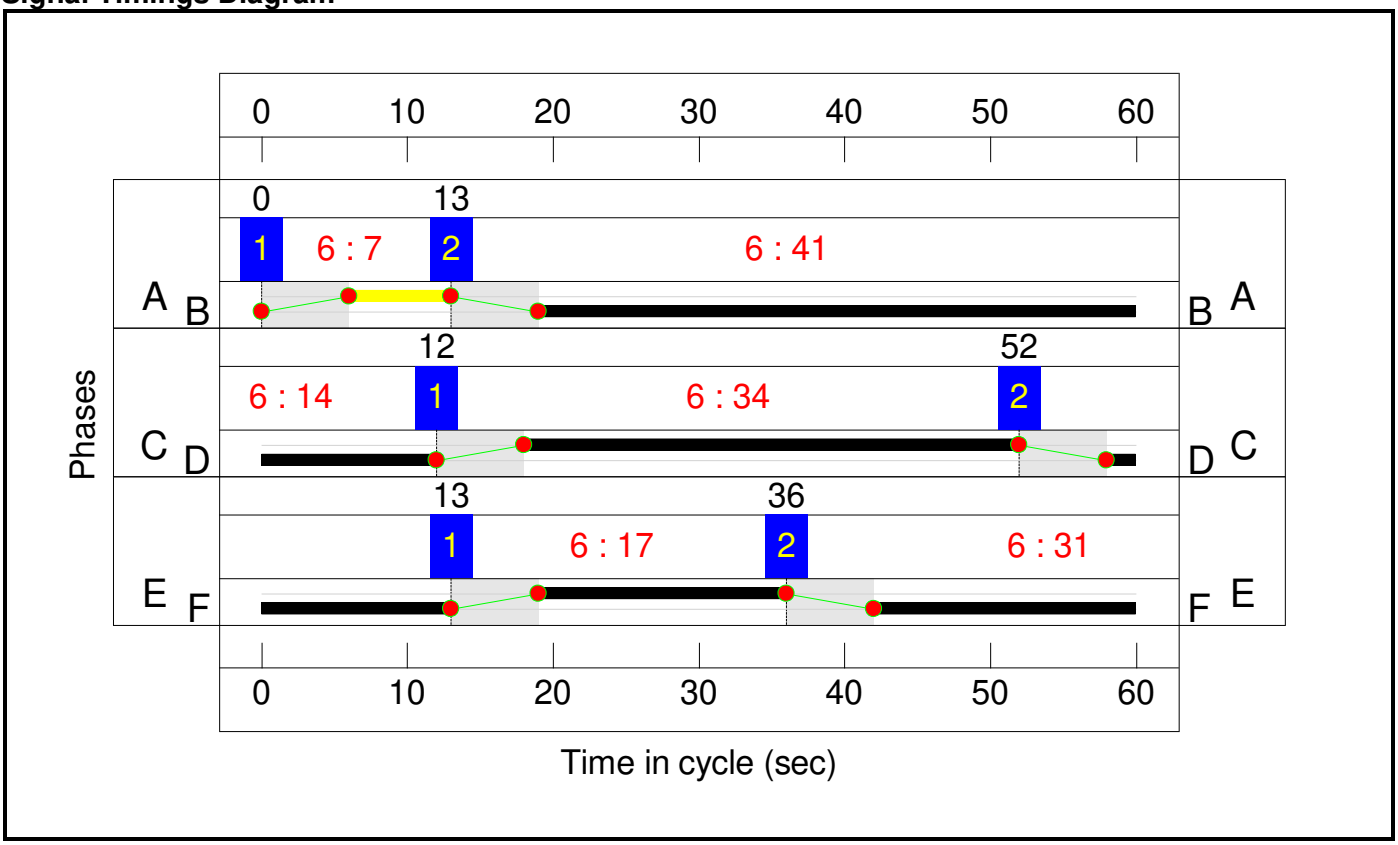
Stage Stream: 2

Stage	1	2
Duration	34	14
Change Point	12	52

Stage Stream: 3

Stage	1	2
Duration	17	31
Change Point	13	36

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley improvments - 4-arm signalised roundbaout A-1	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**86.2%**
Ardley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**86.2%**
1/2+1/1	Ardley bypass Ahead Left	U	1	N/A	B		1	41	-	642	1922:1908	1272+151	45.1 : 45.1%
1/3	Ardley bypass Ahead	U	1	N/A	B		1	41	-	571	1922	1345	42.4%
1/4+1/5	Ardley bypass Ahead	U	1	N/A	B		1	41	-	1026	1922:1922	1225+697	53.4 : 53.4%
2/1+2/2	B430 Ahead Ahead2	U	2	N/A	D		1	14	-	254	1922:1919	79+480	45.4 : 45.4%
3/2+3/1	A43 southbound Left Ahead	U	3	N/A	F		1	31	-	1307	1926:1908	1027+490	86.2 : 86.2%
3/3	A43 southbound Ahead	U	3	N/A	F		1	31	-	831	1926	1027	80.9%
7/1	Right Ahead	U	1	N/A	A		1	7	-	16	1850	247	6.5%
8/1	Ahead	U	3	N/A	E		1	17	-	391	1850	555	70.5%
8/2	Right	U	3	N/A	E		1	17	-	218	1850	555	39.3%
9/1	Ahead	U	2	N/A	C		1	34	-	574	1850	1079	53.2%
9/2	Ahead	U	2	N/A	C		1	34	-	571	1850	1079	52.9%
9/3	Ahead	U	2	N/A	C		1	34	-	654	1850	1079	60.6%
9/4	Right	U	2	N/A	C		1	34	-	372	1850	1079	34.5%

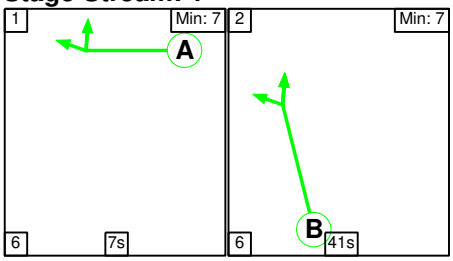
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Ardley improvments - 4-arm signalised roundbaout A-1	**-**	**-**	**0**	**0**	**0**	**15.0**	**6.9**	**0.0**	**21.9**	**-**	**-**	**-**	**-**
Ardley	**-**	**-**	**0**	**0**	**0**	**15.0**	**6.9**	**0.0**	**21.9**	**-**	**-**	**-**	**-**
1/2+1/1	642	642	-	-	-	0.7	0.4	-	1.1	6.1	4.0	0.4	4.4
1/3	571	571	-	-	-	0.6	0.4	-	1.0	6.2	4.0	0.4	4.3
1/4+1/5	1026	1026	-	-	-	1.1	0.6	-	1.7	5.8	4.9	0.6	5.5
2/1+2/2	254	254	-	-	-	1.3	0.4	-	1.7	24.7	3.0	0.4	3.4
3/2+3/1	1307	1307	-	-	-	4.0	3.0	-	7.0	19.2	12.5	3.0	15.6
3/3	831	831	-	-	-	2.7	2.1	-	4.7	20.5	11.3	2.1	13.4
7/1	16	16	-	-	-	0.1	0.0	-	0.1	19.4	0.2	0.0	0.2
8/1	391	391	-	-	-	1.3	0.0	-	1.3	12.0	3.5	0.0	3.5
8/2	218	218	-	-	-	1.0	0.0	-	1.0	16.5	3.6	0.0	3.6
9/1	574	574	-	-	-	0.6	0.0	-	0.6	4.0	1.8	0.0	1.8
9/2	571	571	-	-	-	0.6	0.0	-	0.6	4.0	1.7	0.0	1.7
9/3	654	654	-	-	-	0.7	0.0	-	0.7	4.0	2.0	0.0	2.0
9/4	372	372	-	-	-	0.4	0.0	-	0.4	3.8	1.1	0.0	1.1

C1	Stream: 1 PRC for Signalled Lanes (%):	68.6	Total Delay for Signalled Lanes (pcuHr):	3.81	Cycle Time (s): 60
C1	Stream: 2 PRC for Signalled Lanes (%):	48.5	Total Delay for Signalled Lanes (pcuHr):	4.12	Cycle Time (s): 60
C1	Stream: 3 PRC for Signalled Lanes (%):	4.5	Total Delay for Signalled Lanes (pcuHr):	14.01	Cycle Time (s): 60
	PRC Over All Lanes (%):	4.5	Total Delay Over All Lanes(pcuHr):	21.94	

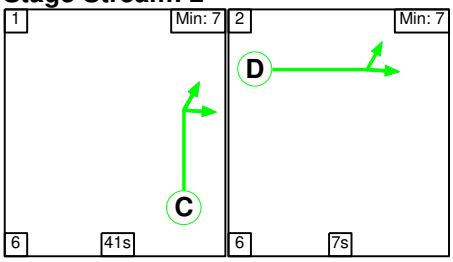
Scenario 2: '2031 Ardley13, 19 PM' (FG2: 'Ardley4_PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

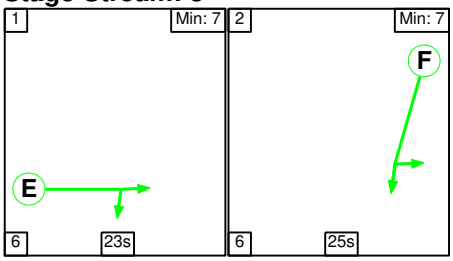
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	7	41
Change Point	0	13

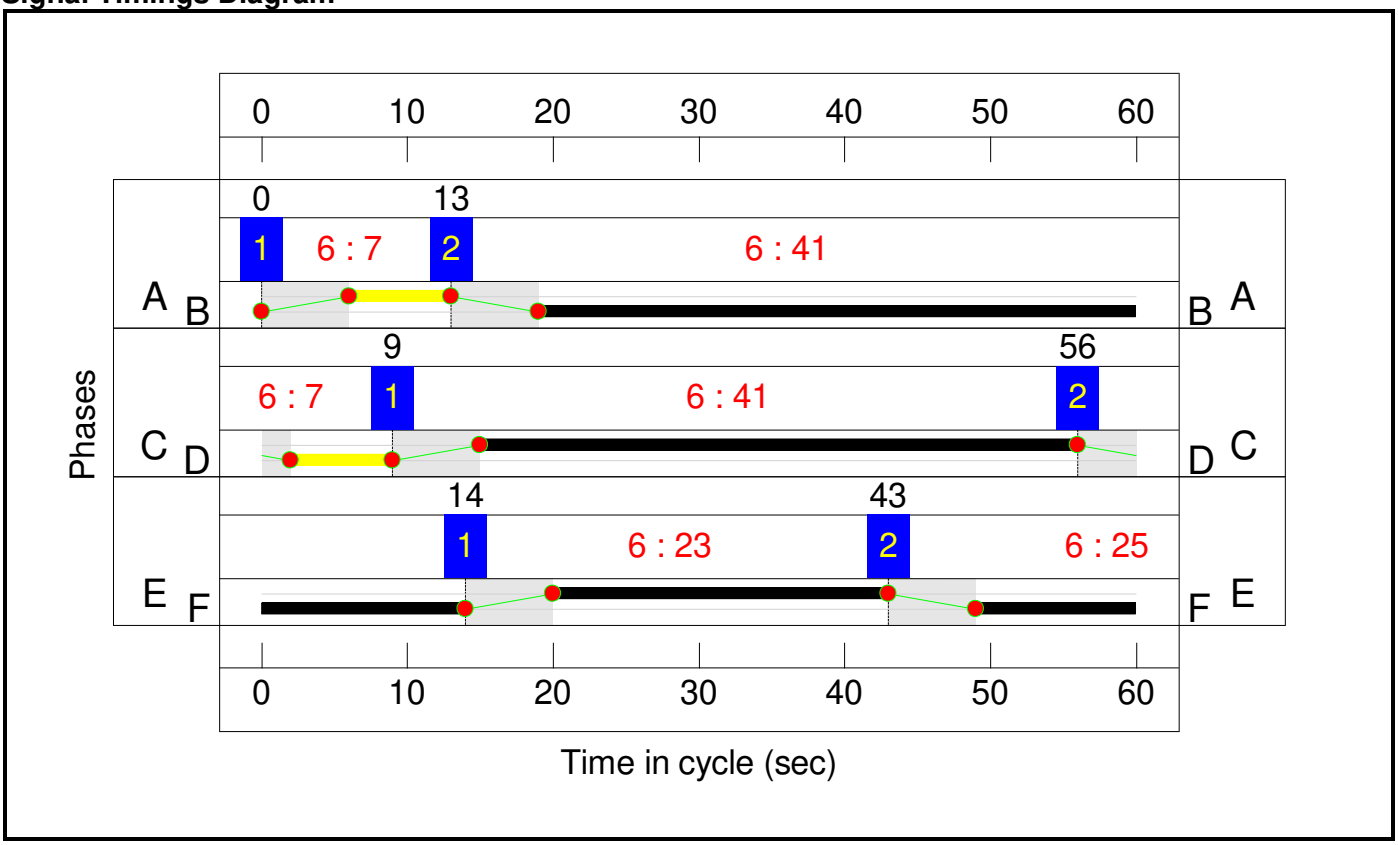
Stage Stream: 2

Stage	1	2
Duration	41	7
Change Point	9	56

Stage Stream: 3

Stage	1	2
Duration	23	25
Change Point	14	43

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley improvments - 4-arm signalised roundbaout A-1	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.7%**
Ardley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.7%**
1/2+1/1	Ardley bypass Ahead Left	U	1	N/A	B		1	41	-	962	1922:1908	1246+205	66.3 : 66.3%
1/3	Ardley bypass Ahead	U	1	N/A	B		1	41	-	844	1922	1345	62.7%
1/4+1/5	Ardley bypass Ahead	U	1	N/A	B		1	41	-	1349	1922:1922	1324+598	70.2 : 70.2%
2/1+2/2	B430 Ahead Ahead2	U	2	N/A	D		1	7	-	200	1922:1919	32+256	69.6 : 69.6%
3/2+3/1	A43 southbound Left Ahead	U	3	N/A	F		1	25	-	1077	1926:1908	835+712	70.9 : 68.1%
3/3	A43 southbound Ahead	U	3	N/A	F		1	25	-	450	1926	835	53.9%
7/1	Right Ahead	U	1	N/A	A		1	7	-	24	1850	247	9.7%
8/1	Ahead	U	3	N/A	E		1	23	-	427	1850	740	57.7%
8/2	Right	U	3	N/A	E		1	23	-	178	1850	740	24.1%
9/1	Ahead	U	2	N/A	C		1	41	-	826	1850	1295	63.8%
9/2	Ahead	U	2	N/A	C		1	41	-	844	1850	1295	65.2%
9/3	Ahead	U	2	N/A	C		1	41	-	929	1850	1295	71.7%
9/4	Right	U	2	N/A	C		1	41	-	420	1850	1295	32.4%

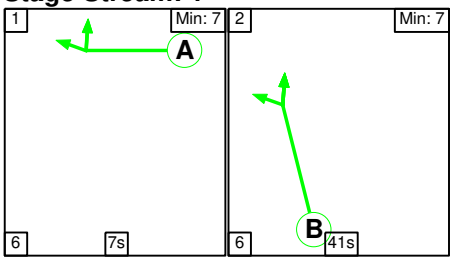
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Ardley improvments - 4-arm signalised roundbaout A-1	**-**	**-**	**0**	**0**	**0**	**14.6**	**5.9**	**0.0**	**20.5**	**-**	**-**	**-**	**-**
Ardley	**-**	**-**	**0**	**0**	**0**	**14.6**	**5.9**	**0.0**	**20.5**	**-**	**-**	**-**	**-**
1/2+1/1	962	962	-	-	-	1.2	1.0	-	2.2	8.1	7.1	1.0	8.1
1/3	844	844	-	-	-	1.1	0.8	-	2.0	8.4	7.5	0.8	8.3
1/4+1/5	1349	1349	-	-	-	1.8	1.2	-	2.9	7.8	8.8	1.2	9.9
2/1+2/2	200	200	-	-	-	1.4	1.1	-	2.5	44.7	2.8	1.1	3.9
3/2+3/1	1077	1077	-	-	-	4.0	1.1	-	5.2	17.3	8.1	1.1	9.2
3/3	450	450	-	-	-	1.6	0.6	-	2.2	17.2	5.5	0.6	6.1
7/1	24	24	-	-	-	0.1	0.1	-	0.1	18.5	0.3	0.1	0.4
8/1	427	427	-	-	-	1.1	0.0	-	1.1	9.1	2.9	0.0	2.9
8/2	178	178	-	-	-	0.7	0.0	-	0.7	14.0	3.0	0.0	3.0
9/1	826	826	-	-	-	0.5	0.0	-	0.5	2.0	1.6	0.0	1.6
9/2	844	844	-	-	-	0.5	0.0	-	0.5	2.0	1.6	0.0	1.6
9/3	929	929	-	-	-	0.5	0.0	-	0.5	2.1	1.8	0.0	1.8
9/4	420	420	-	-	-	0.2	0.0	-	0.2	1.8	0.8	0.0	0.8

C1	Stream: 1 PRC for Signalled Lanes (%):	28.2	Total Delay for Signalled Lanes (pcuHr):	7.19	Cycle Time (s): 60
C1	Stream: 2 PRC for Signalled Lanes (%):	25.5	Total Delay for Signalled Lanes (pcuHr):	4.18	Cycle Time (s): 60
C1	Stream: 3 PRC for Signalled Lanes (%):	26.9	Total Delay for Signalled Lanes (pcuHr):	9.09	Cycle Time (s): 60
	PRC Over All Lanes (%):	25.5	Total Delay Over All Lanes(pcuHr):	20.47	

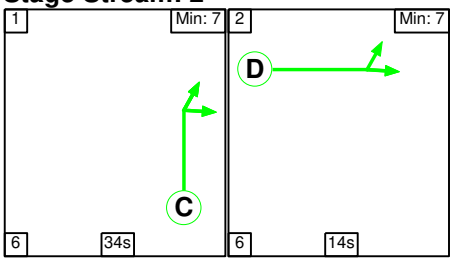
Scenario 3: '2031 Ardley6, 7 AM' (FG3: 'Ardley3_AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

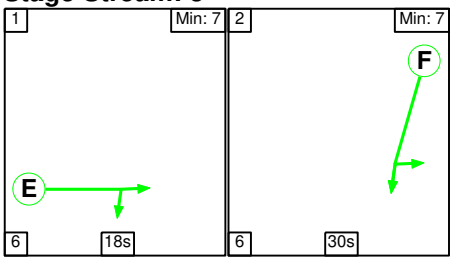
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	7	41
Change Point	0	13

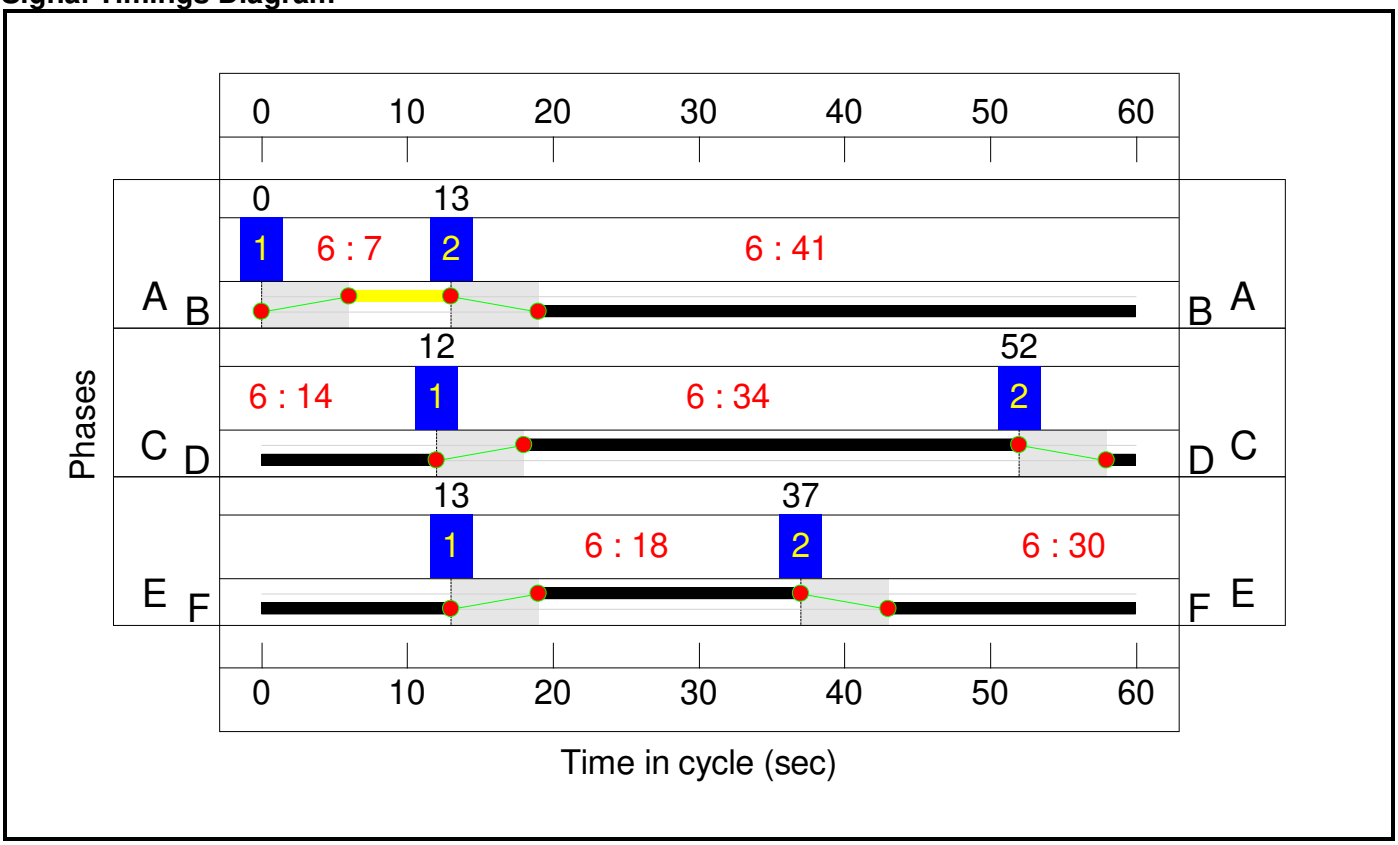
Stage Stream: 2

Stage	1	2
Duration	34	14
Change Point	12	52

Stage Stream: 3

Stage	1	2
Duration	18	30
Change Point	13	37

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley improvments - 4-arm signalised roundbaout A-1	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**75.9%**
Ardley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**75.9%**
1/2+1/1	Ardley bypass Ahead Left	U	1	N/A	B		1	41	-	642	1922:1908	1272+151	45.1 : 45.1%
1/3	Ardley bypass Ahead	U	1	N/A	B		1	41	-	571	1922	1345	42.4%
1/4+1/5	Ardley bypass Ahead	U	1	N/A	B		1	41	-	1026	1922:1922	1225+697	53.4 : 53.4%
2/1+2/2	B430 Ahead Ahead2	U	2	N/A	D		1	14	-	254	1922:1919	79+480	45.4 : 45.4%
3/2+3/1	A43 southbound Left Ahead	U	3	N/A	F		1	30	-	1177	1926:1908	995+556	75.9 : 75.9%
3/3	A43 southbound Ahead	U	3	N/A	F		1	30	-	666	1926	995	66.9%
7/1	Right Ahead	U	1	N/A	A		1	7	-	16	1850	247	6.5%
8/1	Ahead	U	3	N/A	E		1	18	-	391	1850	586	66.7%
8/2	Right	U	3	N/A	E		1	18	-	218	1850	586	37.2%
9/1	Ahead	U	2	N/A	C		1	34	-	574	1850	1079	53.2%
9/2	Ahead	U	2	N/A	C		1	34	-	571	1850	1079	52.9%
9/3	Ahead	U	2	N/A	C		1	34	-	654	1850	1079	60.6%
9/4	Right	U	2	N/A	C		1	34	-	372	1850	1079	34.5%

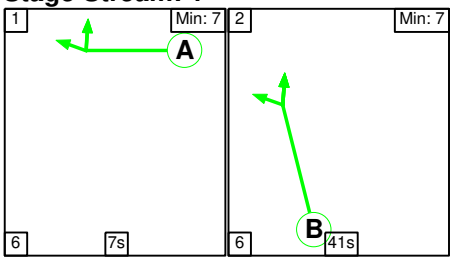
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Ardley improvments - 4-arm signalised roundbaout A-1	**-**	**-**	**0**	**0**	**0**	**13.8**	**4.4**	**0.0**	**18.2**	**-**	**-**	**-**	**-**
Ardley	**-**	**-**	**0**	**0**	**0**	**13.8**	**4.4**	**0.0**	**18.2**	**-**	**-**	**-**	**-**
1/2+1/1	642	642	-	-	-	0.7	0.4	-	1.1	6.1	4.0	0.4	4.4
1/3	571	571	-	-	-	0.6	0.4	-	1.0	6.2	4.0	0.4	4.3
1/4+1/5	1026	1026	-	-	-	1.1	0.6	-	1.7	5.8	4.9	0.6	5.5
2/1+2/2	254	254	-	-	-	1.3	0.4	-	1.7	24.7	3.0	0.4	3.4
3/2+3/1	1177	1177	-	-	-	3.5	1.6	-	5.0	15.4	9.9	1.6	11.4
3/3	666	666	-	-	-	2.0	1.0	-	3.0	16.2	8.1	1.0	9.1
7/1	16	16	-	-	-	0.1	0.0	-	0.1	20.1	0.2	0.0	0.3
8/1	391	391	-	-	-	1.2	0.0	-	1.2	11.2	3.4	0.0	3.4
8/2	218	218	-	-	-	1.0	0.0	-	1.0	16.5	3.6	0.0	3.6
9/1	574	574	-	-	-	0.6	0.0	-	0.6	4.0	1.8	0.0	1.8
9/2	571	571	-	-	-	0.6	0.0	-	0.6	4.0	1.7	0.0	1.7
9/3	654	654	-	-	-	0.7	0.0	-	0.7	4.0	2.0	0.0	2.0
9/4	372	372	-	-	-	0.4	0.0	-	0.4	3.8	1.1	0.0	1.1

C1	Stream: 1 PRC for Signalled Lanes (%):	68.6	Total Delay for Signalled Lanes (pcuHr):	3.81	Cycle Time (s): 60
C1	Stream: 2 PRC for Signalled Lanes (%):	48.5	Total Delay for Signalled Lanes (pcuHr):	4.12	Cycle Time (s): 60
C1	Stream: 3 PRC for Signalled Lanes (%):	18.6	Total Delay for Signalled Lanes (pcuHr):	10.24	Cycle Time (s): 60
	PRC Over All Lanes (%):	18.6	Total Delay Over All Lanes(pcuHr):	18.17	

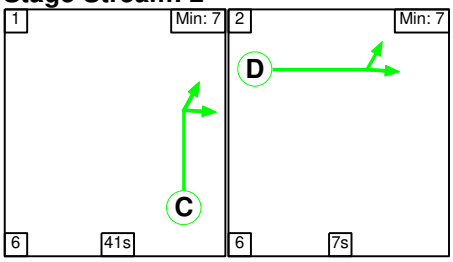
Scenario 4: '2031 Ardley6, 7 PM' (FG4: 'Ardley3_PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

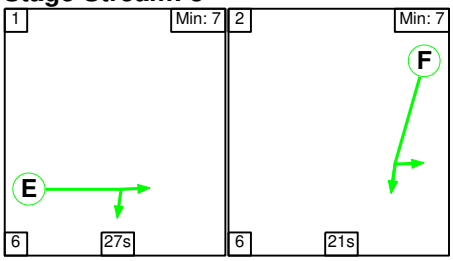
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	7	41
Change Point	0	13

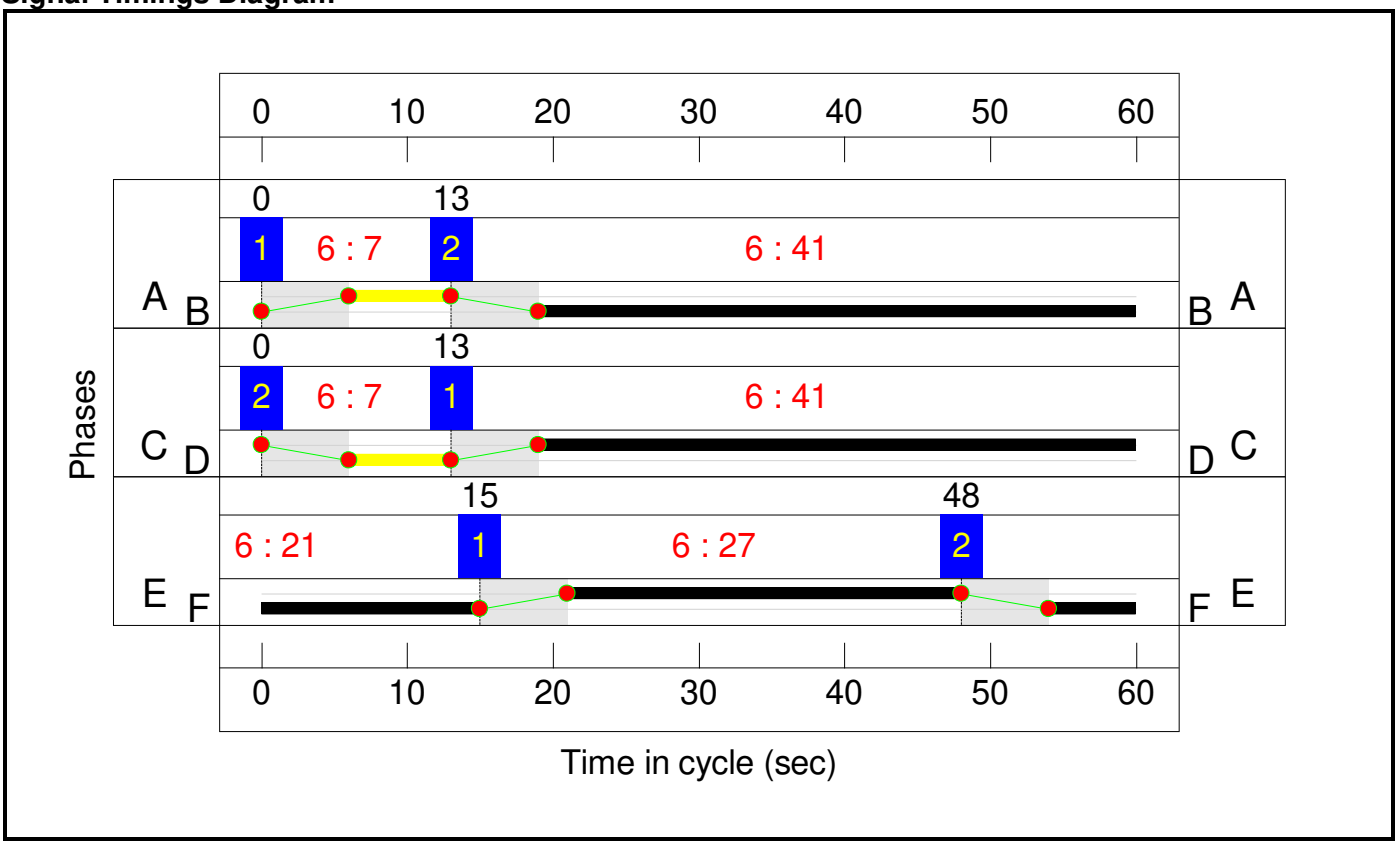
Stage Stream: 2

Stage	1	2
Duration	41	7
Change Point	13	0

Stage Stream: 3

Stage	1	2
Duration	27	21
Change Point	15	48

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley improvments - 4-arm signalised roundbaout A-1	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.6%**
Ardley	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.6%**
1/2+1/1	Ardley bypass Ahead Left	U	1	N/A	B		1	41	-	963	1922:1908	1246+205	66.4 : 66.4%
1/3	Ardley bypass Ahead	U	1	N/A	B		1	41	-	845	1922	1345	62.8%
1/4+1/5	Ardley bypass Ahead	U	1	N/A	B		1	41	-	1347	1922:1922	1323+599	70.1 : 70.1%
2/1+2/2	B430 Ahead Ahead2	U	2	N/A	D		1	7	-	200	1922:1919	32+256	69.6 : 69.6%
3/2+3/1	A43 southbound Left Ahead	U	3	N/A	F		1	21	-	942	1926:1908	706+700	64.7 : 69.3%
3/3	A43 southbound Ahead	U	3	N/A	F		1	21	-	327	1926	706	46.3%
7/1	Right Ahead	U	1	N/A	A		1	7	-	24	1850	247	9.7%
8/1	Ahead	U	3	N/A	E		1	27	-	427	1850	863	49.5%
8/2	Right	U	3	N/A	E		1	27	-	178	1850	863	20.6%
9/1	Ahead	U	2	N/A	C		1	41	-	827	1850	1295	63.9%
9/2	Ahead	U	2	N/A	C		1	41	-	845	1850	1295	65.3%
9/3	Ahead	U	2	N/A	C		1	41	-	927	1850	1295	71.6%
9/4	Right	U	2	N/A	C		1	41	-	420	1850	1295	32.4%

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: Ardley improvments - 4-arm signalised roundbaout A-1	**-**	**-**	**0**	**0**	**0**	**13.2**	**5.6**	**0.0**	**18.8**	**-**	**-**	**-**	**-**
Ardley	**-**	**-**	**0**	**0**	**0**	**13.2**	**5.6**	**0.0**	**18.8**	**-**	**-**	**-**	**-**
1/2+1/1	963	963	-	-	-	1.2	1.0	-	2.2	8.2	7.1	1.0	8.1
1/3	845	845	-	-	-	1.1	0.8	-	2.0	8.4	7.5	0.8	8.4
1/4+1/5	1347	1347	-	-	-	1.7	1.2	-	2.9	7.8	8.8	1.2	9.9
2/1+2/2	200	200	-	-	-	1.4	1.1	-	2.5	44.7	2.8	1.1	3.9
3/2+3/1	942	942	-	-	-	4.2	1.0	-	5.2	19.8	6.7	1.0	7.7
3/3	327	327	-	-	-	1.3	0.4	-	1.7	19.2	4.1	0.4	4.5
7/1	24	24	-	-	-	0.1	0.1	-	0.1	16.6	0.3	0.1	0.3
8/1	427	427	-	-	-	0.8	0.0	-	0.8	7.1	2.3	0.0	2.3
8/2	178	178	-	-	-	0.5	0.0	-	0.5	11.0	3.0	0.0	3.0
9/1	827	827	-	-	-	0.2	0.0	-	0.2	1.0	0.7	0.0	0.7
9/2	845	845	-	-	-	0.2	0.0	-	0.2	1.0	0.7	0.0	0.7
9/3	927	927	-	-	-	0.3	0.0	-	0.3	1.1	0.8	0.0	0.8
9/4	420	420	-	-	-	0.1	0.0	-	0.1	0.9	0.4	0.0	0.4

C1	Stream: 1 PRC for Signalled Lanes (%):	28.4	Total Delay for Signalled Lanes (pcuHr):	7.18	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	25.7	Total Delay for Signalled Lanes (pcuHr):	3.33	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	29.8	Total Delay for Signalled Lanes (pcuHr):	8.32	Cycle Time (s):	60
	PRC Over All Lanes (%):	25.7	Total Delay Over All Lanes(pcuHr):	18.83		

APPENDIX 27

Ardley East Roundabout junction option AE-1 – Arcady results

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

Filename: 2031_DS_M40J10_ArdleyEast_OpA_ArdleyEast1.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M. M40 J10 options\Options Report\5. Ardley East
Report generation date: 11/06/2021 16:00:46

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	0.8	2.85	0.44						
Arm B	0.2	2.84	0.18						
Arm C	4.5	8.71	0.82						
Arm D	0.1	3.51	0.12						
	2031_DS - 2031_DS_0745								
Arm A				0.8	2.88	0.45			
Arm B				0.2	2.86	0.18			
Arm C				3.8	7.72	0.80			
Arm D				0.1	3.40	0.11			
	2031_DS - 2031_DS_1630								
Arm A							2.0	4.29	0.67
Arm B							0.2	3.52	0.18
Arm C							0.8	3.02	0.46
Arm D							0.2	2.70	0.14

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_ArdleyEast_OpA_ArdleyEast1
Location	M40 J10
Site number	
Date	08/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout A BWB Option: 1, 2, 3, 14, 15 Flowset: ArdleyEast1

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D	6.17	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road (S)	
B	Ardley Road (W)	
C	Link Road (N)	
D	Ardley Road (E)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.50	10.50	15.0	30.0	85.0	30.0	
B	3.50	8.50	50.0	30.0	85.0	30.0	
C	7.30	10.50	15.0	30.0	85.0	30.0	
D	3.50	8.50	50.0	30.0	85.0	30.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.635	2873
B	0.544	2244
C	0.629	2834
D	0.544	2244

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	912	100.000
B		✓	254	100.000
C		✓	1730	100.000
D		✓	121	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	49	712	151
	B	26	0	39	189
	C	1574	17	0	139
	D	10	17	94	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	29	0
	B	0	0	0	0
	C	13	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.44	2.85	0.8	A
B	0.18	2.84	0.2	A
C	0.82	8.71	4.5	A
D	0.12	3.51	0.1	A

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	96	2292	0.300	685	0.4	2.238	A
B	191	719	1769	0.108	191	0.1	2.281	A
C	1302	275	2389	0.545	1298	1.2	3.284	A
D	91	1213	1504	0.061	91	0.1	2.548	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	115	2282	0.359	819	0.6	2.460	A
B	228	860	1676	0.136	228	0.2	2.487	A
C	1555	329	2358	0.659	1552	1.9	4.450	A
D	109	1451	1358	0.080	109	0.1	2.880	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	141	2269	0.443	1003	0.8	2.843	A
B	280	1053	1548	0.181	279	0.2	2.837	A
C	1905	403	2317	0.822	1895	4.4	8.339	A
D	133	1771	1163	0.115	133	0.1	3.496	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	141	2269	0.443	1004	0.8	2.845	A
B	280	1054	1547	0.181	280	0.2	2.839	A
C	1905	403	2317	0.822	1904	4.5	8.707	A
D	133	1780	1157	0.115	133	0.1	3.514	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	115	2282	0.359	821	0.6	2.466	A
B	228	861	1675	0.136	229	0.2	2.489	A
C	1555	329	2358	0.660	1565	2.0	4.599	A
D	109	1463	1351	0.081	109	0.1	2.898	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	96	2292	0.300	687	0.4	2.245	A
B	191	721	1767	0.108	191	0.1	2.286	A
C	1302	276	2388	0.545	1305	1.2	3.332	A
D	91	1220	1499	0.061	91	0.1	2.558	A

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D	5.57	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	927	100.000
B		✓	254	100.000
C		✓	1657	100.000
D		✓	121	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	49	727	151
	B	26	0	39	189
	C	1501	17	0	139
	D	10	17	94	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	29	0
	B	0	0	0	0
	C	14	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.45	2.88	0.8	A
B	0.18	2.86	0.2	A
C	0.80	7.72	3.8	A
D	0.11	3.40	0.1	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	96	2293	0.304	696	0.4	2.252	A
B	191	730	1762	0.109	191	0.1	2.292	A
C	1247	275	2361	0.528	1243	1.1	3.206	A
D	91	1158	1528	0.060	91	0.1	2.505	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	115	2283	0.365	833	0.6	2.482	A
B	228	873	1667	0.137	228	0.2	2.502	A
C	1490	329	2331	0.639	1487	1.7	4.252	A
D	109	1386	1387	0.078	109	0.1	2.815	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	141	2270	0.450	1020	0.8	2.878	A
B	280	1069	1537	0.182	279	0.2	2.862	A
C	1824	403	2290	0.797	1816	3.8	7.477	A
D	133	1693	1197	0.111	133	0.1	3.382	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	141	2270	0.450	1021	0.8	2.880	A
B	280	1070	1537	0.182	280	0.2	2.863	A
C	1824	403	2290	0.797	1824	3.8	7.719	A
D	133	1700	1193	0.112	133	0.1	3.396	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	115	2283	0.365	834	0.6	2.485	A
B	228	875	1666	0.137	229	0.2	2.504	A
C	1490	329	2331	0.639	1498	1.8	4.363	A
D	109	1396	1381	0.079	109	0.1	2.831	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	96	2293	0.304	698	0.4	2.258	A
B	191	732	1760	0.109	191	0.1	2.296	A
C	1247	276	2361	0.528	1250	1.1	3.248	A
D	91	1165	1524	0.060	91	0.1	2.514	A

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D	3.71	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1513	100.000
B		✓	198	100.000
C		✓	911	100.000
D		✓	197	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	112	1265	136
	B	125	0	23	50
	C	830	27	0	54
	D	88	20	89	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	1	13	0
	B	2	0	0	0
	C	21	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.67	4.29	2.0	A
B	0.18	3.52	0.2	A
C	0.46	3.02	0.8	A
D	0.14	2.70	0.2	A

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	102	2531	0.450	1136	0.8	2.575	A
B	149	1119	1552	0.096	149	0.1	2.564	A
C	686	233	2254	0.304	684	0.4	2.291	A
D	148	737	1771	0.084	148	0.1	2.218	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	122	2520	0.540	1359	1.2	3.096	A
B	178	1338	1421	0.125	178	0.1	2.895	A
C	819	279	2230	0.367	818	0.6	2.548	A
D	177	882	1678	0.106	177	0.1	2.398	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	150	2504	0.665	1663	2.0	4.262	A
B	218	1637	1242	0.176	218	0.2	3.515	A
C	1003	342	2197	0.457	1002	0.8	3.010	A
D	217	1080	1551	0.140	217	0.2	2.698	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	150	2504	0.665	1666	2.0	4.295	A
B	218	1640	1240	0.176	218	0.2	3.521	A
C	1003	342	2196	0.457	1003	0.8	3.015	A
D	217	1081	1550	0.140	217	0.2	2.700	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	122	2520	0.540	1363	1.2	3.123	A
B	178	1342	1418	0.125	178	0.1	2.905	A
C	819	280	2230	0.367	820	0.6	2.557	A
D	177	884	1677	0.106	177	0.1	2.402	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	102	2531	0.450	1141	0.8	2.591	A
B	149	1123	1550	0.096	149	0.1	2.570	A
C	686	234	2254	0.304	686	0.4	2.297	A
D	148	740	1769	0.084	148	0.1	2.221	A

APPENDIX 28

Ardley East Roundabout junction option AE-3 – Arcady results

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

Filename: 2031_DS_M40J10_ArdleyEast_OpB_ArdleyEast2.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M. M40 J10 options\Options Report\5. Ardley East
Report generation date: 11/06/2021 16:01:26

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	0.8	2.84	0.44						
Arm B	0.2	2.83	0.18						
Arm C	4.8	9.26	0.83						
Arm D	0.1	3.48	0.11						
	2031_DS - 2031_DS_0745								
Arm A				0.8	2.86	0.45			
Arm B				0.2	2.85	0.18			
Arm C				4.0	8.12	0.80			
Arm D				0.1	3.37	0.11			
	2031_DS - 2031_DS_1630								
Arm A							2.0	4.28	0.66
Arm B							0.2	3.51	0.18
Arm C							0.9	3.36	0.48
Arm D							0.2	2.69	0.14

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_ArdleyEast_OpA_ArdleyEast1
Location	M40 J10
Site number	
Date	08/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout A BWB Option: 4 Flowset: ArdleyEast1

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D	6.48	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road (S)	
B	Ardley Road (W)	
C	Link Road (N)	
D	Ardley Road (E)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.50	10.50	15.0	30.0	85.0	30.0	
B	3.50	8.50	50.0	30.0	85.0	30.0	
C	7.30	10.50	30.0	30.0	85.0	30.0	
D	3.50	8.50	50.0	30.0	85.0	30.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.635	2873
B	0.544	2244
C	0.651	2983
D	0.544	2244

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	912	100.000
B		✓	254	100.000
C		✓	1730	100.000
D		✓	113	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	49	566	297
	B	26	0	35	193
	C	1574	17	0	139
	D	10	17	86	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	21	29
	B	0	0	0	0
	C	13	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.44	2.84	0.8	A
B	0.18	2.83	0.2	A
C	0.83	9.26	4.8	A
D	0.11	3.48	0.1	A

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	90	2295	0.299	685	0.4	2.234	A
B	191	713	1772	0.108	191	0.1	2.276	A
C	1302	388	2414	0.539	1298	1.2	3.211	A
D	85	1213	1503	0.057	85	0.1	2.537	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	108	2286	0.359	819	0.6	2.455	A
B	228	853	1679	0.136	228	0.2	2.480	A
C	1555	464	2363	0.658	1552	1.9	4.427	A
D	102	1451	1358	0.075	102	0.1	2.864	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	132	2273	0.442	1003	0.8	2.834	A
B	280	1044	1553	0.180	279	0.2	2.827	A
C	1905	568	2292	0.831	1894	4.7	8.807	A
D	124	1770	1163	0.107	124	0.1	3.464	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	132	2273	0.442	1004	0.8	2.836	A
B	280	1045	1552	0.180	280	0.2	2.829	A
C	1905	568	2292	0.831	1904	4.8	9.262	A
D	124	1780	1157	0.108	124	0.1	3.484	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	108	2285	0.359	821	0.6	2.461	A
B	228	854	1678	0.136	229	0.2	2.485	A
C	1555	464	2362	0.658	1567	2.0	4.589	A
D	102	1464	1350	0.075	102	0.1	2.883	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	90	2295	0.299	687	0.4	2.240	A
B	191	715	1770	0.108	191	0.1	2.281	A
C	1302	389	2414	0.540	1306	1.2	3.259	A
D	85	1220	1499	0.057	85	0.1	2.545	A

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D	5.79	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	927	100.000
B		✓	254	100.000
C		✓	1657	100.000
D		✓	114	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	49	583	295
	B	26	0	36	192
	C	1501	17	0	139
	D	10	17	87	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	2	21	29
	B	0	0	0	0
	C	14	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.45	2.86	0.8	A
B	0.18	2.85	0.2	A
C	0.80	8.12	4.0	A
D	0.11	3.37	0.1	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	91	2300	0.303	696	0.4	2.242	A
B	191	725	1765	0.108	191	0.1	2.286	A
C	1247	385	2388	0.523	1243	1.1	3.134	A
D	86	1158	1528	0.056	86	0.1	2.496	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	109	2291	0.364	833	0.6	2.469	A
B	228	867	1671	0.137	228	0.2	2.494	A
C	1490	461	2337	0.638	1487	1.7	4.225	A
D	102	1386	1387	0.074	102	0.1	2.801	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	133	2278	0.448	1020	0.8	2.859	A
B	280	1061	1543	0.181	279	0.2	2.849	A
C	1824	564	2267	0.805	1816	3.9	7.824	A
D	126	1692	1198	0.105	125	0.1	3.356	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	133	2278	0.448	1021	0.8	2.861	A
B	280	1062	1542	0.181	280	0.2	2.851	A
C	1824	565	2267	0.805	1824	4.0	8.118	A
D	126	1700	1193	0.105	126	0.1	3.371	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	109	2291	0.364	834	0.6	2.472	A
B	228	869	1670	0.137	229	0.2	2.497	A
C	1490	462	2336	0.638	1499	1.8	4.343	A
D	102	1396	1381	0.074	103	0.1	2.818	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	91	2300	0.303	698	0.4	2.249	A
B	191	727	1764	0.108	191	0.1	2.291	A
C	1247	387	2387	0.523	1250	1.1	3.177	A
D	86	1165	1524	0.056	86	0.1	2.503	A

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D	3.82	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1513	100.000
B		✓	198	100.000
C		✓	911	100.000
D		✓	194	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	112	939	462
	B	125	0	22	51
	C	830	27	0	54
	D	88	20	86	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	1	10	16
	B	2	0	0	0
	C	21	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.66	4.28	2.0	A
B	0.18	3.51	0.2	A
C	0.48	3.36	0.9	A
D	0.14	2.69	0.2	A

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	100	2533	0.450	1136	0.8	2.571	A
B	149	1116	1554	0.096	149	0.1	2.562	A
C	686	479	2211	0.310	684	0.4	2.357	A
D	146	737	1771	0.082	146	0.1	2.215	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	119	2522	0.539	1359	1.2	3.090	A
B	178	1335	1423	0.125	178	0.1	2.891	A
C	819	573	2153	0.380	818	0.6	2.695	A
D	174	882	1678	0.104	174	0.1	2.394	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	146	2507	0.665	1663	2.0	4.250	A
B	218	1634	1244	0.175	218	0.2	3.508	A
C	1003	701	2074	0.484	1002	0.9	3.351	A
D	214	1080	1551	0.138	213	0.2	2.691	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	146	2506	0.665	1666	2.0	4.282	A
B	218	1637	1242	0.176	218	0.2	3.514	A
C	1003	702	2074	0.484	1003	0.9	3.361	A
D	214	1081	1550	0.138	214	0.2	2.693	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	120	2522	0.539	1363	1.2	3.117	A
B	178	1340	1420	0.125	178	0.1	2.901	A
C	819	575	2152	0.381	820	0.6	2.707	A
D	174	884	1676	0.104	175	0.1	2.396	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	100	2533	0.450	1141	0.8	2.589	A
B	149	1121	1551	0.096	149	0.1	2.567	A
C	686	481	2209	0.310	687	0.5	2.364	A
D	146	740	1769	0.083	146	0.1	2.218	A

APPENDIX 29

Ardley East Roundabout junction option AE-4 – Arcady results

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

Filename: 2031_DS_M40J10_ArdleyEast_OpC_ArdleyEast3.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M40 J10 options\Options Report
Report generation date: 08/04/2021 08:38:36

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	0.8	2.84	0.44						
Arm B	0.2	2.83	0.18						
Arm C	4.8	9.26	0.83						
Arm D	0.2	4.07	0.13						
	2031_DS - 2031_DS_0745								
Arm A				0.8	2.87	0.45			
Arm B				0.2	2.85	0.18			
Arm C				4.0	8.15	0.81			
Arm D				0.1	3.92	0.13			
	2031_DS - 2031_DS_1630								
Arm A							2.0	4.28	0.66
Arm B							0.2	3.51	0.18
Arm C							0.9	3.36	0.48
Arm D							0.2	3.30	0.17

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_ArdleyEast_OpC_ArdleyEast3
Location	M40 J10
Site number	
Date	08/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout C BWB Option: 5 Flowset: ArdleyEast3

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D, E	6.50	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road (S)	
B	Ardley Road (W)	
C	Link Road (N)	
D	Ardley Road (E)	
E	M40 SB On	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.50	10.50	15.0	30.0	85.0	30.0	
B	3.50	8.50	50.0	30.0	85.0	30.0	
C	7.30	10.50	30.0	30.0	85.0	30.0	
D	3.50	8.50	50.0	30.0	85.0	30.0	
E							✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.635	2873
B	0.544	2244
C	0.651	2983
D	0.544	2244
E		

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	912	100.000
B		✓	254	100.000
C		✓	1730	100.000
D		✓	121	100.000
E				

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	49	566	151	146
	B	26	0	35	189	4
	C	1574	17	0	139	0
	D	10	17	86	0	8
	E	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	2	21	0	58
	B	0	0	0	0	0
	C	13	0	0	0	0
	D	0	0	0	0	0
	E	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.44	2.84	0.8	A
B	0.18	2.83	0.2	A
C	0.83	9.26	4.8	A
D	0.13	4.07	0.2	A
E				

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	90	2295	0.299	685	0.4	2.234	A
B	191	713	1772	0.108	191	0.1	2.276	A
C	1302	388	2414	0.539	1298	1.2	3.211	A
D	91	1326	1407	0.065	91	0.1	2.734	A
E		1298						

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	108	2285	0.359	819	0.6	2.455	A
B	228	853	1679	0.136	228	0.2	2.480	A
C	1555	464	2363	0.658	1552	1.9	4.427	A
D	109	1586	1243	0.087	109	0.1	3.172	A
E		1552						

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	132	2273	0.442	1003	0.8	2.834	A
B	280	1044	1553	0.180	279	0.2	2.827	A
C	1905	568	2292	0.831	1894	4.7	8.808	A
D	133	1935	1023	0.130	133	0.1	4.046	A
E		1894						

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	132	2273	0.442	1004	0.8	2.836	A
B	280	1045	1552	0.180	280	0.2	2.829	A
C	1905	568	2291	0.831	1904	4.8	9.263	A
D	133	1945	1017	0.131	133	0.2	4.075	A
E		1904						

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	108	2285	0.359	821	0.6	2.461	A
B	228	854	1678	0.136	229	0.2	2.485	A
C	1555	464	2362	0.658	1567	2.0	4.587	A
D	109	1599	1235	0.088	109	0.1	3.199	A
E		1566						

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	90	2294	0.299	687	0.4	2.241	A
B	191	715	1770	0.108	191	0.1	2.281	A
C	1302	389	2414	0.540	1306	1.2	3.257	A
D	91	1333	1403	0.065	91	0.1	2.744	A
E		1305						

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D, E	5.82	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	927	100.000
B		✓	254	100.000
C		✓	1657	100.000
D		✓	121	100.000
E				

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	49	583	151	144
	B	26	0	36	189	3
	C	1501	17	0	139	0
	D	10	17	87	0	7
	E	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	2	21	0	61
	B	0	0	0	0	0
	C	14	0	0	0	0
	D	0	0	0	0	0
	E	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.45	2.87	0.8	A
B	0.18	2.85	0.2	A
C	0.81	8.15	4.0	A
D	0.13	3.92	0.1	A
E				

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	91	2295	0.304	696	0.4	2.250	A
B	191	725	1764	0.108	191	0.1	2.288	A
C	1247	385	2386	0.523	1243	1.1	3.138	A
D	91	1269	1432	0.064	91	0.1	2.684	A
E		1244						

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	109	2286	0.365	833	0.6	2.478	A
B	228	867	1670	0.137	228	0.2	2.496	A
C	1490	461	2335	0.638	1487	1.7	4.232	A
D	109	1518	1272	0.086	109	0.1	3.093	A
E		1488						

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	133	2273	0.449	1020	0.8	2.871	A
B	280	1061	1541	0.181	279	0.2	2.853	A
C	1824	564	2265	0.805	1815	4.0	7.853	A
D	133	1854	1057	0.126	133	0.1	3.894	A
E		1817						

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	133	2273	0.449	1021	0.8	2.874	A
B	280	1062	1540	0.182	280	0.2	2.854	A
C	1824	565	2265	0.806	1824	4.0	8.148	A
D	133	1862	1052	0.127	133	0.1	3.917	A
E		1825						

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	109	2285	0.365	834	0.6	2.482	A
B	228	869	1669	0.137	229	0.2	2.501	A
C	1490	462	2335	0.638	1499	1.8	4.353	A
D	109	1529	1265	0.086	109	0.1	3.115	A
E		1499						

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	91	2295	0.304	698	0.4	2.257	A
B	191	727	1763	0.108	191	0.1	2.292	A
C	1247	387	2385	0.523	1250	1.1	3.177	A
D	91	1276	1427	0.064	91	0.1	2.693	A
E		1251						

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

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

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1513	100.000
B		✓	198	100.000
C		✓	911	100.000
D		✓	197	100.000
E				

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	112	939	136	326
	B	125	0	22	50	1
	C	830	27	0	54	0
	D	88	20	86	0	3
	E	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	1	10	0	23
	B	2	0	0	0	0
	C	21	0	0	0	0
	D	0	0	0	0	0
	E	Exit-only	Exit-only	Exit-only	Exit-only	Exit-only

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.66	4.28	2.0	A
B	0.18	3.51	0.2	A
C	0.48	3.36	0.9	A
D	0.17	3.30	0.2	A
E				

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	100	2533	0.450	1136	0.8	2.572	A
B	149	1116	1554	0.096	149	0.1	2.562	A
C	686	479	2210	0.310	684	0.4	2.357	A
D	148	983	1606	0.092	148	0.1	2.468	A
E		883						

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	119	2522	0.539	1359	1.2	3.091	A
B	178	1335	1423	0.125	178	0.1	2.891	A
C	819	573	2153	0.380	818	0.6	2.696	A
D	177	1176	1481	0.120	177	0.1	2.759	A
E		1056						

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	146	2506	0.665	1663	2.0	4.251	A
B	218	1634	1244	0.175	218	0.2	3.508	A
C	1003	701	2074	0.484	1002	0.9	3.351	A
D	217	1439	1310	0.166	217	0.2	3.291	A
E		1293						

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	146	2506	0.665	1666	2.0	4.283	A
B	218	1637	1242	0.176	218	0.2	3.514	A
C	1003	702	2074	0.484	1003	0.9	3.361	A
D	217	1441	1309	0.166	217	0.2	3.295	A
E		1295						

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	120	2522	0.539	1363	1.2	3.115	A
B	178	1340	1420	0.125	178	0.1	2.901	A
C	819	575	2152	0.381	820	0.6	2.705	A
D	177	1179	1479	0.120	177	0.1	2.765	A
E		1059						

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	100	2533	0.450	1141	0.8	2.590	A
B	149	1121	1551	0.096	149	0.1	2.569	A
C	686	481	2209	0.310	687	0.5	2.364	A
D	148	987	1604	0.092	148	0.1	2.474	A
E		886						

APPENDIX 30

Ardley East Roundabout junction option AE-5 – Arcady results

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

Filename: 2031_DS_M40J10_ArdleyEast_OpD_ArdleyEast4.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M40 J10 options\Options Report
Report generation date: 08/04/2021 08:53:51

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	1.0	3.46	0.49						
Arm B	0.4	5.41	0.30						
Arm C	1.9	4.43	0.65						
Arm D	0.1	3.24	0.11						
Arm E	3.8	8.45	0.79						
	2031_DS - 2031_DS_0745								
Arm A				1.1	3.74	0.51			
Arm B				0.5	6.06	0.32			
Arm C				1.6	4.11	0.62			
Arm D				0.1	3.11	0.10			
Arm E				4.4	9.14	0.82			
	2031_DS - 2031_DS_1630								
Arm A							12.4	28.45	0.94
Arm B							10.2	156.12	1.04
Arm C							0.5	2.60	0.36
Arm D							0.2	2.91	0.15
Arm E							7.3	12.42	0.89

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_ArdleyEast_OpD_ArdleyEast4
Location	M40 J10
Site number	
Date	08/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout D BWB Option: 6 Flowset: ArdleyEast4

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D, E	5.72	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road (S)	
B	Ardley Road (W)	
C	Link Road (N)	
D	Ardley Road (E)	
E	M40 SB Slips	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.50	14.00	50.0	30.0	85.0	30.0	
B	3.50	10.50	50.0	30.0	85.0	30.0	
C	7.30	10.50	30.0	30.0	85.0	30.0	
D	3.50	8.50	50.0	30.0	85.0	30.0	
E	7.30	14.00	50.0	30.0	85.0	30.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.757	3723
B	0.591	2566
C	0.651	2983
D	0.544	2244
E	0.753	3692

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	912	100.000
B		✓	254	100.000
C		✓	1388	100.000
D		✓	121	100.000
E		✓	1484	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	49	566	151	146
	B	26	0	35	189	4
	C	1240	16	0	132	0
	D	10	17	86	0	8
	E	334	1	1098	7	44

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	2	21	0	58
	B	0	0	0	0	0
	C	8	0	0	0	0
	D	0	0	0	0	0
	E	28	0	17	0	9

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.49	3.46	1.0	A
B	0.30	5.41	0.4	A
C	0.65	4.43	1.9	A
D	0.11	3.24	0.1	A
E	0.79	8.45	3.8	A

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	952	2359	0.291	685	0.4	2.149	A
B	191	1575	1460	0.131	191	0.2	2.833	A
C	1045	426	2480	0.421	1042	0.7	2.497	A
D	91	1108	1563	0.058	91	0.1	2.445	A
E	1117	1047	2390	0.468	1114	0.9	2.815	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	1139	2226	0.368	819	0.6	2.557	A
B	228	1884	1244	0.184	228	0.2	3.544	A
C	1248	509	2422	0.515	1246	1.1	3.060	A
D	109	1325	1429	0.076	109	0.1	2.725	A
E	1334	1253	2250	0.593	1332	1.4	3.909	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	1390	2048	0.490	1003	1.0	3.438	A
B	280	2302	950	0.294	279	0.4	5.356	A
C	1528	623	2342	0.652	1525	1.9	4.389	A
D	133	1622	1247	0.107	133	0.1	3.230	A
E	1634	1533	2061	0.793	1625	3.7	8.103	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	1397	2043	0.491	1004	1.0	3.463	A
B	280	2310	945	0.296	280	0.4	5.412	A
C	1528	624	2341	0.653	1528	1.9	4.427	A
D	133	1625	1245	0.107	133	0.1	3.236	A
E	1634	1536	2059	0.794	1634	3.8	8.453	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	1148	2220	0.369	821	0.6	2.576	A
B	228	1895	1236	0.185	229	0.2	3.579	A
C	1248	511	2421	0.516	1251	1.1	3.088	A
D	109	1330	1426	0.076	109	0.1	2.734	A
E	1334	1257	2248	0.594	1343	1.5	4.021	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	957	2355	0.292	687	0.4	2.158	A
B	191	1582	1456	0.131	192	0.2	2.848	A
C	1045	427	2479	0.421	1046	0.7	2.514	A
D	91	1113	1560	0.058	91	0.1	2.452	A
E	1117	1052	2387	0.468	1120	0.9	2.847	A

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D, E	6.06	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	927	100.000
B		✓	254	100.000
C		✓	1304	100.000
D		✓	121	100.000
E		✓	1618	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	49	583	151	144
	B	26	0	36	189	3
	C	1157	16	0	131	0
	D	10	17	87	0	7
	E	344	1	1227	8	38

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	2	21	0	61
	B	0	0	0	0	0
	C	10	0	0	0	0
	D	0	0	0	0	0
	E	27	0	13	0	5

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.51	3.74	1.1	A
B	0.32	6.06	0.5	A
C	0.62	4.11	1.6	A
D	0.10	3.11	0.1	A
E	0.82	9.14	4.4	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	1046	2317	0.301	696	0.4	2.219	A
B	191	1680	1412	0.135	191	0.2	2.945	A
C	982	420	2446	0.401	979	0.7	2.449	A
D	91	1039	1594	0.057	91	0.1	2.394	A
E	1218	986	2500	0.487	1214	0.9	2.791	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	1251	2177	0.383	833	0.6	2.677	A
B	228	2009	1186	0.193	228	0.2	3.757	A
C	1172	502	2389	0.491	1171	1.0	2.952	A
D	109	1243	1466	0.074	109	0.1	2.651	A
E	1455	1179	2363	0.616	1452	1.6	3.941	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	1526	1988	0.513	1019	1.0	3.709	A
B	280	2454	880	0.318	279	0.5	5.974	A
C	1436	614	2312	0.621	1433	1.6	4.085	A
D	133	1521	1293	0.103	133	0.1	3.104	A
E	1781	1443	2175	0.819	1771	4.3	8.671	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	1534	1982	0.515	1021	1.1	3.742	A
B	280	2464	874	0.320	280	0.5	6.057	A
C	1436	615	2311	0.621	1436	1.6	4.114	A
D	133	1524	1291	0.103	133	0.1	3.109	A
E	1781	1446	2174	0.820	1781	4.4	9.140	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	1262	2169	0.384	835	0.6	2.703	A
B	228	2022	1177	0.194	229	0.2	3.800	A
C	1172	504	2388	0.491	1175	1.0	2.973	A
D	109	1247	1464	0.074	109	0.1	2.656	A
E	1455	1183	2360	0.616	1466	1.6	4.075	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	1052	2313	0.302	699	0.4	2.231	A
B	191	1688	1407	0.136	192	0.2	2.964	A
C	982	421	2445	0.402	983	0.7	2.465	A
D	91	1043	1591	0.057	91	0.1	2.401	A
E	1218	990	2498	0.488	1221	1.0	2.827	A

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D, E	21.40	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1513	100.000
B		✓	198	100.000
C		✓	691	100.000
D		✓	197	100.000
E		✓	2004	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	112	939	136	326
	B	125	0	22	50	1
	C	620	24	0	47	0
	D	88	20	86	0	3
	E	210	3	1717	7	67

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	1	10	0	23
	B	2	0	0	0	0
	C	15	0	0	0	0
	D	0	0	0	0	0
	E	39	0	11	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.94	28.45	12.4	D
B	1.04	156.12	10.2	F
C	0.36	2.60	0.5	A
D	0.15	2.91	0.2	A
E	0.89	12.42	7.3	B

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	1444	2275	0.501	1135	1.0	3.148	A
B	149	2460	948	0.157	148	0.2	4.498	A
C	520	534	2289	0.227	519	0.3	2.032	A
D	148	873	1700	0.087	148	0.1	2.320	A
E	1509	723	2729	0.553	1504	1.2	2.926	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	1726	2064	0.659	1357	1.9	5.065	A
B	178	2940	637	0.279	177	0.4	7.817	A
C	621	638	2223	0.279	621	0.4	2.246	A
D	177	1044	1593	0.111	177	0.1	2.542	A
E	1802	865	2625	0.686	1798	2.2	4.331	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	2101	1783	0.934	1632	10.3	20.538	C
B	218	3561	235	0.927	199	5.2	77.306	F
C	761	756	2148	0.354	760	0.5	2.592	A
D	217	1260	1458	0.149	217	0.2	2.900	A
E	2206	1047	2492	0.886	2187	7.0	11.183	B

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	2117	1771	0.941	1658	12.4	28.454	D
B	218	3600	210	1.041	198	10.2	156.123	F
C	761	764	2143	0.355	761	0.5	2.604	A
D	217	1266	1453	0.149	217	0.2	2.910	A
E	2206	1048	2491	0.886	2205	7.3	12.418	B

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	1748	2047	0.664	1402	2.0	5.927	A
B	178	3003	596	0.299	217	0.4	10.516	B
C	621	688	2193	0.283	622	0.4	2.293	A
D	177	1080	1571	0.113	177	0.1	2.582	A
E	1802	891	2608	0.691	1822	2.3	4.696	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	1452	2269	0.502	1143	1.0	3.210	A
B	149	2475	938	0.159	150	0.2	4.574	A
C	520	538	2287	0.227	521	0.3	2.040	A
D	148	878	1697	0.087	148	0.1	2.326	A
E	1509	726	2727	0.553	1513	1.2	2.977	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

Filename: 2031_DS_M40J10_ArdleyEast_OpD_ArdleyEast8.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M40 J10 options\Options Report
Report generation date: 08/04/2021 10:10:00

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	0.9	3.12	0.47						
Arm B	0.2	2.66	0.17						
Arm C	1.9	4.43	0.65						
Arm D	0.1	3.24	0.11						
Arm E	1.4	7.73	0.58						
	2031_DS - 2031_DS_0745								
Arm A				0.9	3.13	0.47			
Arm B				0.2	2.66	0.17			
Arm C				1.6	4.11	0.62			
Arm D				0.1	3.11	0.10			
Arm E				1.2	7.01	0.55			
	2031_DS - 2031_DS_1630								
Arm A							2.4	5.23	0.71
Arm B							0.2	3.42	0.17
Arm C							0.6	2.63	0.36
Arm D							0.2	2.93	0.15
Arm E							0.7	4.86	0.42

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_ArdleyEast_OpD_ArdleyEast8
Location	M40 J10
Site number	
Date	08/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout D BWB Option: 17 Flowset: ArdleyEast8

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

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

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road (S)	
B	Ardley Road (W)	
C	Link Road (N)	
D	Ardley Road (E)	
E	M40 SB Slips	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.50	10.50	20.0	30.0	85.0	30.0	
B	3.50	10.50	50.0	30.0	85.0	30.0	
C	7.30	10.50	30.0	30.0	85.0	30.0	
D	3.50	8.50	50.0	30.0	85.0	30.0	
E	7.30	7.30	0.0	30.0	85.0	30.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.644	2934
B	0.591	2566
C	0.651	2983
D	0.544	2244
E	0.545	2248

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	912	100.000
B		✓	254	100.000
C		✓	1388	100.000
D		✓	121	100.000
E		✓	587	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	49	566	151	146
	B	26	0	35	189	4
	C	1240	16	0	132	0
	D	10	17	86	0	8
	E	334	1	201	7	44

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	2	21	0	58
	B	0	0	0	0	0
	C	8	0	0	0	0
	D	0	0	0	0	0
	E	28	0	14	0	9

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.47	3.12	0.9	A
B	0.17	2.66	0.2	A
C	0.65	4.43	1.9	A
D	0.11	3.24	0.1	A
E	0.58	7.73	1.4	A

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	279	2232	0.308	685	0.4	2.325	A
B	191	901	1928	0.099	191	0.1	2.072	A
C	1045	426	2480	0.421	1042	0.7	2.497	A
D	91	1108	1563	0.058	91	0.1	2.445	A
E	442	1047	1347	0.328	440	0.5	3.961	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	334	2201	0.373	819	0.6	2.604	A
B	228	1079	1803	0.127	228	0.1	2.285	A
C	1248	509	2422	0.515	1246	1.1	3.060	A
D	109	1326	1429	0.076	109	0.1	2.725	A
E	528	1253	1248	0.423	527	0.7	4.985	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	408	2158	0.465	1003	0.9	3.113	A
B	280	1320	1632	0.171	279	0.2	2.661	A
C	1528	623	2342	0.653	1525	1.9	4.394	A
D	133	1622	1247	0.107	133	0.1	3.230	A
E	646	1533	1113	0.581	644	1.4	7.628	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	410	2158	0.465	1004	0.9	3.120	A
B	280	1322	1630	0.172	280	0.2	2.664	A
C	1528	624	2341	0.653	1528	1.9	4.427	A
D	133	1625	1245	0.107	133	0.1	3.236	A
E	646	1536	1112	0.581	646	1.4	7.731	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	336	2200	0.373	821	0.6	2.614	A
B	228	1082	1801	0.127	229	0.1	2.291	A
C	1248	511	2421	0.515	1251	1.1	3.084	A
D	109	1330	1427	0.076	109	0.1	2.733	A
E	528	1257	1246	0.424	530	0.7	5.048	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	281	2231	0.308	687	0.4	2.334	A
B	191	905	1926	0.099	191	0.1	2.077	A
C	1045	427	2479	0.421	1046	0.7	2.516	A
D	91	1113	1560	0.058	91	0.1	2.452	A
E	442	1052	1345	0.329	443	0.5	3.995	A

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D, E	4.22	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	927	100.000
B		✓	254	100.000
C		✓	1304	100.000
D		✓	121	100.000
E		✓	575	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	49	583	151	144
	B	26	0	36	189	3
	C	1157	16	0	131	0
	D	10	17	87	0	7
	E	344	1	184	8	38

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	2	21	0	61
	B	0	0	0	0	0
	C	10	0	0	0	0
	D	0	0	0	0	0
	E	27	0	15	0	5

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.47	3.13	0.9	A
B	0.17	2.66	0.2	A
C	0.62	4.11	1.6	A
D	0.10	3.11	0.1	A
E	0.55	7.01	1.2	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	263	2242	0.311	696	0.5	2.327	A
B	191	897	1931	0.099	191	0.1	2.069	A
C	982	420	2446	0.401	979	0.7	2.449	A
D	91	1039	1594	0.057	91	0.1	2.394	A
E	433	986	1372	0.316	431	0.5	3.820	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	315	2212	0.377	833	0.6	2.607	A
B	228	1073	1806	0.126	228	0.1	2.281	A
C	1172	502	2389	0.491	1171	1.0	2.953	A
D	109	1243	1466	0.074	109	0.1	2.651	A
E	517	1179	1277	0.405	516	0.7	4.724	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	385	2172	0.470	1020	0.9	3.119	A
B	280	1314	1636	0.171	279	0.2	2.654	A
C	1436	615	2311	0.621	1433	1.6	4.088	A
D	133	1521	1292	0.103	133	0.1	3.105	A
E	633	1443	1148	0.551	631	1.2	6.931	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	386	2172	0.470	1021	0.9	3.126	A
B	280	1316	1634	0.171	280	0.2	2.657	A
C	1436	615	2311	0.621	1436	1.6	4.114	A
D	133	1524	1291	0.103	133	0.1	3.109	A
E	633	1446	1147	0.552	633	1.2	7.005	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	317	2212	0.377	834	0.6	2.617	A
B	228	1076	1804	0.127	229	0.1	2.287	A
C	1172	503	2388	0.491	1175	1.0	2.974	A
D	109	1247	1464	0.074	109	0.1	2.658	A
E	517	1183	1275	0.405	519	0.7	4.771	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	265	2241	0.311	699	0.5	2.336	A
B	191	901	1928	0.099	191	0.1	2.074	A
C	982	421	2445	0.401	983	0.7	2.465	A
D	91	1043	1591	0.057	91	0.1	2.401	A
E	433	990	1370	0.316	434	0.5	3.848	A

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D, E	4.34	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1513	100.000
B		✓	198	100.000
C		✓	691	100.000
D		✓	197	100.000
E		✓	488	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	112	939	136	326
	B	125	0	22	50	1
	C	620	24	0	47	0
	D	88	20	86	0	3
	E	210	3	201	7	67

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	1	10	0	23
	B	2	0	0	0	0
	C	15	0	0	0	0
	D	0	0	0	0	0
	E	39	0	23	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.71	5.23	2.4	A
B	0.17	3.42	0.2	A
C	0.36	2.63	0.6	A
D	0.15	2.93	0.2	A
E	0.42	4.86	0.7	A

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	306	2447	0.466	1136	0.9	2.739	A
B	149	1322	1675	0.089	149	0.1	2.359	A
C	520	534	2289	0.227	519	0.3	2.033	A
D	148	873	1699	0.087	148	0.1	2.320	A
E	367	723	1438	0.256	366	0.3	3.355	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	366	2408	0.565	1358	1.3	3.425	A
B	178	1582	1505	0.118	178	0.1	2.713	A
C	621	639	2223	0.280	621	0.4	2.247	A
D	177	1045	1592	0.111	177	0.1	2.543	A
E	439	865	1370	0.320	438	0.5	3.861	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	449	2355	0.708	1661	2.4	5.163	A
B	218	1935	1273	0.171	218	0.2	3.410	A
C	761	782	2132	0.357	760	0.6	2.623	A
D	217	1279	1446	0.150	217	0.2	2.927	A
E	537	1059	1278	0.420	536	0.7	4.846	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	449	2354	0.708	1666	2.4	5.228	A
B	218	1940	1270	0.172	218	0.2	3.420	A
C	761	784	2131	0.357	761	0.6	2.627	A
D	217	1280	1445	0.150	217	0.2	2.930	A
E	537	1060	1278	0.420	537	0.7	4.861	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	367	2407	0.565	1364	1.3	3.466	A
B	178	1589	1500	0.119	178	0.1	2.725	A
C	621	642	2221	0.280	622	0.4	2.253	A
D	177	1047	1591	0.111	177	0.1	2.548	A
E	439	867	1370	0.320	440	0.5	3.875	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	308	2446	0.466	1141	0.9	2.761	A
B	149	1328	1671	0.089	149	0.1	2.365	A
C	520	537	2288	0.227	521	0.3	2.038	A
D	148	876	1697	0.087	148	0.1	2.323	A
E	367	726	1437	0.256	368	0.3	3.372	A

APPENDIX 31

Ardley East Roundabout junction option AE-6 – Arcady results

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

Filename: 2031_DS_M40J10_ArdleyEast_OpE_ArdleyEast5.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M40 J10 options\Options Report
Report generation date: 08/04/2021 09:01:00

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	0.8	2.99	0.45						
Arm B	2.3	4.76	0.70						
Arm C	0.1	3.21	0.11						
Arm D	3.3	7.42	0.77						
	2031_DS - 2031_DS_0745								
Arm A				0.9	3.20	0.48			
Arm B				2.0	4.39	0.67			
Arm C				0.1	3.09	0.10			
Arm D				3.8	7.93	0.80			
	2031_DS - 2031_DS_1630								
Arm A							5.9	13.38	0.86
Arm B							0.7	2.65	0.41
Arm C							0.2	2.90	0.15
Arm D							6.1	10.21	0.86

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_ArdleyEast_OpE_ArdleyEast5
Location	M40 J10
Site number	
Date	08/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout E BWB Option: 7, 8, 9 Flowset: ArdleyEast5

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D	5.30	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road (S)	
B	Link Road (N)	
C	Ardley Road (E)	
D	M40 SB Slips	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.50	14.00	70.0	30.0	85.0	20.0	
B	7.30	10.50	30.0	30.0	85.0	30.0	
C	3.50	8.50	50.0	30.0	85.0	30.0	
D	7.30	14.00	60.0	30.0	85.0	30.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.802	3984
B	0.651	2983
C	0.544	2244
D	0.764	3768

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	912	100.000
B		✓	1591	100.000
C		✓	121	100.000
D		✓	1484	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	615	151	146
	B	1266	0	321	4
	C	10	103	0	8
	D	334	1099	7	44

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	20	0	58
	B	8	0	0	0
	C	0	0	0	0
	D	28	17	0	9

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.45	2.99	0.8	A
B	0.70	4.76	2.3	A
C	0.11	3.21	0.1	A
D	0.77	7.42	3.3	A

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	941	2540	0.270	685	0.4	1.939	A
B	1198	261	2601	0.460	1194	0.8	2.552	A
C	91	1096	1569	0.058	91	0.1	2.435	A
D	1117	1035	2450	0.456	1114	0.8	2.687	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	1125	2401	0.341	819	0.5	2.276	A
B	1430	313	2562	0.558	1429	1.3	3.172	A
C	109	1311	1437	0.076	109	0.1	2.710	A
D	1334	1238	2311	0.577	1332	1.4	3.671	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	1374	2214	0.454	1003	0.8	2.971	A
B	1752	382	2508	0.698	1748	2.3	4.706	A
C	133	1604	1257	0.106	133	0.1	3.204	A
D	1634	1515	2120	0.771	1626	3.2	7.185	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	1379	2209	0.455	1004	0.8	2.986	A
B	1752	383	2508	0.698	1752	2.3	4.758	A
C	133	1607	1254	0.106	133	0.1	3.210	A
D	1634	1518	2118	0.772	1634	3.3	7.425	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	1133	2395	0.342	821	0.5	2.290	A
B	1430	314	2561	0.558	1434	1.3	3.207	A
C	109	1316	1434	0.076	109	0.1	2.717	A
D	1334	1243	2307	0.578	1342	1.4	3.760	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	945	2536	0.271	687	0.4	1.948	A
B	1198	262	2601	0.461	1199	0.9	2.571	A
C	91	1101	1566	0.058	91	0.1	2.441	A
D	1117	1040	2447	0.457	1119	0.8	2.714	A

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D	5.47	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	927	100.000
B		✓	1506	100.000
C		✓	121	100.000
D		✓	1618	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	632	151	144
	B	1183	0	320	3
	C	10	104	0	7
	D	344	1228	8	38

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	19	0	61
	B	10	0	0	0
	C	0	0	0	0
	D	27	13	0	5

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.48	3.20	0.9	A
B	0.67	4.39	2.0	A
C	0.10	3.09	0.1	A
D	0.80	7.93	3.8	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	1034	2495	0.280	696	0.4	1.999	A
B	1134	256	2568	0.441	1131	0.8	2.499	A
C	91	1027	1599	0.057	91	0.1	2.386	A
D	1218	974	2563	0.475	1215	0.9	2.664	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	1237	2348	0.355	833	0.5	2.374	A
B	1354	306	2530	0.535	1352	1.1	3.053	A
C	109	1229	1473	0.074	109	0.1	2.638	A
D	1455	1165	2424	0.600	1452	1.5	3.693	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	1510	2149	0.475	1019	0.9	3.181	A
B	1658	375	2478	0.669	1655	2.0	4.355	A
C	133	1503	1301	0.102	133	0.1	3.083	A
D	1781	1425	2236	0.797	1772	3.8	7.617	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	1517	2144	0.476	1021	0.9	3.203	A
B	1658	375	2477	0.669	1658	2.0	4.394	A
C	133	1506	1299	0.103	133	0.1	3.088	A
D	1781	1428	2234	0.797	1781	3.8	7.930	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	1246	2341	0.356	835	0.6	2.391	A
B	1354	307	2529	0.535	1357	1.2	3.079	A
C	109	1233	1470	0.074	109	0.1	2.646	A
D	1455	1169	2422	0.601	1464	1.5	3.797	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	1039	2492	0.280	699	0.4	2.008	A
B	1134	257	2568	0.442	1135	0.8	2.517	A
C	91	1031	1597	0.057	91	0.1	2.390	A
D	1218	978	2560	0.476	1221	0.9	2.692	A

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D	9.58	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1513	100.000
B		✓	843	100.000
C		✓	197	100.000
D		✓	2004	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	1051	136	326
	B	745	0	97	1
	C	88	106	0	3
	D	210	1720	7	67

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	9	0	23
	B	13	0	0	0
	C	0	0	0	0
	D	39	11	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.86	13.38	5.9	B
B	0.41	2.65	0.7	A
C	0.15	2.90	0.2	A
D	0.86	10.21	6.1	B

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	1426	2458	0.463	1136	0.9	2.715	A
B	635	402	2411	0.263	633	0.4	2.022	A
C	148	855	1709	0.087	148	0.1	2.306	A
D	1509	705	2800	0.539	1504	1.2	2.768	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	1705	2237	0.608	1357	1.5	4.082	A
B	758	481	2359	0.321	757	0.5	2.247	A
C	177	1023	1604	0.110	177	0.1	2.522	A
D	1802	844	2697	0.668	1798	2.0	3.991	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	2078	1940	0.858	1650	5.5	11.793	B
B	928	585	2290	0.405	927	0.7	2.640	A
C	217	1249	1462	0.148	217	0.2	2.889	A
D	2206	1033	2557	0.863	2191	5.9	9.473	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	2091	1930	0.863	1664	5.9	13.376	B
B	928	590	2287	0.406	928	0.7	2.649	A
C	217	1254	1460	0.149	217	0.2	2.896	A
D	2206	1034	2556	0.863	2206	6.1	10.209	B

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	1723	2223	0.612	1378	1.6	4.344	A
B	758	488	2354	0.322	759	0.5	2.256	A
C	177	1029	1600	0.111	177	0.1	2.529	A
D	1802	845	2696	0.668	1818	2.0	4.173	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	1434	2452	0.464	1142	0.9	2.752	A
B	635	405	2410	0.263	635	0.4	2.030	A
C	148	859	1707	0.087	148	0.1	2.309	A
D	1509	707	2798	0.539	1512	1.2	2.806	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

Filename: 2031_DS_M40J10_ArdleyEast_OpE_ArdleyEast6.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M40 J10 options\Options Report
Report generation date: 08/04/2021 09:05:05

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	0.8	2.99	0.45						
Arm B	4.2	7.76	0.81						
Arm C	0.1	3.76	0.12						
Arm D	3.3	7.42	0.77						
	2031_DS - 2031_DS_0745								
Arm A				0.9	3.20	0.48			
Arm B				3.7	7.05	0.79			
Arm C				0.1	3.64	0.12			
Arm D				3.8	7.93	0.80			
	2031_DS - 2031_DS_1630								
Arm A							5.9	13.38	0.86
Arm B							1.1	3.31	0.52
Arm C							0.2	3.31	0.17
Arm D							6.1	10.21	0.86

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_ArdleyEast_OpE_ArdleyEast6
Location	M40 J10
Site number	
Date	08/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout E BWB Option: 10, 11, 12, 13 Flowset: ArdleyEast6

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D	6.47	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road (S)	
B	Link Road (N)	
C	Ardley Road (E)	
D	M40 SB Slips	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.50	14.00	70.0	30.0	85.0	20.0	
B	7.30	10.50	30.0	30.0	85.0	30.0	
C	3.50	8.50	50.0	30.0	85.0	30.0	
D	7.30	14.00	60.0	30.0	85.0	30.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.802	3984
B	0.651	2983
C	0.544	2244
D	0.764	3768

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	912	100.000
B		✓	1810	100.000
C		✓	121	100.000
D		✓	1484	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	615	151	146
	B	1266	0	321	223
	C	10	103	0	8
	D	334	1099	7	44

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	20	0	58
	B	8	0	0	25
	C	0	0	0	0
	D	28	17	0	9

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.45	2.99	0.8	A
B	0.81	7.76	4.2	A
C	0.12	3.76	0.1	A
D	0.77	7.42	3.3	A

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	941	2540	0.270	685	0.4	1.939	A
B	1363	261	2547	0.535	1358	1.1	3.017	A
C	91	1260	1458	0.063	91	0.1	2.634	A
D	1117	1035	2451	0.456	1114	0.8	2.686	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	1125	2401	0.341	819	0.5	2.276	A
B	1627	313	2509	0.649	1624	1.8	4.059	A
C	109	1507	1303	0.083	109	0.1	3.013	A
D	1334	1238	2311	0.577	1332	1.4	3.669	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	1374	2214	0.454	1003	0.8	2.971	A
B	1993	382	2456	0.811	1984	4.1	7.476	A
C	133	1841	1095	0.122	133	0.1	3.742	A
D	1634	1512	2122	0.770	1626	3.2	7.155	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	1379	2209	0.455	1004	0.8	2.986	A
B	1993	383	2456	0.812	1992	4.2	7.755	A
C	133	1848	1090	0.122	133	0.1	3.760	A
D	1634	1518	2118	0.772	1634	3.3	7.423	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	1133	2395	0.342	821	0.5	2.290	A
B	1627	314	2508	0.649	1637	1.9	4.175	A
C	109	1518	1297	0.084	109	0.1	3.030	A
D	1334	1246	2305	0.579	1342	1.4	3.769	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	945	2536	0.271	687	0.4	1.948	A
B	1363	262	2547	0.535	1366	1.2	3.054	A
C	91	1267	1453	0.063	91	0.1	2.644	A
D	1117	1040	2447	0.457	1119	0.8	2.717	A

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D	6.42	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	927	100.000
B		✓	1751	100.000
C		✓	121	100.000
D		✓	1618	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	632	151	144
	B	1183	0	320	248
	C	10	104	0	7
	D	344	1228	8	38

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	19	0	61
	B	10	0	0	20
	C	0	0	0	0
	D	27	13	0	5

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.48	3.20	0.9	A
B	0.79	7.05	3.7	A
C	0.12	3.64	0.1	A
D	0.80	7.93	3.8	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	1034	2495	0.280	696	0.4	1.999	A
B	1318	256	2527	0.522	1314	1.1	2.956	A
C	91	1210	1479	0.062	91	0.1	2.593	A
D	1218	973	2563	0.475	1215	0.9	2.663	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	1237	2348	0.355	833	0.5	2.374	A
B	1574	306	2490	0.632	1572	1.7	3.912	A
C	109	1448	1329	0.082	109	0.1	2.949	A
D	1455	1164	2425	0.600	1452	1.5	3.691	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	1510	2149	0.475	1019	0.9	3.181	A
B	1928	375	2438	0.791	1920	3.6	6.846	A
C	133	1769	1126	0.118	133	0.1	3.625	A
D	1781	1423	2238	0.796	1772	3.7	7.588	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	1517	2144	0.476	1021	0.9	3.203	A
B	1928	375	2438	0.791	1928	3.7	7.045	A
C	133	1776	1122	0.119	133	0.1	3.640	A
D	1781	1428	2234	0.797	1781	3.8	7.927	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	1246	2341	0.356	835	0.6	2.393	A
B	1574	307	2489	0.632	1582	1.7	4.004	A
C	109	1457	1324	0.082	109	0.1	2.963	A
D	1455	1171	2420	0.601	1464	1.5	3.801	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	1039	2492	0.280	699	0.4	2.008	A
B	1318	257	2527	0.522	1321	1.1	2.993	A
C	91	1217	1475	0.062	91	0.1	2.600	A
D	1218	978	2559	0.476	1221	0.9	2.695	A

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm C - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D	9.41	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1513	100.000
B		✓	1058	100.000
C		✓	197	100.000
D		✓	2004	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	1051	136	326
	B	745	0	97	216
	C	88	106	0	3
	D	210	1720	7	67

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	9	0	23
	B	13	0	0	20
	C	0	0	0	0
	D	39	11	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.86	13.38	5.9	B
B	0.52	3.31	1.1	A
C	0.17	3.31	0.2	A
D	0.86	10.21	6.1	B

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	1426	2458	0.463	1136	0.9	2.715	A
B	797	402	2374	0.336	795	0.5	2.276	A
C	148	1017	1604	0.092	148	0.1	2.473	A
D	1509	705	2800	0.539	1504	1.2	2.768	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	1705	2237	0.608	1357	1.5	4.082	A
B	951	481	2322	0.410	950	0.7	2.622	A
C	177	1216	1478	0.120	177	0.1	2.766	A
D	1802	843	2697	0.668	1798	2.0	3.991	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	2078	1940	0.858	1650	5.5	11.793	B
B	1165	585	2254	0.517	1163	1.1	3.296	A
C	217	1485	1308	0.166	217	0.2	3.298	A
D	2206	1033	2557	0.863	2191	5.8	9.467	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	2091	1930	0.863	1664	5.9	13.375	B
B	1165	590	2251	0.518	1165	1.1	3.313	A
C	217	1490	1305	0.166	217	0.2	3.307	A
D	2206	1034	2556	0.863	2206	6.1	10.209	B

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	1723	2223	0.612	1378	1.6	4.344	A
B	951	488	2318	0.410	953	0.7	2.639	A
C	177	1223	1474	0.120	177	0.1	2.779	A
D	1802	845	2696	0.668	1818	2.0	4.175	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	1434	2452	0.464	1142	0.9	2.752	A
B	797	405	2372	0.336	797	0.5	2.288	A
C	148	1021	1601	0.093	148	0.1	2.478	A
D	1509	708	2798	0.539	1512	1.2	2.806	A

APPENDIX 32

Ardley East Roundabout junction option AE-7 – Arcady results

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

Filename: 2031_DS_M40J10_ArdleyEast_OpF_ArdleyEast7.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M40 J10 options\Options Report
Report generation date: 08/04/2021 09:29:34

Summary of junction performance

	AM1			AM2			PM		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	2031_DS - 2031_DS_0645								
Arm A	0.8	2.85	0.44						
Arm B	0.3	3.77	0.23						
Arm C	1.5	3.59	0.60						
Arm D	0.1	2.81	0.09						
Arm E	0.7	3.69	0.40						
	2031_DS - 2031_DS_0745								
Arm A				0.8	2.85	0.45			
Arm B				0.3	3.75	0.23			
Arm C				1.4	3.41	0.58			
Arm D				0.1	2.72	0.09			
Arm E				0.6	3.48	0.38			
	2031_DS - 2031_DS_1630								
Arm A							2.0	4.43	0.67
Arm B							0.3	5.11	0.24
Arm C							0.5	2.16	0.31
Arm D							0.1	2.38	0.13
Arm E							0.4	2.81	0.30

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	2031_DS_M40J10_ArdleyEast_OpF_ArdleyEast7
Location	M40 J10
Site number	
Date	08/04/2021
Version	V1
Status	Preliminary
Identifier	M Tatler
Client	
Jobnumber	ADC1794
Enumerator	M Tatler
Description	Option Layout F BWB Option: 16 Flowset: ArdleyEast7

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031_DS	100.000

2031_DS - 2031_DS_0645, AM1

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D, E	3.37	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	Link Road (S)	
B	Ardley Road (W)	
C	Link Road (N)	
D	Ardley Road (E)	
E	M40 SB Slips	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	7.50	10.50	50.0	30.0	85.0	30.0	
B	3.50	7.50	50.0	30.0	85.0	30.0	
C	7.30	10.50	30.0	30.0	85.0	30.0	
D	3.50	8.50	50.0	30.0	85.0	30.0	
E	7.30	10.50	50.0	30.0	85.0	30.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.665	3085
B	0.518	2058
C	0.651	2983
D	0.544	2244
E	0.663	3066

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS_0645	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	912	100.000
B		✓	254	100.000
C		✓	1388	100.000
D		✓	121	100.000
E		✓	587	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	49	712	151	0
	B	26	0	39	189	0
	C	1240	16	0	132	0
	D	10	17	94	0	0
	E	334	1	245	7	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	2	29	0	0
	B	0	0	0	0	0
	C	8	0	0	0	0
	D	0	0	0	0	0
	E	28	0	13	0	9

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.44	2.85	0.8	A
B	0.23	3.77	0.3	A
C	0.60	3.59	1.5	A
D	0.09	2.81	0.1	A
E	0.40	3.69	0.7	A

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	285	2347	0.293	685	0.4	2.164	A
B	191	908	1496	0.128	191	0.1	2.756	A
C	1045	280	2609	0.400	1042	0.7	2.293	A
D	91	963	1679	0.054	91	0.1	2.267	A
E	442	1054	1908	0.232	441	0.3	2.451	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	341	2314	0.354	819	0.5	2.409	A
B	228	1086	1386	0.165	228	0.2	3.110	A
C	1248	335	2576	0.484	1247	0.9	2.705	A
D	109	1152	1568	0.069	109	0.1	2.467	A
E	528	1260	1787	0.295	527	0.4	2.858	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	418	2269	0.443	1003	0.8	2.843	A
B	280	1330	1235	0.227	279	0.3	3.765	A
C	1528	410	2530	0.604	1526	1.5	3.577	A
D	133	1409	1416	0.094	133	0.1	2.805	A
E	646	1542	1622	0.399	645	0.7	3.683	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1004	418	2268	0.443	1004	0.8	2.846	A
B	280	1331	1234	0.227	280	0.3	3.771	A
C	1528	411	2530	0.604	1528	1.5	3.592	A
D	133	1411	1415	0.094	133	0.1	2.808	A
E	646	1545	1620	0.399	646	0.7	3.694	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	820	342	2313	0.354	821	0.6	2.413	A
B	228	1088	1384	0.165	229	0.2	3.118	A
C	1248	336	2575	0.484	1250	0.9	2.720	A
D	109	1155	1566	0.069	109	0.1	2.470	A
E	528	1263	1785	0.296	529	0.4	2.869	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	687	286	2346	0.293	687	0.4	2.170	A
B	191	911	1494	0.128	191	0.1	2.765	A
C	1045	281	2609	0.401	1046	0.7	2.306	A
D	91	966	1677	0.054	91	0.1	2.272	A
E	442	1057	1906	0.232	442	0.3	2.462	A

2031_DS - 2031_DS_0745, AM2

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D, E	3.25	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS_0745	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	927	100.000
B		✓	254	100.000
C		✓	1304	100.000
D		✓	121	100.000
E		✓	575	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	49	727	151	0
	B	26	0	39	189	0
	C	1157	16	0	131	0
	D	10	17	94	0	0
	E	344	1	222	8	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	2	29	0	61
	B	0	0	0	0	0
	C	10	0	0	0	0
	D	0	0	0	0	0
	E	27	0	13	0	5

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.45	2.85	0.8	A
B	0.23	3.75	0.3	A
C	0.58	3.41	1.4	A
D	0.09	2.72	0.1	A
E	0.38	3.48	0.6	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	269	2358	0.296	696	0.4	2.164	A
B	191	903	1499	0.128	191	0.1	2.749	A
C	982	281	2570	0.382	979	0.6	2.261	A
D	91	900	1706	0.053	91	0.1	2.228	A
E	433	991	1943	0.223	432	0.3	2.381	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	322	2328	0.358	833	0.6	2.408	A
B	228	1080	1390	0.164	228	0.2	3.099	A
C	1172	336	2537	0.462	1171	0.9	2.635	A
D	109	1077	1601	0.068	109	0.1	2.412	A
E	517	1186	1827	0.283	516	0.4	2.746	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	394	2285	0.447	1020	0.8	2.840	A
B	280	1322	1239	0.226	279	0.3	3.746	A
C	1436	411	2492	0.576	1434	1.3	3.397	A
D	133	1318	1457	0.091	133	0.1	2.719	A
E	633	1451	1669	0.379	632	0.6	3.469	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1021	394	2285	0.447	1021	0.8	2.846	A
B	280	1323	1239	0.226	280	0.3	3.752	A
C	1436	412	2491	0.576	1436	1.4	3.409	A
D	133	1320	1456	0.092	133	0.1	2.721	A
E	633	1453	1668	0.380	633	0.6	3.478	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	833	322	2327	0.358	834	0.6	2.412	A
B	228	1082	1388	0.164	229	0.2	3.107	A
C	1172	337	2536	0.462	1174	0.9	2.648	A
D	109	1080	1599	0.068	109	0.1	2.417	A
E	517	1189	1826	0.283	518	0.4	2.753	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	698	270	2358	0.296	698	0.4	2.171	A
B	191	906	1497	0.128	191	0.1	2.756	A
C	982	282	2569	0.382	983	0.6	2.272	A
D	91	904	1704	0.053	91	0.1	2.233	A
E	433	995	1941	0.223	433	0.3	2.387	A

2031_DS - 2031_DS_1630, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	Arm A - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm B - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm D - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.
Warning	Geometry	Arm E - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Ardley East	Standard Roundabout		A, B, C, D, E	3.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS_1630	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	1513	100.000
B		✓	198	100.000
C		✓	691	100.000
D		✓	197	100.000
E		✓	488	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		A	B	C	D	E
From	A	0	112	1265	136	0
	B	125	0	23	50	0
	C	620	24	0	47	0
	D	88	20	89	0	0
	E	210	3	268	7	0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A	B	C	D	E
From	A	0	1	13	0	23
	B	2	0	0	0	0
	C	15	0	0	0	0
	D	0	0	0	0	0
	E	39	0	18	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
A	0.67	4.43	2.0	A
B	0.24	5.11	0.3	A
C	0.31	2.16	0.5	A
D	0.13	2.38	0.1	A
E	0.30	2.81	0.4	A

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	309	2574	0.442	1136	0.8	2.498	A
B	149	1325	1277	0.117	149	0.1	3.187	A
C	520	239	2491	0.209	519	0.3	1.825	A
D	148	578	1891	0.078	148	0.1	2.065	A
E	367	726	2011	0.183	367	0.2	2.188	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	369	2534	0.537	1359	1.2	3.059	A
B	178	1585	1128	0.158	178	0.2	3.787	A
C	621	286	2464	0.252	621	0.3	1.953	A
D	177	691	1822	0.097	177	0.1	2.188	A
E	439	868	1929	0.227	438	0.3	2.415	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	452	2478	0.672	1662	2.0	4.393	A
B	218	1940	925	0.236	218	0.3	5.087	A
C	761	349	2427	0.313	760	0.5	2.160	A
D	217	846	1727	0.126	217	0.1	2.383	A
E	537	1063	1816	0.296	537	0.4	2.812	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1666	453	2478	0.672	1666	2.0	4.431	A
B	218	1943	923	0.236	218	0.3	5.107	A
C	761	350	2427	0.314	761	0.5	2.160	A
D	217	847	1726	0.126	217	0.1	2.384	A
E	537	1064	1816	0.296	537	0.4	2.815	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1360	370	2533	0.537	1364	1.2	3.085	A
B	178	1590	1125	0.158	178	0.2	3.806	A
C	621	287	2463	0.252	622	0.3	1.954	A
D	177	692	1821	0.097	177	0.1	2.190	A
E	439	869	1928	0.228	439	0.3	2.420	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
A	1139	310	2574	0.443	1141	0.8	2.514	A
B	149	1330	1274	0.117	149	0.1	3.201	A
C	520	240	2490	0.209	521	0.3	1.829	A
D	148	579	1890	0.078	148	0.1	2.068	A
E	367	728	2009	0.183	368	0.2	2.192	A

APPENDIX 33

Ardley East Roundabout junction option AE-6 – LinSig results

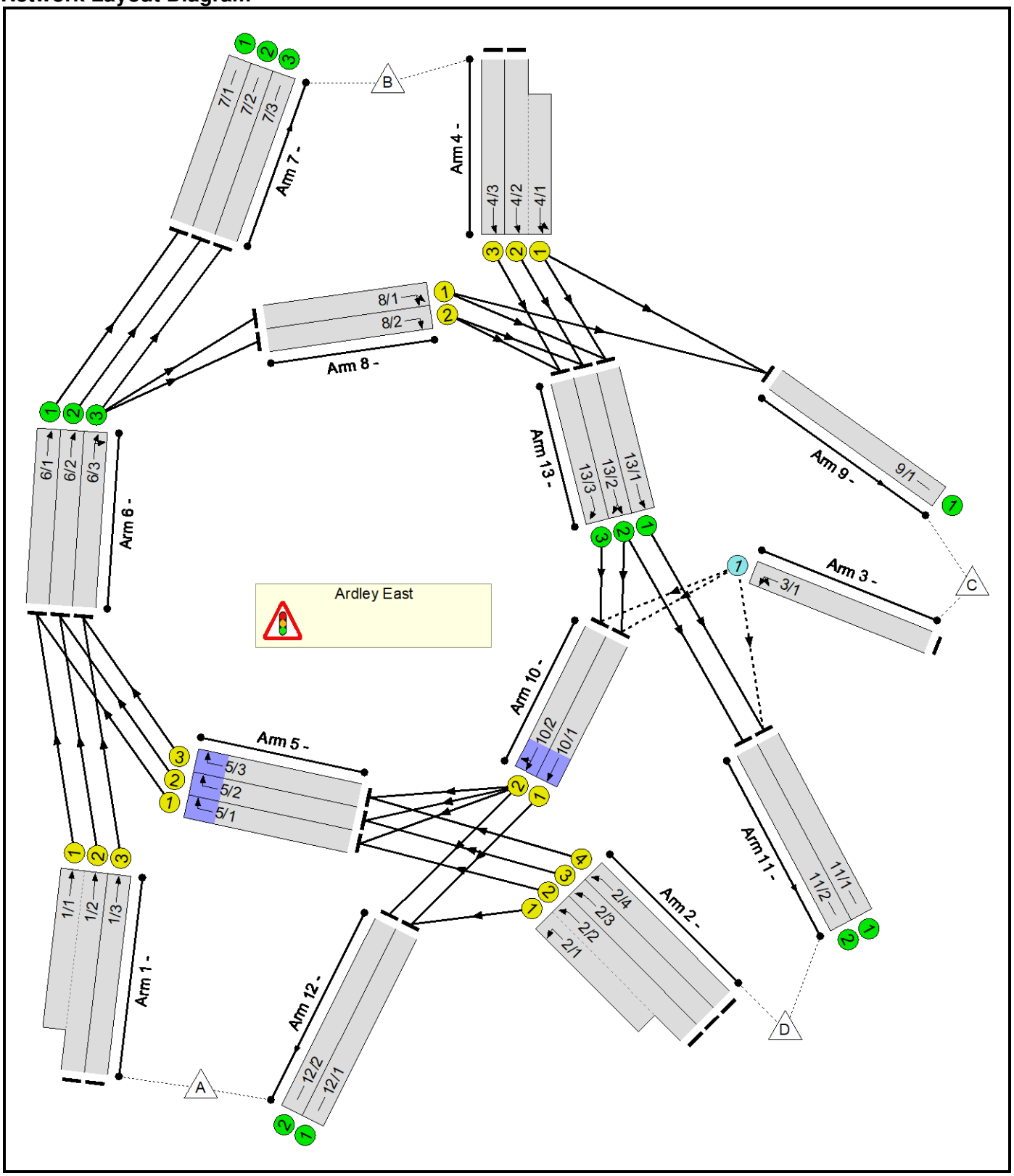
Full Input Data And Results

User and Project Details

Project:	**OxSRFI**
Title:	**Ardley East Roundabout**
Location:	
Design Layout Ref:	AE-6
Flow Details:	ArdleyEast6_AM ArdleyEast6_PM
Additional detail:	
File name:	2031_DS_M40J10_ArdleyEast_AE6_ArdleyEast6 (Signals Option).lsg3x
Author:	
Company:	ADC Infrastructure Limited
Address:	King Edward Court, Nottingham NG1 3EW

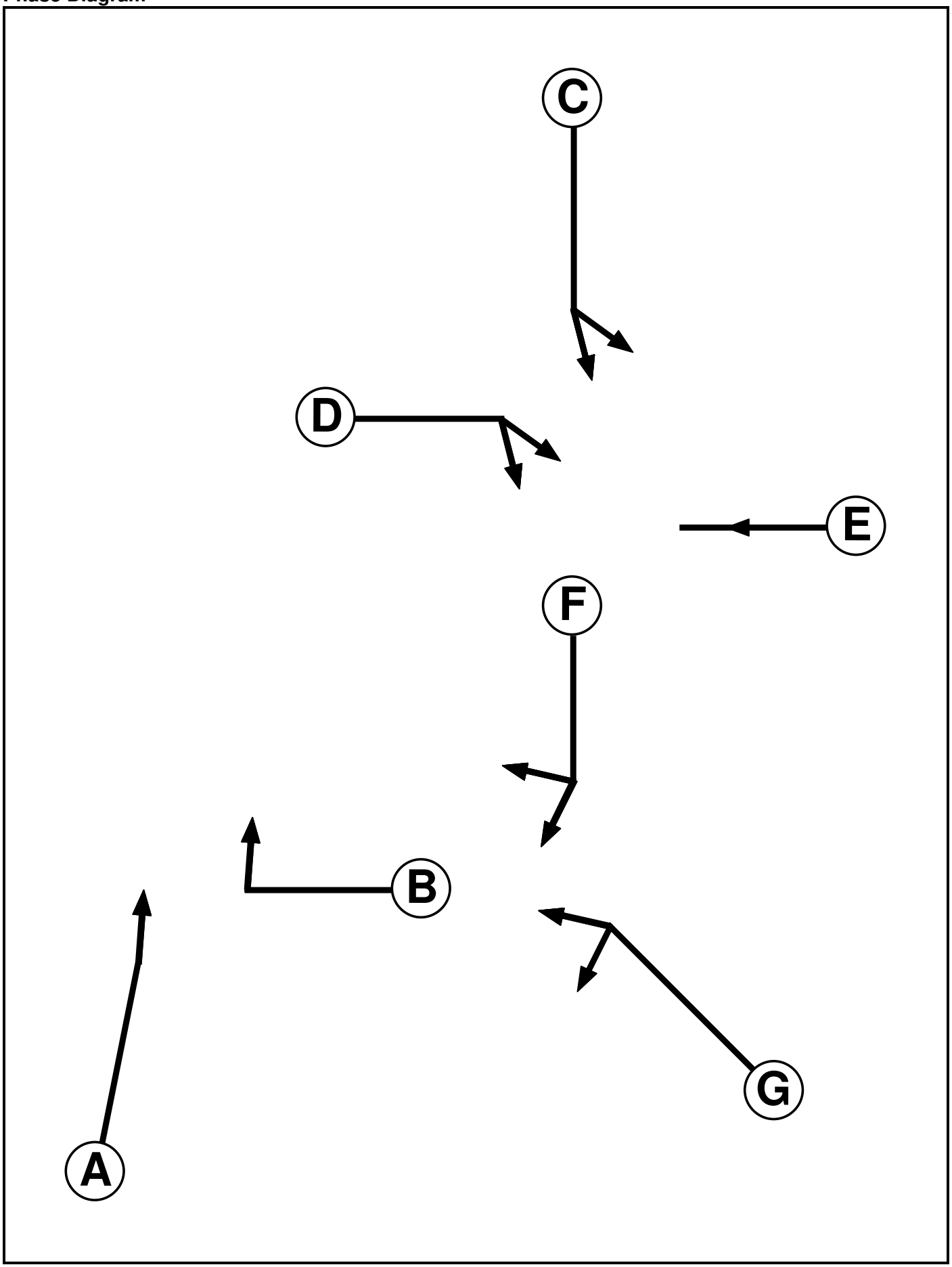
Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7
E	Traffic	2		7	7
F	Traffic	3		7	7
G	Traffic	3		7	7

Phase Intergreens Matrix

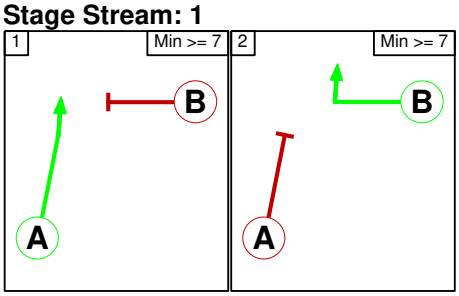
Terminating Phase \ Starting Phase	A	B	C	D	E	F	G
A		5	-	-	-	-	-
B	5		-	-	-	-	-
C	-	-		5	5	-	-
D	-	-	5		5	-	-
E	-	-	5	5		-	-
F	-	-	-	-	-		5
G	-	-	-	-	-	5	

Phases in Stage

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

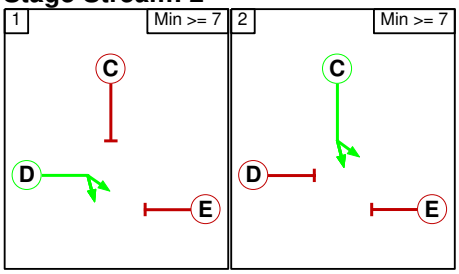
Stage Diagram

Stage Stream: 1

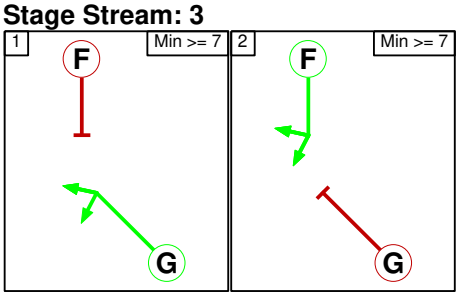


Full Input Data And Results

Stage Stream: 2



Stage Stream: 3



Phase Delays

Stage Stream: 1

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

Stage Stream: 2

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

Stage Stream: 3

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

Prohibited Stage Change

Stage Stream: 1

	To Stage		
		1	2
From Stage	1		5
	2	5	

Stage Stream: 2

	To Stage		
		1	2
From Stage	1		5
	2	5	

Full Input Data And Results

Stage Stream: 3

	To Stage		
		1	2
From Stage	1		5
	2	5	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Ardley East											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
3/1	10/1 (Left)	1000	0	13/1	0.33	All	-	-	-	-	-
				13/2	0.33	All					
	10/2 (Left)	1000	0	13/1	0.33	All					
				13/2	0.33	All					
				13/3	0.33	All					
	11/1 (U-Turn)	1000	0	13/1	0.33	All					

Full Input Data And Results

Lane Input Data

Junction: Ardley East

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1	U	A	2	3	20.9	Geom	-	3.65	0.00	Y	Arm 6 Ahead	Inf
1/2	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 6 Ahead	Inf
1/3	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 6 Ahead	Inf
2/1	U	G	2	3	10.0	Geom	-	3.65	0.00	Y	Arm 12 Left	30.00
2/2	U	G	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 5 Ahead	45.00
2/3	U	G	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 5 Ahead	45.00
2/4	U	G	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 5 Ahead	45.00
3/1	O		2	3	60.0	User	1900	-	-	-	-	-
4/1	U	C	2	3	17.4	User	1900	-	-	-	-	-
4/2	U	C	2	3	60.0	User	1900	-	-	-	-	-
4/3	U	C	2	3	60.0	User	1900	-	-	-	-	-
5/1	U	B	2	3	9.6	User	1850	-	-	-	-	-
5/2	U	B	2	3	9.6	User	1850	-	-	-	-	-
5/3	U	B	2	3	9.6	User	1850	-	-	-	-	-
6/1	U		2	3	10.4	Inf	-	-	-	-	-	-
6/2	U		2	3	10.4	Inf	-	-	-	-	-	-
6/3	U		2	3	10.4	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/2	U		2	3	60.0	Inf	-	-	-	-	-	-
7/3	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U	D	2	3	5.2	User	1850	-	-	-	-	-
8/2	U	D	2	3	5.2	User	1850	-	-	-	-	-
9/1	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1	U	F	2	3	7.0	User	1850	-	-	-	-	-
10/2	U	F	2	3	7.0	User	1850	-	-	-	-	-
11/1	U		2	3	60.0	Inf	-	-	-	-	-	-
11/2	U		2	3	60.0	Inf	-	-	-	-	-	-
12/1	U		2	3	60.0	Inf	-	-	-	-	-	-
12/2	U		2	3	60.0	Inf	-	-	-	-	-	-
13/1	U		2	3	8.7	Inf	-	-	-	-	-	-
13/2	U		2	3	8.7	Inf	-	-	-	-	-	-
13/3	U		2	3	8.7	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'ArdleyEast6 AM (Shoulder)'	06:45	07:45	01:00	
2: 'ArdleyEast6 AM'	07:45	08:45	01:00	
3: 'ArdleyEast PM'	16:30	17:30	01:00	

Scenario 1: '2031 ArdleyEast6 AM (Shoulder) 11, 13' (FG1: 'ArdleyEast6 AM (Shoulder)', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	737	151	231	1119
	B	1368	0	321	278	1967
	C	10	103	0	8	121
	D	428	1285	7	48	1768
	Tot.	1806	2125	479	565	4975

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2031 ArdleyEast6 AM (Shoulder) 11, 13
Junction: Ardley East	
1/1 (short)	368
1/2 (with short)	737(In) 369(Out)
1/3	382
2/1 (short)	428
2/2 (with short)	905(In) 477(Out)
2/3	430
2/4	433
3/1	121
4/1 (short)	578
4/2 (with short)	1411(In) 833(Out)
4/3	556
5/1	566
5/2	443
5/3	434
6/1	934
6/2	812
6/3	816
7/1	934
7/2	812
7/3	379
8/1	215
8/2	222
9/1	479
10/1	822
10/2	659
11/1	322
11/2	243
12/1	1250
12/2	556
13/1	314
13/2	1055
13/3	556

Full Input Data And Results

Lane Saturation Flows

Junction: Ardley East								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
1/2	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
1/3	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
2/1	3.65	0.00	Y	Arm 12 Left	30.00	100.0 %	1886	1886
2/2	3.65	0.00	Y	Arm 5 Ahead	45.00	100.0 %	1916	1916
2/3	3.65	0.00	Y	Arm 5 Ahead	45.00	100.0 %	1916	1916
2/4	3.65	0.00	Y	Arm 5 Ahead	45.00	100.0 %	1916	1916
3/1	This lane uses a directly entered Saturation Flow						1900	1900
4/1	This lane uses a directly entered Saturation Flow						1900	1900
4/2	This lane uses a directly entered Saturation Flow						1900	1900
4/3	This lane uses a directly entered Saturation Flow						1900	1900
5/1	This lane uses a directly entered Saturation Flow						1850	1850
5/2	This lane uses a directly entered Saturation Flow						1850	1850
5/3	This lane uses a directly entered Saturation Flow						1850	1850
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
6/3	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
7/3	Infinite Saturation Flow						Inf	Inf
8/1	This lane uses a directly entered Saturation Flow						1850	1850
8/2	This lane uses a directly entered Saturation Flow						1850	1850
9/1	Infinite Saturation Flow						Inf	Inf
10/1	This lane uses a directly entered Saturation Flow						1850	1850
10/2	This lane uses a directly entered Saturation Flow						1850	1850
11/1	Infinite Saturation Flow						Inf	Inf
11/2	Infinite Saturation Flow						Inf	Inf
12/1	Infinite Saturation Flow						Inf	Inf
12/2	Infinite Saturation Flow						Inf	Inf
13/1	Infinite Saturation Flow						Inf	Inf
13/2	Infinite Saturation Flow						Inf	Inf
13/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 2: '2031 ArdleyEast6 AM' (FG2: 'ArdleyEast6 AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	754	151	232	1137
	B	1300	0	320	298	1918
	C	10	104	0	7	121
	D	437	1381	8	40	1866
	Tot.	1747	2239	479	577	5042

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2031 ArdleyEast6 AM
Junction: Ardley East	
1/1 (short)	377
1/2 (with short)	754(In) 377(Out)
1/3	383
2/1 (short)	437
2/2 (with short)	934(In) 497(Out)
2/3	466
2/4	466
3/1	121
4/1 (short)	585
4/2 (with short)	1385(In) 800(Out)
4/3	533
5/1	594
5/2	469
5/3	470
6/1	971
6/2	846
6/3	853
7/1	971
7/2	846
7/3	422
8/1	216
8/2	215
9/1	479
10/1	777
10/2	637
11/1	329
11/2	248
12/1	1214
12/2	533
13/1	322
13/2	1015
13/3	533

Full Input Data And Results

Lane Saturation Flows

Junction: Ardley East								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
1/2	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
1/3	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
2/1	3.65	0.00	Y	Arm 12 Left	30.00	100.0 %	1886	1886
2/2	3.65	0.00	Y	Arm 5 Ahead	45.00	100.0 %	1916	1916
2/3	3.65	0.00	Y	Arm 5 Ahead	45.00	100.0 %	1916	1916
2/4	3.65	0.00	Y	Arm 5 Ahead	45.00	100.0 %	1916	1916
3/1	This lane uses a directly entered Saturation Flow						1900	1900
4/1	This lane uses a directly entered Saturation Flow						1900	1900
4/2	This lane uses a directly entered Saturation Flow						1900	1900
4/3	This lane uses a directly entered Saturation Flow						1900	1900
5/1	This lane uses a directly entered Saturation Flow						1850	1850
5/2	This lane uses a directly entered Saturation Flow						1850	1850
5/3	This lane uses a directly entered Saturation Flow						1850	1850
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
6/3	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
7/3	Infinite Saturation Flow						Inf	Inf
8/1	This lane uses a directly entered Saturation Flow						1850	1850
8/2	This lane uses a directly entered Saturation Flow						1850	1850
9/1	Infinite Saturation Flow						Inf	Inf
10/1	This lane uses a directly entered Saturation Flow						1850	1850
10/2	This lane uses a directly entered Saturation Flow						1850	1850
11/1	Infinite Saturation Flow						Inf	Inf
11/2	Infinite Saturation Flow						Inf	Inf
12/1	Infinite Saturation Flow						Inf	Inf
12/2	Infinite Saturation Flow						Inf	Inf
13/1	Infinite Saturation Flow						Inf	Inf
13/2	Infinite Saturation Flow						Inf	Inf
13/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: '2031 ArdleyEast6 PM' (FG3: 'ArdleyEast PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	1141	136	401	1678
	B	840	0	97	259	1196
	C	88	106	0	3	197
	D	291	1908	7	67	2273
	Tot.	1219	3155	240	730	5344

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2031 ArdleyEast6 PM
Junction: Ardley East	
1/1 (short)	570
1/2 (with short)	1141(In) 571(Out)
1/3	537
2/1 (short)	291
2/2 (with short)	937(In) 646(Out)
2/3	668
2/4	668
3/1	197
4/1 (short)	356
4/2 (with short)	882(In) 526(Out)
4/3	314
5/1	690
5/2	699
5/3	699
6/1	1260
6/2	1270
6/3	1236
7/1	1260
7/2	1270
7/3	625
8/1	284
8/2	327
9/1	240
10/1	614
10/2	420
11/1	403
11/2	327
12/1	905
12/2	314
13/1	400
13/2	853
13/3	314

Full Input Data And Results

Lane Saturation Flows

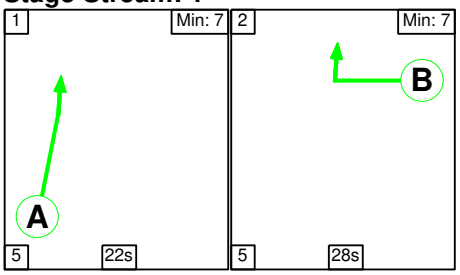
Junction: Ardley East								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
1/2	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
1/3	3.65	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1980	1980
2/1	3.65	0.00	Y	Arm 12 Left	30.00	100.0 %	1886	1886
2/2	3.65	0.00	Y	Arm 5 Ahead	45.00	100.0 %	1916	1916
2/3	3.65	0.00	Y	Arm 5 Ahead	45.00	100.0 %	1916	1916
2/4	3.65	0.00	Y	Arm 5 Ahead	45.00	100.0 %	1916	1916
3/1	This lane uses a directly entered Saturation Flow						1900	1900
4/1	This lane uses a directly entered Saturation Flow						1900	1900
4/2	This lane uses a directly entered Saturation Flow						1900	1900
4/3	This lane uses a directly entered Saturation Flow						1900	1900
5/1	This lane uses a directly entered Saturation Flow						1850	1850
5/2	This lane uses a directly entered Saturation Flow						1850	1850
5/3	This lane uses a directly entered Saturation Flow						1850	1850
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
6/3	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
7/2	Infinite Saturation Flow						Inf	Inf
7/3	Infinite Saturation Flow						Inf	Inf
8/1	This lane uses a directly entered Saturation Flow						1850	1850
8/2	This lane uses a directly entered Saturation Flow						1850	1850
9/1	Infinite Saturation Flow						Inf	Inf
10/1	This lane uses a directly entered Saturation Flow						1850	1850
10/2	This lane uses a directly entered Saturation Flow						1850	1850
11/1	Infinite Saturation Flow						Inf	Inf
11/2	Infinite Saturation Flow						Inf	Inf
12/1	Infinite Saturation Flow						Inf	Inf
12/2	Infinite Saturation Flow						Inf	Inf
13/1	Infinite Saturation Flow						Inf	Inf
13/2	Infinite Saturation Flow						Inf	Inf
13/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

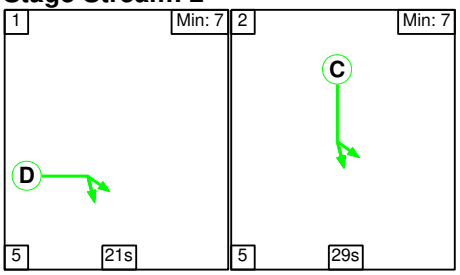
Scenario 1: '2031 ArdleyEast6 AM (Shoulder) 11, 13' (FG1: 'ArdleyEast6 AM (Shoulder)', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

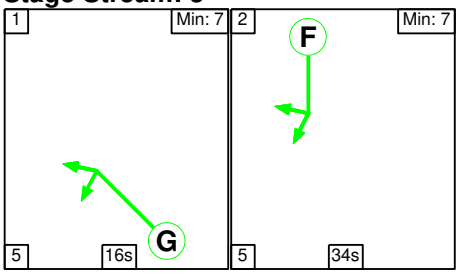
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	22	28
Change Point	0	27

Stage Stream: 2

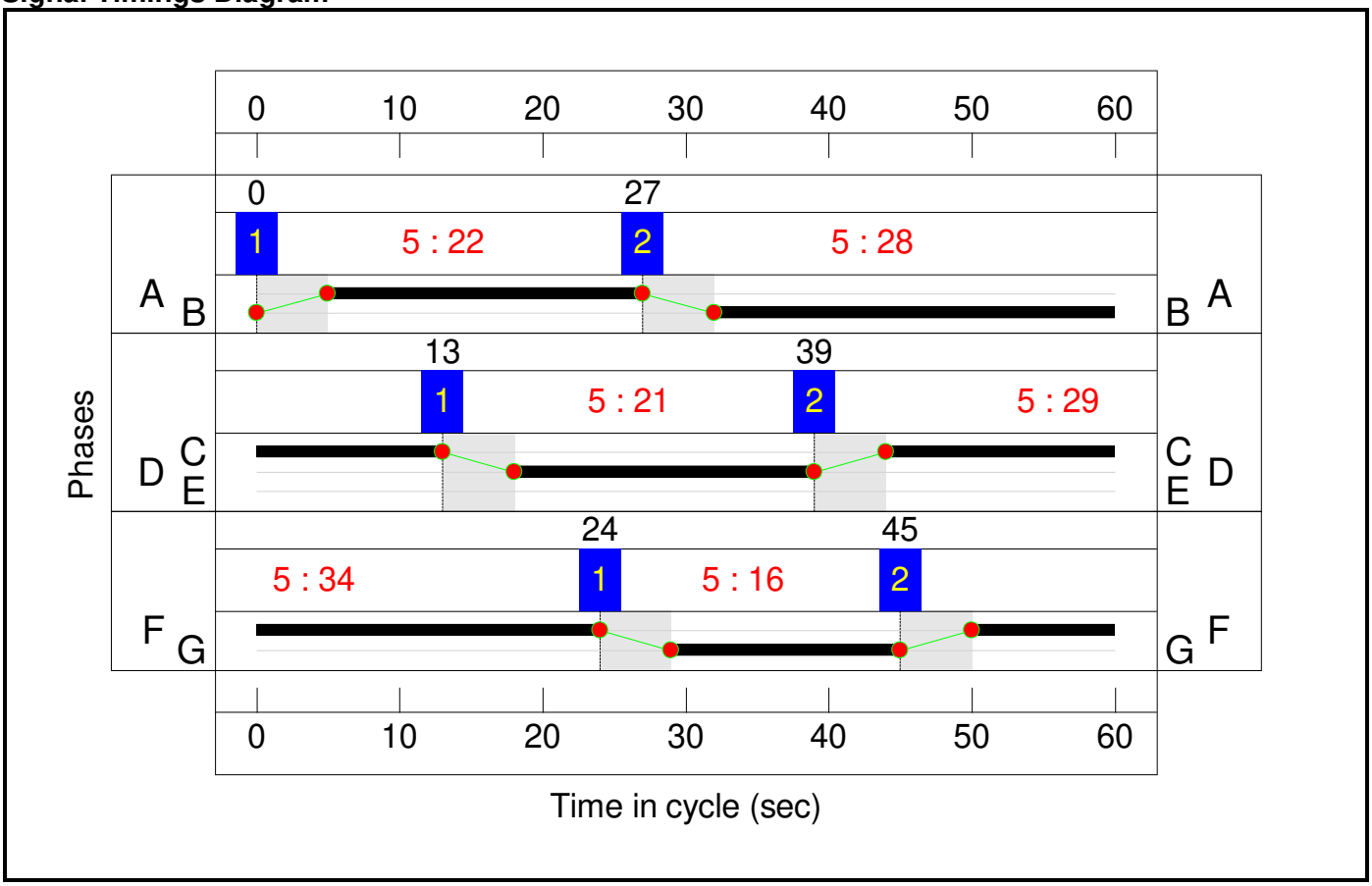
Stage	1	2
Duration	21	29
Change Point	13	39

Stage Stream: 3

Stage	1	2
Duration	16	34
Change Point	24	45

Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley East Roundabout	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.9%**
Ardley East	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**87.9%**
1/2+1/1	Ahead	U	1	N/A	A		1	22	-	737	1980:1980	759+759	48.6 : 48.5%
1/3	Ahead	U	1	N/A	A		1	22	-	382	1980	759	50.3%
2/2+2/1	Ahead Left	U	3	N/A	G		1	16	-	905	1916:1886	543+487	87.9 : 87.9%
2/3	Ahead	U	3	N/A	G		1	16	-	430	1916	543	79.2%
2/4	Ahead	U	3	N/A	G		1	16	-	433	1916	543	79.8%
3/1	Left U-Turn	O	N/A	N/A	-		-	-	-	121	1900	467	25.9%
4/2+4/1	Left Ahead	U	2	N/A	C		1	29	-	1411	1900:1900	950+659	87.7 : 87.7%
4/3	Ahead	U	2	N/A	C		1	29	-	556	1900	950	58.5%
5/1	Right	U	1	N/A	B		1	28	-	566	1850	894	63.3%
5/2	Right	U	1	N/A	B		1	28	-	443	1850	894	49.5%
5/3	Right	U	1	N/A	B		1	28	-	434	1850	894	48.5%
6/1	Ahead	U	N/A	N/A	-		-	-	-	934	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	812	Inf	Inf	0.0%
6/3	Ahead Right	U	N/A	N/A	-		-	-	-	816	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	934	Inf	Inf	0.0%
7/2		U	N/A	N/A	-		-	-	-	812	Inf	Inf	0.0%
7/3		U	N/A	N/A	-		-	-	-	379	Inf	Inf	0.0%
8/1	Ahead Right	U	2	N/A	D		1	21	-	215	1850	678	31.7%
8/2	Right	U	2	N/A	D		1	21	-	222	1850	678	32.7%
9/1		U	N/A	N/A	-		-	-	-	479	Inf	Inf	0.0%
10/1	Ahead	U	3	N/A	F		1	34	-	822	1850	1079	76.2%
10/2	Right Ahead	U	3	N/A	F		1	34	-	659	1850	1079	61.1%
11/1		U	N/A	N/A	-		-	-	-	322	Inf	Inf	0.0%

Full Input Data And Results

11/2		U	N/A	N/A	-		-	-	-	243	Inf	Inf	0.0%
12/1		U	N/A	N/A	-		-	-	-	1250	Inf	Inf	0.0%
12/2		U	N/A	N/A	-		-	-	-	556	Inf	Inf	0.0%
13/1	Ahead	U	N/A	N/A	-		-	-	-	314	Inf	Inf	0.0%
13/2	Ahead Ahead2	U	N/A	N/A	-		-	-	-	1055	Inf	Inf	0.0%
13/3	Ahead	U	N/A	N/A	-		-	-	-	556	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: Ardley East Roundabout	**-**	**-**	**121**	**0**	**0**	**22.2**	**13.3**	**0.0**	**35.5**	**-**	**-**	**-**	**-**
Ardley East	**-**	**-**	**121**	**0**	**0**	**22.2**	**13.3**	**0.0**	**35.5**	**-**	**-**	**-**	**-**
1/2+1/1	737	737	-	-	-	2.9	0.5	-	3.3 (1.7+1.7)	16.3 (16.3:16.3)	4.6	0.5	5.1
1/3	382	382	-	-	-	1.5	0.5	-	2.0	18.9	4.8	0.5	5.3
2/2+2/1	905	905	-	-	-	5.1	3.4	-	8.5 (4.5+4.0)	33.9 (34.2:33.6)	7.6	3.4	11.0
2/3	430	430	-	-	-	2.4	1.8	-	4.2	35.3	6.6	1.8	8.4
2/4	433	433	-	-	-	2.4	1.9	-	4.3	35.7	6.6	1.9	8.5
3/1	121	121	121	0	0	0.2	0.2	-	0.3	9.9	0.9	0.2	1.1
4/2+4/1	1411	1411	-	-	-	4.8	3.4	-	8.3 (5.1+3.1)	21.1 (22.1:19.6)	12.3	3.4	15.7
4/3	556	556	-	-	-	1.6	0.7	-	2.3	15.2	6.5	0.7	7.2
5/1	566	566	-	-	-	0.3	0.0	-	0.3	1.6	0.8	0.0	0.8
5/2	443	443	-	-	-	0.0	0.0	-	0.0	0.2	0.1	0.0	0.1
5/3	434	434	-	-	-	0.0	0.0	-	0.0	0.1	0.1	0.0	0.1
6/1	934	934	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	812	812	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	816	816	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	934	934	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	812	812	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/3	379	379	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	215	215	-	-	-	0.4	0.0	-	0.4	6.5	2.8	0.0	2.8
8/2	222	222	-	-	-	0.4	0.0	-	0.4	6.1	2.9	0.0	2.9
9/1	479	479	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	822	822	-	-	-	0.0	0.0	-	0.0	0.1	0.2	0.0	0.2
10/2	659	659	-	-	-	0.3	0.8	-	1.1	5.8	0.9	0.8	1.7

Full Input Data And Results

11/1	322	322	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	243	243	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	1250	1250	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	556	556	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	314	314	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/2	1055	1055	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/3	556	556	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

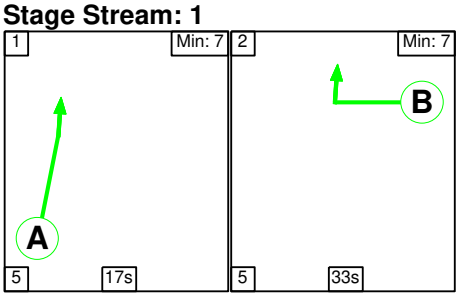
C1	Stream: 1 PRC for Signalled Lanes (%):	42.2	Total Delay for Signalled Lanes (pcuHr):	5.64	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	2.6	Total Delay for Signalled Lanes (pcuHr):	11.37	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	2.4	Total Delay for Signalled Lanes (pcuHr):	18.12	Cycle Time (s):	60
	PRC Over All Lanes (%):	2.4	Total Delay Over All Lanes(pcuHr):	35.47		

Full Input Data And Results

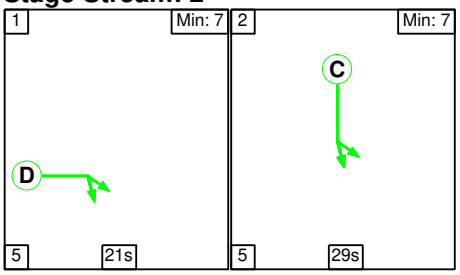
Scenario 2: '2031 ArdleyEast6 AM' (FG2: 'ArdleyEast6 AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

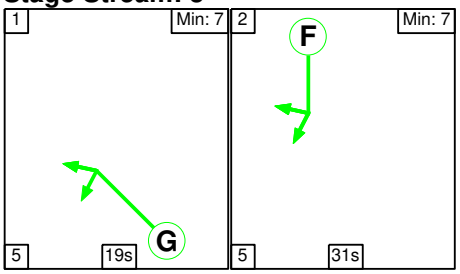
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	17	33
Change Point	0	22

Stage Stream: 2

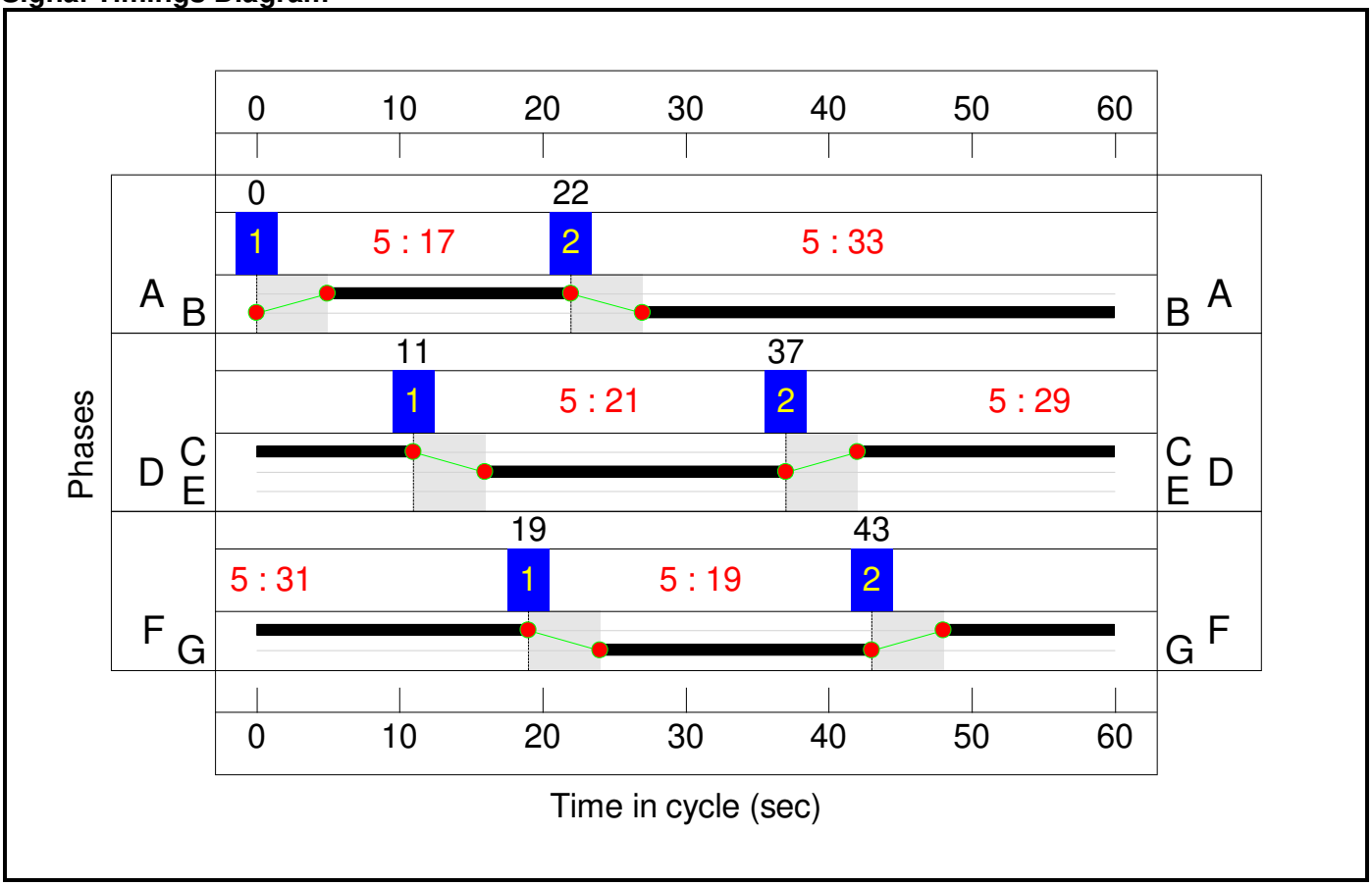
Stage	1	2
Duration	21	29
Change Point	11	37

Stage Stream: 3

Stage	1	2
Duration	19	31
Change Point	19	43

Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley East Roundabout	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**84.3%**
Ardley East	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**84.3%**
1/2+1/1	Ahead	U	1	N/A	A		1	17	-	754	1980:1980	594+594	63.5 : 63.5%
1/3	Ahead	U	1	N/A	A		1	17	-	383	1980	594	64.5%
2/2+2/1	Ahead Left	U	3	N/A	G		1	19	-	934	1916:1886	617+542	80.6 : 80.6%
2/3	Ahead	U	3	N/A	G		1	19	-	466	1916	639	73.0%
2/4	Ahead	U	3	N/A	G		1	19	-	466	1916	639	73.0%
3/1	Left U-Turn	O	N/A	N/A	-		-	-	-	121	1900	481	25.1%
4/2+4/1	Left Ahead	U	2	N/A	C		1	29	-	1385	1900:1900	950+694	84.2 : 84.3%
4/3	Ahead	U	2	N/A	C		1	29	-	533	1900	950	56.1%
5/1	Right	U	1	N/A	B		1	33	-	594	1850	1048	56.7%
5/2	Right	U	1	N/A	B		1	33	-	469	1850	1048	44.7%
5/3	Right	U	1	N/A	B		1	33	-	470	1850	1048	44.8%
6/1	Ahead	U	N/A	N/A	-		-	-	-	971	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	846	Inf	Inf	0.0%
6/3	Ahead Right	U	N/A	N/A	-		-	-	-	853	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	971	Inf	Inf	0.0%
7/2		U	N/A	N/A	-		-	-	-	846	Inf	Inf	0.0%
7/3		U	N/A	N/A	-		-	-	-	422	Inf	Inf	0.0%
8/1	Ahead Right	U	2	N/A	D		1	21	-	216	1850	678	31.8%
8/2	Right	U	2	N/A	D		1	21	-	215	1850	678	31.7%
9/1		U	N/A	N/A	-		-	-	-	479	Inf	Inf	0.0%
10/1	Ahead	U	3	N/A	F		1	31	-	777	1850	987	78.8%
10/2	Right Ahead	U	3	N/A	F		1	31	-	637	1850	987	64.6%
11/1		U	N/A	N/A	-		-	-	-	329	Inf	Inf	0.0%

Full Input Data And Results

11/2		U	N/A	N/A	-		-	-	-	248	Inf	Inf	0.0%
12/1		U	N/A	N/A	-		-	-	-	1214	Inf	Inf	0.0%
12/2		U	N/A	N/A	-		-	-	-	533	Inf	Inf	0.0%
13/1	Ahead	U	N/A	N/A	-		-	-	-	322	Inf	Inf	0.0%
13/2	Ahead Ahead2	U	N/A	N/A	-		-	-	-	1015	Inf	Inf	0.0%
13/3	Ahead	U	N/A	N/A	-		-	-	-	533	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: Ardley East Roundabout	**-**	**-**	**121**	**0**	**0**	**22.4**	**10.8**	**0.0**	**33.2**	**-**	**-**	**-**	**-**
Ardley East	**-**	**-**	**121**	**0**	**0**	**22.4**	**10.8**	**0.0**	**33.2**	**-**	**-**	**-**	**-**
1/2+1/1	754	754	-	-	-	3.8	0.9	-	4.7 (2.3+2.3)	22.3 (22.3:22.3)	5.3	0.9	6.2
1/3	383	383	-	-	-	1.9	0.9	-	2.8	26.7	5.5	0.9	6.4
2/2+2/1	934	934	-	-	-	4.6	2.0	-	6.6 (3.6+3.1)	25.5 (25.9:25.2)	7.5	2.0	9.5
2/3	466	466	-	-	-	2.3	1.3	-	3.6	27.9	6.7	1.3	8.1
2/4	466	466	-	-	-	2.3	1.3	-	3.6	27.9	6.7	1.3	8.1
3/1	121	121	121	0	0	0.1	0.2	-	0.3	9.1	0.9	0.2	1.0
4/2+4/1	1385	1385	-	-	-	4.6	2.6	-	7.3 (4.4+2.9)	18.9 (19.8:17.6)	11.3	2.6	14.0
4/3	533	533	-	-	-	1.5	0.6	-	2.2	14.7	6.1	0.6	6.7
5/1	594	594	-	-	-	0.2	0.0	-	0.2	1.4	0.8	0.0	0.8
5/2	469	469	-	-	-	0.0	0.0	-	0.0	0.1	0.1	0.0	0.1
5/3	470	470	-	-	-	0.0	0.0	-	0.0	0.1	0.1	0.0	0.1
6/1	971	971	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	846	846	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	853	853	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	971	971	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	846	846	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/3	422	422	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	216	216	-	-	-	0.2	0.0	-	0.2	4.0	2.2	0.0	2.2
8/2	215	215	-	-	-	0.3	0.0	-	0.3	4.3	2.2	0.0	2.2
9/1	479	479	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	777	777	-	-	-	0.1	0.0	-	0.1	0.2	0.3	0.0	0.3
10/2	637	637	-	-	-	0.4	0.9	-	1.3	7.2	1.7	0.9	2.7

Full Input Data And Results

11/1	329	329	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	248	248	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	1214	1214	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	533	533	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	322	322	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/2	1015	1015	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/3	533	533	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

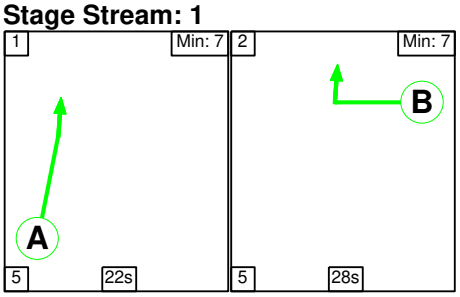
C1	Stream: 1 PRC for Signalled Lanes (%):	39.6	Total Delay for Signalled Lanes (pcuHr):	7.76	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	6.8	Total Delay for Signalled Lanes (pcuHr):	9.94	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	11.7	Total Delay for Signalled Lanes (pcuHr):	15.17	Cycle Time (s):	60
	PRC Over All Lanes (%):	6.8	Total Delay Over All Lanes(pcuHr):	33.18		

Full Input Data And Results

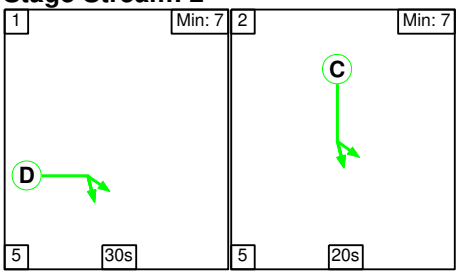
Scenario 3: '2031 ArdleyEast6 PM' (FG3: 'ArdleyEast PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

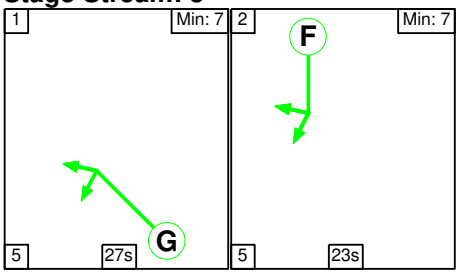
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	22	28
Change Point	0	27

Stage Stream: 2

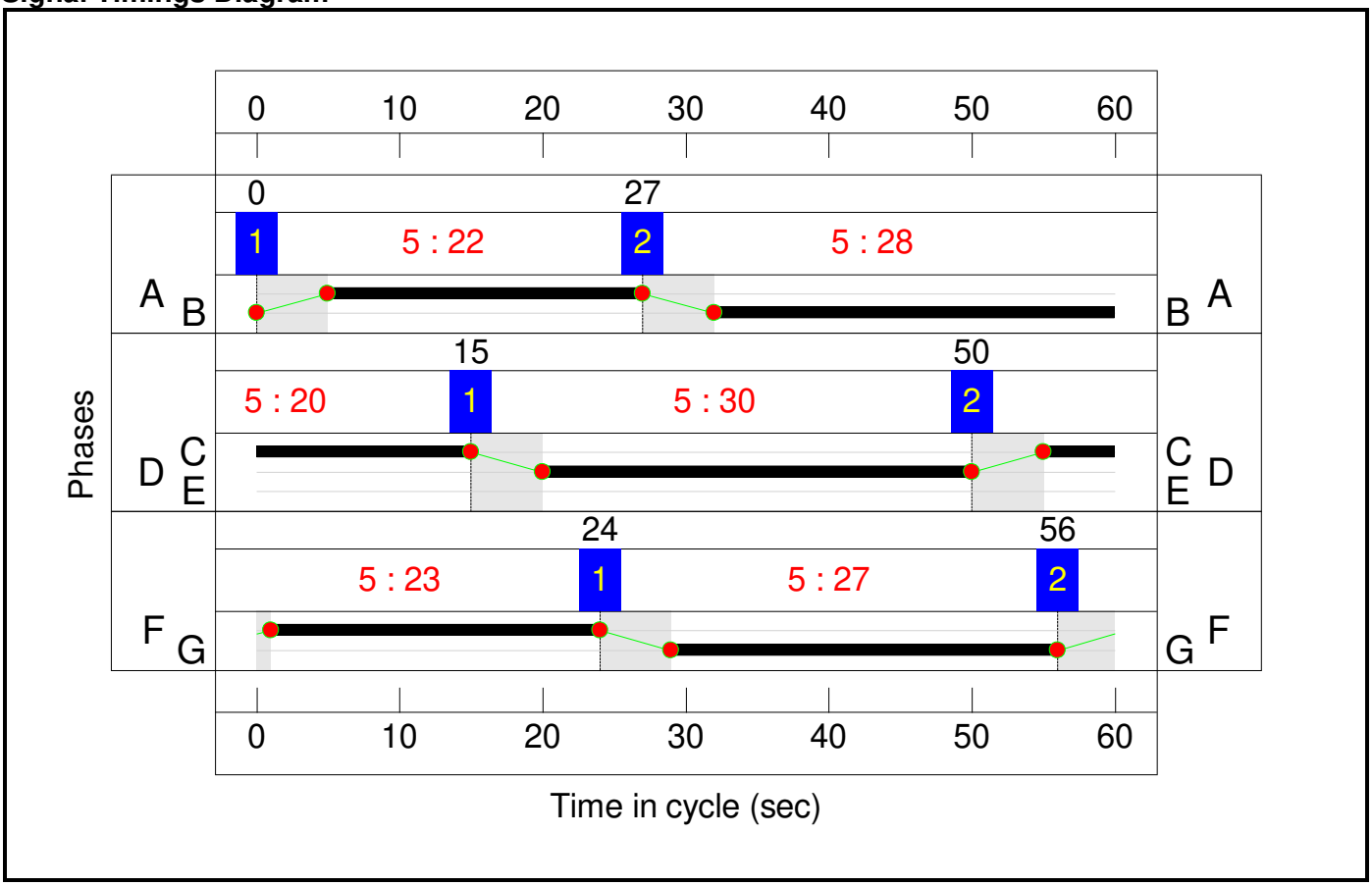
Stage	1	2
Duration	30	20
Change Point	15	50

Stage Stream: 3

Stage	1	2
Duration	27	23
Change Point	24	56

Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley East Roundabout	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.0%**
Ardley East	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**83.0%**
1/2+1/1	Ahead	U	1	N/A	A		1	22	-	1141	1980:1980	759+759	75.2 : 75.1%
1/3	Ahead	U	1	N/A	A		1	22	-	537	1980	759	70.8%
2/2+2/1	Ahead Left	U	3	N/A	G		1	27	-	937	1916:1886	797+359	81.0 : 81.0%
2/3	Ahead	U	3	N/A	G		1	27	-	668	1916	894	74.7%
2/4	Ahead	U	3	N/A	G		1	27	-	668	1916	894	74.7%
3/1	Left U-Turn	O	N/A	N/A	-		-	-	-	197	1900	568	34.7%
4/2+4/1	Left Ahead	U	2	N/A	C		1	20	-	882	1900:1900	665+492	79.1 : 72.4%
4/3	Ahead	U	2	N/A	C		1	20	-	314	1900	665	47.2%
5/1	Right	U	1	N/A	B		1	28	-	690	1850	894	77.2%
5/2	Right	U	1	N/A	B		1	28	-	699	1850	894	78.2%
5/3	Right	U	1	N/A	B		1	28	-	699	1850	894	78.2%
6/1	Ahead	U	N/A	N/A	-		-	-	-	1260	Inf	Inf	0.0%
6/2	Ahead	U	N/A	N/A	-		-	-	-	1270	Inf	Inf	0.0%
6/3	Ahead Right	U	N/A	N/A	-		-	-	-	1236	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	1260	Inf	Inf	0.0%
7/2		U	N/A	N/A	-		-	-	-	1270	Inf	Inf	0.0%
7/3		U	N/A	N/A	-		-	-	-	625	Inf	Inf	0.0%
8/1	Ahead Right	U	2	N/A	D		1	30	-	284	1850	956	29.7%
8/2	Right	U	2	N/A	D		1	30	-	327	1850	956	34.2%
9/1		U	N/A	N/A	-		-	-	-	240	Inf	Inf	0.0%
10/1	Ahead	U	3	N/A	F		1	23	-	614	1850	740	83.0%
10/2	Right Ahead	U	3	N/A	F		1	23	-	420	1850	740	56.8%
11/1		U	N/A	N/A	-		-	-	-	403	Inf	Inf	0.0%

Full Input Data And Results

11/2		U	N/A	N/A	-		-	-	-	327	Inf	Inf	0.0%
12/1		U	N/A	N/A	-		-	-	-	905	Inf	Inf	0.0%
12/2		U	N/A	N/A	-		-	-	-	314	Inf	Inf	0.0%
13/1	Ahead	U	N/A	N/A	-		-	-	-	400	Inf	Inf	0.0%
13/2	Ahead Ahead2	U	N/A	N/A	-		-	-	-	853	Inf	Inf	0.0%
13/3	Ahead	U	N/A	N/A	-		-	-	-	314	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: Ardley East Roundabout	**-**	**-**	**197**	**0**	**0**	**23.7**	**10.7**	**0.0**	**34.4**	**-**	**-**	**-**	**-**
Ardley East	**-**	**-**	**197**	**0**	**0**	**23.7**	**10.7**	**0.0**	**34.4**	**-**	**-**	**-**	**-**
1/2+1/1	1141	1141	-	-	-	5.1	1.5	-	6.6 (3.3+3.3)	20.8 (20.8:20.8)	8.1	1.5	9.6
1/3	537	537	-	-	-	2.3	1.2	-	3.5	23.7	7.5	1.2	8.7
2/2+2/1	937	937	-	-	-	3.1	2.1	-	5.2 (3.8+1.5)	20.1 (20.9:18.2)	8.6	2.1	10.7
2/3	668	668	-	-	-	2.4	1.5	-	3.9	21.0	9.1	1.5	10.6
2/4	668	668	-	-	-	2.4	1.5	-	3.9	21.0	9.1	1.5	10.6
3/1	197	197	197	0	0	0.1	0.3	-	0.4	6.9	1.0	0.3	1.2
4/2+4/1	882	882	-	-	-	4.1	1.6	-	5.7 (3.5+2.2)	23.2 (24.0:22.1)	7.7	1.6	9.3
4/3	314	314	-	-	-	1.3	0.4	-	1.8	20.3	4.0	0.4	4.5
5/1	690	690	-	-	-	0.4	0.0	-	0.4	2.2	0.8	0.0	0.8
5/2	699	699	-	-	-	0.3	0.0	-	0.3	1.5	1.3	0.0	1.3
5/3	699	699	-	-	-	0.3	0.0	-	0.3	1.5	1.3	0.0	1.3
6/1	1260	1260	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	1270	1270	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	1236	1236	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	1260	1260	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/2	1270	1270	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/3	625	625	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	284	284	-	-	-	0.4	0.0	-	0.4	4.9	3.7	0.0	3.7
8/2	327	327	-	-	-	0.4	0.0	-	0.4	4.7	4.5	0.0	4.5
9/1	240	240	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	614	614	-	-	-	0.5	0.0	-	0.5	2.9	1.8	0.0	1.8
10/2	420	420	-	-	-	0.5	0.7	-	1.1	9.6	2.4	0.7	3.1

Full Input Data And Results

11/1	403	403	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	327	327	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/1	905	905	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
12/2	314	314	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/1	400	400	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/2	853	853	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
13/3	314	314	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1	Stream: 1 PRC for Signalled Lanes (%):	15.1	Total Delay for Signalled Lanes (pcuHr):	11.14	Cycle Time (s): 60
C1	Stream: 2 PRC for Signalled Lanes (%):	13.8	Total Delay for Signalled Lanes (pcuHr):	8.28	Cycle Time (s): 60
C1	Stream: 3 PRC for Signalled Lanes (%):	8.5	Total Delay for Signalled Lanes (pcuHr):	14.61	Cycle Time (s): 60
	PRC Over All Lanes (%):	8.5	Total Delay Over All Lanes(pcuHr):	34.40	

APPENDIX 34

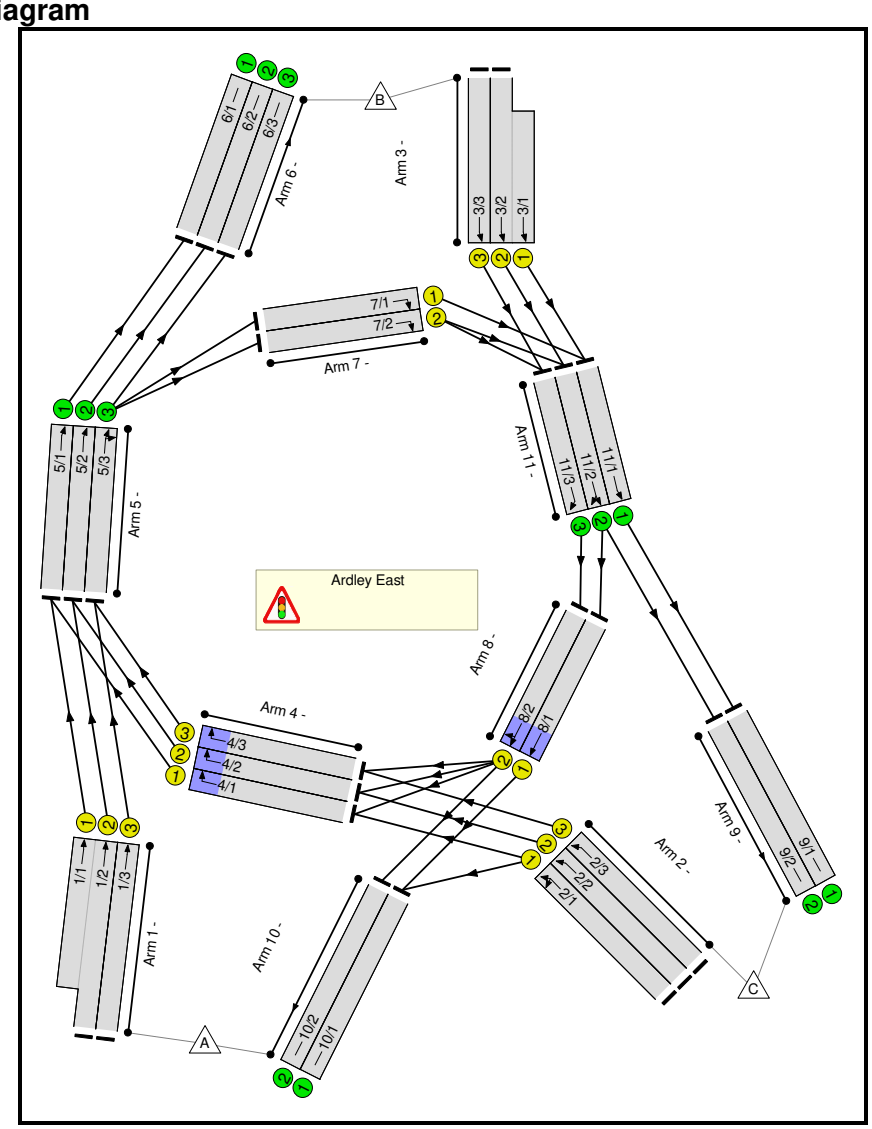
Ardley East Roundabout junction option AE-8 – LinSig results

Full Input Data And Results

User and Project Details

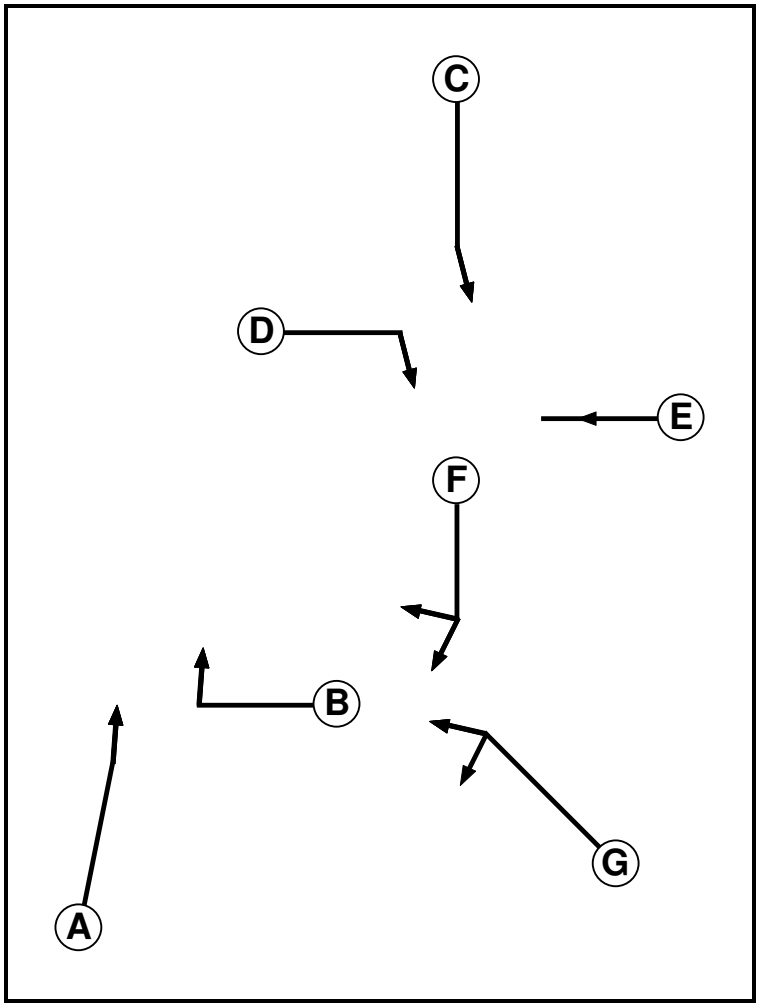
Project:	**OxSRFI**
Title:	**Ardley East Roundabout**
Location:	
Design Layout Ref:	AE-8
Flow Details:	ArdleyEast9_AM ArdleyEast9_PM
Additional detail:	
File name:	2031_DS_M40J10_ArdleyEast_AE8_ArdleyEast9 (Signals Option) - No Ardley Rd Link.lsg3x
Author:	
Company:	ADC Infrastructure Limited
Address:	King Edward Court, Nottingham NG1 3EW

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7
E	Traffic	2		7	7
F	Traffic	3		7	7
G	Traffic	3		7	7

Full Input Data And Results

Phase Intergreens Matrix

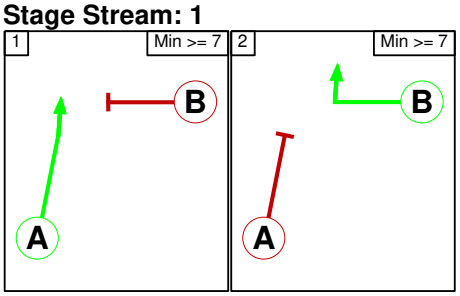
Terminating Phase	Starting Phase							
		A	B	C	D	E	F	G
	A		5	-	-	-	-	-
	B	5		-	-	-	-	-
	C	-	-		5	5	-	-
	D	-	-	5		5	-	-
	E	-	-	5	5		-	-
	F	-	-	-	-	-		5
	G	-	-	-	-	-	5	

Phases in Stage

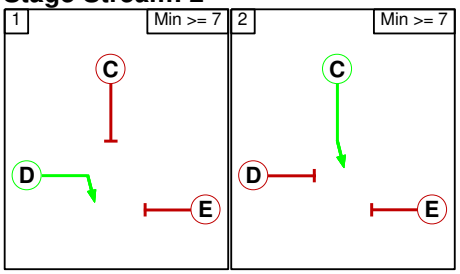
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	D
2	2	C
3	1	G
3	2	F

Stage Diagram

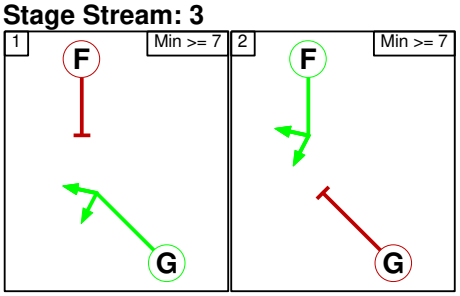
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Full Input Data And Results

Phase Delays

Stage Stream: 1

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

Stage Stream: 2

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

Stage Stream: 3

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

Prohibited Stage Change

Stage Stream: 1

	To Stage		
From Stage		1	2
	1		5
	2	5	

Stage Stream: 2

	To Stage		
From Stage		1	2
	1		5
	2	5	

Stage Stream: 3

	To Stage		
From Stage		1	2
	1		5
	2	5	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Ardley East
There are no Opposed Lanes in this Junction

Full Input Data And Results

Lane Input Data

Junction: Ardley East												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1	U	A	2	3	20.9	Geom	-	3.65	0.00	Y	Arm 5 Ahead	Inf
1/2	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 5 Ahead	Inf
1/3	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 5 Ahead	Inf
2/1	U	G	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 4 Ahead	50.00
											Arm 10 Left	50.00
2/2	U	G	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 4 Ahead	50.00
2/3	U	G	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 4 Ahead	50.00
3/1	U	C	2	3	17.4	User	1900	-	-	-	-	-
3/2	U	C	2	3	60.0	User	1900	-	-	-	-	-
3/3	U	C	2	3	60.0	User	1900	-	-	-	-	-
4/1	U	B	2	3	9.6	User	1850	-	-	-	-	-
4/2	U	B	2	3	9.6	User	1850	-	-	-	-	-
4/3	U	B	2	3	9.6	User	1850	-	-	-	-	-
5/1	U		2	3	10.4	Inf	-	-	-	-	-	-
5/2	U		2	3	10.4	Inf	-	-	-	-	-	-
5/3	U		2	3	10.4	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
6/2	U		2	3	60.0	Inf	-	-	-	-	-	-
6/3	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U	D	2	3	5.2	User	1850	-	-	-	-	-
7/2	U	D	2	3	5.2	User	1850	-	-	-	-	-
8/1	U	F	2	3	7.0	User	1850	-	-	-	-	-
8/2	U	F	2	3	7.0	User	1850	-	-	-	-	-
9/1	U		2	3	60.0	Inf	-	-	-	-	-	-
9/2	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1	U		2	3	60.0	Inf	-	-	-	-	-	-
10/2	U		2	3	60.0	Inf	-	-	-	-	-	-
11/1	U		2	3	8.7	Inf	-	-	-	-	-	-
11/2	U		2	3	8.7	Inf	-	-	-	-	-	-
11/3	U		2	3	8.7	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'ArdleyEast6_AM'	07:45	08:45	01:00	
2: 'ArdleyEast6_PM'	16:30	17:30	01:00	

Scenario 1: '2031 ArdleyEast6 AM' (FG1: 'ArdleyEast6_AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	754	232	986
	B	1300	0	298	1598
	C	437	1381	40	1858
	Tot.	1737	2135	570	4442

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2031 ArdleyEast6 AM
Junction: Ardley East	
1/1 (short)	356
1/2 (with short)	713(In) 357(Out)
1/3	273
2/1	622
2/2	618
2/3	618
3/1 (short)	298
3/2 (with short)	1030(In) 732(Out)
3/3	568
4/1	185
4/2	618
4/3	618
5/1	541
5/2	975
5/3	891
6/1	541
6/2	975
6/3	619
7/1	138
7/2	134
8/1	732
8/2	568
9/1	436
9/2	134
10/1	1169
10/2	568
11/1	436
11/2	866
11/3	568

Full Input Data And Results

Lane Saturation Flows

Junction: Ardley East								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1	3.65	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1980	1980
1/2	3.65	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1980	1980
1/3	3.65	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1980	1980
2/1	3.65	0.00	Y	Arm 4 Ahead	50.00	29.7 %	1922	1922
				Arm 10 Left	50.00	70.3 %		
2/2	3.65	0.00	Y	Arm 4 Ahead	50.00	100.0 %	1922	1922
2/3	3.65	0.00	Y	Arm 4 Ahead	50.00	100.0 %	1922	1922
3/1	This lane uses a directly entered Saturation Flow						1900	1900
3/2	This lane uses a directly entered Saturation Flow						1900	1900
3/3	This lane uses a directly entered Saturation Flow						1900	1900
4/1	This lane uses a directly entered Saturation Flow						1850	1850
4/2	This lane uses a directly entered Saturation Flow						1850	1850
4/3	This lane uses a directly entered Saturation Flow						1850	1850
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
5/3	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
6/3	Infinite Saturation Flow						Inf	Inf
7/1	This lane uses a directly entered Saturation Flow						1850	1850
7/2	This lane uses a directly entered Saturation Flow						1850	1850
8/1	This lane uses a directly entered Saturation Flow						1850	1850
8/2	This lane uses a directly entered Saturation Flow						1850	1850
9/1	Infinite Saturation Flow						Inf	Inf
9/2	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf
10/2	Infinite Saturation Flow						Inf	Inf
11/1	Infinite Saturation Flow						Inf	Inf
11/2	Infinite Saturation Flow						Inf	Inf
11/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 2: '2031 ArdleyEast6 PM' (FG2: 'ArdleyEast6_PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination			
		A	B	C	Tot.
Origin	A	0	1141	401	1542
	B	840	0	259	1099
	C	291	1908	67	2266
	Tot.	1131	3049	727	4907

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2031 ArdleyEast6 PM
Junction: Ardley East	
1/1 (short)	551
1/2 (with short)	1101(In) 550(Out)
1/3	441
2/1	759
2/2	754
2/3	753
3/1 (short)	258
3/2 (with short)	771(In) 513(Out)
3/3	328
4/1	468
4/2	754
4/3	753
5/1	1019
5/2	1304
5/3	1194
6/1	1019
6/2	1304
6/3	726
7/1	256
7/2	212
8/1	512
8/2	328
9/1	514
9/2	213
10/1	803
10/2	328
11/1	514
11/2	725
11/3	328

Full Input Data And Results

Lane Saturation Flows

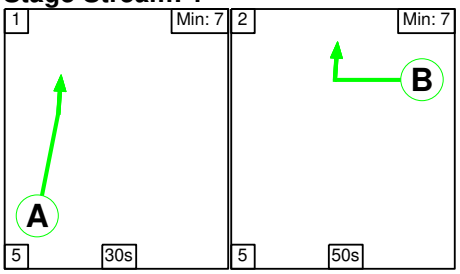
Junction: Ardley East								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1	3.65	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1980	1980
1/2	3.65	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1980	1980
1/3	3.65	0.00	Y	Arm 5 Ahead	Inf	100.0 %	1980	1980
2/1	3.65	0.00	Y	Arm 4 Ahead	50.00	61.7 %	1922	1922
				Arm 10 Left	50.00	38.3 %		
2/2	3.65	0.00	Y	Arm 4 Ahead	50.00	100.0 %	1922	1922
2/3	3.65	0.00	Y	Arm 4 Ahead	50.00	100.0 %	1922	1922
3/1	This lane uses a directly entered Saturation Flow						1900	1900
3/2	This lane uses a directly entered Saturation Flow						1900	1900
3/3	This lane uses a directly entered Saturation Flow						1900	1900
4/1	This lane uses a directly entered Saturation Flow						1850	1850
4/2	This lane uses a directly entered Saturation Flow						1850	1850
4/3	This lane uses a directly entered Saturation Flow						1850	1850
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
5/3	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf
6/2	Infinite Saturation Flow						Inf	Inf
6/3	Infinite Saturation Flow						Inf	Inf
7/1	This lane uses a directly entered Saturation Flow						1850	1850
7/2	This lane uses a directly entered Saturation Flow						1850	1850
8/1	This lane uses a directly entered Saturation Flow						1850	1850
8/2	This lane uses a directly entered Saturation Flow						1850	1850
9/1	Infinite Saturation Flow						Inf	Inf
9/2	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf
10/2	Infinite Saturation Flow						Inf	Inf
11/1	Infinite Saturation Flow						Inf	Inf
11/2	Infinite Saturation Flow						Inf	Inf
11/3	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

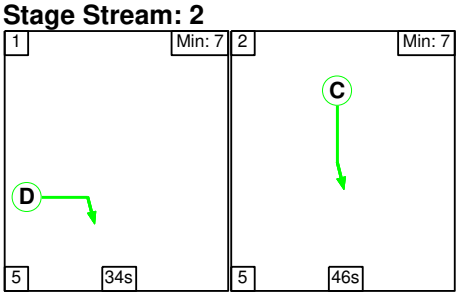
Scenario 1: '2031 ArdleyEast6 AM' (FG1: 'ArdleyEast6_AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

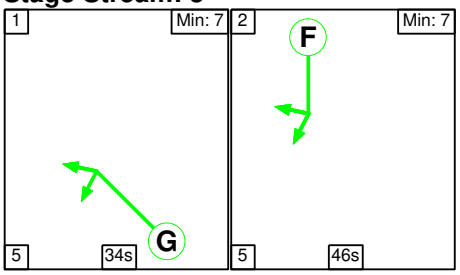
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	30	50
Change Point	0	35

Stage Stream: 2

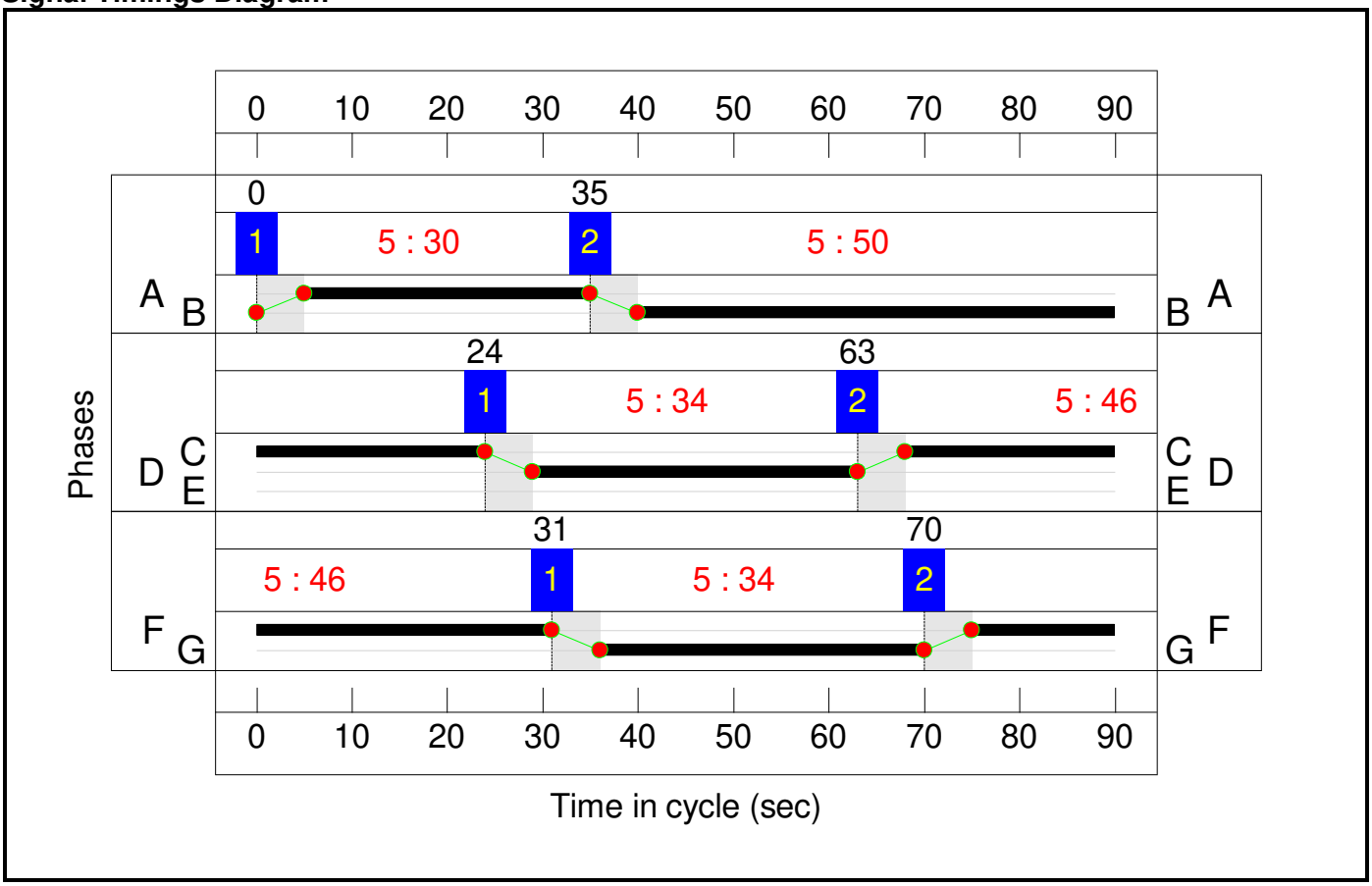
Stage	1	2
Duration	34	46
Change Point	24	63

Stage Stream: 3

Stage	1	2
Duration	34	46
Change Point	31	70

Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley East Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**83.2%**
Ardley East	-	-	**N/A**	-	-		-	-	-	-	-	-	**83.2%**
1/2+1/1	Ahead	U	1	N/A	A		1	30	-	713	1980:1980	682+682	52.3 : 52.2%
1/3	Ahead	U	1	N/A	A		1	30	-	273	1980	682	40.0%
2/1	Ahead Left	U	3	N/A	G		1	34	-	622	1922	747	83.2%
2/2	Ahead	U	3	N/A	G		1	34	-	618	1922	747	82.7%
2/3	Ahead	U	3	N/A	G		1	34	-	618	1922	747	82.7%
3/2+3/1	Ahead	U	2	N/A	C		1	46	-	1030	1900:1900	916+373	79.9 : 79.9%
3/3	Ahead	U	2	N/A	C		1	46	-	568	1900	992	57.2%
4/1	Right	U	1	N/A	B		1	50	-	185	1850	1048	17.6%
4/2	Right	U	1	N/A	B		1	50	-	618	1850	1048	59.0%
4/3	Right	U	1	N/A	B		1	50	-	618	1850	1048	59.0%
5/1	Ahead	U	N/A	N/A	-		-	-	-	541	Inf	Inf	0.0%
5/2	Ahead	U	N/A	N/A	-		-	-	-	975	Inf	Inf	0.0%
5/3	Ahead Right	U	N/A	N/A	-		-	-	-	891	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	541	Inf	Inf	0.0%
6/2		U	N/A	N/A	-		-	-	-	975	Inf	Inf	0.0%
6/3		U	N/A	N/A	-		-	-	-	619	Inf	Inf	0.0%
7/1	Right	U	2	N/A	D		1	34	-	138	1850	719	19.2%
7/2	Right	U	2	N/A	D		1	34	-	134	1850	719	18.6%
8/1	Ahead	U	3	N/A	F		1	46	-	732	1850	966	75.8%
8/2	Right Ahead	U	3	N/A	F		1	46	-	568	1850	966	58.8%
9/1		U	N/A	N/A	-		-	-	-	436	Inf	Inf	0.0%
9/2		U	N/A	N/A	-		-	-	-	134	Inf	Inf	0.0%

Full Input Data And Results

10/1		U	N/A	N/A	-		-	-	-	1169	Inf	Inf	0.0%
10/2		U	N/A	N/A	-		-	-	-	568	Inf	Inf	0.0%
11/1	Ahead	U	N/A	N/A	-		-	-	-	436	Inf	Inf	0.0%
11/2	Ahead Ahead2	U	N/A	N/A	-		-	-	-	866	Inf	Inf	0.0%
11/3	Ahead	U	N/A	N/A	-		-	-	-	568	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: Ardley East Roundabout	**-**	**-**	**0**	**0**	**0**	**27.3**	**11.2**	**0.0**	**38.5**	**-**	**-**	**-**	**-**
Ardley East	**-**	**-**	**0**	**0**	**0**	**27.3**	**11.2**	**0.0**	**38.5**	**-**	**-**	**-**	**-**
1/2+1/1	713	713	-	-	-	4.7	0.5	-	5.2 (2.6+2.6)	26.3 (26.4:26.3)	7.0	0.5	7.6
1/3	273	273	-	-	-	1.7	0.3	-	2.0	26.8	5.2	0.3	5.5
2/1	622	622	-	-	-	4.3	2.4	-	6.7	38.7	14.0	2.4	16.4
2/2	618	618	-	-	-	4.3	2.3	-	6.6	38.2	13.9	2.3	16.2
2/3	618	618	-	-	-	4.3	2.3	-	6.6	38.2	13.9	2.3	16.2
3/2+3/1	1030	1030	-	-	-	4.4	2.0	-	6.4 (4.8+1.6)	22.2 (23.6:19.0)	14.0	2.0	16.0
3/3	568	568	-	-	-	2.3	0.7	-	3.0	18.9	9.6	0.7	10.3
4/1	185	185	-	-	-	0.0	0.0	-	0.0	0.0	0.1	0.0	0.1
4/2	618	618	-	-	-	0.1	0.0	-	0.1	0.4	0.5	0.0	0.5
4/3	618	618	-	-	-	0.1	0.0	-	0.1	0.4	0.5	0.0	0.5
5/1	541	541	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	975	975	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/3	891	891	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	541	541	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	975	975	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	619	619	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	138	138	-	-	-	0.5	0.0	-	0.5	12.0	3.0	0.0	3.0
7/2	134	134	-	-	-	0.5	0.0	-	0.5	13.8	2.7	0.0	2.7
8/1	732	732	-	-	-	0.2	0.0	-	0.2	1.0	0.6	0.0	0.6
8/2	568	568	-	-	-	0.1	0.7	-	0.8	5.3	0.5	0.7	1.2
9/1	436	436	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	134	134	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	1169	1169	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

10/2	568	568	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	436	436	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	866	866	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/3	568	568	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

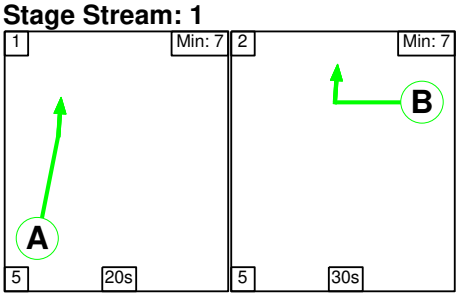
C1	Stream: 1 PRC for Signalled Lanes (%):	52.7	Total Delay for Signalled Lanes (pcuHr):	7.41	Cycle Time (s):	90
C1	Stream: 2 PRC for Signalled Lanes (%):	12.7	Total Delay for Signalled Lanes (pcuHr):	10.32	Cycle Time (s):	90
C1	Stream: 3 PRC for Signalled Lanes (%):	8.2	Total Delay for Signalled Lanes (pcuHr):	20.83	Cycle Time (s):	90
	PRC Over All Lanes (%):	8.2	Total Delay Over All Lanes(pcuHr):	38.55		

Full Input Data And Results

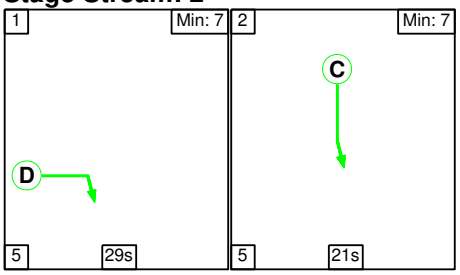
Scenario 2: '2031 ArdleyEast6 PM' (FG2: 'ArdleyEast6_PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

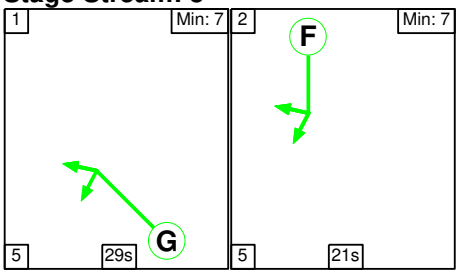
Stage Stream: 1



Stage Stream: 2



Stage Stream: 3



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	20	30
Change Point	0	25

Stage Stream: 2

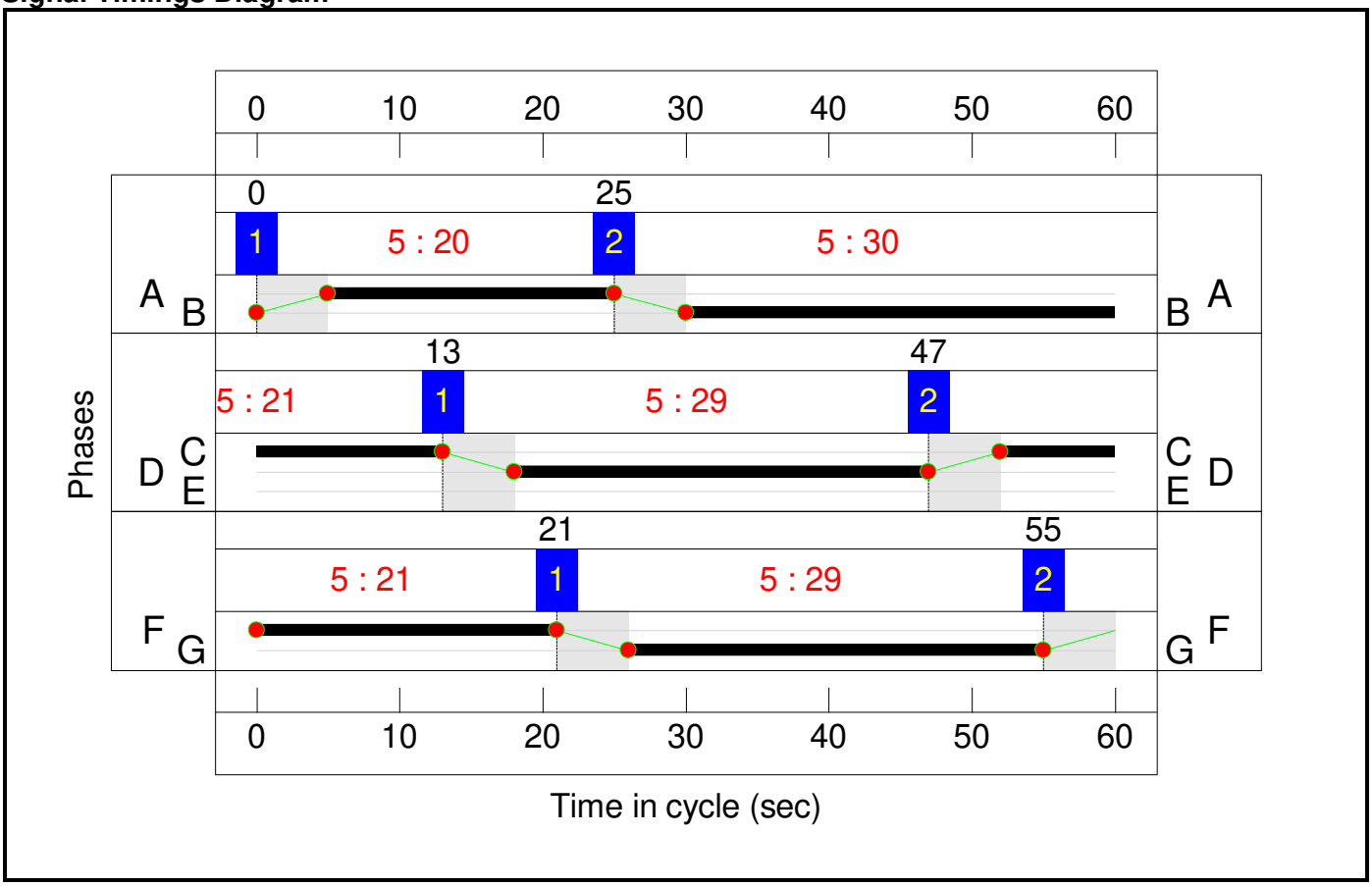
Stage	1	2
Duration	29	21
Change Point	13	47

Stage Stream: 3

Stage	1	2
Duration	29	21
Change Point	21	55

Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Ardley East Roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**79.5%**
Ardley East	-	-	**N/A**	-	-		-	-	-	-	-	-	**79.5%**
1/2+1/1	Ahead	U	1	N/A	A		1	20	-	1101	1980:1980	693+693	79.4 : 79.5%
1/3	Ahead	U	1	N/A	A		1	20	-	441	1980	693	63.6%
2/1	Ahead Left	U	3	N/A	G		1	29	-	759	1922	961	79.0%
2/2	Ahead	U	3	N/A	G		1	29	-	754	1922	961	78.5%
2/3	Ahead	U	3	N/A	G		1	29	-	753	1922	961	78.4%
3/2+3/1	Ahead	U	2	N/A	C		1	21	-	771	1900:1900	697+350	73.6 : 73.6%
3/3	Ahead	U	2	N/A	C		1	21	-	328	1900	697	47.1%
4/1	Right	U	1	N/A	B		1	30	-	468	1850	956	49.0%
4/2	Right	U	1	N/A	B		1	30	-	754	1850	956	78.9%
4/3	Right	U	1	N/A	B		1	30	-	753	1850	956	78.8%
5/1	Ahead	U	N/A	N/A	-		-	-	-	1019	Inf	Inf	0.0%
5/2	Ahead	U	N/A	N/A	-		-	-	-	1304	Inf	Inf	0.0%
5/3	Ahead Right	U	N/A	N/A	-		-	-	-	1194	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	1019	Inf	Inf	0.0%
6/2		U	N/A	N/A	-		-	-	-	1304	Inf	Inf	0.0%
6/3		U	N/A	N/A	-		-	-	-	726	Inf	Inf	0.0%
7/1	Right	U	2	N/A	D		1	29	-	256	1850	925	27.7%
7/2	Right	U	2	N/A	D		1	29	-	212	1850	925	22.9%
8/1	Ahead	U	3	N/A	F		1	21	-	512	1850	678	75.5%
8/2	Right Ahead	U	3	N/A	F		1	21	-	328	1850	678	48.4%
9/1		U	N/A	N/A	-		-	-	-	514	Inf	Inf	0.0%
9/2		U	N/A	N/A	-		-	-	-	213	Inf	Inf	0.0%

Full Input Data And Results

10/1		U	N/A	N/A	-		-	-	-	803	Inf	Inf	0.0%
10/2		U	N/A	N/A	-		-	-	-	328	Inf	Inf	0.0%
11/1	Ahead	U	N/A	N/A	-		-	-	-	514	Inf	Inf	0.0%
11/2	Ahead Ahead2	U	N/A	N/A	-		-	-	-	725	Inf	Inf	0.0%
11/3	Ahead	U	N/A	N/A	-		-	-	-	328	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: Ardley East Roundabout	**-**	**-**	**0**	**0**	**0**	**20.9**	**10.5**	**0.0**	**31.4**	**-**	**-**	**-**	**-**
Ardley East	**-**	**-**	**0**	**0**	**0**	**20.9**	**10.5**	**0.0**	**31.4**	**-**	**-**	**-**	**-**
1/2+1/1	1101	1101	-	-	-	5.4	1.9	-	7.3 (3.6+3.6)	23.8 (23.8:23.8)	8.3	1.9	10.2
1/3	441	441	-	-	-	2.0	0.9	-	2.9	23.4	6.1	0.9	7.0
2/1	759	759	-	-	-	2.6	1.8	-	4.5	21.1	10.3	1.8	12.2
2/2	754	754	-	-	-	2.6	1.8	-	4.4	20.9	10.3	1.8	12.1
2/3	753	753	-	-	-	2.6	1.8	-	4.4	20.8	10.2	1.8	12.0
3/2+3/1	771	771	-	-	-	3.3	1.4	-	4.7 (3.3+1.5)	22.1 (22.9:20.4)	7.4	1.4	8.8
3/3	328	328	-	-	-	1.3	0.4	-	1.8	19.4	4.1	0.4	4.5
4/1	468	468	-	-	-	0.0	0.0	-	0.0	0.1	0.2	0.0	0.2
4/2	754	754	-	-	-	0.1	0.0	-	0.1	0.5	0.4	0.0	0.4
4/3	753	753	-	-	-	0.1	0.0	-	0.1	0.5	0.4	0.0	0.4
5/1	1019	1019	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	1304	1304	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/3	1194	1194	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	1019	1019	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/2	1304	1304	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/3	726	726	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	256	256	-	-	-	0.2	0.0	-	0.2	2.8	3.3	0.0	3.3
7/2	212	212	-	-	-	0.3	0.0	-	0.3	5.5	2.3	0.0	2.3
8/1	512	512	-	-	-	0.2	0.0	-	0.2	1.6	0.9	0.0	0.9
8/2	328	328	-	-	-	0.1	0.5	-	0.6	6.5	0.9	0.5	1.3
9/1	514	514	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	213	213	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	803	803	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

Full Input Data And Results

10/2	328	328	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/1	514	514	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/2	725	725	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
11/3	328	328	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1	Stream: 1 PRC for Signalled Lanes (%):	13.2	Total Delay for Signalled Lanes (pcuHr):	10.38	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	22.2	Total Delay for Signalled Lanes (pcuHr):	7.02	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	14.0	Total Delay for Signalled Lanes (pcuHr):	14.01	Cycle Time (s):	60
	PRC Over All Lanes (%):	13.2	Total Delay Over All Lanes(pcuHr):	31.41		

APPENDIX 35

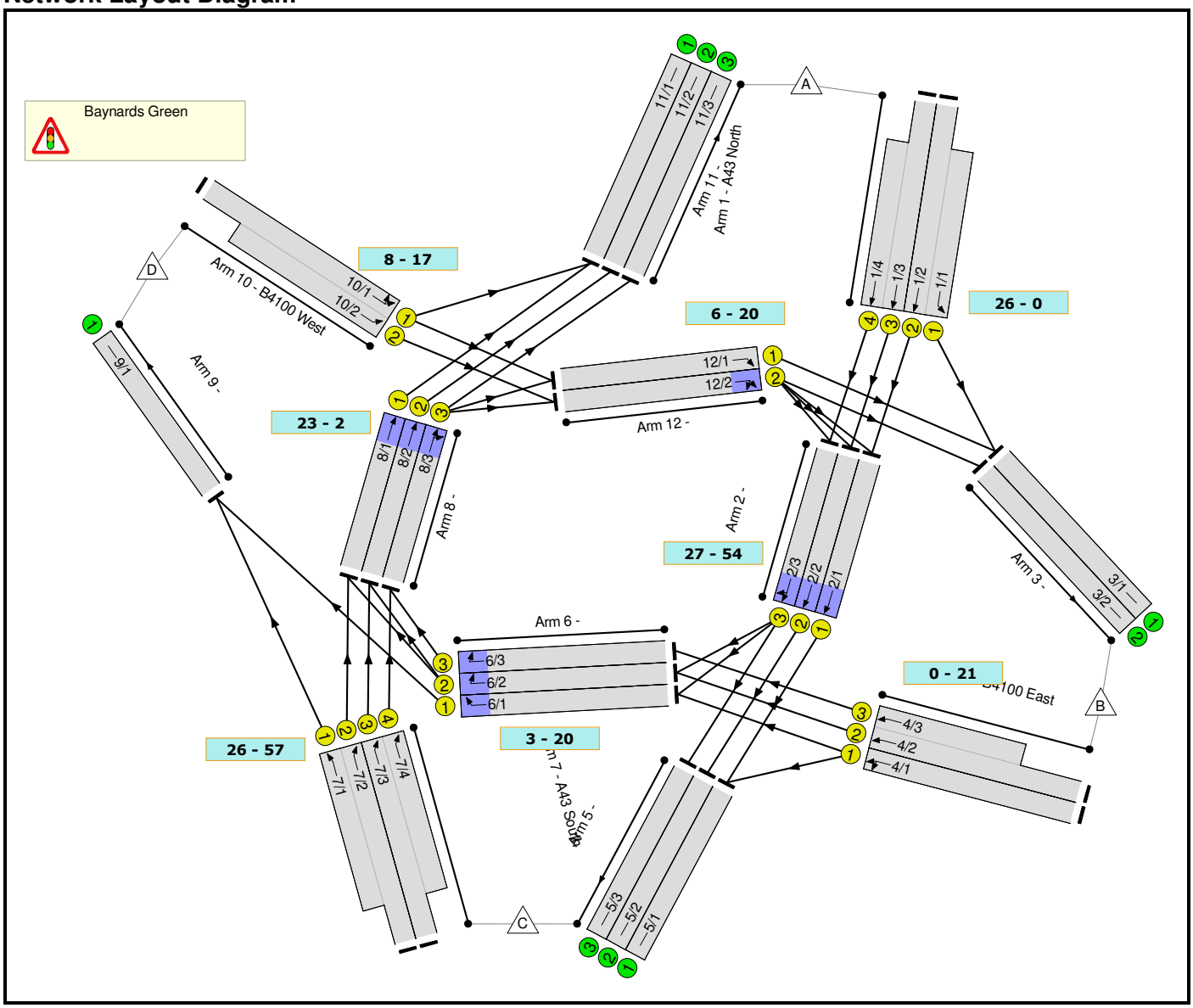
Baynards Green Roundabout mitigation – LinSig results

Full Input Data And Results

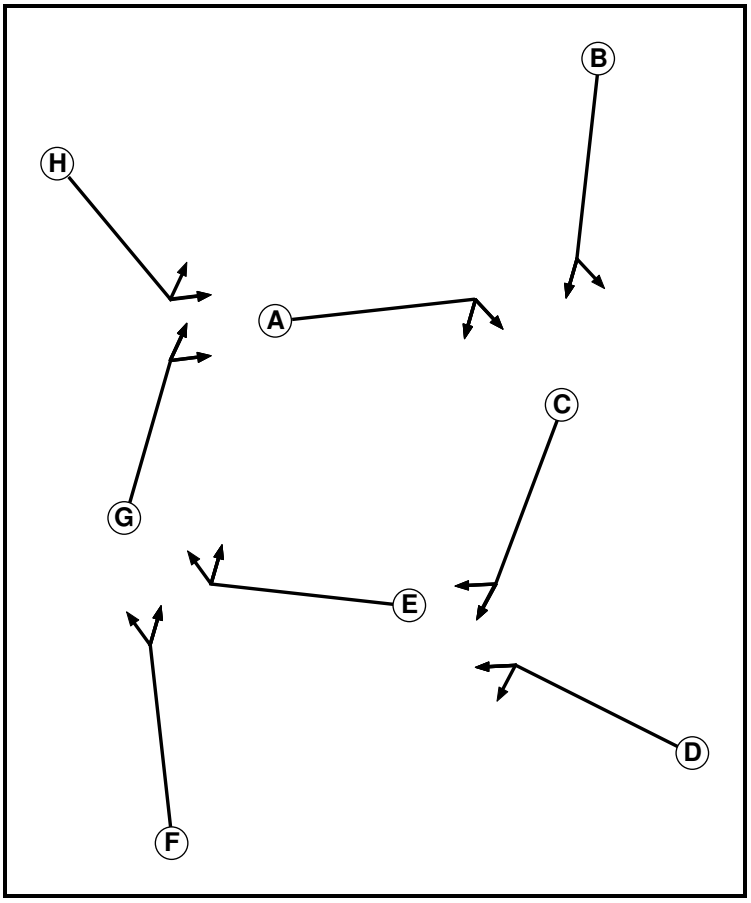
User and Project Details

Project:	**Oxfordshire SRFI**
Title:	**Baynards Green Mitigation scheme**
Location:	
Additional detail:	
File name:	210406 Baynards Gn - OxSRFI mitigation.lsg3x
Author:	Mark Higgins
Company:	ADC Infrastructure
Address:	Nottingham

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7
E	Traffic	3		7	7
F	Traffic	3		7	7
G	Traffic	4		7	7
H	Traffic	4		7	7

Phase Intergreens Matrix

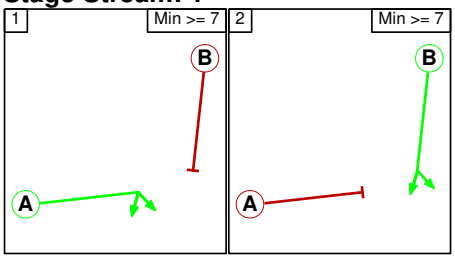
		Starting Phase							
		A	B	C	D	E	F	G	H
Terminating Phase	A		6	-	-	-	-	-	-
	B	6		-	-	-	-	-	-
	C	-	-		6	-	-	-	-
	D	-	-	6		-	-	-	-
	E	-	-	-	-		6	-	-
	F	-	-	-	-	6		-	-
	G	-	-	-	-	-	-		6
	H	-	-	-	-	-	-	6	

Phases in Stage

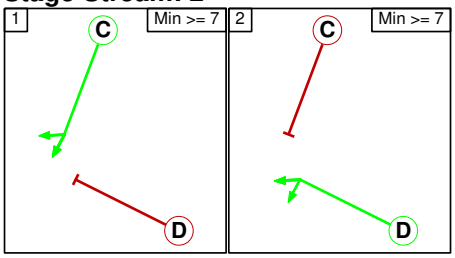
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D
3	1	E
3	2	F
4	1	G
4	2	H

Stage Diagram

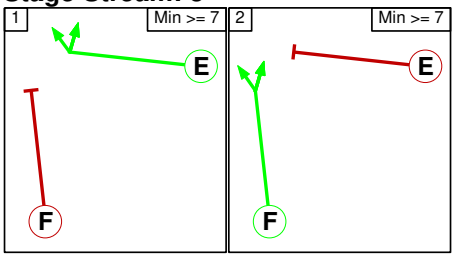
Stage Stream: 1



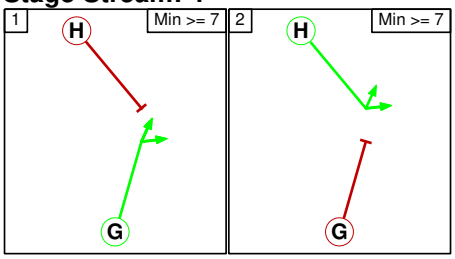
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Phase Delays

Stage Stream: 1

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

Stage Stream: 2

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

Stage Stream: 3

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

Stage Stream: 4

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

Prohibited Stage Change

Stage Stream: 1

	To Stage		
		1	2
From Stage	1		6
	2	6	

Stage Stream: 2

	To Stage		
		1	2
From Stage	1		6
	2	6	

Stage Stream: 3

	To Stage		
		1	2
From Stage	1		6
	2	6	

Stage Stream: 4

	To Stage		
From Stage		1	2
	1		6
	2	6	

Lane Input Data

Junction: Baynards Green												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (A43 North)	U	B	2	3	20.9	Geom	-	3.65	0.00	Y	Arm 3 Left	50.00
1/2 (A43 North)	U	B	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 2 Ahead	50.00
1/3 (A43 North)	U	B	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 2 Ahead	50.00
1/4 (A43 North)	U	B	2	3	24.3	Geom	-	3.65	0.00	Y	Arm 2 Ahead	50.00
2/1	U	C	2	3	9.6	User	1850	-	-	-	-	-
2/2	U	C	2	3	9.6	User	1850	-	-	-	-	-
2/3	U	C	2	3	9.6	User	1850	-	-	-	-	-
3/1	U		2	3	60.0	Inf	-	-	-	-	-	-
3/2	U		2	3	60.0	Inf	-	-	-	-	-	-
4/1 (B4100 East)	U	D	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 5 Left	30.00
											Arm 6 Ahead	Inf
4/2 (B4100 East)	U	D	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Ahead	Inf
4/3 (B4100 East)	U	D	2	3	10.4	Geom	-	3.50	0.00	Y	Arm 6 Ahead	50.00
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
5/3	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U	E	2	3	11.3	User	1800	-	-	-	-	-
6/2	U	E	2	3	11.3	User	1800	-	-	-	-	-
6/3	U	E	2	3	11.3	User	1850	-	-	-	-	-
7/1 (A43 South)	U	F	2	3	12.2	Geom	-	3.65	0.00	Y	Arm 9 Ahead	50.00
7/2 (A43 South)	U	F	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 8 Ahead	50.00
7/3 (A43 South)	U	F	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 8 Ahead	50.00
7/4 (A43 South)	U	F	2	3	22.6	Geom	-	3.65	0.00	Y	Arm 8 Ahead	50.00
8/1	U	G	2	3	12.2	User	1850	-	-	-	-	-
8/2	U	G	2	3	12.2	User	1850	-	-	-	-	-

8/3	U	G	2	3	12.2	User	1850	-	-	-	-	-
9/1	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1 (B4100 West)	U	H	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 11 Left	30.00
											Arm 12 Ahead	40.00
10/2 (B4100 West)	U	H	2	3	22.6	Geom	-	3.50	0.00	Y	Arm 12 Ahead	40.00
11/1	U		2	3	60.0	Inf	-	-	-	-	-	-
11/2	U		2	3	60.0	Inf	-	-	-	-	-	-
11/3	U		2	3	60.0	Inf	-	-	-	-	-	-
12/1	U	A	2	3	11.3	User	1800	-	-	-	-	-
12/2	U	A	2	3	11.3	User	1800	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'Baynards1_AM'	07:45	08:45	01:00	
3: 'Baynards1_PM'	16:30	17:30	01:00	

Scenario 1: '2031 Do Something - AM Peak' (FG1: 'Baynards1_AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	446	2516	70	3032
	B	350	0	212	306	868
	C	1587	287	0	125	1999
	D	72	296	123	1	492
	Tot.	2009	1029	2851	502	6391

Traffic Lane Flows

Lane	Scenario 1: 2031 Do Something - AM Peak
Junction: Baynards Green	
1/1 (short)	446
1/2 (with short)	1322(In) 876(Out)
1/3 (with short)	1710(In) 862(Out)
1/4 (short)	848
2/1	905
2/2	903
2/3	902
3/1	778
3/2	251
4/1	518
4/2 (with short)	350(In) 235(Out)
4/3 (short)	115
5/1	1117
5/2	903
5/3	831
6/1	377
6/2	235
6/3	115
7/1 (short)	125
7/2 (with short)	704(In) 579(Out)
7/3 (with short)	1295(In) 648(Out)
7/4 (short)	647
8/1	699
8/2	763
8/3	762
9/1	502
10/1 (with short)	492(In) 252(Out)
10/2 (short)	240
11/1	771
11/2	763
11/3	475
12/1	332
12/2	375

Lane Saturation Flows

Junction: Baynards Green

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A43 North)	3.65	0.00	Y	Arm 3 Left	50.00	100.0 %	1922	1922
1/2 (A43 North)	3.65	0.00	Y	Arm 2 Ahead	50.00	100.0 %	1922	1922
1/3 (A43 North)	3.65	0.00	Y	Arm 2 Ahead	50.00	100.0 %	1922	1922
1/4 (A43 North)	3.65	0.00	Y	Arm 2 Ahead	50.00	100.0 %	1922	1922
2/1	This lane uses a directly entered Saturation Flow						1850	1850
2/2	This lane uses a directly entered Saturation Flow						1850	1850
2/3	This lane uses a directly entered Saturation Flow						1850	1850
3/1	Infinite Saturation Flow						Inf	Inf
3/2	Infinite Saturation Flow						Inf	Inf
4/1 (B4100 East)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead	30.00 Inf	40.9 % 59.1 %	1926	1926
4/2 (B4100 East)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
4/3 (B4100 East)	3.50	0.00	Y	Arm 6 Ahead	50.00	100.0 %	1908	1908
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
5/3	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						1800	1800
6/2	This lane uses a directly entered Saturation Flow						1800	1800
6/3	This lane uses a directly entered Saturation Flow						1850	1850
7/1 (A43 South)	3.65	0.00	Y	Arm 9 Ahead	50.00	100.0 %	1922	1922
7/2 (A43 South)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
7/3 (A43 South)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
7/4 (A43 South)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
8/1	This lane uses a directly entered Saturation Flow						1850	1850
8/2	This lane uses a directly entered Saturation Flow						1850	1850
8/3	This lane uses a directly entered Saturation Flow						1850	1850
9/1	Infinite Saturation Flow						Inf	Inf
10/1 (B4100 West)	3.50	0.00	Y	Arm 11 Left Arm 12 Ahead	30.00 40.00	28.6 % 71.4 %	1887	1887
10/2 (B4100 West)	3.50	0.00	Y	Arm 12 Ahead	40.00	100.0 %	1894	1894
11/1	Infinite Saturation Flow						Inf	Inf

11/2	Infinite Saturation Flow	Inf	Inf
11/3	Infinite Saturation Flow	Inf	Inf
12/1	This lane uses a directly entered Saturation Flow	1800	1800
12/2	This lane uses a directly entered Saturation Flow	1800	1800

Scenario 2: '2031 Do Something - PM Peak' (FG3: 'Baynards1_PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	467	1435	45	1947
	B	637	0	240	372	1249
	C	2473	230	0	90	2793
	D	37	244	47	3	331
	Tot.	3147	941	1722	510	6320

Traffic Lane Flows

Lane	Scenario 2: 2031 Do Something - PM Peak
Junction: Baynards Green	
1/1 (short)	467
1/2 (with short)	967(In) 500(Out)
1/3 (with short)	980(In) 492(Out)
1/4 (short)	488
2/1	514
2/2	509
2/3	507
3/1	717
3/2	224
4/1	612
4/2 (with short)	637(In) 424(Out)
4/3 (short)	213
5/1	754
5/2	509
5/3	459
6/1	420
6/2	424
6/3	213
7/1 (short)	90
7/2 (with short)	993(In) 903(Out)
7/3 (with short)	1800(In) 882(Out)
7/4 (short)	918
8/1	1113
8/2	1096
8/3	1131
9/1	510
10/1 (with short)	331(In) 170(Out)
10/2 (short)	161
11/1	1150
11/2	1096
11/3	901
12/1	250
12/2	274

Lane Saturation Flows

Junction: Baynards Green

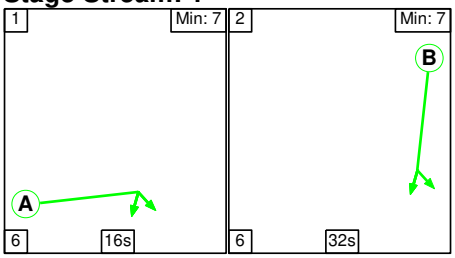
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (A43 North)	3.65	0.00	Y	Arm 3 Left	50.00	100.0 %	1922	1922
1/2 (A43 North)	3.65	0.00	Y	Arm 2 Ahead	50.00	100.0 %	1922	1922
1/3 (A43 North)	3.65	0.00	Y	Arm 2 Ahead	50.00	100.0 %	1922	1922
1/4 (A43 North)	3.65	0.00	Y	Arm 2 Ahead	50.00	100.0 %	1922	1922
2/1	This lane uses a directly entered Saturation Flow						1850	1850
2/2	This lane uses a directly entered Saturation Flow						1850	1850
2/3	This lane uses a directly entered Saturation Flow						1850	1850
3/1	Infinite Saturation Flow						Inf	Inf
3/2	Infinite Saturation Flow						Inf	Inf
4/1 (B4100 East)	3.50	0.00	Y	Arm 5 Left Arm 6 Ahead	30.00 Inf	39.2 % 60.8 %	1927	1927
4/2 (B4100 East)	3.50	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1965	1965
4/3 (B4100 East)	3.50	0.00	Y	Arm 6 Ahead	50.00	100.0 %	1908	1908
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
5/3	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						1800	1800
6/2	This lane uses a directly entered Saturation Flow						1800	1800
6/3	This lane uses a directly entered Saturation Flow						1850	1850
7/1 (A43 South)	3.65	0.00	Y	Arm 9 Ahead	50.00	100.0 %	1922	1922
7/2 (A43 South)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
7/3 (A43 South)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
7/4 (A43 South)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
8/1	This lane uses a directly entered Saturation Flow						1850	1850
8/2	This lane uses a directly entered Saturation Flow						1850	1850
8/3	This lane uses a directly entered Saturation Flow						1850	1850
9/1	Infinite Saturation Flow						Inf	Inf
10/1 (B4100 West)	3.50	0.00	Y	Arm 11 Left Arm 12 Ahead	30.00 40.00	21.8 % 78.2 %	1889	1889
10/2 (B4100 West)	3.50	0.00	Y	Arm 12 Ahead	40.00	100.0 %	1894	1894
11/1	Infinite Saturation Flow						Inf	Inf

11/2	Infinite Saturation Flow	Inf	Inf
11/3	Infinite Saturation Flow	Inf	Inf
12/1	This lane uses a directly entered Saturation Flow	1800	1800
12/2	This lane uses a directly entered Saturation Flow	1800	1800

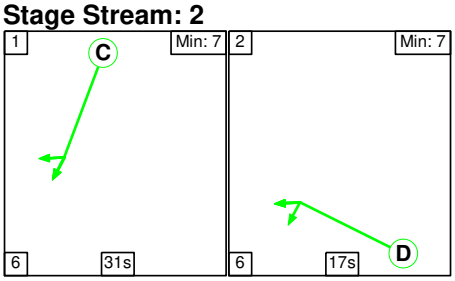
Scenario 1: '2031 Do Something - AM Peak' (FG1: 'Baynards1_AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

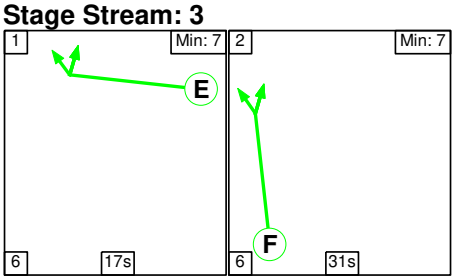
Stage Stream: 1



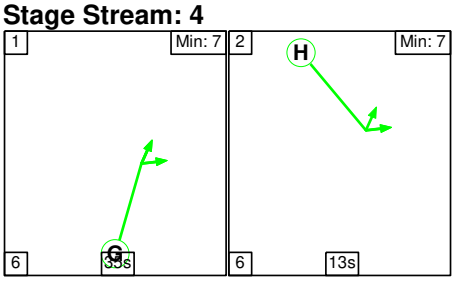
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	16	32
Change Point	0	22

Stage Stream: 2

Stage	1	2
Duration	31	17
Change Point	23	0

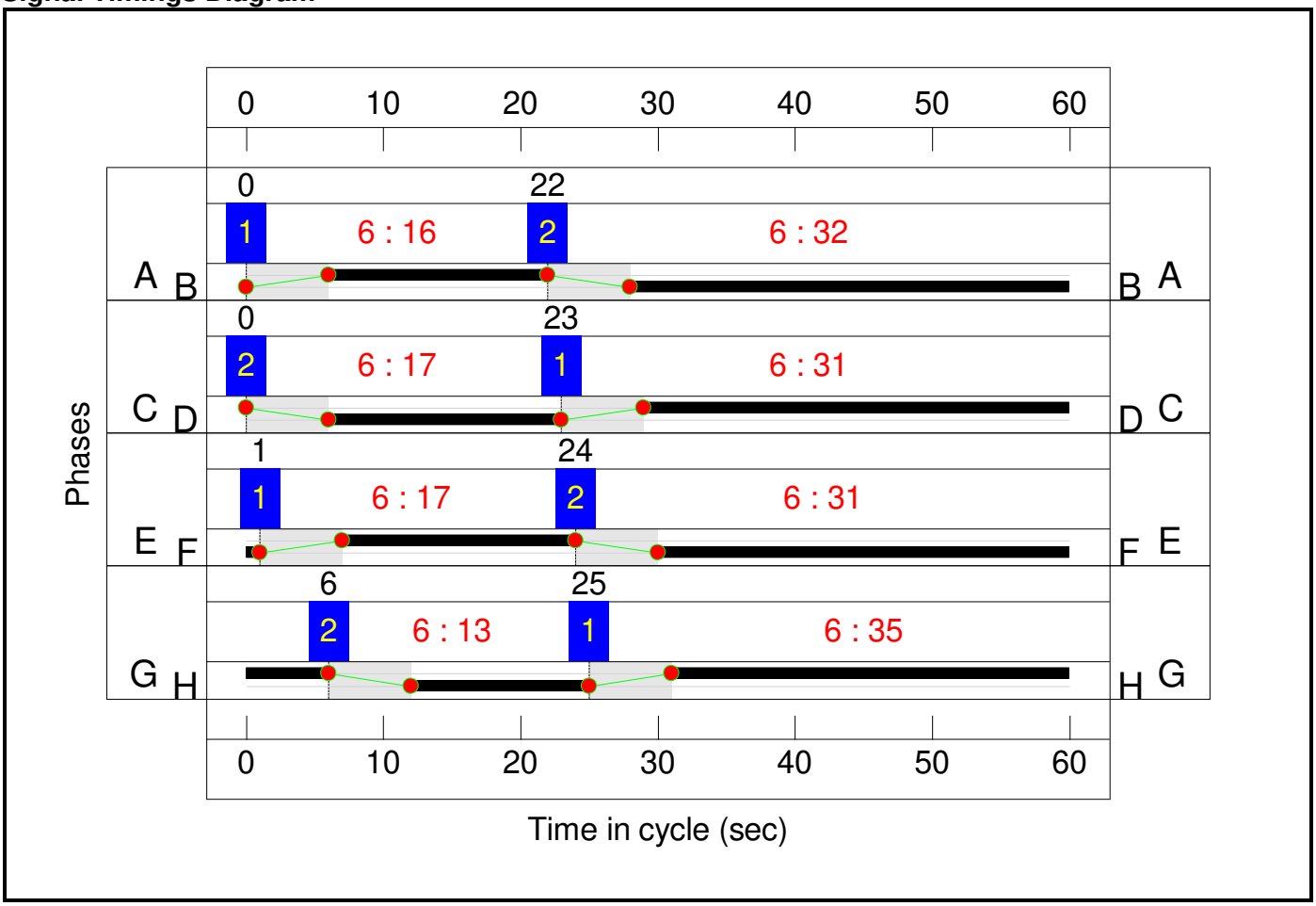
Stage Stream: 3

Stage	1	2
Duration	17	31
Change Point	1	24

Stage Stream: 4

Stage	1	2
Duration	35	13
Change Point	25	6

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Baynards Green Mitigation scheme	-	-	**N/A**	-	-		-	-	-	-	-	-	**91.7%**
Baynards Green	-	-	**N/A**	-	-		-	-	-	-	-	-	**91.7%**
1/2+1/1	A43 North Ahead Left	U	1	N/A	B		1	32	-	1322	1922:1922	1057+561	82.9 : 79.5%
1/3+1/4	A43 North Ahead	U	1	N/A	B		1	32	-	1710	1922:1922	969+953	89.0 : 89.0%
2/1	Ahead	U	2	N/A	C		1	31	-	905	1850	987	91.7%
2/2	Ahead	U	2	N/A	C		1	31	-	903	1850	987	91.5%
2/3	Ahead Right	U	2	N/A	C		1	31	-	902	1850	987	91.4%
4/1	B4100 East Left Ahead	U	2	N/A	D		1	17	-	518	1926	578	89.7%
4/2+4/3	B4100 East Ahead	U	2	N/A	D		1	17	-	350	1965:1908	590+288	39.9 : 39.9%
6/1	Right	U	3	N/A	E		1	17	-	377	1800	540	69.8%
6/2	Right	U	3	N/A	E		1	17	-	235	1800	540	43.5%
6/3	Right	U	3	N/A	E		1	17	-	115	1850	555	20.7%
7/2+7/1	A43 South Ahead Ahead2	U	3	N/A	F		1	31	-	704	1922:1922	991+214	58.4 : 58.4%
7/3+7/4	A43 South Ahead	U	3	N/A	F		1	31	-	1295	1922:1922	962+960	67.4 : 67.4%
8/1	Ahead	U	4	N/A	G		1	35	-	699	1850	1110	63.0%
8/2	Ahead	U	4	N/A	G		1	35	-	763	1850	1110	68.7%
8/3	Ahead Right	U	4	N/A	G		1	35	-	762	1850	1110	68.6%
10/1+10/2	B4100 West Left Ahead	U	4	N/A	H		1	13	-	492	1887:1894	440+442	57.2 : 54.3%
12/1	Right	U	1	N/A	A		1	16	-	332	1800	510	65.1%
12/2	Right Right2	U	1	N/A	A		1	16	-	375	1800	510	73.5%

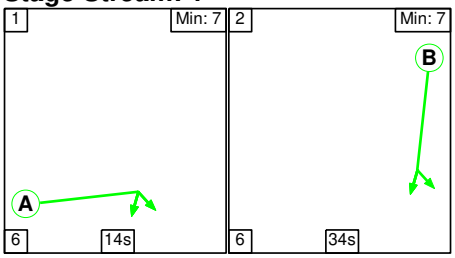
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Baynards Green Mitigation scheme	**-**	**-**	**0**	**0**	**0**	**27.7**	**12.6**	**0.0**	**40.3**	**-**	**-**	**-**	**-**
Baynards Green	**-**	**-**	**0**	**0**	**0**	**27.7**	**12.6**	**0.0**	**40.3**	**-**	**-**	**-**	**-**
1/2+1/1	1322	1322	-	-	-	3.7	2.2	-	5.9	16.1	11.9	2.2	14.1
1/3+1/4	1710	1710	-	-	-	5.2	3.9	-	9.1	19.1	11.5	3.9	15.4
2/1	905	905	-	-	-	0.6	0.0	-	0.6	2.4	1.5	0.0	1.5
2/2	903	903	-	-	-	0.7	0.0	-	0.7	2.7	1.6	0.0	1.6
2/3	902	902	-	-	-	0.8	0.0	-	0.8	3.1	1.8	0.0	1.8
4/1	518	518	-	-	-	2.9	3.8	-	6.7	46.8	8.2	3.8	12.0
4/2+4/3	350	350	-	-	-	1.6	0.3	-	1.9	19.8	3.1	0.3	3.4
6/1	377	377	-	-	-	0.6	0.0	-	0.6	6.0	1.5	0.0	1.5
6/2	235	235	-	-	-	0.1	0.0	-	0.1	2.3	0.2	0.0	0.2
6/3	115	115	-	-	-	0.1	0.0	-	0.1	2.1	0.1	0.0	0.1
7/2+7/1	704	704	-	-	-	1.7	0.7	-	2.4	12.5	6.4	0.7	7.1
7/3+7/4	1295	1295	-	-	-	3.5	1.0	-	4.6	12.7	7.6	1.0	8.6
8/1	699	699	-	-	-	0.5	0.0	-	0.5	2.4	2.0	0.0	2.0
8/2	763	763	-	-	-	0.4	0.0	-	0.4	2.1	1.9	0.0	1.9
8/3	762	762	-	-	-	0.5	0.0	-	0.5	2.5	1.9	0.0	1.9
10/1+10/2	492	492	-	-	-	2.8	0.6	-	3.4	24.9	3.7	0.6	4.3
12/1	332	332	-	-	-	1.0	0.0	-	1.0	10.6	2.9	0.0	2.9
12/2	375	375	-	-	-	1.0	0.0	-	1.0	9.5	2.7	0.0	2.7

C1 Stream: 1 PRC for Signalled Lanes (%):	1.2	Total Delay for Signalled Lanes (pcuHr):	16.96	Cycle Time (s):	60
C1 Stream: 2 PRC for Signalled Lanes (%):	-1.9	Total Delay for Signalled Lanes (pcuHr):	10.69	Cycle Time (s):	60
C1 Stream: 3 PRC for Signalled Lanes (%):	28.9	Total Delay for Signalled Lanes (pcuHr):	7.87	Cycle Time (s):	60
C1 Stream: 4 PRC for Signalled Lanes (%):	30.9	Total Delay for Signalled Lanes (pcuHr):	4.83	Cycle Time (s):	60
PRC Over All Lanes (%):	-1.9	Total Delay Over All Lanes(pcuHr):	40.35		

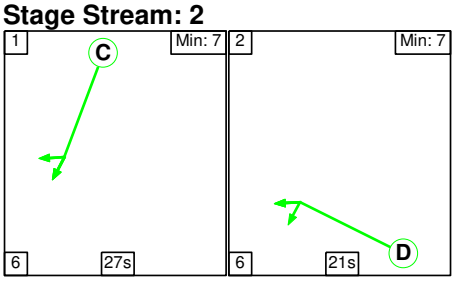
Scenario 2: '2031 Do Something - PM Peak' (FG3: 'Baynards1_PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

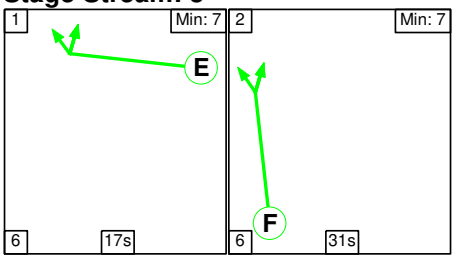
Stage Stream: 1



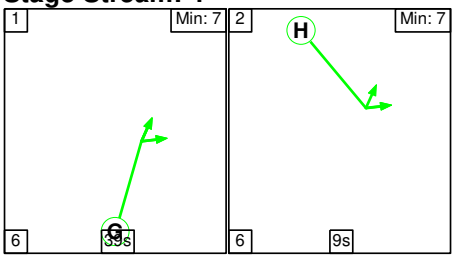
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	14	34
Change Point	0	20

Stage Stream: 2

Stage	1	2
Duration	27	21
Change Point	21	54

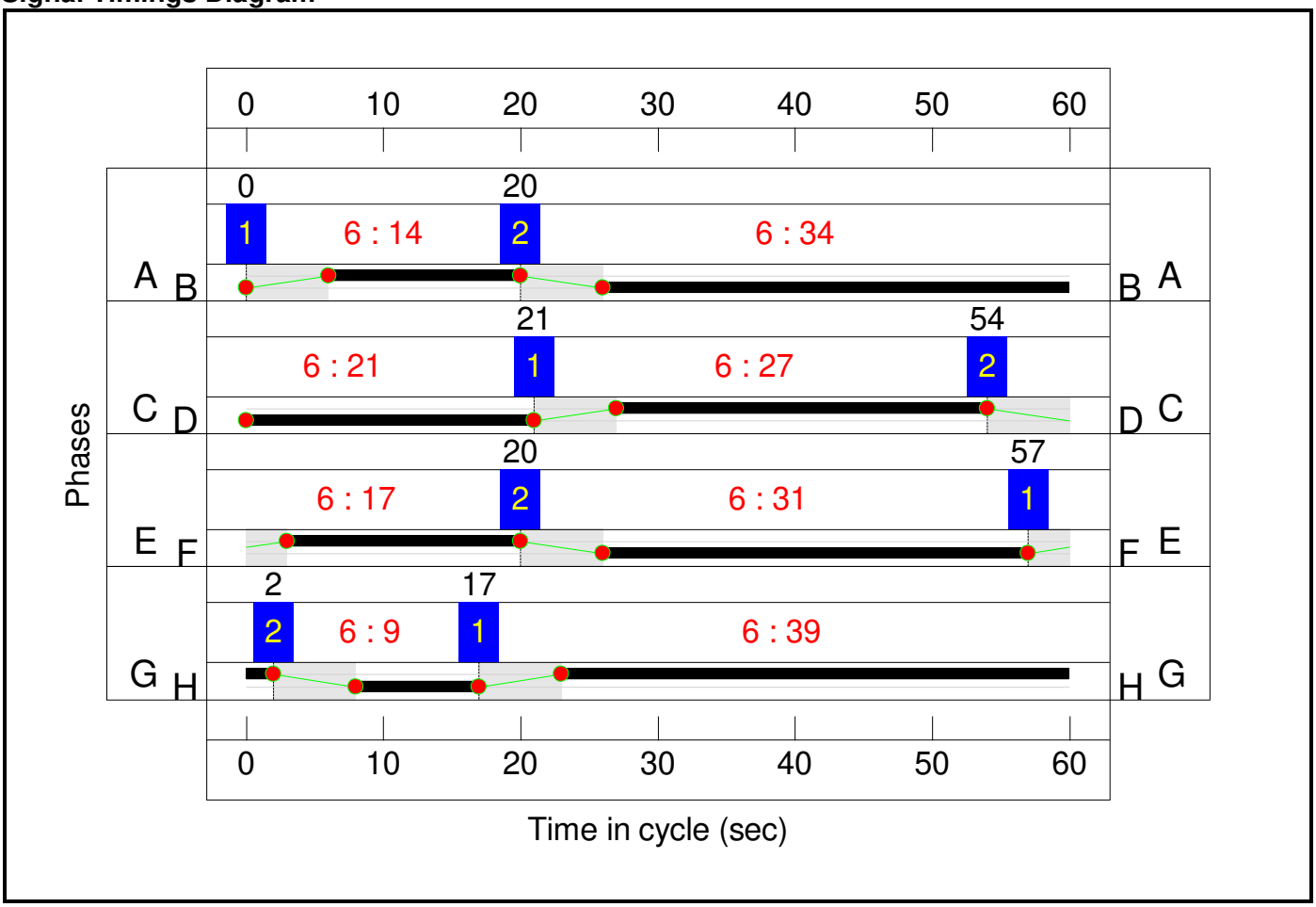
Stage Stream: 3

Stage	1	2
Duration	17	31
Change Point	57	20

Stage Stream: 4

Stage	1	2
Duration	39	9
Change Point	17	2

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Baynards Green Mitigation scheme	-	-	**N/A**	-	-		-	-	-	-	-	-	**93.7%**
Baynards Green	-	-	**N/A**	-	-		-	-	-	-	-	-	**93.7%**
1/2+1/1	A43 North Ahead Left	U	1	N/A	B		1	34	-	967	1922:1922	994+928	50.3 : 50.3%
1/3+1/4	A43 North Ahead	U	1	N/A	B		1	34	-	980	1922:1922	965+957	51.0 : 51.0%
2/1	Ahead	U	2	N/A	C		1	27	-	514	1850	863	59.5%
2/2	Ahead	U	2	N/A	C		1	27	-	509	1850	863	59.0%
2/3	Ahead Right	U	2	N/A	C		1	27	-	507	1850	863	58.7%
4/1	B4100 East Left Ahead	U	2	N/A	D		1	21	-	612	1927	707	86.6%
4/2+4/3	B4100 East Ahead	U	2	N/A	D		1	21	-	637	1965:1908	704+354	60.2 : 60.2%
6/1	Right	U	3	N/A	E		1	17	-	420	1800	540	77.8%
6/2	Right	U	3	N/A	E		1	17	-	424	1800	540	78.5%
6/3	Right	U	3	N/A	E		1	17	-	213	1850	555	38.4%
7/2+7/1	A43 South Ahead Ahead2	U	3	N/A	F		1	31	-	993	1922:1922	1018+101	88.7 : 88.7%
7/3+7/4	A43 South Ahead	U	3	N/A	F		1	31	-	1800	1922:1922	942+980	93.7 : 93.7%
8/1	Ahead	U	4	N/A	G		1	39	-	1113	1850	1233	90.2%
8/2	Ahead	U	4	N/A	G		1	39	-	1096	1850	1233	88.9%
8/3	Ahead Right	U	4	N/A	G		1	39	-	1131	1850	1233	91.7%
10/1+10/2	B4100 West Left Ahead	U	4	N/A	H		1	9	-	331	1889:1894	315+316	54.0 : 51.0%
12/1	Right	U	1	N/A	A		1	14	-	250	1800	450	55.6%
12/2	Right Right2	U	1	N/A	A		1	14	-	274	1800	450	60.9%

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: Baynards Green Mitigation scheme	**-**	**-**	**0**	**0**	**0**	**28.0**	**15.7**	**0.0**	**43.8**	**-**	**-**	**-**	**-**
Baynards Green	**-**	**-**	**0**	**0**	**0**	**28.0**	**15.7**	**0.0**	**43.8**	**-**	**-**	**-**	**-**
1/2+1/1	967	967	-	-	-	1.9	0.5	-	2.4	8.8	4.6	0.5	5.1
1/3+1/4	980	980	-	-	-	1.9	0.5	-	2.4	8.9	4.5	0.5	5.0
2/1	514	514	-	-	-	0.7	0.0	-	0.7	5.1	1.6	0.0	1.6
2/2	509	509	-	-	-	0.7	0.0	-	0.7	5.1	1.7	0.0	1.7
2/3	507	507	-	-	-	0.7	0.0	-	0.7	5.2	1.7	0.0	1.7
4/1	612	612	-	-	-	3.0	3.0	-	6.0	35.5	9.3	3.0	12.4
4/2+4/3	637	637	-	-	-	2.6	0.8	-	3.4	19.0	5.7	0.8	6.4
6/1	420	420	-	-	-	0.8	0.0	-	0.8	6.8	1.8	0.0	1.8
6/2	424	424	-	-	-	0.5	0.0	-	0.5	3.9	0.6	0.0	0.6
6/3	213	213	-	-	-	0.2	0.0	-	0.2	3.4	0.3	0.0	0.3
7/2+7/1	993	993	-	-	-	3.3	3.7	-	7.0	25.3	13.0	3.7	16.8
7/3+7/4	1800	1800	-	-	-	6.1	6.7	-	12.8	25.6	13.5	6.7	20.2
8/1	1113	1113	-	-	-	0.7	0.0	-	0.7	2.3	3.5	0.0	3.5
8/2	1096	1096	-	-	-	0.7	0.0	-	0.7	2.3	3.6	0.0	3.6
8/3	1131	1131	-	-	-	0.9	0.0	-	0.9	2.9	3.6	0.0	3.6
10/1+10/2	331	331	-	-	-	2.1	0.6	-	2.7	28.8	2.5	0.6	3.1
12/1	250	250	-	-	-	0.6	0.0	-	0.6	8.4	2.0	0.0	2.0
12/2	274	274	-	-	-	0.6	0.0	-	0.6	7.5	1.9	0.0	1.9

C1 Stream: 1 PRC for Signalled Lanes (%):	47.8	Total Delay for Signalled Lanes (pcuHr):	5.95	Cycle Time (s):	60
C1 Stream: 2 PRC for Signalled Lanes (%):	3.9	Total Delay for Signalled Lanes (pcuHr):	11.59	Cycle Time (s):	60
C1 Stream: 3 PRC for Signalled Lanes (%):	-4.1	Total Delay for Signalled Lanes (pcuHr):	21.23	Cycle Time (s):	60
C1 Stream: 4 PRC for Signalled Lanes (%):	-1.9	Total Delay for Signalled Lanes (pcuHr):	4.98	Cycle Time (s):	60
PRC Over All Lanes (%):	-4.1	Total Delay Over All Lanes(pcuHr):	43.76		

APPENDIX 36

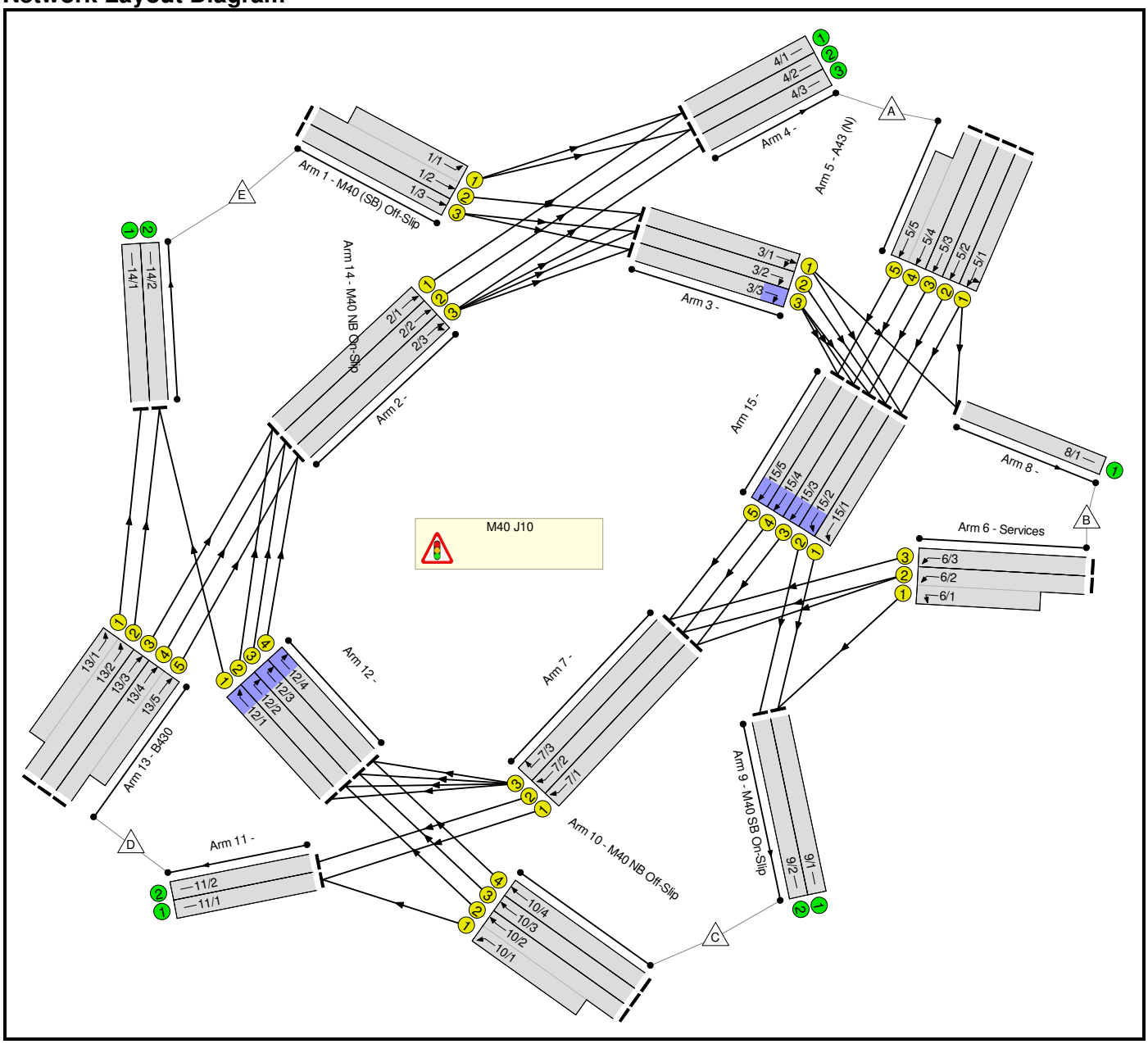
Single, large grade-separated gyratory – LinSig results

Full Input Data And Results

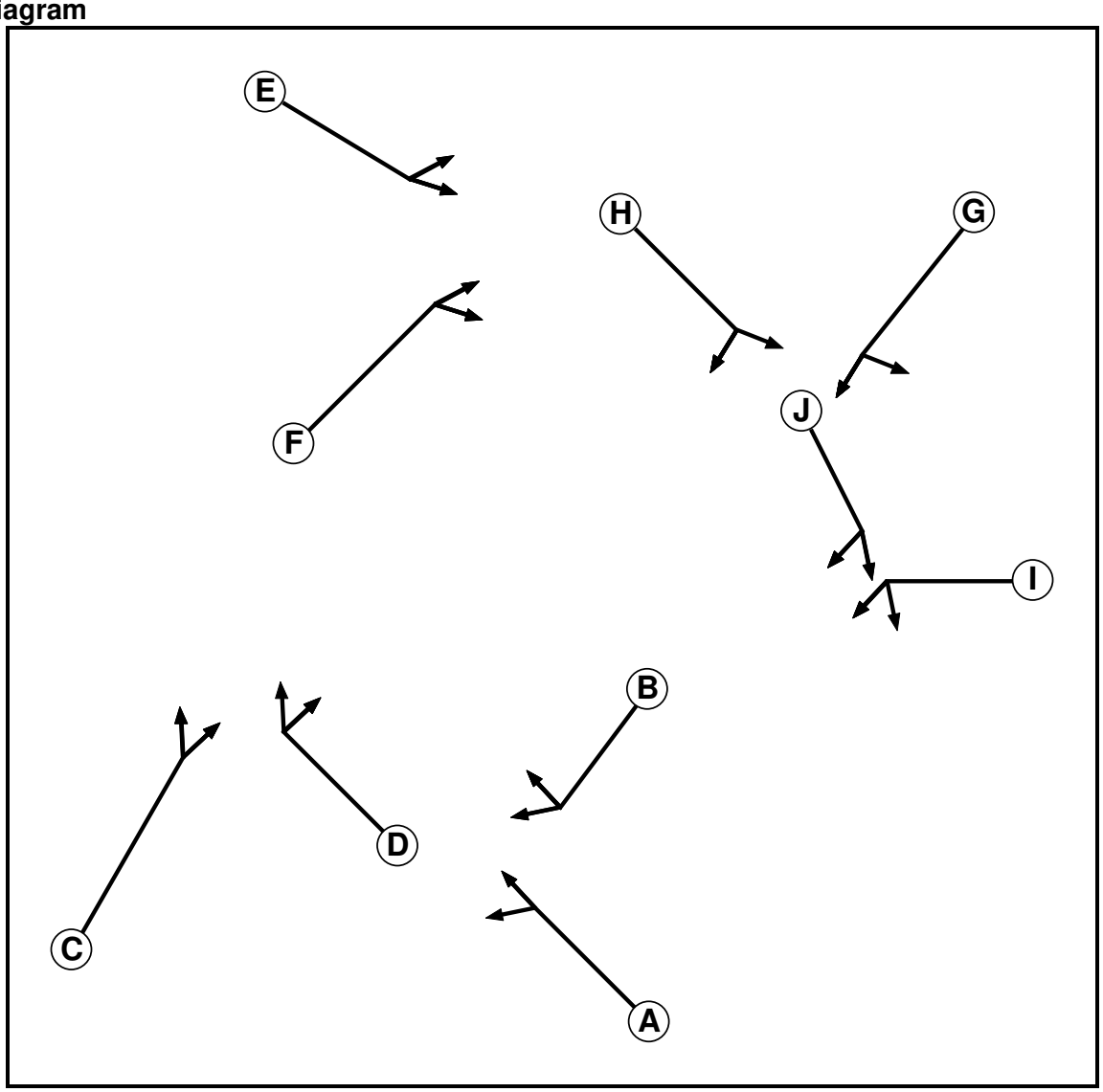
User and Project Details

Project:	**Oxfordshire SRFI**
Title:	**Single grade-seperated roundabout**
Location:	
Additional detail:	
File name:	210607 M4J10 two bridge roundabout.lsg3x
Author:	Mark Higgins
Company:	ADC Infrastrcture
Address:	

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	2		7	7
D	Traffic	2		7	7
E	Traffic	3		7	7
F	Traffic	3		7	7
G	Traffic	4		7	7
H	Traffic	4		7	7
I	Traffic	5		7	7
J	Traffic	5		7	7

Phase Intergreens Matrix

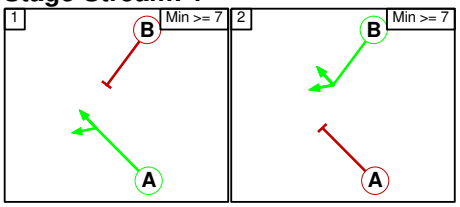
		Starting Phase									
		A	B	C	D	E	F	G	H	I	J
Terminating Phase	A		6	-	-	-	-	-	-	-	-
	B	6		-	-	-	-	-	-	-	-
	C	-	-		6	-	-	-	-	-	-
	D	-	-	6		-	-	-	-	-	-
	E	-	-	-	-		6	-	-	-	-
	F	-	-	-	-	6		-	-	-	-
	G	-	-	-	-	-	-		6	-	-
	H	-	-	-	-	-	-	6		-	-
	I	-	-	-	-	-	-	-	-		6
	J	-	-	-	-	-	-	-	-	6	

Phases in Stage

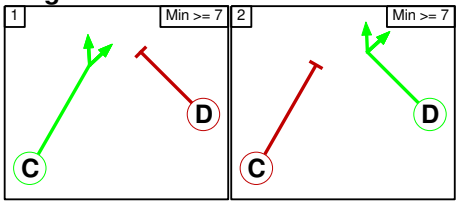
Stream	Stage No.	Phases in Stage
1	1	A
1	2	B
2	1	C
2	2	D
3	1	E
3	2	F
4	1	G
4	2	H
5	1	I
5	2	J

Stage Diagram

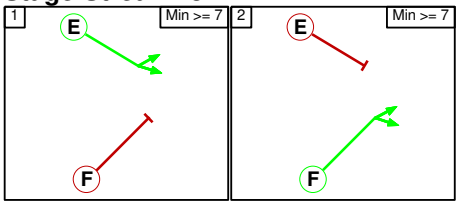
Stage Stream: 1



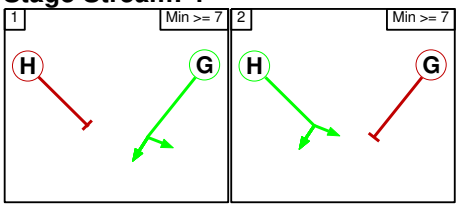
Stage Stream: 2



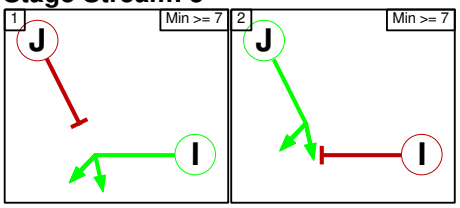
Stage Stream: 3



Stage Stream: 4



Stage Stream: 5



Prohibited Stage Change

Stage Stream: 1

	To Stage		
		1	2
From Stage	1		6
	2	6	

Stage Stream: 2

	To Stage		
		1	2
From Stage	1		6
	2	6	

Stage Stream: 3

	To Stage		
		1	2
From Stage	1		6
	2	6	

Stage Stream: 4

	To Stage		
		1	2
From Stage	1		6
	2	6	

Stage Stream: 5

	To Stage		
		1	2
From Stage	1		6
	2	6	

Lane Input Data

Junction: M40 J10												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
1/1 (M40 (SB) Off-Slip)	U	E	2	3	17.4	Geom	-	3.65	0.00	Y	Arm 4 Left	Inf
1/2 (M40 (SB) Off-Slip)	U	E	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 3 Ahead	Inf
1/3 (M40 (SB) Off-Slip)	U	E	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 3 Ahead	Inf
2/1	U	F	2	3	31.3	User	1850	-	-	-	-	-
2/2	U	F	2	3	31.3	User	1850	-	-	-	-	-
2/3	U	F	2	3	31.3	User	1850	-	-	-	-	-
3/1	U	H	2	3	13.0	User	1850	-	-	-	-	-
3/2	U	H	2	3	13.0	User	1850	-	-	-	-	-
3/3	U	H	2	3	13.0	User	1850	-	-	-	-	-
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
4/2	U		2	3	60.0	Inf	-	-	-	-	-	-
4/3	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (A43 (N))	U	G	2	3	60.0	User	1850	-	-	-	-	-
5/2 (A43 (N))	U	G	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 15 Ahead	Inf
5/3 (A43 (N))	U	G	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 15 Ahead	Inf
5/4 (A43 (N))	U	G	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 15 Ahead	Inf
5/5 (A43 (N))	U	G	2	3	17.4	Geom	-	3.65	0.00	Y	Arm 15 Ahead	Inf
6/1 (Services)	U	I	2	3	10.0	Geom	-	3.65	0.00	Y	Arm 9 Left	30.00
6/2 (Services)	U	I	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 7 Left	Inf
6/3 (Services)	U	I	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 7 Left	50.00
7/1	U	B	2	3	13.9	User	1850	-	-	-	-	-
7/2	U	B	2	3	13.9	User	1850	-	-	-	-	-
7/3	U	B	2	3	13.9	User	1850	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1 (M40 SB On-Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/2 (M40 SB On-Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-

10/1 (M40 NB Off-Slip)	U	A	2	3	17.4	Geom	-	3.65	0.00	Y	Arm 11 Left	40.00
10/2 (M40 NB Off-Slip)	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 12 Ahead	Inf
10/3 (M40 NB Off-Slip)	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 12 Ahead	Inf
10/4 (M40 NB Off-Slip)	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 12 Ahead	Inf
11/1	U		2	3	60.0	Inf	-	-	-	-	-	-
11/2	U		2	3	60.0	Inf	-	-	-	-	-	-
12/1	U	D	2	3	19.1	User	1850	-	-	-	-	-
12/2	U	D	2	3	19.1	User	1850	-	-	-	-	-
12/3	U	D	2	3	19.1	User	1850	-	-	-	-	-
12/4	U	D	2	3	19.1	User	1850	-	-	-	-	-
13/1 (B430)	U	C	2	3	10.4	Geom	-	3.50	0.00	Y	Arm 14 Ahead	Inf
13/2 (B430)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 14 Ahead	Inf
13/3 (B430)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 2 Ahead	Inf
13/4 (B430)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 2 Ahead	Inf
13/5 (B430)	U	C	2	3	20.9	Geom	-	3.50	0.00	Y	Arm 2 Ahead	Inf
14/1 (M40 NB On-Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
14/2 (M40 NB On-Slip)	U		2	3	60.0	Inf	-	-	-	-	-	-
15/1	U	J	2	3	7.0	User	1850	-	-	-	-	-
15/2	U	J	2	3	7.0	User	1850	-	-	-	-	-
15/3	U	J	2	3	7.0	User	1850	-	-	-	-	-
15/4	U	J	2	3	7.0	User	1850	-	-	-	-	-
15/5	U	J	2	3	7.0	User	1850	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
5: '2031 do some AM'	07:45	08:45	01:00	
6: '2031 do some PM'	16:30	17:30	01:00	

Scenario 1: '2031 do something AM' (FG5: '2031 do some AM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	124	1605	858	264	2851
	B	85	0	295	57	145	582
	C	1169	211	40	446	0	1866
	D	408	28	242	0	391	1069
	E	337	219	0	506	13	1075
	Tot.	1999	582	2182	1867	813	7443

Traffic Lane Flows

Lane	Scenario 1: 2031 do something AM
Junction: M40 J10	
1/1 (short)	337
1/2 (with short)	556(In) 219(Out)
1/3	519
2/1	686
2/2	721
2/3	776
3/1	458
3/2	282
3/3	519
4/1	855
4/2	889
4/3	255
5/1	839
5/2	890
5/3	397
5/4 (with short)	725(In) 461(Out)
5/5 (short)	264
6/1 (short)	295
6/2 (with short)	352(In) 57(Out)
6/3	230
7/1	678
7/2	743
7/3	507
8/1	582
9/1	1010
9/2	1172
10/1 (short)	446
10/2 (with short)	940(In) 494(Out)
10/3	463
10/4	463
11/1	1124
11/2	743
12/1	422
12/2	495
12/3	505

12/4	505
13/1 (short)	196
13/2 (with short)	391(In) 195(Out)
13/3	191
13/4 (with short)	487(In) 216(Out)
13/5 (short)	271
14/1	196
14/2	617
15/1	715
15/2	1172
15/3	648
15/4	716
15/5	277

Lane Saturation Flows

Junction: M40 J10

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (M40 (SB) Off-Slip)	3.65	0.00	Y	Arm 4 Left	Inf	100.0 %	1980	1980
1/2 (M40 (SB) Off-Slip)	3.65	0.00	Y	Arm 3 Ahead	Inf	100.0 %	1980	1980
1/3 (M40 (SB) Off-Slip)	3.65	0.00	Y	Arm 3 Ahead	Inf	100.0 %	1980	1980
2/1	This lane uses a directly entered Saturation Flow						1850	1850
2/2	This lane uses a directly entered Saturation Flow						1850	1850
2/3	This lane uses a directly entered Saturation Flow						1850	1850
3/1	This lane uses a directly entered Saturation Flow						1850	1850
3/2	This lane uses a directly entered Saturation Flow						1850	1850
3/3	This lane uses a directly entered Saturation Flow						1850	1850
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
4/3	Infinite Saturation Flow						Inf	Inf
5/1 (A43 (N) Lane 1)	This lane uses a directly entered Saturation Flow						1850	1850
5/2 (A43 (N))	3.50	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1965	1965
5/3 (A43 (N))	3.50	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1965	1965
5/4 (A43 (N))	3.50	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1965	1965
5/5 (A43 (N))	3.65	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1980	1980
6/1 (Services)	3.65	0.00	Y	Arm 9 Left	30.00	100.0 %	1886	1886
6/2 (Services)	3.50	0.00	Y	Arm 7 Left	Inf	100.0 %	1965	1965
6/3 (Services)	3.50	0.00	Y	Arm 7 Left	50.00	100.0 %	1908	1908
7/1	This lane uses a directly entered Saturation Flow						1850	1850
7/2	This lane uses a directly entered Saturation Flow						1850	1850
7/3	This lane uses a directly entered Saturation Flow						1850	1850
8/1	Infinite Saturation Flow						Inf	Inf
9/1 (M40 SB On-Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (M40 SB On-Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (M40 NB Off-Slip)	3.65	0.00	Y	Arm 11 Left	40.00	100.0 %	1908	1908
10/2 (M40 NB Off-Slip)	3.65	0.00	Y	Arm 12 Ahead	Inf	100.0 %	1980	1980

10/3 (M40 NB Off-Slip)	3.65	0.00	Y	Arm 12 Ahead	Inf	100.0 %	1980	1980
10/4 (M40 NB Off-Slip)	3.65	0.00	Y	Arm 12 Ahead	Inf	100.0 %	1980	1980
11/1	Infinite Saturation Flow						Inf	Inf
11/2	Infinite Saturation Flow						Inf	Inf
12/1	This lane uses a directly entered Saturation Flow						1850	1850
12/2	This lane uses a directly entered Saturation Flow						1850	1850
12/3	This lane uses a directly entered Saturation Flow						1850	1850
12/4	This lane uses a directly entered Saturation Flow						1850	1850
13/1 (B430)	3.50	0.00	Y	Arm 14 Ahead	Inf	100.0 %	1965	1965
13/2 (B430)	3.50	0.00	Y	Arm 14 Ahead	Inf	100.0 %	1965	1965
13/3 (B430)	3.50	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1965	1965
13/4 (B430)	3.50	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1965	1965
13/5 (B430)	3.50	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1965	1965
14/1 (M40 NB On-Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
14/2 (M40 NB On-Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
15/1	This lane uses a directly entered Saturation Flow						1850	1850
15/2	This lane uses a directly entered Saturation Flow						1850	1850
15/3	This lane uses a directly entered Saturation Flow						1850	1850
15/4	This lane uses a directly entered Saturation Flow						1850	1850
15/5	This lane uses a directly entered Saturation Flow						1850	1850

Scenario 2: '2031do something PM' (FG6: '2031 do some PM', Plan 1: 'Network Control Plan 1')

Traffic Flows, Desired

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	107	939	405	271	1722
	B	129	0	258	17	196	600
	C	1657	248	67	301	0	2273
	D	689	20	405	0	427	1541
	E	318	229	0	362	18	927
	Tot.	2793	604	1669	1085	912	7063

Traffic Lane Flows

Lane	Scenario 2: 2031do something PM
Junction: M40 J10	
1/1 (short)	318
1/2 (with short)	547(In) 229(Out)
1/3	380
2/1	1071
2/2	1078
2/3	1066
3/1	650
3/2	319
3/3	380
4/1	1230
4/2	1237
4/3	326
5/1	517
5/2	529
5/3	153
5/4 (with short)	523(In) 252(Out)
5/5 (short)	271
6/1 (short)	258
6/2 (with short)	275(In) 17(Out)
6/3	325
7/1	364
7/2	420
7/3	614
8/1	604
9/1	821
9/2	848
10/1 (short)	301
10/2 (with short)	992(In) 691(Out)
10/3	648
10/4	633
11/1	665
11/2	420
12/1	485
12/2	742
12/3	722

12/4	637
13/1 (short)	214
13/2 (with short)	427(In) 213(Out)
13/3	329
13/4 (with short)	785(In) 356(Out)
13/5 (short)	429
14/1	214
14/2	698
15/1	563
15/2	848
15/3	348
15/4	419
15/5	289

Lane Saturation Flows

Junction: M40 J10

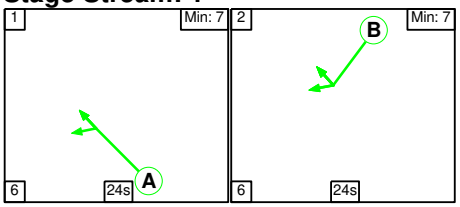
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (M40 (SB) Off-Slip)	3.65	0.00	Y	Arm 4 Left	Inf	100.0 %	1980	1980
1/2 (M40 (SB) Off-Slip)	3.65	0.00	Y	Arm 3 Ahead	Inf	100.0 %	1980	1980
1/3 (M40 (SB) Off-Slip)	3.65	0.00	Y	Arm 3 Ahead	Inf	100.0 %	1980	1980
2/1	This lane uses a directly entered Saturation Flow						1850	1850
2/2	This lane uses a directly entered Saturation Flow						1850	1850
2/3	This lane uses a directly entered Saturation Flow						1850	1850
3/1	This lane uses a directly entered Saturation Flow						1850	1850
3/2	This lane uses a directly entered Saturation Flow						1850	1850
3/3	This lane uses a directly entered Saturation Flow						1850	1850
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
4/3	Infinite Saturation Flow						Inf	Inf
5/1 (A43 (N) Lane 1)	This lane uses a directly entered Saturation Flow						1850	1850
5/2 (A43 (N))	3.50	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1965	1965
5/3 (A43 (N))	3.50	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1965	1965
5/4 (A43 (N))	3.50	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1965	1965
5/5 (A43 (N))	3.65	0.00	Y	Arm 15 Ahead	Inf	100.0 %	1980	1980
6/1 (Services)	3.65	0.00	Y	Arm 9 Left	30.00	100.0 %	1886	1886
6/2 (Services)	3.50	0.00	Y	Arm 7 Left	Inf	100.0 %	1965	1965
6/3 (Services)	3.50	0.00	Y	Arm 7 Left	50.00	100.0 %	1908	1908
7/1	This lane uses a directly entered Saturation Flow						1850	1850
7/2	This lane uses a directly entered Saturation Flow						1850	1850
7/3	This lane uses a directly entered Saturation Flow						1850	1850
8/1	Infinite Saturation Flow						Inf	Inf
9/1 (M40 SB On-Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (M40 SB On-Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (M40 NB Off-Slip)	3.65	0.00	Y	Arm 11 Left	40.00	100.0 %	1908	1908
10/2 (M40 NB Off-Slip)	3.65	0.00	Y	Arm 12 Ahead	Inf	100.0 %	1980	1980

10/3 (M40 NB Off-Slip)	3.65	0.00	Y	Arm 12 Ahead	Inf	100.0 %	1980	1980
10/4 (M40 NB Off-Slip)	3.65	0.00	Y	Arm 12 Ahead	Inf	100.0 %	1980	1980
11/1	Infinite Saturation Flow						Inf	Inf
11/2	Infinite Saturation Flow						Inf	Inf
12/1	This lane uses a directly entered Saturation Flow						1850	1850
12/2	This lane uses a directly entered Saturation Flow						1850	1850
12/3	This lane uses a directly entered Saturation Flow						1850	1850
12/4	This lane uses a directly entered Saturation Flow						1850	1850
13/1 (B430)	3.50	0.00	Y	Arm 14 Ahead	Inf	100.0 %	1965	1965
13/2 (B430)	3.50	0.00	Y	Arm 14 Ahead	Inf	100.0 %	1965	1965
13/3 (B430)	3.50	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1965	1965
13/4 (B430)	3.50	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1965	1965
13/5 (B430)	3.50	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1965	1965
14/1 (M40 NB On-Slip Lane 1)	Infinite Saturation Flow						Inf	Inf
14/2 (M40 NB On-Slip Lane 2)	Infinite Saturation Flow						Inf	Inf
15/1	This lane uses a directly entered Saturation Flow						1850	1850
15/2	This lane uses a directly entered Saturation Flow						1850	1850
15/3	This lane uses a directly entered Saturation Flow						1850	1850
15/4	This lane uses a directly entered Saturation Flow						1850	1850
15/5	This lane uses a directly entered Saturation Flow						1850	1850

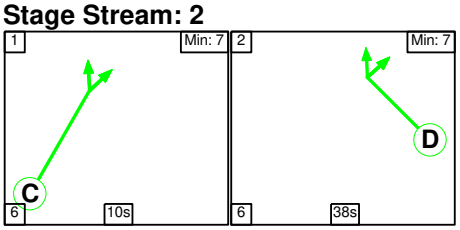
Scenario 1: '2031 do something AM' (FG5: '2031 do some AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

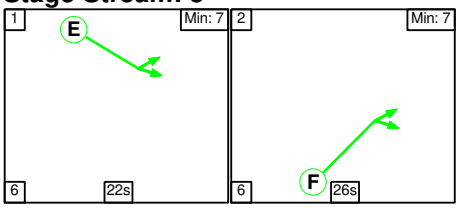
Stage Stream: 1



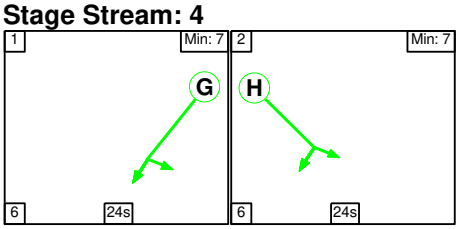
Stage Stream: 2



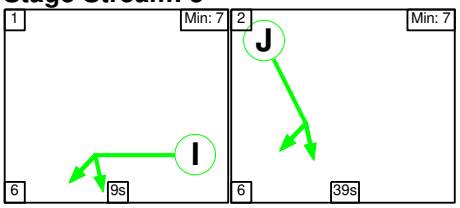
Stage Stream: 3



Stage Stream: 4



Stage Stream: 5



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	24	24
Change Point	0	30

Stage Stream: 2

Stage	1	2
Duration	10	38
Change Point	21	37

Stage Stream: 3

Stage	1	2
Duration	22	26
Change Point	0	28

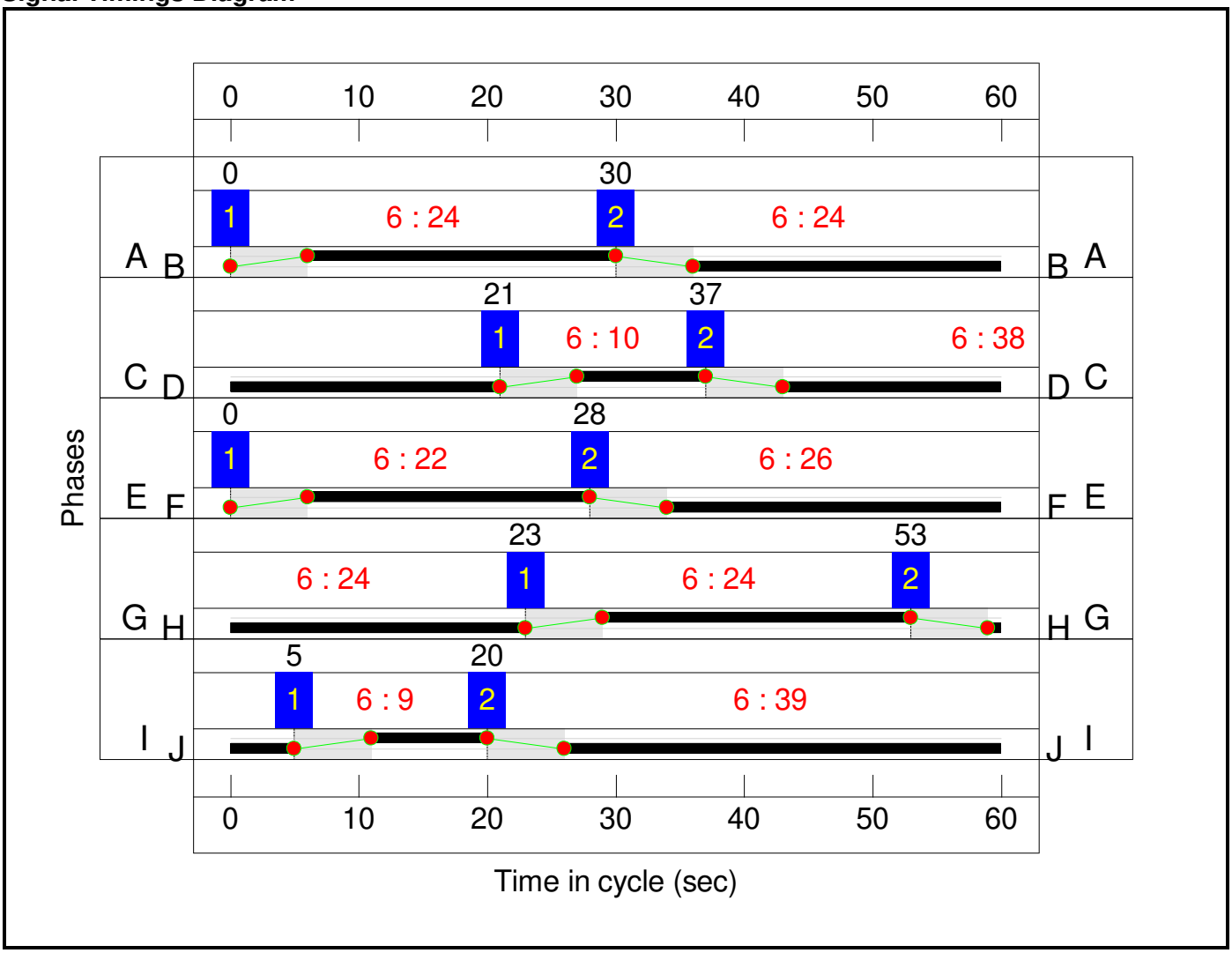
Stage Stream: 4

Stage	1	2
Duration	24	24
Change Point	23	53

Stage Stream: 5

Stage	1	2
Duration	9	39
Change Point	5	20

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Single grade-seperated roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**108.8%**
M40 J10	-	-	**N/A**	-	-		-	-	-	-	-	-	**108.8%**
1/2+1/1	M40 (SB) Off-Slip Ahead Left	U	3	N/A	E		1	22	-	556	1980:1980	493+759	44.4 : 44.4%
1/3	M40 (SB) Off-Slip Ahead	U	3	N/A	E		1	22	-	519	1980	759	68.4%
2/1	Ahead	U	3	N/A	F		1	26	-	686	1850	833	82.4%
2/2	Ahead	U	3	N/A	F		1	26	-	721	1850	833	86.6%
2/3	Right Ahead	U	3	N/A	F		1	26	-	776	1850	833	93.2%
3/1	Ahead Right	U	4	N/A	H		1	24	-	458	1850	771	59.4%
3/2	Right	U	4	N/A	H		1	24	-	282	1850	771	36.6%
3/3	Right	U	4	N/A	H		1	24	-	519	1850	771	67.3%
5/1	A43 (N) Left Ahead	U	4	N/A	G		1	24	-	839	1850	771	108.8%
5/2	A43 (N) Ahead	U	4	N/A	G		1	24	-	890	1965	819	108.7%
5/3	A43 (N) Ahead	U	4	N/A	G		1	24	-	397	1965	819	48.5%
5/4+5/5	A43 (N) Ahead	U	4	N/A	G		1	24	-	725	1965:1980	819+469	56.3 : 56.3%
6/2+6/1	Services Left Left2	U	5	N/A	I		1	9	-	352	1965:1886	61+314	93.8 : 93.8%
6/3	Services Left	U	5	N/A	I		1	9	-	230	1908	318	72.3%
7/1	Ahead	U	1	N/A	B		1	24	-	678	1850	771	88.0%
7/2	Ahead	U	1	N/A	B		1	24	-	743	1850	771	96.4%
7/3	Right	U	1	N/A	B		1	24	-	507	1850	771	65.8%
10/2+10/1	M40 NB Off-Slip Left Ahead	U	1	N/A	A		1	24	-	940	1980:1908	825+795	59.9 : 56.1%
10/3	M40 NB Off-Slip Ahead	U	1	N/A	A		1	24	-	463	1980	825	56.1%

10/4	M40 NB Off-Slip Ahead	U	1	N/A	A		1	24	-	463	1980	825	56.1%
12/1	Ahead	U	2	N/A	D		1	38	-	422	1850	1203	35.1%
12/2	Right	U	2	N/A	D		1	38	-	495	1850	1203	41.2%
12/3	Right	U	2	N/A	D		1	38	-	505	1850	1203	42.0%
12/4	Right	U	2	N/A	D		1	38	-	505	1850	1203	42.0%
13/2+13/1	B430 Ahead	U	2	N/A	C		1	10	-	391	1965:1965	360+360	54.1 : 54.4%
13/3	B430 Ahead	U	2	N/A	C		1	10	-	191	1965	360	53.0%
13/4+13/5	B430 Ahead	U	2	N/A	C		1	10	-	487	1965:1965	360+360	60.0 : 75.2%
15/1	Ahead	U	5	N/A	J		1	39	-	715	1850	1233	53.3%
15/2	Ahead	U	5	N/A	J		1	39	-	1172	1850	1233	89.3%
15/3	Ahead	U	5	N/A	J		1	39	-	648	1850	1233	52.5%
15/4	Ahead	U	5	N/A	J		1	39	-	716	1850	1233	58.1%
15/5	Ahead	U	5	N/A	J		1	39	-	277	1850	1233	22.5%

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: Single grade-seperated roundabout	**-**	**-**	**0**	**0**	**0**	**57.6**	**93.7**	**0.0**	**151.3**	**-**	**-**	**-**	**-**
M40 J10	**-**	**-**	**0**	**0**	**0**	**57.6**	**93.7**	**0.0**	**151.3**	**-**	**-**	**-**	**-**
1/2+1/1	556	556	-	-	-	2.1	0.4	-	2.5 (0.9+1.5)	16.0 (15.4:16.3)	4.1	0.4	4.5
1/3	519	519	-	-	-	2.2	1.1	-	3.3	22.9	7.2	1.1	8.3
2/1	686	686	-	-	-	1.7	0.0	-	1.7	8.9	8.6	0.0	8.6
2/2	721	721	-	-	-	1.9	0.0	-	1.9	9.3	9.3	0.0	9.3
2/3	776	776	-	-	-	2.0	0.0	-	2.0	9.1	10.4	0.0	10.4
3/1	458	458	-	-	-	1.2	0.0	-	1.2	9.1	4.5	0.0	4.5
3/2	282	282	-	-	-	0.7	0.0	-	0.7	9.1	4.7	0.0	4.7
3/3	519	519	-	-	-	1.5	0.0	-	1.5	10.2	2.7	0.0	2.7
5/1	839	771	-	-	-	5.7	39.4	-	45.1	193.7	15.3	39.4	54.7
5/2	890	819	-	-	-	6.0	41.0	-	47.1	190.5	16.2	41.0	57.3
5/3	397	397	-	-	-	1.4	0.5	-	1.9	17.1	4.7	0.5	5.2
5/4+5/5	725	725	-	-	-	2.6	0.6	-	3.2 (2.1+1.1)	16.0 (16.5:15.0)	5.8	0.6	6.4
6/2+6/1	352	352	-	-	-	2.4	5.2	-	7.6 (1.2+6.4)	77.8 (75.2:78.3)	4.8	5.2	10.1
6/3	230	230	-	-	-	1.5	1.3	-	2.8	43.6	3.6	1.3	4.8
7/1	678	678	-	-	-	1.9	0.0	-	1.9	10.1	10.9	0.0	10.9
7/2	743	743	-	-	-	2.1	0.0	-	2.1	10.0	12.2	0.0	12.2
7/3	507	507	-	-	-	1.8	0.0	-	1.8	12.6	7.7	0.0	7.7
10/2+10/1	940	940	-	-	-	3.5	0.7	-	4.2 (2.2+2.0)	16.1 (16.2:16.0)	6.3	0.7	7.0
10/3	463	463	-	-	-	1.7	0.6	-	2.4	18.3	5.8	0.6	6.4
10/4	463	463	-	-	-	1.7	0.6	-	2.4	18.3	5.8	0.6	6.4
12/1	422	422	-	-	-	0.0	0.0	-	0.0	0.0	0.1	0.0	0.1
12/2	495	495	-	-	-	1.2	0.0	-	1.2	8.8	3.9	0.0	3.9

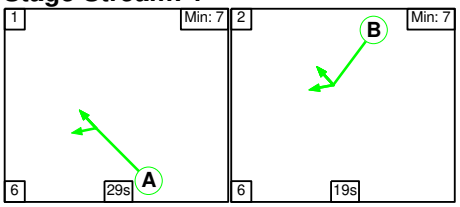
12/3	505	505	-	-	-	1.0	0.0	-	1.0	7.4	3.9	0.0	3.9
12/4	505	505	-	-	-	1.0	0.0	-	1.0	7.4	3.9	0.0	3.9
13/2+13/1	391	391	-	-	-	2.4	0.6	-	3.0 (1.5+1.5)	27.7 (27.7:27.7)	2.9	0.6	3.5
13/3	191	191	-	-	-	1.2	0.6	-	1.7	32.7	2.9	0.6	3.4
13/4+13/5	487	487	-	-	-	3.1	1.0	-	4.1 (1.8+2.3)	30.5 (30.1:30.9)	4.2	1.0	5.2
15/1	657	657	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
15/2	1101	1101	-	-	-	1.0	0.0	-	1.0	3.1	3.5	0.0	3.5
15/3	648	648	-	-	-	0.5	0.0	-	0.5	2.9	3.9	0.0	3.9
15/4	716	716	-	-	-	0.6	0.0	-	0.6	2.8	3.9	0.0	3.9
15/5	277	277	-	-	-	0.0	0.0	-	0.0	0.2	0.2	0.0	0.2

C1	Stream: 1 PRC for Signalled Lanes (%):	-7.1	Total Delay for Signalled Lanes (pcuHr):	14.67	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	19.6	Total Delay for Signalled Lanes (pcuHr):	12.17	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	-3.6	Total Delay for Signalled Lanes (pcuHr):	11.29	Cycle Time (s):	60
C1	Stream: 4 PRC for Signalled Lanes (%):	-20.9	Total Delay for Signalled Lanes (pcuHr):	100.68	Cycle Time (s):	60
C1	Stream: 5 PRC for Signalled Lanes (%):	-4.3	Total Delay for Signalled Lanes (pcuHr):	12.47	Cycle Time (s):	60
	PRC Over All Lanes (%):	-20.9	Total Delay Over All Lanes(pcuHr):	151.27		

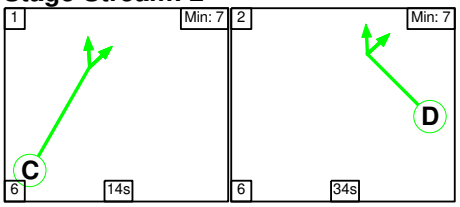
Scenario 2: '2031do something PM' (FG6: '2031 do some PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

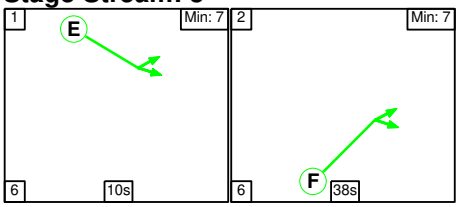
Stage Stream: 1



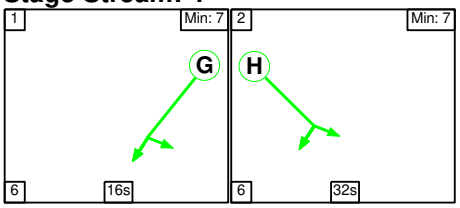
Stage Stream: 2



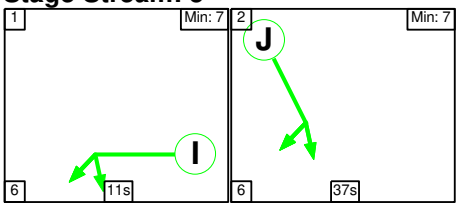
Stage Stream: 3



Stage Stream: 4



Stage Stream: 5



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	29	19
Change Point	0	35

Stage Stream: 2

Stage	1	2
Duration	14	34
Change Point	27	47

Stage Stream: 3

Stage	1	2
Duration	10	38
Change Point	55	11

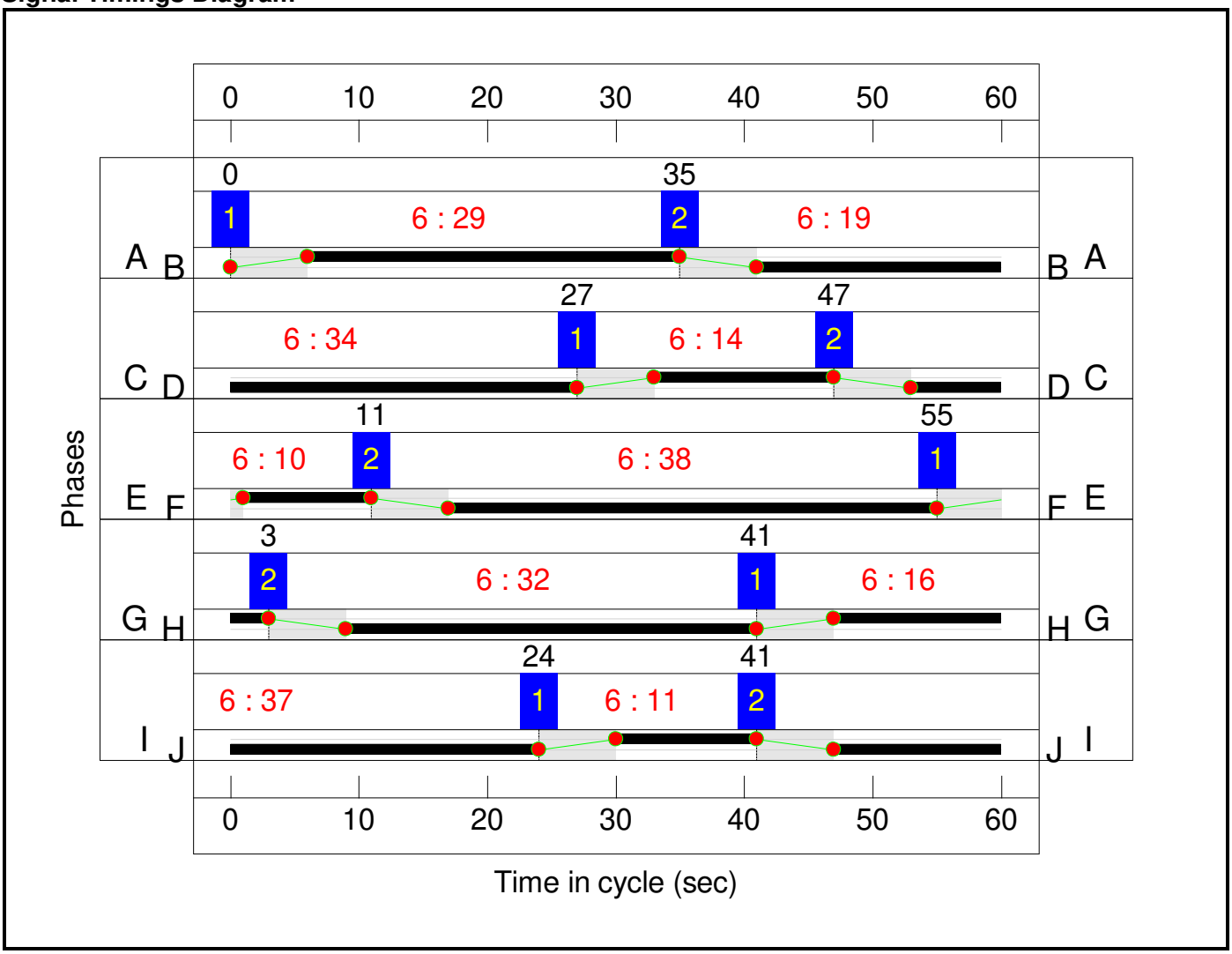
Stage Stream: 4

Stage	1	2
Duration	16	32
Change Point	41	3

Stage Stream: 5

Stage	1	2
Duration	11	37
Change Point	24	41

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Single grade-seperated roundabout	-	-	**N/A**	-	-		-	-	-	-	-	-	**104.7%**
M40 J10	-	-	**N/A**	-	-		-	-	-	-	-	-	**104.7%**
1/2+1/1	M40 (SB) Off-Slip Ahead Left	U	3	N/A	E		1	10	-	547	1980:1980	363+363	63.1 : 87.6%
1/3	M40 (SB) Off-Slip Ahead	U	3	N/A	E		1	10	-	380	1980	363	104.7%
2/1	Ahead	U	3	N/A	F		1	38	-	1071	1850	1203	89.1%
2/2	Ahead	U	3	N/A	F		1	38	-	1078	1850	1203	89.6%
2/3	Right Ahead	U	3	N/A	F		1	38	-	1066	1850	1203	88.6%
3/1	Ahead Right	U	4	N/A	H		1	32	-	650	1850	1018	63.9%
3/2	Right	U	4	N/A	H		1	32	-	319	1850	1018	31.4%
3/3	Right	U	4	N/A	H		1	32	-	380	1850	1018	35.7%
5/1	A43 (N) Left Ahead	U	4	N/A	G		1	16	-	517	1850	524	98.6%
5/2	A43 (N) Ahead	U	4	N/A	G		1	16	-	529	1965	557	95.0%
5/3	A43 (N) Ahead	U	4	N/A	G		1	16	-	153	1965	557	27.5%
5/4+5/5	A43 (N) Ahead	U	4	N/A	G		1	16	-	523	1965:1980	557+561	45.3 : 48.3%
6/2+6/1	Services Left Left2	U	5	N/A	I		1	11	-	275	1965:1886	25+377	68.4 : 68.4%
6/3	Services Left	U	5	N/A	I		1	11	-	325	1908	382	85.2%
7/1	Ahead	U	1	N/A	B		1	19	-	364	1850	617	57.6%
7/2	Ahead	U	1	N/A	B		1	19	-	420	1850	617	66.9%
7/3	Right	U	1	N/A	B		1	19	-	614	1850	617	99.4%
10/2+10/1	M40 NB Off-Slip Left Ahead	U	1	N/A	A		1	29	-	992	1980:1908	990+431	69.8 : 69.8%
10/3	M40 NB Off-Slip Ahead	U	1	N/A	A		1	29	-	648	1980	990	65.5%

10/4	M40 NB Off-Slip Ahead	U	1	N/A	A		1	29	-	633	1980	990	63.9%
12/1	Ahead	U	2	N/A	D		1	34	-	485	1850	1079	44.9%
12/2	Right	U	2	N/A	D		1	34	-	742	1850	1079	68.8%
12/3	Right	U	2	N/A	D		1	34	-	722	1850	1079	66.9%
12/4	Right	U	2	N/A	D		1	34	-	637	1850	1079	59.0%
13/2+13/1	B430 Ahead	U	2	N/A	C		1	14	-	427	1965:1965	491+491	43.4 : 43.6%
13/3	B430 Ahead	U	2	N/A	C		1	14	-	329	1965	491	67.0%
13/4+13/5	B430 Ahead	U	2	N/A	C		1	14	-	785	1965:1965	491+491	72.5 : 87.3%
15/1	Ahead	U	5	N/A	J		1	37	-	563	1850	1172	48.1%
15/2	Ahead	U	5	N/A	J		1	37	-	848	1850	1172	72.4%
15/3	Ahead	U	5	N/A	J		1	37	-	348	1850	1172	29.0%
15/4	Ahead	U	5	N/A	J		1	37	-	419	1850	1172	35.1%
15/5	Ahead	U	5	N/A	J		1	37	-	289	1850	1172	24.6%

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: Single grade-seperated roundabout	**-**	**-**	**0**	**0**	**0**	**52.9**	**43.2**	**0.0**	**96.1**	**-**	**-**	**-**	**-**
M40 J10	**-**	**-**	**0**	**0**	**0**	**52.9**	**43.2**	**0.0**	**96.1**	**-**	**-**	**-**	**-**
1/2+1/1	547	547	-	-	-	3.5	1.5	-	5.0 (2.1+3.0)	33.2 (32.5:33.7)	5.1	1.5	6.6
1/3	380	363	-	-	-	3.1	14.9	-	18.0	170.5	6.6	14.9	21.5
2/1	1071	1071	-	-	-	1.6	0.0	-	1.6	5.3	12.6	0.0	12.6
2/2	1078	1078	-	-	-	1.6	0.0	-	1.6	5.2	12.4	0.0	12.4
2/3	1066	1066	-	-	-	1.5	0.0	-	1.5	5.0	10.9	0.0	10.9
3/1	650	650	-	-	-	1.4	0.0	-	1.4	7.8	6.5	0.0	6.5
3/2	319	319	-	-	-	1.0	0.0	-	1.0	11.7	3.7	0.0	3.7
3/3	363	363	-	-	-	0.2	0.0	-	0.2	1.7	1.0	0.0	1.0
5/1	517	517	-	-	-	3.1	9.7	-	12.8	89.1	8.5	9.7	18.2
5/2	529	529	-	-	-	3.1	6.5	-	9.6	65.3	8.5	6.5	15.0
5/3	153	153	-	-	-	0.7	0.2	-	0.9	21.2	2.0	0.2	2.1
5/4+5/5	523	523	-	-	-	2.6	0.4	-	3.0 (1.4+1.6)	20.8 (20.7:20.9)	3.7	0.4	4.1
6/2+6/1	275	275	-	-	-	1.7	1.1	-	2.8 (0.2+2.6)	36.0 (33.5:36.2)	3.9	1.1	5.0
6/3	325	325	-	-	-	2.1	2.6	-	4.7	52.2	5.1	2.6	7.8
7/1	355	355	-	-	-	1.5	0.0	-	1.5	15.4	3.9	0.0	3.9
7/2	413	413	-	-	-	1.8	0.0	-	1.8	15.5	3.9	0.0	3.9
7/3	613	613	-	-	-	1.8	0.0	-	1.8	10.7	9.8	0.0	9.8
10/2+10/1	992	992	-	-	-	3.0	1.1	-	4.1 (3.0+1.1)	14.9 (15.7:13.1)	8.8	1.1	10.0
10/3	648	648	-	-	-	2.0	0.9	-	2.9	16.4	7.9	0.9	8.9
10/4	633	633	-	-	-	1.9	0.9	-	2.8	16.0	7.7	0.9	8.6
12/1	484	484	-	-	-	0.2	0.0	-	0.2	1.7	4.4	0.0	4.4
12/2	742	742	-	-	-	1.6	0.0	-	1.6	7.8	4.9	0.0	4.9

12/3	722	722	-	-	-	1.3	0.0	-	1.3	6.4	4.4	0.0	4.4
12/4	637	637	-	-	-	1.1	0.0	-	1.1	6.3	3.2	0.0	3.2
13/2+13/1	427	427	-	-	-	2.2	0.4	-	2.6 (1.3+1.3)	22.2 (22.2:22.2)	3.0	0.4	3.4
13/3	329	329	-	-	-	1.9	1.0	-	2.9	31.2	4.9	1.0	5.9
13/4+13/5	785	785	-	-	-	4.6	1.9	-	6.6 (2.9+3.6)	30.1 (29.5:30.5)	6.8	1.9	8.7
15/1	563	563	-	-	-	0.2	0.0	-	0.2	1.5	0.9	0.0	0.9
15/2	848	848	-	-	-	0.5	0.0	-	0.5	2.1	1.7	0.0	1.7
15/3	339	339	-	-	-	0.0	0.0	-	0.0	0.2	0.1	0.0	0.1
15/4	412	412	-	-	-	0.0	0.0	-	0.0	0.2	0.1	0.0	0.1
15/5	288	288	-	-	-	0.0	0.0	-	0.0	0.1	0.1	0.0	0.1

C1	Stream: 1 PRC for Signalled Lanes (%):	-10.5	Total Delay for Signalled Lanes (pcuHr):	15.00	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	3.1	Total Delay for Signalled Lanes (pcuHr):	16.28	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	-16.3	Total Delay for Signalled Lanes (pcuHr):	27.68	Cycle Time (s):	60
C1	Stream: 4 PRC for Signalled Lanes (%):	-9.6	Total Delay for Signalled Lanes (pcuHr):	28.92	Cycle Time (s):	60
C1	Stream: 5 PRC for Signalled Lanes (%):	5.7	Total Delay for Signalled Lanes (pcuHr):	8.25	Cycle Time (s):	60
	PRC Over All Lanes (%):	-16.3	Total Delay Over All Lanes(pcuHr):	96.13		

APPENDIX **37**

Site access roundabout – Arcady results

Junctions 9

ARCADY 9 - Roundabout Module

Filename: 210604 Site Access ARCADY Model - With Bypass.j9
Path: D:\Dropbox (ADC Infrastructure)\!!! ADC Projects\ADC1794 Oxfordshire SRFI\Documents\reports\ADC\M. M40 J10 options\Options Report\7. Site Access
Report generation date: 11/06/2021 16:16:00

Summary of junction performance

	AM1				AM2				PM			
	Set ID	Queue (Veh)	Delay (s)	RFC	Set ID	Queue (Veh)	Delay (s)	RFC	Set ID	Queue (Veh)	Delay (s)	RFC
	2031 DS - 2031_DS											
Arm 1	D1	3.7	11.33	0.79	D2	4.0	12.01	0.80	D3	1.3	4.70	0.57
Arm 2		0.1	4.39	0.05		0.1	4.44	0.05		1.4	10.58	0.59
Arm 3		3.6	7.45	0.79		3.1	6.75	0.76		1.5	4.66	0.60

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

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

File summary

File Description

Title	OxSRFI Site Access
Location	
Site number	
Date	24/05/2021
Version	
Status	Preliminary
Identifier	
Client	
Jobnumber	
Enumerator	
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS	AM1	ONE HOUR	06:30	08:00	15
D2	2031_DS	AM2	ONE HOUR	07:30	09:00	15
D3	2031_DS	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	2031 DS	100.000

2031 DS - 2031_DS, AM1

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	8.39	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	B430 (S)	
2	Site Access	
3	Link Road (N)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.65	9.00	36.7	18.0	70.0	41.4	
2	3.65	4.50	2.2	20.0	70.0	30.6	
3	7.30	9.00	27.2	20.0	70.0	39.0	

Bypass

Arm	Arm has bypass	Bypass utilisation (%)
1		
2	✓	100
3		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.560	2112
2	0.429	1219
3	0.633	2559

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

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2031_DS	AM1	ONE HOUR	06:30	08:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	1092	100.000
2		✓	256	100.000
3		✓	1610	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		1	2	3
From	1	0	394	698
	2	42	0	214
	3	929	681	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	7
	2	0	0	74
	3	3	25	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
1	0.79	11.33	3.7	B
2	0.05	4.39	0.1	A
3	0.79	7.45	3.6	A

Main Results for each time segment

06:30 - 06:45

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	822	0	511	1678	0.490	818	1.0	4.167	A
2	312	161	523	978	0.032	31	0.0	3.801	A
3	1212	0	31	2263	0.536	1208	1.1	3.397	A

06:45 - 07:00

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	982	0	611	1611	0.609	979	1.5	5.675	A
2	373	192	626	931	0.041	38	0.0	4.028	A
3	1447	0	38	2260	0.641	1445	1.8	4.405	A

07:00 - 07:15

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	1202	0	747	1520	0.791	1194	3.6	10.774	B
2	457	236	763	868	0.053	46	0.1	4.379	A
3	1773	0	46	2255	0.786	1765	3.5	7.251	A

07:15 - 07:30

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	1202	0	750	1518	0.792	1202	3.7	11.333	B
2	457	236	768	866	0.053	46	0.1	4.391	A
3	1773	0	46	2255	0.786	1772	3.6	7.449	A

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	982	0	615	1608	0.610	990	1.6	5.900	A
2	373	192	633	928	0.041	38	0.0	4.045	A
3	1447	0	38	2260	0.641	1455	1.8	4.512	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	822	0	514	1676	0.490	825	1.0	4.239	A
2	312	161	527	977	0.032	32	0.0	3.811	A
3	1212	0	32	2263	0.536	1215	1.2	3.441	A

2031 DS - 2031_DS, AM2

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	8.30	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2031_DS	AM2	ONE HOUR	07:30	09:00	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	1107	100.000
2		✓	256	100.000
3		✓	1537	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		1	2	3
From	1	0	394	713
	2	42	0	214
	3	856	681	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	7
	2	0	0	74
	3	5	25	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
1	0.80	12.01	4.0	B
2	0.05	4.44	0.1	A
3	0.76	6.75	3.1	A

Main Results for each time segment

07:30 - 07:45

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	833	0	511	1677	0.497	829	1.0	4.231	A
2	312	161	534	973	0.033	31	0.0	3.824	A
3	1157	0	31	2233	0.518	1153	1.1	3.317	A

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	995	0	611	1609	0.618	993	1.6	5.815	A
2	373	192	639	924	0.041	38	0.0	4.060	A
3	1382	0	38	2230	0.620	1380	1.6	4.223	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	1219	0	747	1518	0.803	1210	3.8	11.354	B
2	457	236	779	860	0.054	46	0.1	4.424	A
3	1692	0	46	2225	0.761	1686	3.1	6.611	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	1219	0	750	1517	0.804	1218	4.0	12.013	B
2	457	236	785	857	0.054	46	0.1	4.437	A
3	1692	0	46	2225	0.761	1692	3.1	6.749	A

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	995	0	615	1607	0.619	1004	1.7	6.062	A
2	373	192	647	921	0.041	38	0.0	4.078	A
3	1382	0	38	2230	0.620	1388	1.6	4.306	A

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	833	0	514	1675	0.498	836	1.0	4.306	A
2	312	161	538	971	0.033	32	0.0	3.835	A
3	1157	0	32	2233	0.518	1159	1.1	3.359	A

2031 DS - 2031_DS, PM

Data Errors and Warnings

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

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	6.92	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2031_DS	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1		✓	914	100.000
2		✓	1181	100.000
3		✓	1043	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		1	2	3
From	1	0	130	784
	2	452	0	729
	3	719	324	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	0	3
	2	0	0	20
	3	3	49	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
1	0.57	4.70	1.3	A
2	0.59	10.58	1.4	B
3	0.60	4.66	1.5	A

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	688	0	243	1865	0.369	686	0.6	3.046	A
2	997	549	588	959	0.355	338	0.5	5.779	A
3	785	0	338	2006	0.391	783	0.6	2.935	A

16:30 - 16:45

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	822	0	291	1826	0.450	821	0.8	3.577	A
2	1190	655	704	908	0.448	405	0.8	7.149	A
3	938	0	405	1970	0.476	937	0.9	3.481	A

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	1006	0	356	1773	0.567	1004	1.3	4.670	A
2	1458	803	862	838	0.594	495	1.4	10.415	B
3	1148	0	495	1921	0.598	1146	1.5	4.630	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	1006	0	357	1773	0.568	1006	1.3	4.696	A
2	1458	803	863	838	0.594	498	1.4	10.582	B
3	1148	0	498	1920	0.598	1148	1.5	4.665	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	822	0	292	1825	0.450	824	0.8	3.599	A
2	1190	655	706	907	0.448	409	0.8	7.264	A
3	938	0	409	1968	0.476	940	0.9	3.510	A

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Bypass demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1	688	0	244	1864	0.369	689	0.6	3.067	A
2	997	549	591	958	0.355	341	0.6	5.852	A
3	785	0	341	2005	0.392	786	0.6	2.959	A