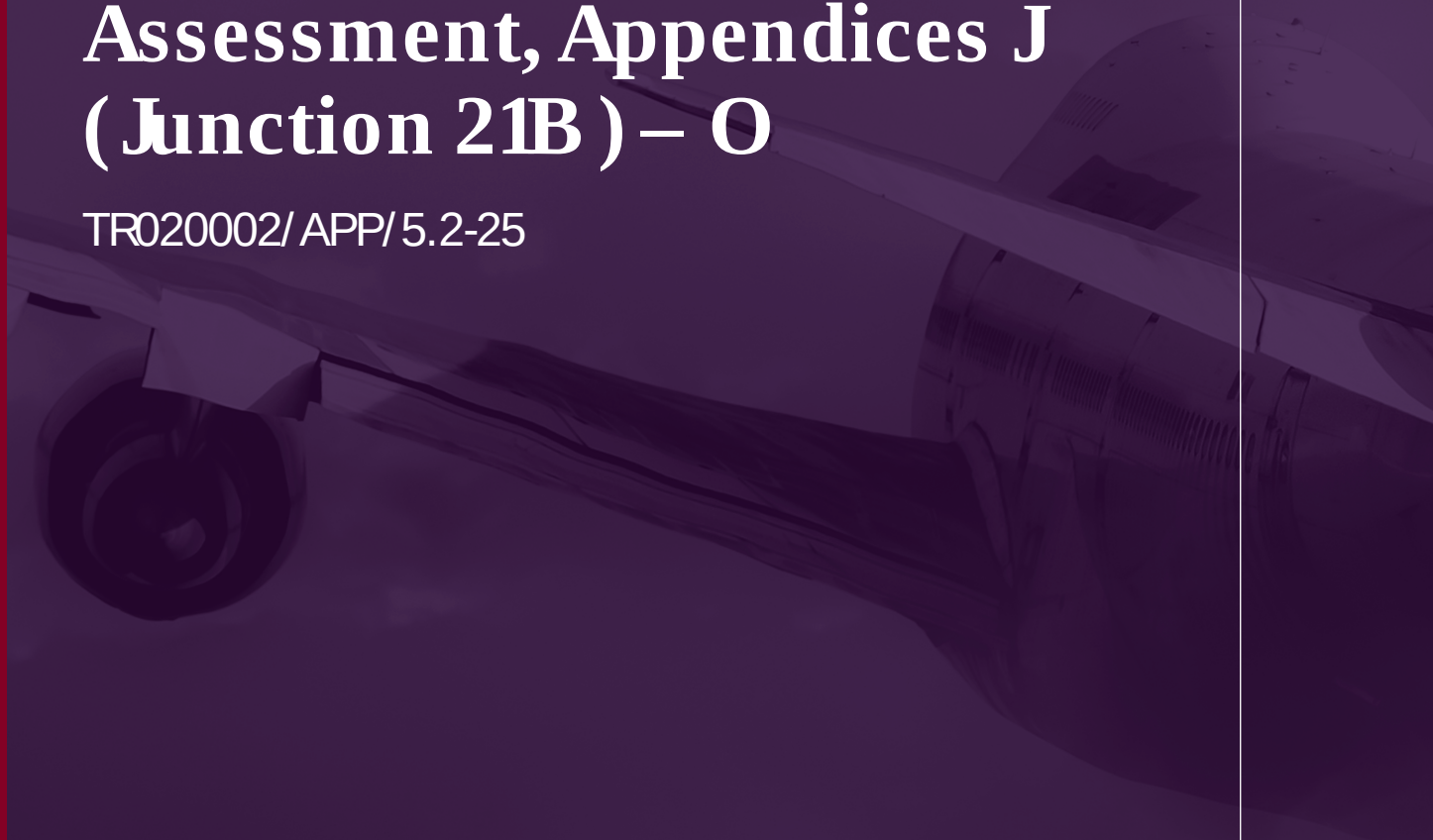
RiverOak Strategic Partners

5.2-25 Environmental Statement Volume 25: Transport Assessment, Appendices J (Junction 21B) – O

TR020002/APP/5.2-25



Project Name:	Manston Airport Development Consent Order
Regulation:	Regulation 5(2)(q) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, as amended
Date:	July 2018

Volume 25 Contents

Full Input Data And Results

User and Project Details

Project:	**Manston Airport DCO EIA**
Title:	**Junction 21b**
Location:	
File name:	Junction 21b_mitigation R2.lsg3x
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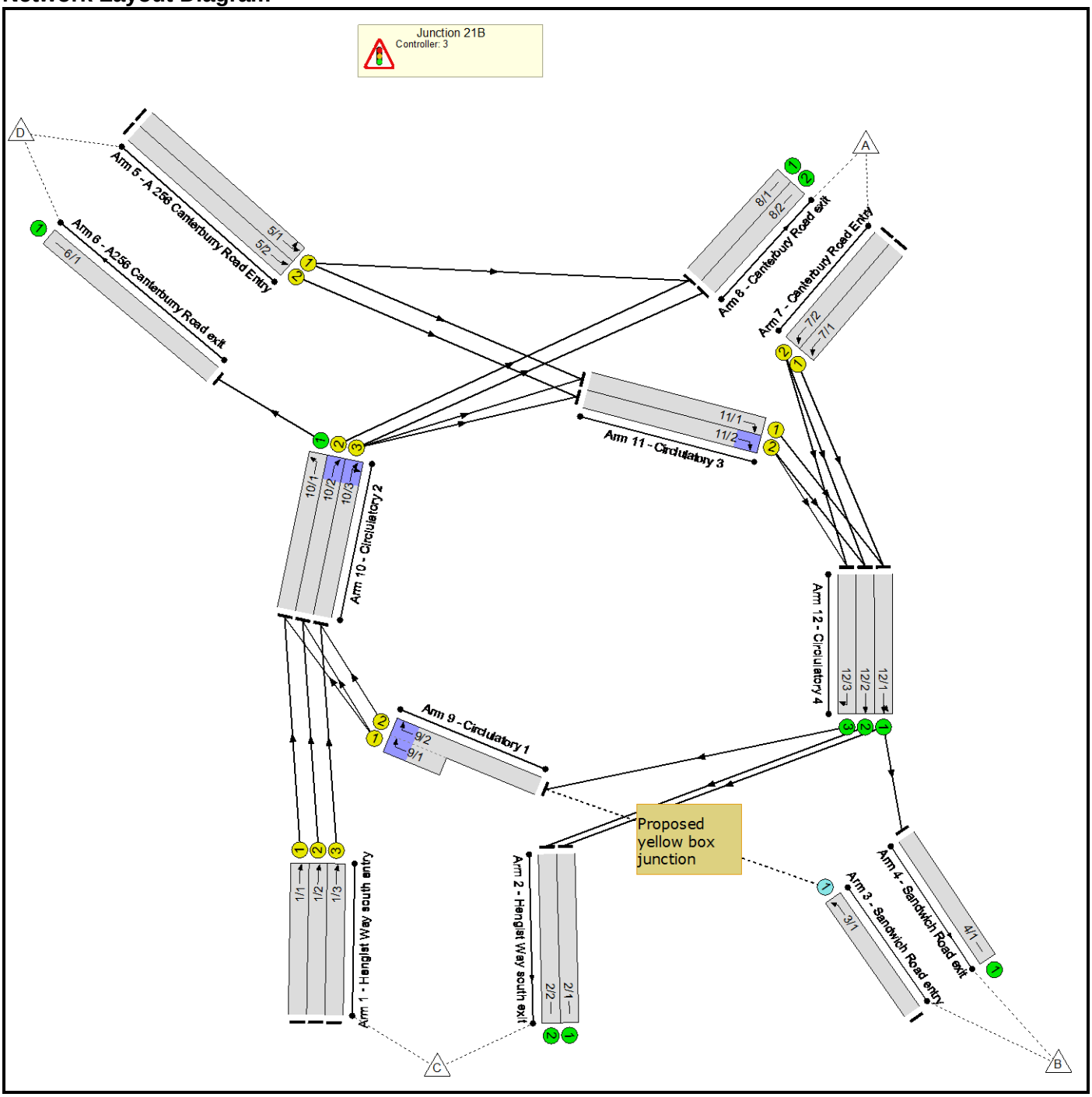
Notes:	

Full Input Data And Results

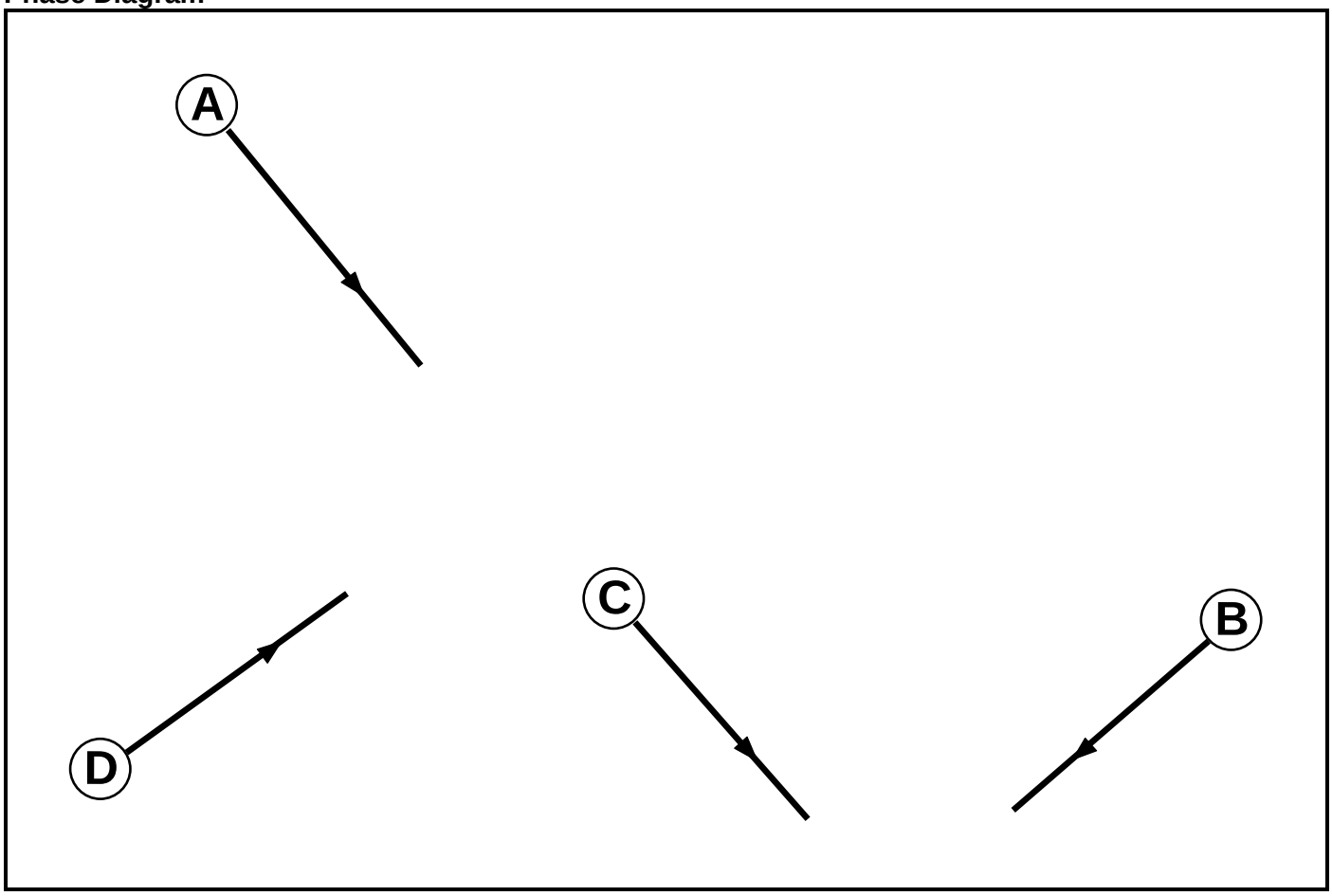
Network Layout Diagram



Full Input Data And Results

C1 - 08-1078

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7

Phase Intergreens Matrix

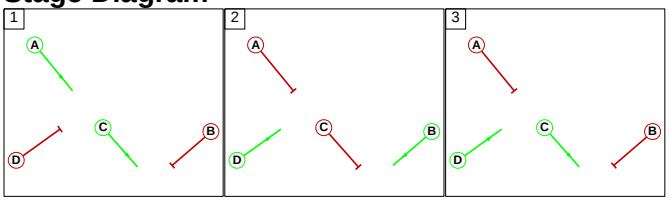
		Starting Phase			
		A	B	C	D
Terminating Phase	A		5	-	5
	B	5		5	-
	C	-	5		-
	D	5	-	-	

Phases in Stage

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

Full Input Data And Results

Stage Diagram



Phase Delays

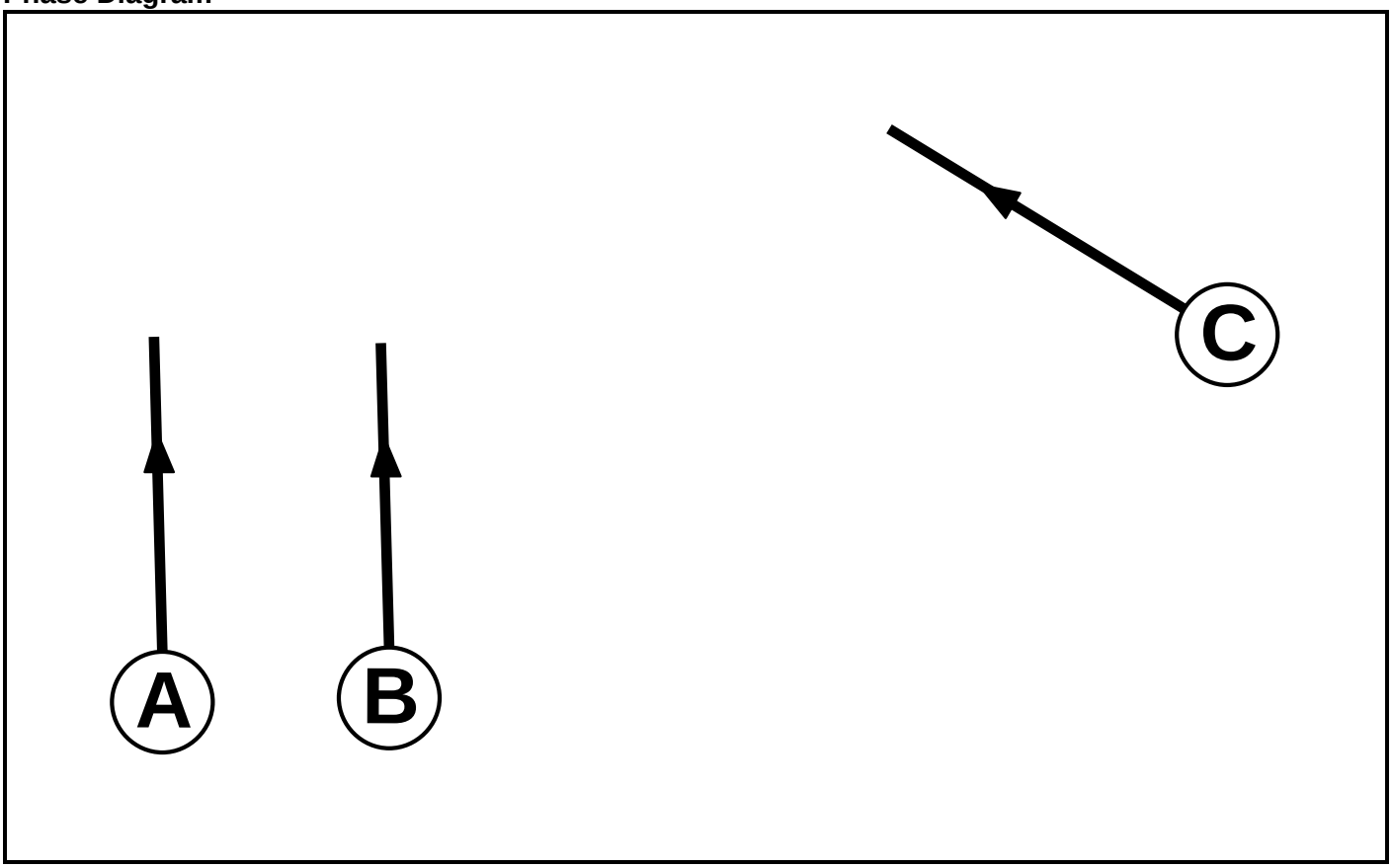
Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	C	Losing	6	6

Prohibited Stage Change

From Stage	To Stage 1	To Stage 2	To Stage 3
1		11	5
2	5		5
3	5	5	

C2 - 08-1079

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7

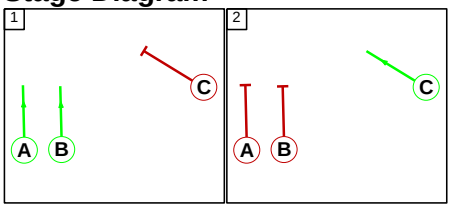
Phase Intergreens Matrix

Terminating Phase	Starting Phase			
		A	B	C
	A		-	5
	B	-		5
	C	5	5	

Phases in Stage

Stage No.	Phases in Stage
1	A B
2	C

Stage Diagram



Phase Delays

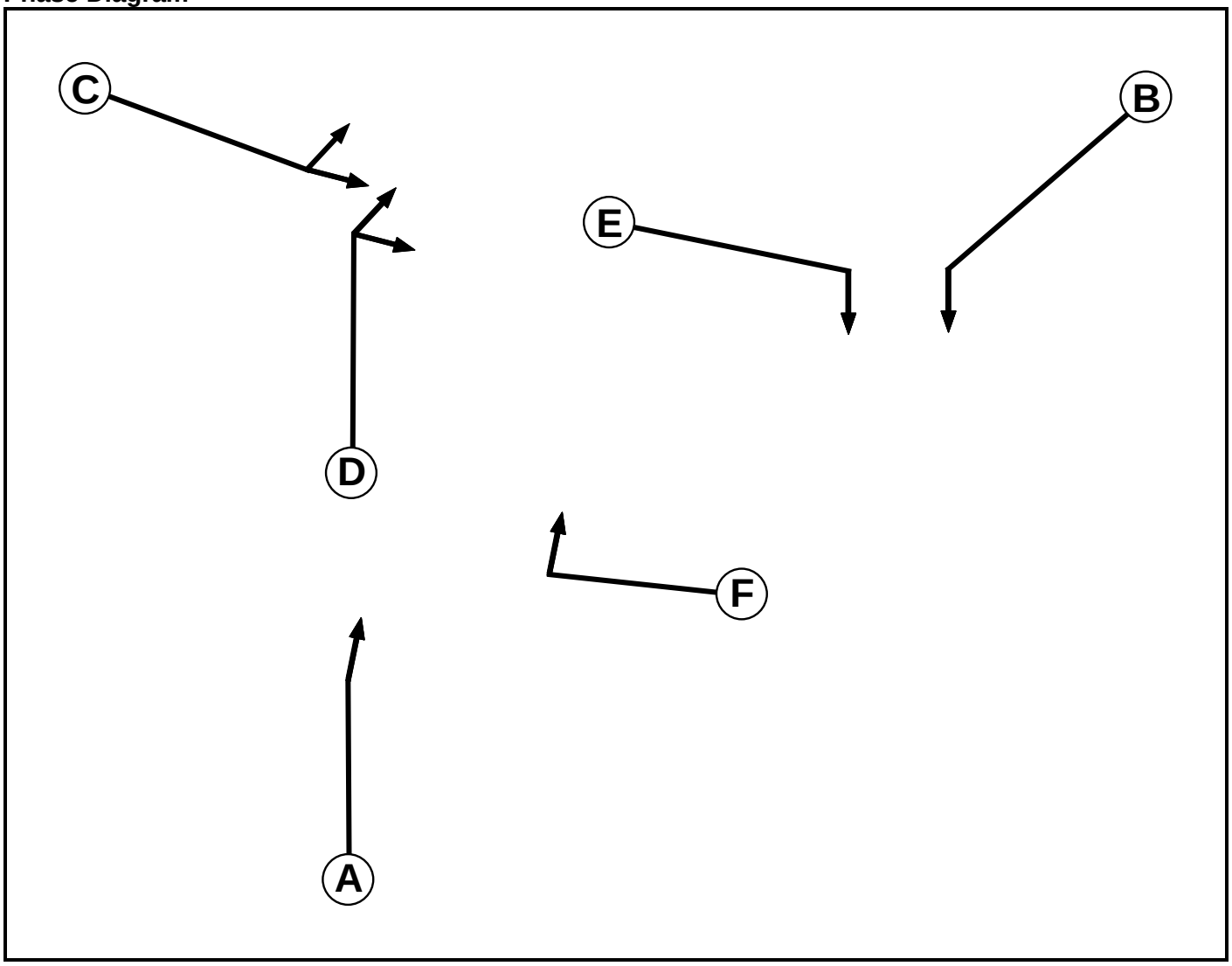
Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

	To Stage		
		1	2
From Stage	1		5
	2	5	

C3 - Proposed Controller, Signle Stage Stream

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	2
E	Traffic		7	4
F	Traffic		7	7

Full Input Data And Results

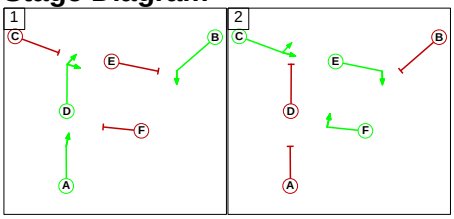
Phase Intergreens Matrix

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

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	D	Losing	5	5
2	1	E	Losing	3	3

Prohibited Stage Change

From Stage	To Stage		
		1	2
	1		11
	2	9	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Junction 21B											
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 (Sandwich Road entry)	9/2 (Ahead)	440	0	12/1	0.12	To 2/1 (Ahead)	-	-	-	-	-
				12/2	0.12	All					
				12/3	0.12	All					

Full Input Data And Results

Lane Input Data

Junction: Junction 21B

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 (Hengist Way south entry)	U	A	2	3	60.0	Geom	-	3.70	0.00	Y	Arm 10 Ahead	Inf
1/2 (Hengist Way south entry)	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 10 Ahead	Inf
1/3 (Hengist Way south entry)	U	A	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 10 Ahead	Inf
2/1 (Hengist Way south exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
2/2 (Hengist Way south exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1 (Sandwich Road entry)	O		2	3	60.0	Geom	-	3.50	0.00	Y	Arm 9 Ahead	50.00
4/1 (Sandwich Road exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1 (A 256 Canterburry Road Entry)	U	C	2	3	14.0	Geom	-	4.00	0.00	Y	Arm 8 Left	153.00
											Arm 11 Ahead	30.00
5/2 (A 256 Canterburry Road Entry)	U	C	2	3	14.0	Geom	-	4.00	0.00	Y	Arm 11 Ahead	30.00
6/1 (A256 Canterburry Road exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (Canterbury Road Entry)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 12 Ahead	20.00
7/2 (Canterbury Road Entry)	U	B	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 12 Ahead	20.00
8/1 (Canterbury Road exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/2 (Canterbury Road exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1 (Circulatory 1)	U	F	2	3	5.0	Geom	-	3.40	0.00	Y	Arm 10 Right	17.00
9/2 (Circulatory 1)	U	F	2	3	60.0	Geom	-	3.40	0.00	Y	Arm 10 Right	14.00
10/1 (Circulatory 2)	U		2	3	60.0	Inf	-	-	-	-	-	-

10/2 (Circlulatory 2)	U	D	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 8 Ahead	50.00
10/3 (Circlulatory 2)	U	D	2	3	60.0	Geom	-	3.65	0.00	Y	Arm 8 Ahead	50.00
											Arm 11 Right	12.00
11/1 (Circlulatory 3)	U	E	2	3	60.0	Geom	-	4.25	0.00	Y	Arm 12 Right	Inf
11/2 (Circlulatory 3)	U	E	2	3	60.0	Geom	-	4.25	0.00	Y	Arm 12 Right	Inf
12/1 (Circlulatory 4)	U		2	3	60.0	Geom	-	3.50	0.00	Y	Arm 2 Ahead	Inf
											Arm 4 Ahead	Inf
12/2 (Circlulatory 4)	U		2	3	60.0	Geom	-	3.50	0.00	Y	Arm 2 Ahead	Inf
12/3 (Circlulatory 4)	U		2	3	60.0	Geom	-	3.50	0.00	Y	Arm 9 Right	Inf

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2017 Baseline Traffic - AM Peak'	07:45	08:45	01:00	
2: '2017 Baseline Traffic - PM Peak'	16:45	17:45	01:00	
3: '2017 Baseline Traffic - Airport Peak'	13:00	14:00	01:00	
4: '2039 Growthed Traffic - AM Peak'	07:45	08:45	01:00	
5: '2039 Growthed Traffic - PM Peak'	16:45	17:45	01:00	
6: '2039 Growthed Traffic - Airport Peak'	13:00	14:00	01:00	
7: '2039 + Dev Traffic - AM Peak'	07:45	08:45	01:00	
8: '2039 + Dev Traffic - PM Peak'	16:45	17:45	01:00	
9: '2039 + Dev Traffic - Airport Peak'	13:00	14:00	01:00	

Scenario 1: '2039 + Dev Traffic - AM Peak Mitigation' (FG7: '2039 + Dev Traffic - AM Peak', Plan 2: '2039 + Dev Traffic - AM Peak Mitigation')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	149	1166	236	1551
	B	78	0	18	83	179
	C	871	5	0	938	1814
	D	215	128	975	29	1347
	Tot.	1164	282	2159	1286	4891

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 1: 2039 + Dev Traffic - AM Peak Mitigation
Junction: Junction 21B	
1/1	938
1/2	439
1/3	437
2/1	968
2/2	1191
3/1	179
4/1	282
5/1	684
5/2	663
6/1	1286
7/1	776
7/2	775
8/1	702
8/2	462
9/1 (short)	396
9/2 (with short)	444(In) 48(Out)
10/1	1286
10/2	487
10/3	485
11/1	474
11/2	681
12/1	1250
12/2	1191
12/3	265

Full Input Data And Results

Lane Saturation Flows

Junction: Junction 21B								
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 (Hengist Way south entry)	3.70	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1985	1985
1/2 (Hengist Way south entry)	3.65	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1980	1980
1/3 (Hengist Way south entry)	3.65	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1980	1980
2/1 (Hengist Way south exit Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (Hengist Way south exit Lane 2)	Infinite Saturation Flow						Inf	Inf
3/1 (Sandwich Road entry)	3.50	0.00	Y	Arm 9 Ahead	50.00	100.0 %	1908	1908
4/1 (Sandwich Road exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A 256 Canterburry Road Entry)	4.00	0.00	Y	Arm 8 Left	153.00	31.4 %	1942	1942
				Arm 11 Ahead	30.00	68.6 %		
5/2 (A 256 Canterburry Road Entry)	4.00	0.00	Y	Arm 11 Ahead	30.00	100.0 %	1919	1919
6/1 (A256 Canterburry Road exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Canterbury Road Entry)	3.50	0.00	Y	Arm 12 Ahead	20.00	100.0 %	1828	1828
7/2 (Canterbury Road Entry)	3.50	0.00	Y	Arm 12 Ahead	20.00	100.0 %	1828	1828
8/1 (Canterbury Road exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (Canterbury Road exit Lane 2)	Infinite Saturation Flow						Inf	Inf
9/1 (Circlulatory 1)	3.40	0.00	Y	Arm 10 Right	17.00	100.0 %	1796	1796
9/2 (Circlulatory 1)	3.40	0.00	Y	Arm 10 Right	14.00	100.0 %	1766	1766
10/1 (Circlulatory 2 Lane 1)	Infinite Saturation Flow						Inf	Inf
10/2 (Circlulatory 2)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
10/3 (Circlulatory 2)	3.65	0.00	Y	Arm 8 Ahead	50.00	95.3 %	1914	1914
				Arm 11 Right	12.00	4.7 %		
11/1 (Circlulatory 3)	4.25	0.00	Y	Arm 12 Right	Inf	100.0 %	2040	2040
11/2 (Circlulatory 3)	4.25	0.00	Y	Arm 12 Right	Inf	100.0 %	2040	2040
12/1 (Circlulatory 4)	3.50	0.00	Y	Arm 2 Ahead	Inf	77.4 %	1965	1965
				Arm 4 Ahead	Inf	22.6 %		

12/2 (Circlulatory 4)	3.50	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1965	1965
12/3 (Circlulatory 4)	3.50	0.00	Y	Arm 9 Right	Inf	100.0 %	1965	1965

Scenario 2: '2039 + Dev Traffic - PM Peak Mitigation' (FG8: '2039 + Dev Traffic - PM Peak', Plan 3: '2039 + Dev Traffic - PM Peak Mitigation')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	168	685	173	1026
	B	135	0	4	112	251
	C	1052	11	0	1059	2122
	D	428	197	1133	66	1824
	Tot.	1615	376	1822	1410	5223

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: 2039 + Dev Traffic - PM Peak Mitigation
Junction: Junction 21B	
1/1	1059
1/2	532
1/3	531
2/1	642
2/2	1180
3/1	251
4/1	376
5/1	922
5/2	902
6/1	1410
7/1	513
7/2	513
8/1	1029
8/2	586
9/1 (short)	420
9/2 (with short)	490(In) 70(Out)
10/1	1410
10/2	601
10/3	601
11/1	505
11/2	906
12/1	1018
12/2	1180
12/3	239

Full Input Data And Results

Lane Saturation Flows

Junction: Junction 21B								
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 (Hengist Way south entry)	3.70	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1985	1985
1/2 (Hengist Way south entry)	3.65	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1980	1980
1/3 (Hengist Way south entry)	3.65	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1980	1980
2/1 (Hengist Way south exit Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (Hengist Way south exit Lane 2)	Infinite Saturation Flow						Inf	Inf
3/1 (Sandwich Road entry)	3.50	0.00	Y	Arm 9 Ahead	50.00	100.0 %	1908	1908
4/1 (Sandwich Road exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A 256 Canterburry Road Entry)	4.00	0.00	Y	Arm 8 Left	153.00	46.4 %	1954	1954
				Arm 11 Ahead	30.00	53.6 %		
5/2 (A 256 Canterburry Road Entry)	4.00	0.00	Y	Arm 11 Ahead	30.00	100.0 %	1919	1919
6/1 (A256 Canterburry Road exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Canterbury Road Entry)	3.50	0.00	Y	Arm 12 Ahead	20.00	100.0 %	1828	1828
7/2 (Canterbury Road Entry)	3.50	0.00	Y	Arm 12 Ahead	20.00	100.0 %	1828	1828
8/1 (Canterbury Road exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (Canterbury Road exit Lane 2)	Infinite Saturation Flow						Inf	Inf
9/1 (Circlulatory 1)	3.40	0.00	Y	Arm 10 Right	17.00	100.0 %	1796	1796
9/2 (Circlulatory 1)	3.40	0.00	Y	Arm 10 Right	14.00	100.0 %	1766	1766
10/1 (Circlulatory 2 Lane 1)	Infinite Saturation Flow						Inf	Inf
10/2 (Circlulatory 2)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
10/3 (Circlulatory 2)	3.65	0.00	Y	Arm 8 Ahead	50.00	97.5 %	1918	1918
				Arm 11 Right	12.00	2.5 %		
11/1 (Circlulatory 3)	4.25	0.00	Y	Arm 12 Right	Inf	100.0 %	2040	2040
11/2 (Circlulatory 3)	4.25	0.00	Y	Arm 12 Right	Inf	100.0 %	2040	2040
12/1 (Circlulatory 4)	3.50	0.00	Y	Arm 2 Ahead	Inf	63.1 %	1965	1965
				Arm 4 Ahead	Inf	36.9 %		

12/2 (Circlulatory 4)	3.50	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1965	1965
12/3 (Circlulatory 4)	3.50	0.00	Y	Arm 9 Right	Inf	100.0 %	1965	1965

Scenario 3: '2039 + Dev Traffic - Airport Peak Mitigation' (FG9: '2039 + Dev Traffic - Airport Peak', Plan 4: '2039 + Dev Traffic - Airport Peak Mitigation')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	135	619	198	952
	B	72	0	7	141	220
	C	671	16	0	687	1374
	D	249	164	803	61	1277
	Tot.	992	315	1429	1087	3823

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2039 + Dev Traffic - Airport Peak Mitigation
Junction: Junction 21B	
1/1	687
1/2	342
1/3	345
2/1	580
2/2	849
3/1	220
4/1	315
5/1	652
5/2	625
6/1	1087
7/1	476
7/2	476
8/1	639
8/2	353
9/1 (short)	448
9/2 (with short)	479(In) 31(Out)
10/1	1087
10/2	390
10/3	376
11/1	419
11/2	632
12/1	895
12/2	849
12/3	259

Full Input Data And Results

Lane Saturation Flows

Junction: Junction 21B								
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 (Hengist Way south entry)	3.70	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1985	1985
1/2 (Hengist Way south entry)	3.65	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1980	1980
1/3 (Hengist Way south entry)	3.65	0.00	Y	Arm 10 Ahead	Inf	100.0 %	1980	1980
2/1 (Hengist Way south exit Lane 1)	Infinite Saturation Flow						Inf	Inf
2/2 (Hengist Way south exit Lane 2)	Infinite Saturation Flow						Inf	Inf
3/1 (Sandwich Road entry)	3.50	0.00	Y	Arm 9 Ahead	50.00	100.0 %	1908	1908
4/1 (Sandwich Road exit Lane 1)	Infinite Saturation Flow						Inf	Inf
5/1 (A 256 Canterburry Road Entry)	4.00	0.00	Y	Arm 8 Left	153.00	38.2 %	1948	1948
				Arm 11 Ahead	30.00	61.8 %		
5/2 (A 256 Canterburry Road Entry)	4.00	0.00	Y	Arm 11 Ahead	30.00	100.0 %	1919	1919
6/1 (A256 Canterburry Road exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Canterbury Road Entry)	3.50	0.00	Y	Arm 12 Ahead	20.00	100.0 %	1828	1828
7/2 (Canterbury Road Entry)	3.50	0.00	Y	Arm 12 Ahead	20.00	100.0 %	1828	1828
8/1 (Canterbury Road exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/2 (Canterbury Road exit Lane 2)	Infinite Saturation Flow						Inf	Inf
9/1 (Circlulatory 1)	3.40	0.00	Y	Arm 10 Right	17.00	100.0 %	1796	1796
9/2 (Circlulatory 1)	3.40	0.00	Y	Arm 10 Right	14.00	100.0 %	1766	1766
10/1 (Circlulatory 2 Lane 1)	Infinite Saturation Flow						Inf	Inf
10/2 (Circlulatory 2)	3.65	0.00	Y	Arm 8 Ahead	50.00	100.0 %	1922	1922
10/3 (Circlulatory 2)	3.65	0.00	Y	Arm 8 Ahead	50.00	93.9 %	1912	1912
				Arm 11 Right	12.00	6.1 %		
11/1 (Circlulatory 3)	4.25	0.00	Y	Arm 12 Right	Inf	100.0 %	2040	2040
11/2 (Circlulatory 3)	4.25	0.00	Y	Arm 12 Right	Inf	100.0 %	2040	2040
12/1 (Circlulatory 4)	3.50	0.00	Y	Arm 2 Ahead	Inf	64.8 %	1965	1965
				Arm 4 Ahead	Inf	35.2 %		

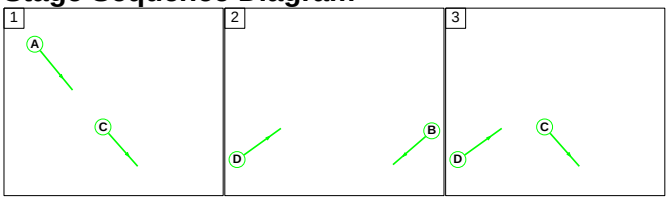
Full Input Data And Results

12/2 (Circulatory 4)	3.50	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1965	1965
12/3 (Circulatory 4)	3.50	0.00	Y	Arm 9 Right	Inf	100.0 %	1965	1965

Scenario 1: '2039 + Dev Traffic - AM Peak Mitigation' (FG7: '2039 + Dev Traffic - AM Peak', Plan 2: '2039 + Dev Traffic - AM Peak Mitigation')

C1 - 08-1078

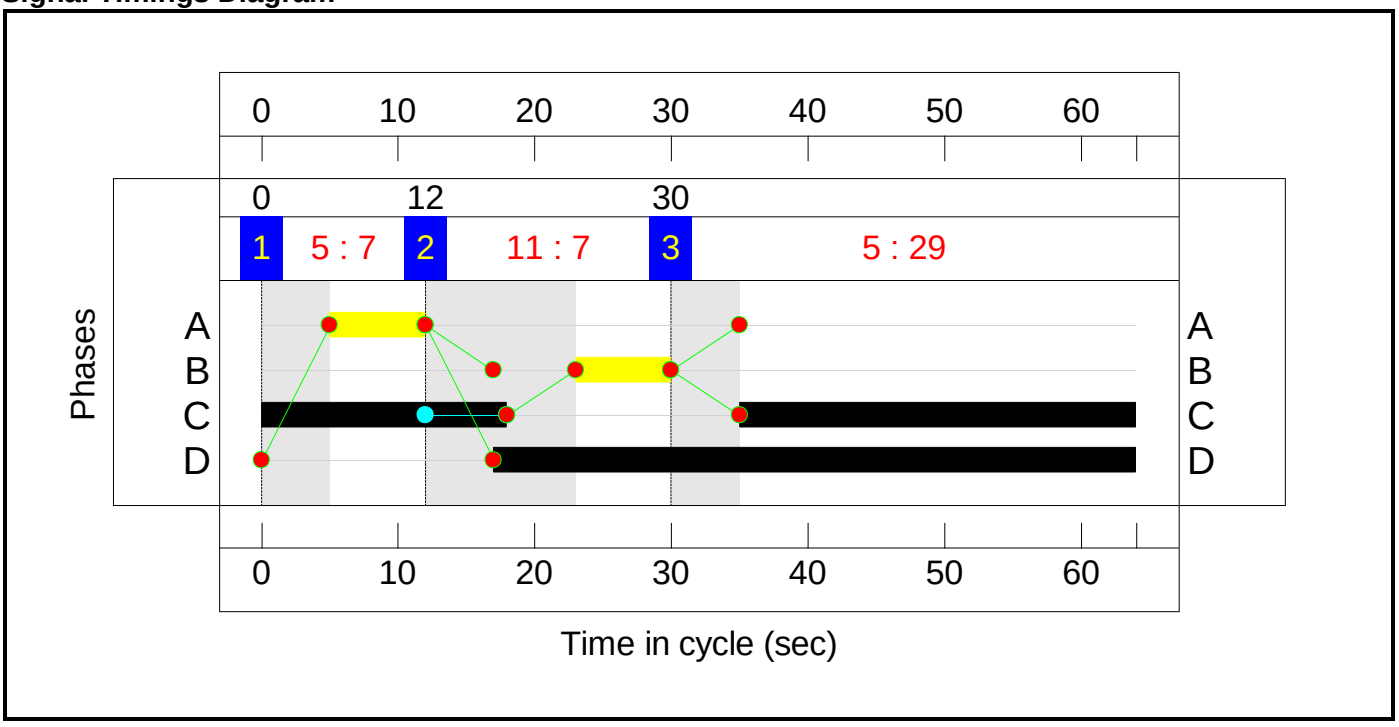
Stage Sequence Diagram



Stage Timings

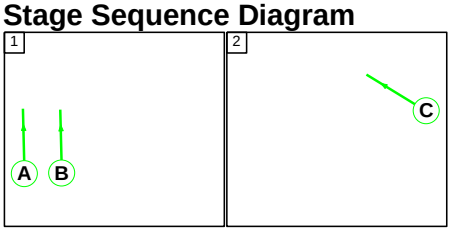
Stage	1	2	3
Duration	7	7	29
Change Point	0	12	30

Signal Timings Diagram



C2 - 08-1079

Stage Sequence Diagram

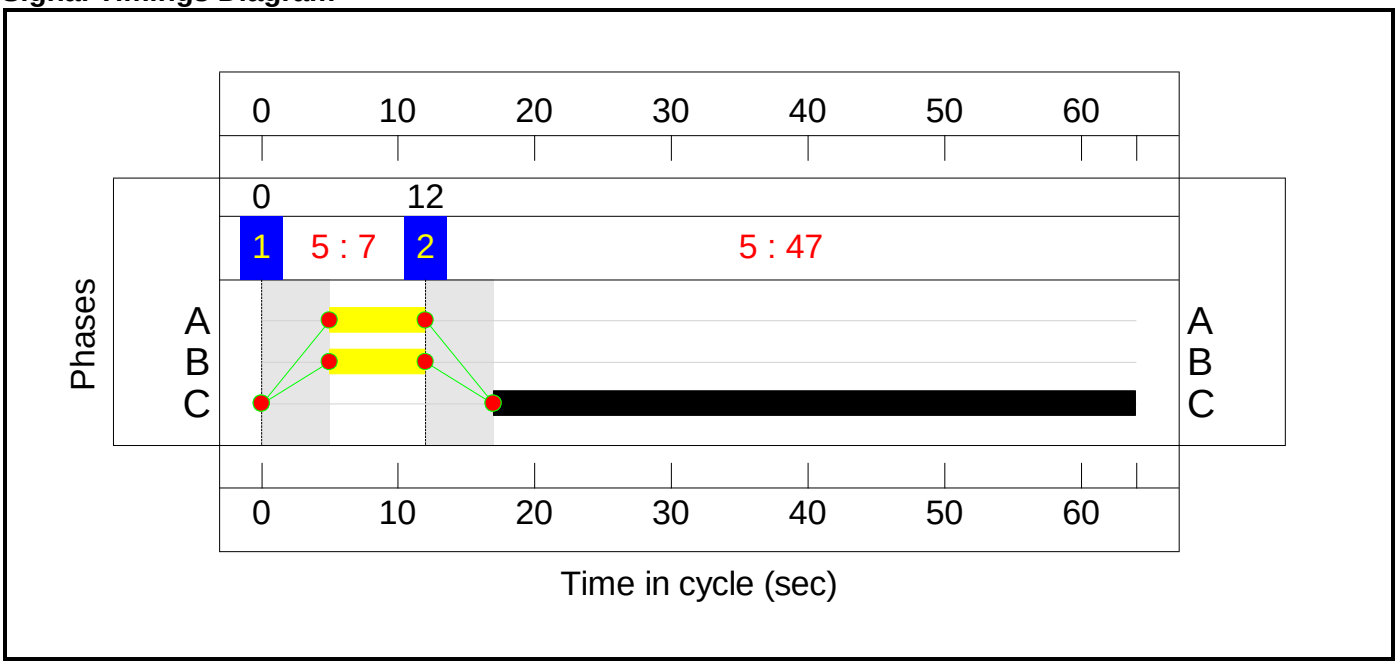


Full Input Data And Results

Stage Timings

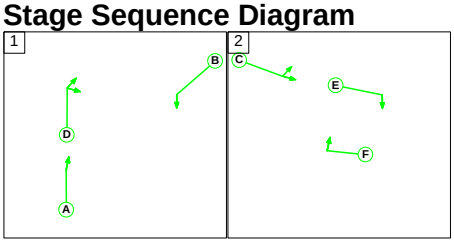
Stage	1	2
Duration	7	47
Change Point	0	12

Signal Timings Diagram



C3 - Proposed Controller, Signle Stage Stream

Stage Sequence Diagram

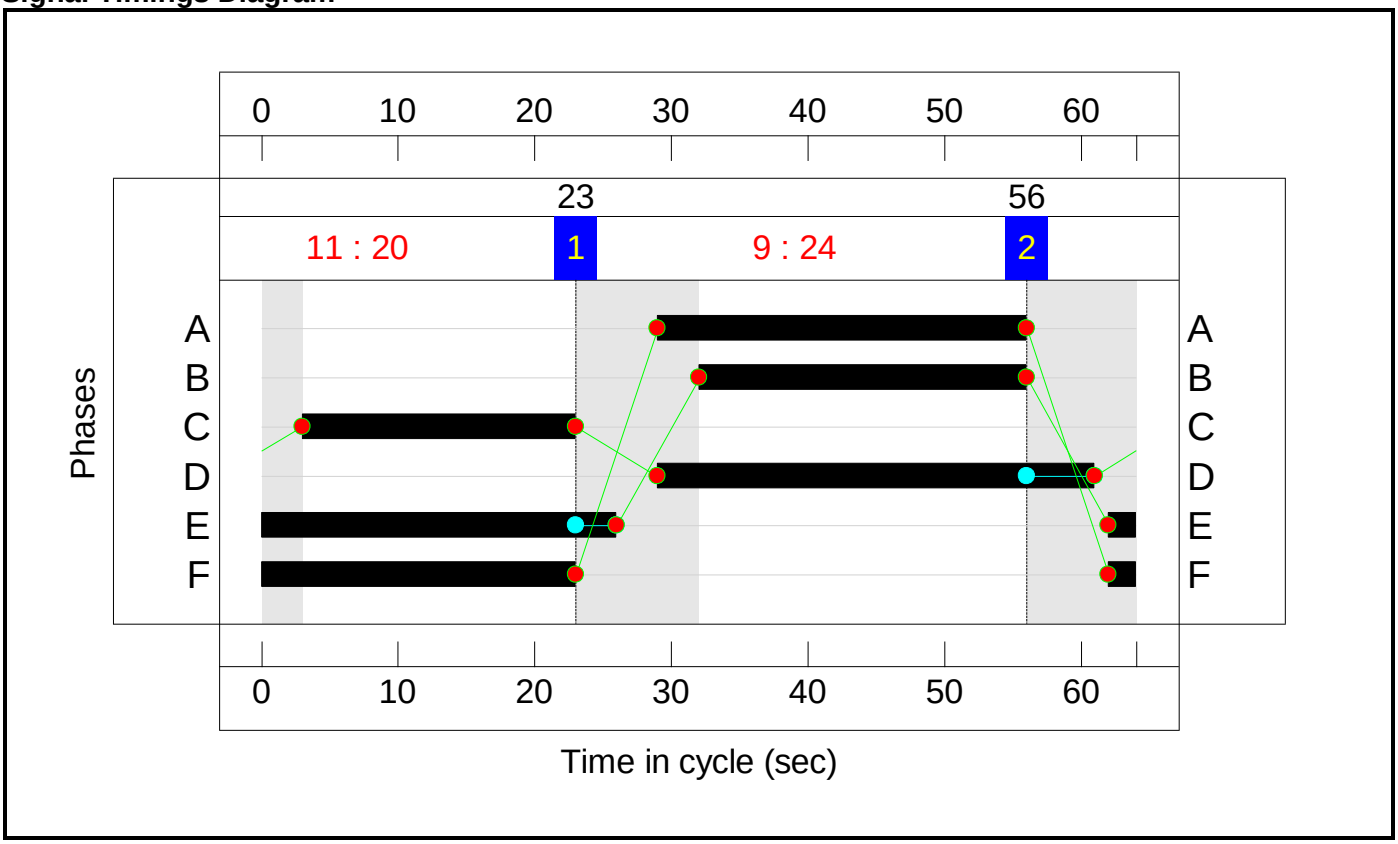


Stage Timings

Stage	1	2
Duration	24	20
Change Point	23	56

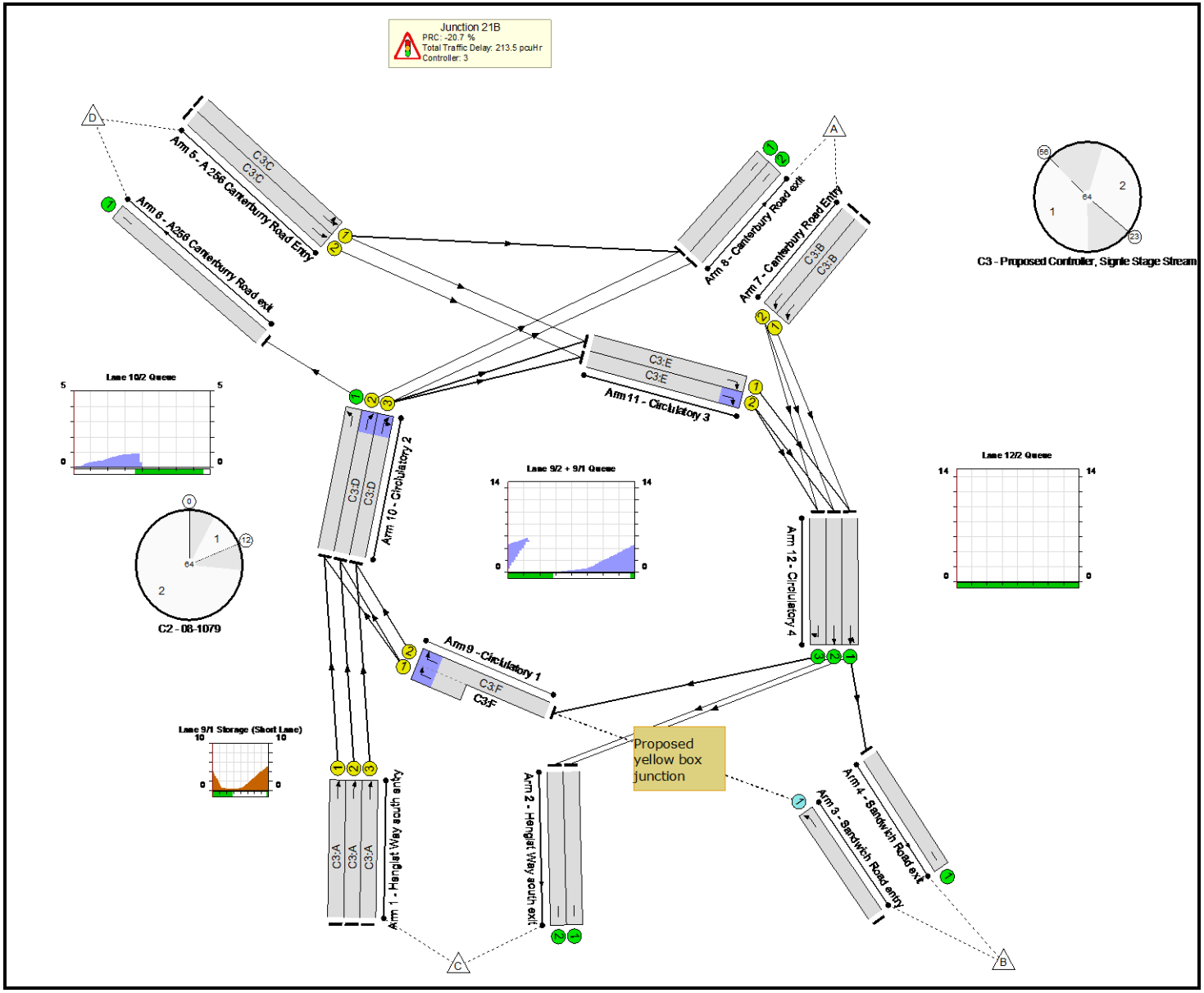
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Junction 21b	-	-	**N/A**	-	-		-	-	-	-	-	-	**108.7%**
Junction 21B	-	-	**N/A**	-	-		-	-	-	-	-	-	**108.7%**
1/1	Hengist Way south entry Ahead	U	N/A	N/A	C3:A		1	27	-	938	1985	868	108.0%
1/2	Hengist Way south entry Ahead	U	N/A	N/A	C3:A		1	27	-	439	1980	866	50.7%
1/3	Hengist Way south entry Ahead	U	N/A	N/A	C3:A		1	27	-	437	1980	866	50.4%
2/1	Hengist Way south exit	U	N/A	N/A	-		-	-	-	968	Inf	Inf	0.0%
2/2	Hengist Way south exit	U	N/A	N/A	-		-	-	-	1191	Inf	Inf	0.0%
3/1	Sandwich Road entry Ahead	O	N/A	N/A	-		-	-	-	179	1908	169	105.7%
4/1	Sandwich Road exit	U	N/A	N/A	-		-	-	-	282	Inf	Inf	0.0%
5/1	A 256 Canterburry Road Entry Left Ahead	U	N/A	N/A	C3:C		1	20	-	684	1942	637	107.3%
5/2	A 256 Canterburry Road Entry Ahead	U	N/A	N/A	C3:C		1	20	-	663	1919	630	105.3%
6/1	A256 Canterburry Road exit	U	N/A	N/A	-		-	-	-	1286	Inf	Inf	0.0%
7/1	Canterbury Road Entry Ahead	U	N/A	N/A	C3:B		1	24	-	776	1828	714	108.7%
7/2	Canterbury Road Entry Ahead	U	N/A	N/A	C3:B		1	24	-	775	1828	714	108.5%
8/1	Canterbury Road exit	U	N/A	N/A	-		-	-	-	702	Inf	Inf	0.0%

Full Input Data And Results

8/2	Canterbury Road exit	U	N/A	N/A	-		-	-	-	462	Inf	Inf	0.0%
9/2+9/1	Circulatory 1 Right	U	N/A	N/A	C3:F		1	25	-	444	1766:1796	83+681	55.0 : 54.2%
10/1	Circulatory 2 Left	U	N/A	N/A	-		-	-	-	1286	Inf	Inf	0.0%
10/2	Circulatory 2 Ahead	U	N/A	N/A	C3:D		1	32	-	487	1922	991	48.9%
10/3	Circulatory 2 Ahead Right	U	N/A	N/A	C3:D		1	32	-	485	1914	987	48.9%
11/1	Circulatory 3 Right	U	N/A	N/A	C3:E		1	28	-	474	2040	924	47.8%
11/2	Circulatory 3 Right	U	N/A	N/A	C3:E		1	28	-	681	2040	924	70.0%
12/1	Circulatory 4 Ahead Ahead2	U	N/A	N/A	-		-	-	-	1250	1965	1965	58.8%
12/2	Circulatory 4 Ahead	U	N/A	N/A	-		-	-	-	1191	1965	1965	56.8%
12/3	Circulatory 4 Right	U	N/A	N/A	-		-	-	-	265	1965	1965	12.5%

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: Junction 21b	**-**	**-**	**169**	**0**	**0**	**34.3**	**179.2**	**0.0**	**213.5**	**-**	**-**	**-**	**-**
Junction 21B	**-**	**-**	**169**	**0**	**0**	**34.3**	**179.2**	**0.0**	**213.5**	**-**	**-**	**-**	**-**
1/1	938	868	-	-	-	6.3	40.6	-	46.9	179.9	17.9	40.6	58.5
1/2	439	439	-	-	-	1.6	0.5	-	2.1	17.2	5.6	0.5	6.1
1/3	437	437	-	-	-	1.6	0.5	-	2.1	17.2	5.6	0.5	6.1
2/1	895	895	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	1116	1116	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	179	169	169	0	0	0.7	9.5	-	10.2	206.0	8.8	9.5	18.3
4/1	261	261	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	684	637	-	-	-	5.6	29.2	-	34.8	183.1	13.0	29.2	42.2
5/2	663	630	-	-	-	5.0	23.7	-	28.7	155.7	12.4	23.7	36.0
6/1	1192	1192	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	776	714	-	-	-	5.6	36.3	-	41.9	194.6	14.9	36.3	51.2
7/2	775	714	-	-	-	5.6	35.9	-	41.5	192.6	14.9	35.9	50.7
8/1	685	685	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	460	460	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2+9/1	414	414	-	-	-	1.5	0.6	-	2.1	18.3	5.6	0.6	6.2
10/1	1192	1192	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/2	484	484	-	-	-	0.3	0.5	-	0.7	5.5	0.9	0.5	1.4
10/3	482	482	-	-	-	0.3	0.5	-	0.8	5.6	0.9	0.5	1.4
11/1	442	442	-	-	-	0.1	0.0	-	0.1	0.7	0.2	0.0	0.2
11/2	647	647	-	-	-	0.2	0.0	-	0.2	1.2	0.5	0.0	0.5
12/1	1156	1156	-	-	-	0.0	0.7	-	0.7	2.2	0.0	0.7	0.7
12/2	1116	1116	-	-	-	0.0	0.7	-	0.7	2.1	0.0	0.7	0.7
12/3	245	245	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1

Full Input Data And Results

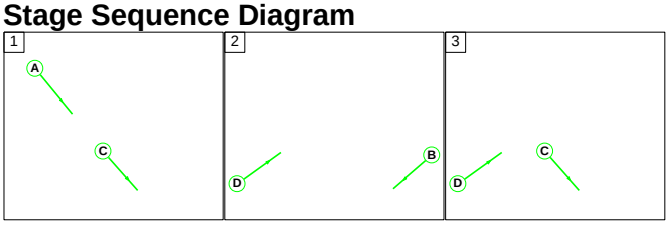
C1 - 08-1078	PRC for Signalled Lanes (%):	0.0	Total Delay for Signalled Lanes (pcuHr):	0.00	Cycle Time (s):	64
C2 - 08-1079	PRC for Signalled Lanes (%):	0.0	Total Delay for Signalled Lanes (pcuHr):	0.00	Cycle Time (s):	64
C3 - Proposed Controller, Signle Stage Stream	PRC for Signalled Lanes (%):	-20.7	Total Delay for Signalled Lanes (pcuHr):	201.84	Cycle Time (s):	64
	PRC Over All Lanes (%):	-20.7	Total Delay Over All Lanes(pcuHr):	213.52		

Full Input Data And Results

Scenario 2: '2039 + Dev Traffic - PM Peak Mitigation' (FG8: '2039 + Dev Traffic - PM Peak', Plan 3: '2039 + Dev Traffic - PM Peak Mitigation')

C1 - 08-1078

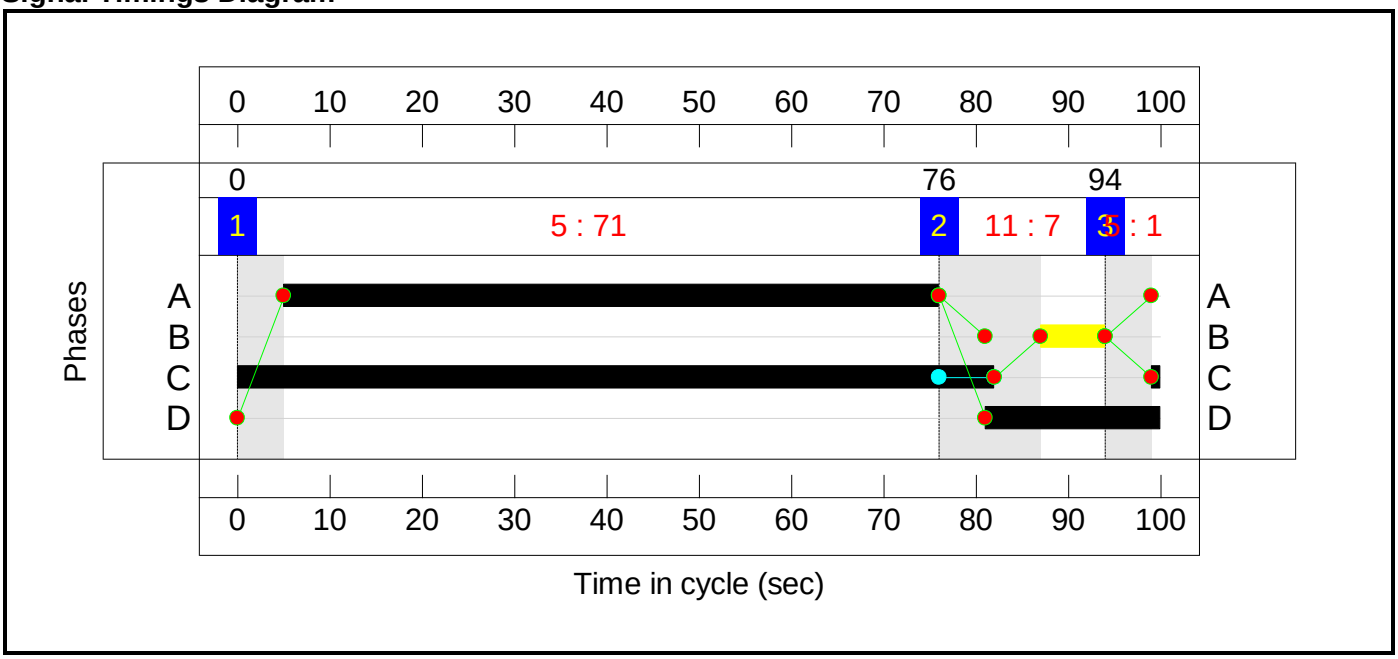
Stage Sequence Diagram



Stage Timings

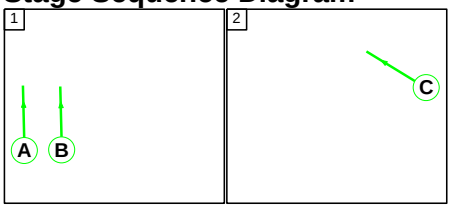
Stage	1	2	3
Duration	71	7	1
Change Point	0	76	94

Signal Timings Diagram



C2 - 08-1079

Stage Sequence Diagram

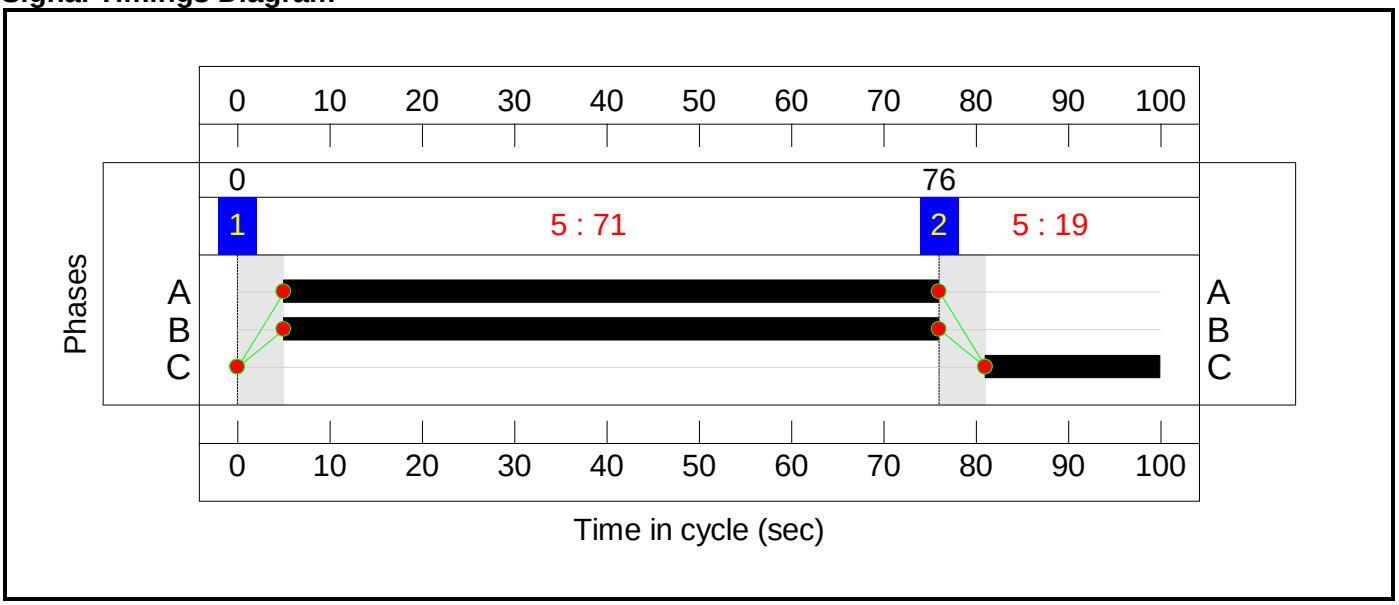


Stage Timings

Stage	1	2
Duration	71	19
Change Point	0	76

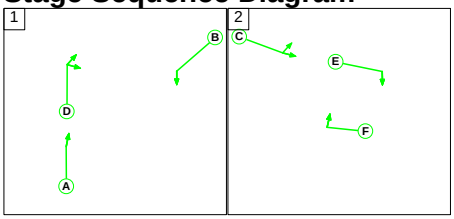
Full Input Data And Results

Signal Timings Diagram



C3 - Proposed Controller, Signle Stage Stream

Stage Sequence Diagram

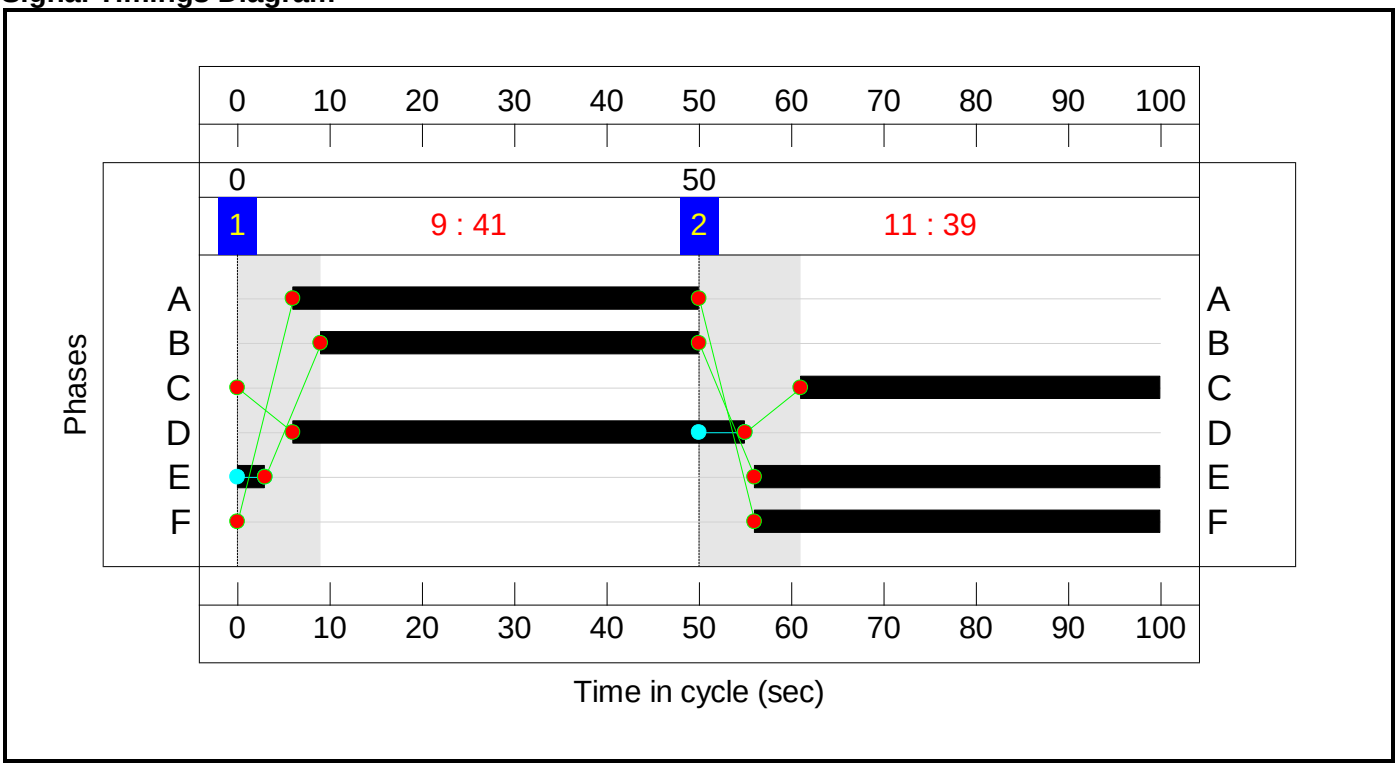


Stage Timings

Stage	1	2
Duration	41	39
Change Point	0	50

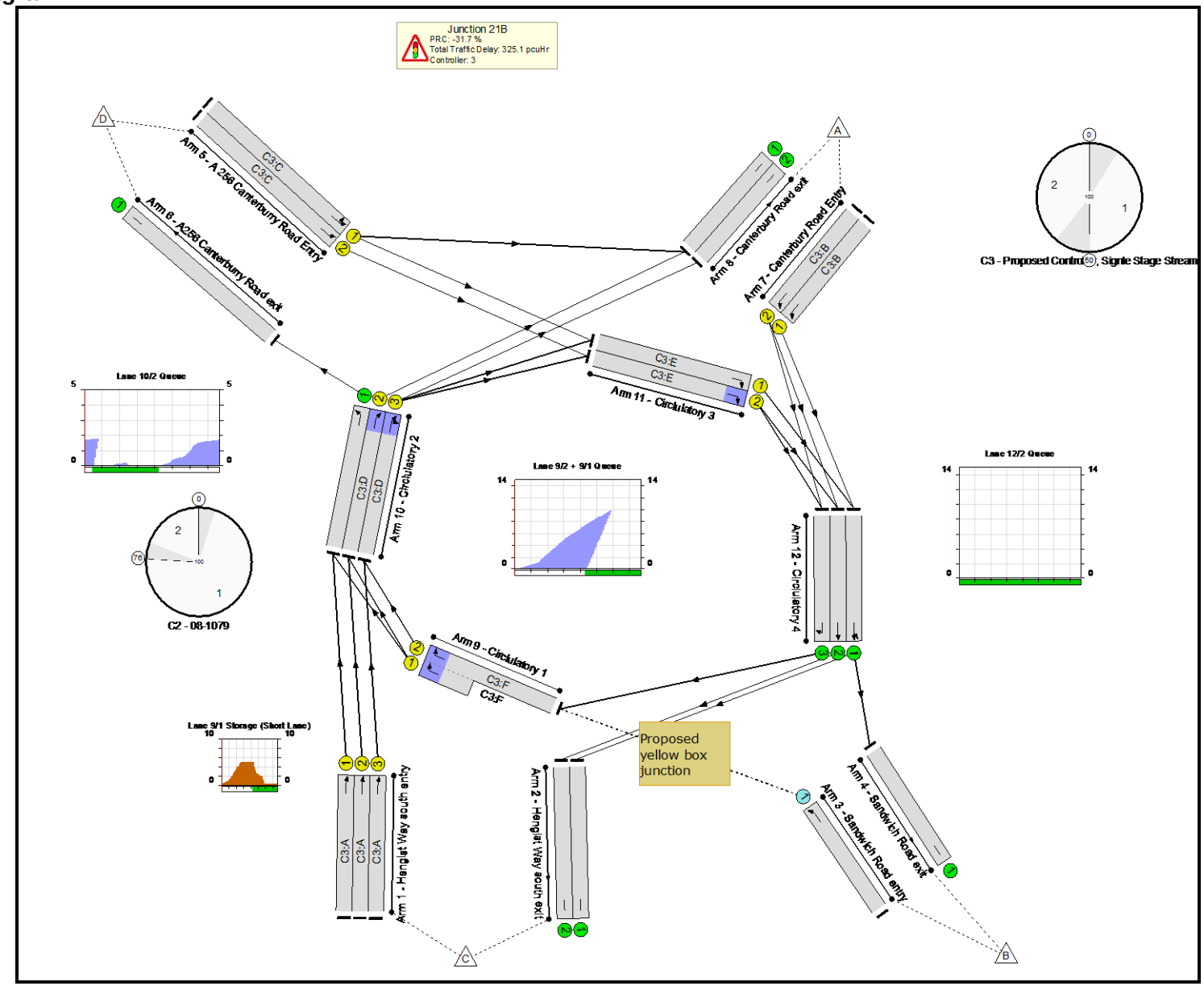
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Junction 21b	-	-	**N/A**	-	-		-	-	-	-	-	-	**118.6%**
Junction 21B	-	-	**N/A**	-	-		-	-	-	-	-	-	**118.6%**
1/1	Hengist Way south entry Ahead	U	N/A	N/A	C3:A		1	44	-	1059	1985	893	118.6%
1/2	Hengist Way south entry Ahead	U	N/A	N/A	C3:A		1	44	-	532	1980	891	59.7%
1/3	Hengist Way south entry Ahead	U	N/A	N/A	C3:A		1	44	-	531	1980	891	59.6%
2/1	Hengist Way south exit	U	N/A	N/A	-		-	-	-	642	Inf	Inf	0.0%
2/2	Hengist Way south exit	U	N/A	N/A	-		-	-	-	1180	Inf	Inf	0.0%
3/1	Sandwich Road entry Ahead	O	N/A	N/A	-		-	-	-	251	1908	214	117.2%
4/1	Sandwich Road exit	U	N/A	N/A	-		-	-	-	376	Inf	Inf	0.0%
5/1	A 256 Canterburry Road Entry Left Ahead	U	N/A	N/A	C3:C		1	39	-	922	1954	782	118.0%
5/2	A 256 Canterburry Road Entry Ahead	U	N/A	N/A	C3:C		1	39	-	902	1919	768	117.5%
6/1	A256 Canterburry Road exit	U	N/A	N/A	-		-	-	-	1410	Inf	Inf	0.0%
7/1	Canterbury Road Entry Ahead	U	N/A	N/A	C3:B		1	41	-	513	1828	768	66.8%
7/2	Canterbury Road Entry Ahead	U	N/A	N/A	C3:B		1	41	-	513	1828	768	66.8%
8/1	Canterbury Road exit	U	N/A	N/A	-		-	-	-	1029	Inf	Inf	0.0%

Full Input Data And Results

8/2	Canterbury Road exit	U	N/A	N/A	-		-	-	-	586	Inf	Inf	0.0%
9/2+9/1	Circulatory 1 Right	U	N/A	N/A	C3:F		1	44	-	490	1766:1796	120+717	50.0 : 53.5%
10/1	Circulatory 2 Left	U	N/A	N/A	-		-	-	-	1410	Inf	Inf	0.0%
10/2	Circulatory 2 Ahead	U	N/A	N/A	C3:D		1	49	-	601	1922	961	61.5%
10/3	Circulatory 2 Ahead Right	U	N/A	N/A	C3:D		1	49	-	601	1918	959	61.6%
11/1	Circulatory 3 Right	U	N/A	N/A	C3:E		1	47	-	505	2040	979	43.9%
11/2	Circulatory 3 Right	U	N/A	N/A	C3:E		1	47	-	906	2040	979	78.7%
12/1	Circulatory 4 Ahead Ahead2	U	N/A	N/A	-		-	-	-	1018	1965	1965	48.0%
12/2	Circulatory 4 Ahead	U	N/A	N/A	-		-	-	-	1180	1965	1965	53.7%
12/3	Circulatory 4 Right	U	N/A	N/A	-		-	-	-	239	1965	1965	11.7%

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: Junction 21b	**-**	**-**	**214**	**0**	**0**	**67.3**	**257.8**	**0.0**	**325.1**	**-**	**-**	**-**	**-**
Junction 21B	**-**	**-**	**214**	**0**	**0**	**67.3**	**257.8**	**0.0**	**325.1**	**-**	**-**	**-**	**-**
1/1	1059	893	-	-	-	15.9	86.0	-	101.9	346.3	34.0	86.0	120.0
1/2	532	532	-	-	-	3.1	0.7	-	3.8	25.7	11.1	0.7	11.8
1/3	531	531	-	-	-	3.0	0.7	-	3.8	25.6	11.1	0.7	11.8
2/1	597	597	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	1055	1055	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	251	214	214	0	0	2.6	21.3	-	24.0	343.6	20.9	21.3	42.2
4/1	346	346	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	922	782	-	-	-	16.2	73.3	-	89.5	349.5	32.6	73.3	106.0
5/2	902	768	-	-	-	15.6	70.4	-	86.0	343.4	31.8	70.4	102.2
6/1	1218	1218	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	513	513	-	-	-	3.3	1.0	-	4.3	30.4	11.4	1.0	12.4
7/2	513	513	-	-	-	3.3	1.0	-	4.3	30.4	11.4	1.0	12.4
8/1	954	954	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	576	576	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2+9/1	443	443	-	-	-	2.8	0.6	-	3.3	27.0	9.9	0.6	10.4
10/1	1218	1218	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/2	591	591	-	-	-	0.6	0.8	-	1.4	8.4	1.8	0.8	2.5
10/3	591	591	-	-	-	0.6	0.8	-	1.4	8.5	1.8	0.8	2.6
11/1	430	430	-	-	-	0.1	0.0	-	0.1	1.1	0.4	0.0	0.4
11/2	771	771	-	-	-	0.1	0.0	-	0.1	0.6	0.2	0.0	0.2
12/1	943	943	-	-	-	0.0	0.5	-	0.5	1.8	0.0	0.5	0.5
12/2	1055	1055	-	-	-	0.0	0.6	-	0.6	2.0	0.0	0.6	0.6
12/3	229	229	-	-	-	0.0	0.1	-	0.1	1.0	0.0	0.1	0.1

Full Input Data And Results

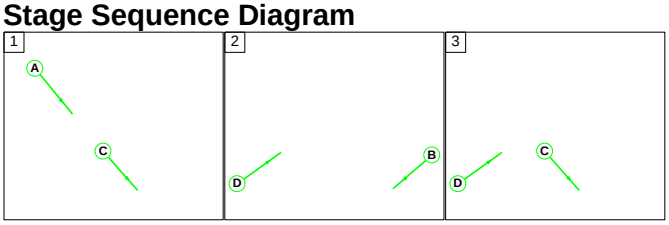
C1 - 08-1078	PRC for Signalled Lanes (%):	0.0	Total Delay for Signalled Lanes (pcuHr):	0.00	Cycle Time (s):	100
C2 - 08-1079	PRC for Signalled Lanes (%):	0.0	Total Delay for Signalled Lanes (pcuHr):	0.00	Cycle Time (s):	100
C3 - Proposed Controller, Signle Stage Stream	PRC for Signalled Lanes (%):	-31.7	Total Delay for Signalled Lanes (pcuHr):	300.02	Cycle Time (s):	100
	PRC Over All Lanes (%):	-31.7	Total Delay Over All Lanes(pcuHr):	325.08		

Full Input Data And Results

Scenario 3: '2039 + Dev Traffic - Airport Peak Mitigation' (FG9: '2039 + Dev Traffic - Airport Peak', Plan 4: '2039 + Dev Traffic - Airport Peak Mitigation')

C1 - 08-1078

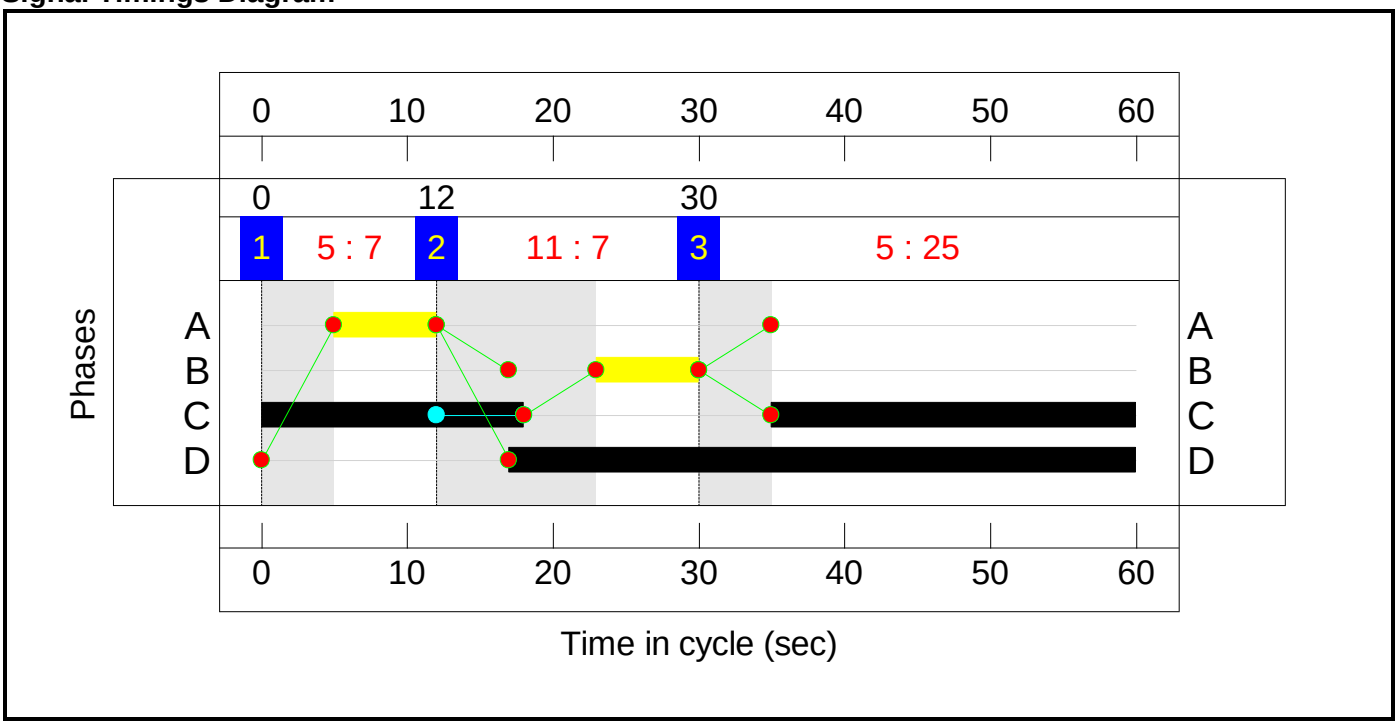
Stage Sequence Diagram



Stage Timings

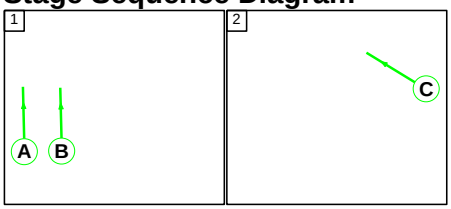
Stage	1	2	3
Duration	7	7	25
Change Point	0	12	30

Signal Timings Diagram



C2 - 08-1079

Stage Sequence Diagram

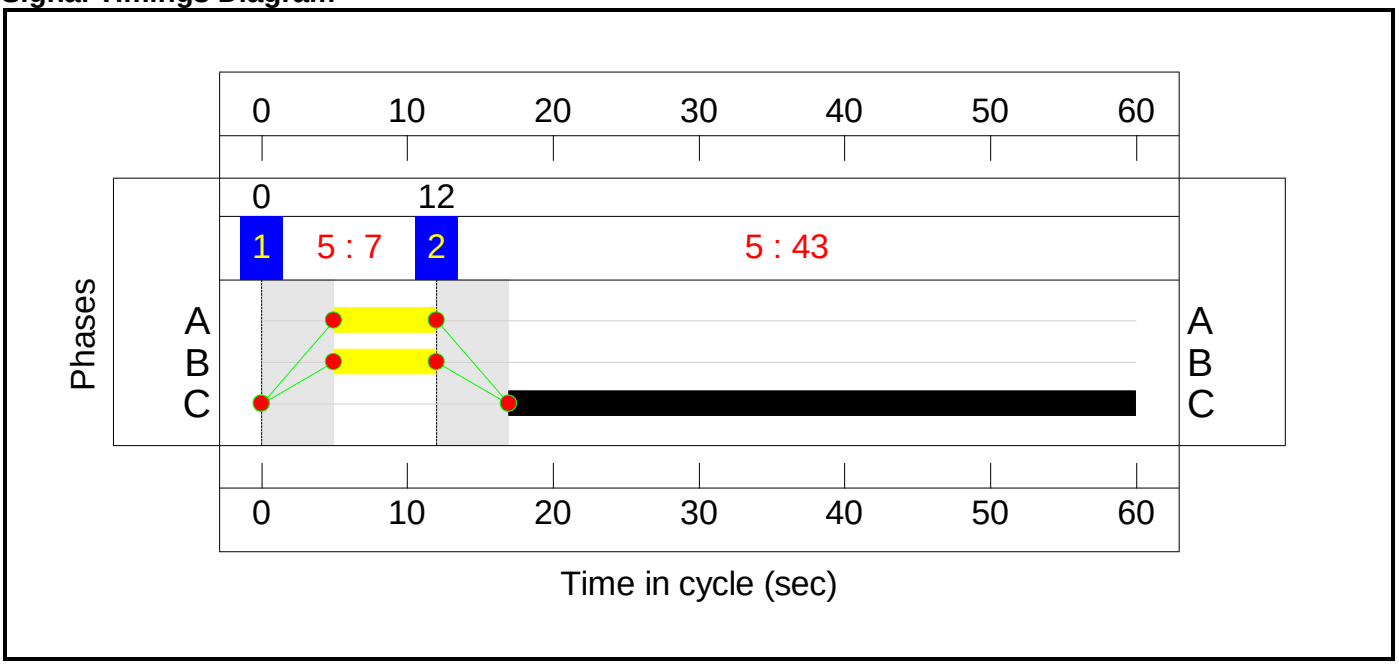


Stage Timings

Stage	1	2
Duration	7	43
Change Point	0	12

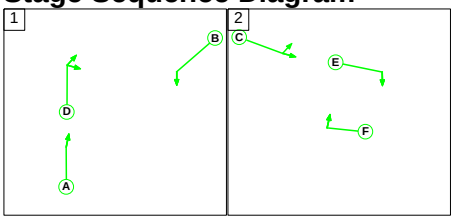
Full Input Data And Results

Signal Timings Diagram



C3 - Proposed Controller, Signle Stage Stream

Stage Sequence Diagram

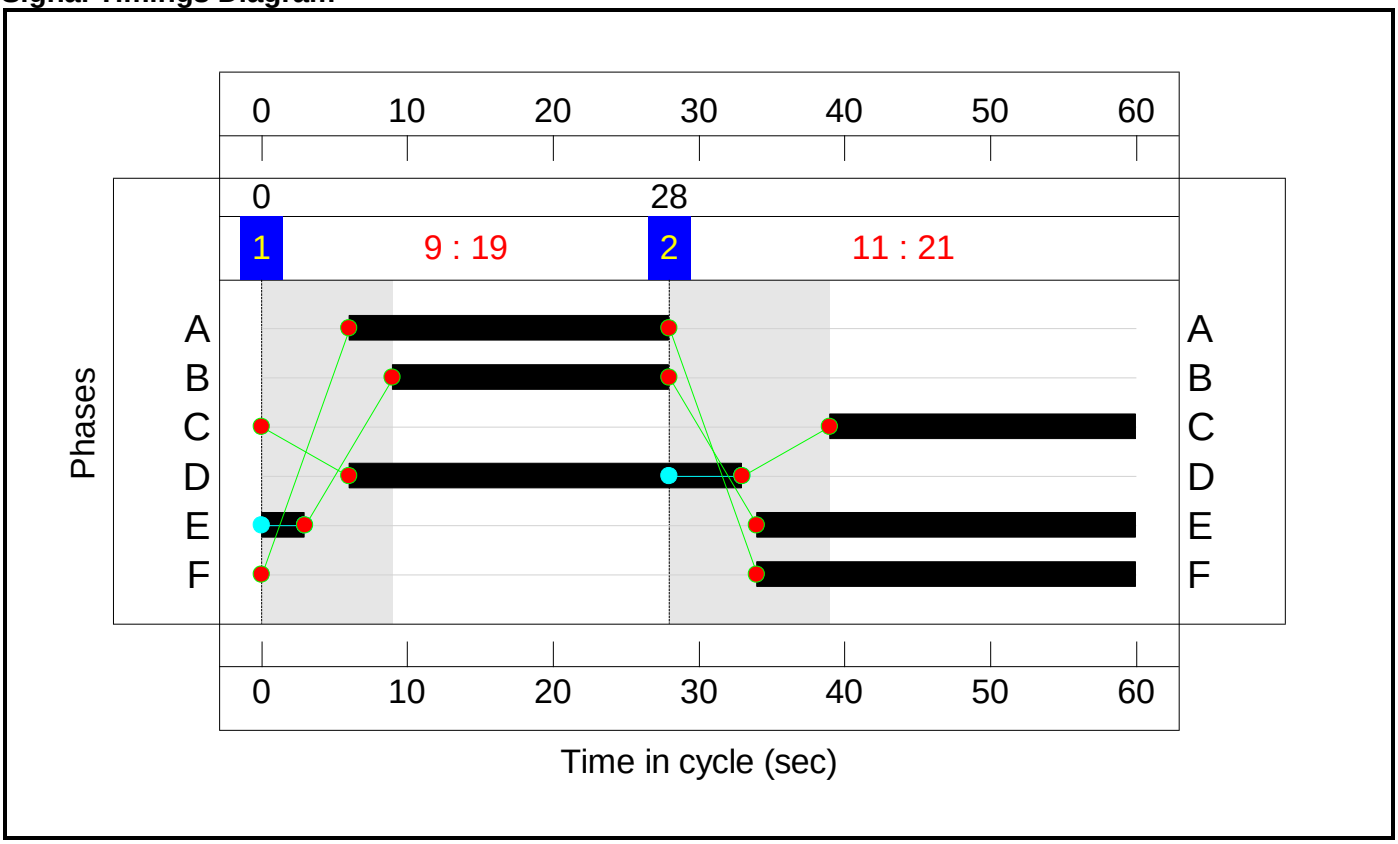


Stage Timings

Stage	1	2
Duration	19	21
Change Point	0	28

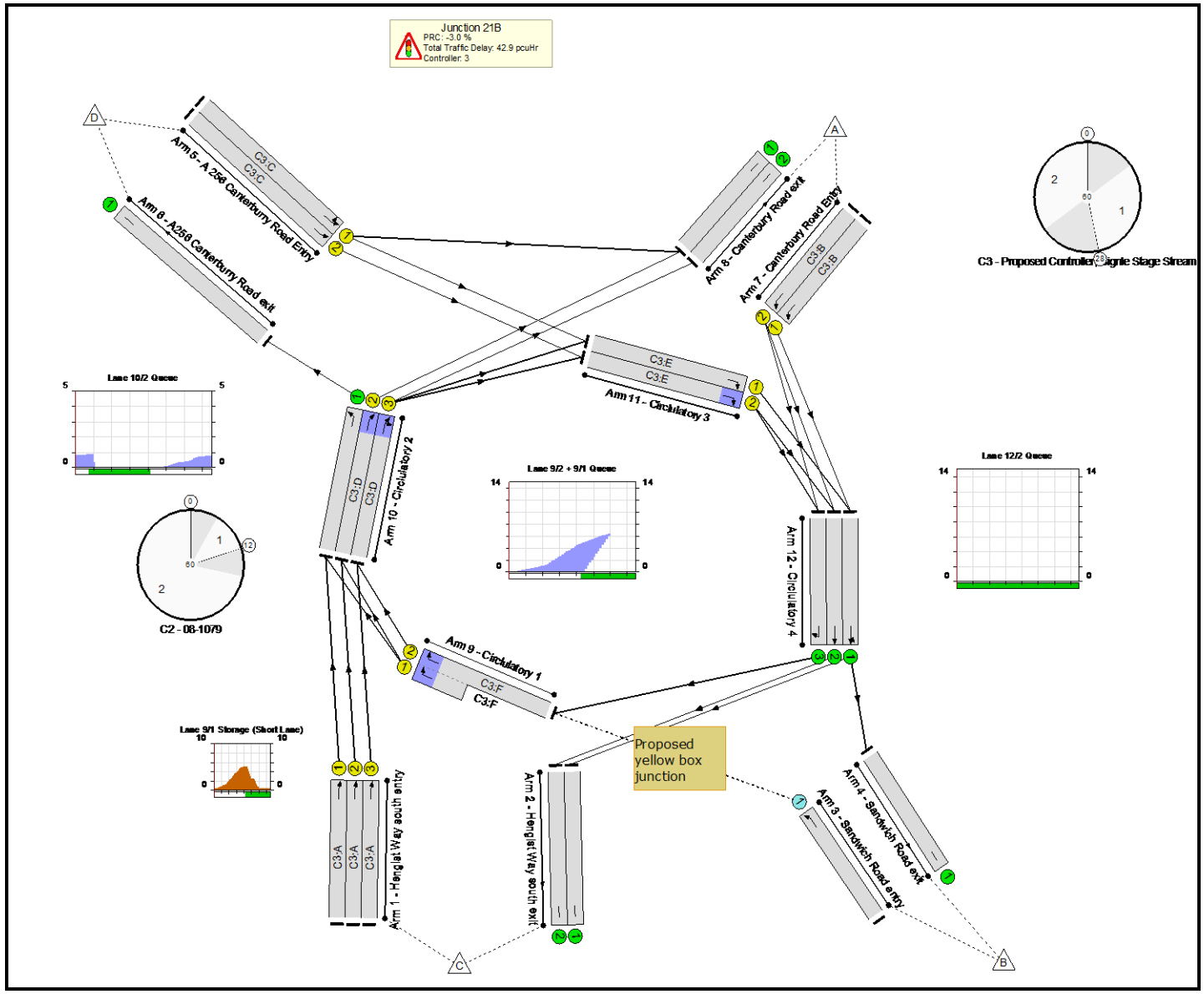
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Junction 21b	-	-	**N/A**	-	-		-	-	-	-	-	-	**92.7%**
Junction 21B	-	-	**N/A**	-	-		-	-	-	-	-	-	**92.7%**
1/1	Hengist Way south entry Ahead	U	N/A	N/A	C3:A		1	22	-	687	1985	761	90.3%
1/2	Hengist Way south entry Ahead	U	N/A	N/A	C3:A		1	22	-	342	1980	759	45.1%
1/3	Hengist Way south entry Ahead	U	N/A	N/A	C3:A		1	22	-	345	1980	759	45.5%
2/1	Hengist Way south exit	U	N/A	N/A	-		-	-	-	580	Inf	Inf	0.0%
2/2	Hengist Way south exit	U	N/A	N/A	-		-	-	-	849	Inf	Inf	0.0%
3/1	Sandwich Road entry Ahead	O	N/A	N/A	-		-	-	-	220	1908	237	92.7%
4/1	Sandwich Road exit	U	N/A	N/A	-		-	-	-	315	Inf	Inf	0.0%
5/1	A 256 Canterburry Road Entry Left Ahead	U	N/A	N/A	C3:C		1	21	-	652	1948	714	91.3%
5/2	A 256 Canterburry Road Entry Ahead	U	N/A	N/A	C3:C		1	21	-	625	1919	704	88.8%
6/1	A256 Canterburry Road exit	U	N/A	N/A	-		-	-	-	1087	Inf	Inf	0.0%
7/1	Canterbury Road Entry Ahead	U	N/A	N/A	C3:B		1	19	-	476	1828	609	78.1%
7/2	Canterbury Road Entry Ahead	U	N/A	N/A	C3:B		1	19	-	476	1828	609	78.1%
8/1	Canterbury Road exit	U	N/A	N/A	-		-	-	-	639	Inf	Inf	0.0%
8/2	Canterbury Road exit	U	N/A	N/A	-		-	-	-	353	Inf	Inf	0.0%

Full Input Data And Results

9/2+9/1	Circulatory 1 Right	U	N/A	N/A	C3:F		1	26	-	479	1766:1796	54+775	57.8 : 57.8%
10/1	Circulatory 2 Left	U	N/A	N/A	-		-	-	-	1087	Inf	Inf	0.0%
10/2	Circulatory 2 Ahead	U	N/A	N/A	C3:D		1	27	-	390	1922	897	43.5%
10/3	Circulatory 2 Ahead Right	U	N/A	N/A	C3:D		1	27	-	376	1912	892	42.1%
11/1	Circulatory 3 Right	U	N/A	N/A	C3:E		1	29	-	419	2040	1020	41.1%
11/2	Circulatory 3 Right	U	N/A	N/A	C3:E		1	29	-	632	2040	1020	62.0%
12/1	Circulatory 4 Ahead Ahead2	U	N/A	N/A	-		-	-	-	895	1965	1965	45.5%
12/2	Circulatory 4 Ahead	U	N/A	N/A	-		-	-	-	849	1965	1965	43.2%
12/3	Circulatory 4 Right	U	N/A	N/A	-		-	-	-	259	1965	1965	13.2%

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: Junction 21b	**-**	**-**	**220**	**0**	**0**	**19.7**	**23.2**	**0.0**	**42.9**	**-**	**-**	**-**	**-**
Junction 21B	**-**	**-**	**220**	**0**	**0**	**19.7**	**23.2**	**0.0**	**42.9**	**-**	**-**	**-**	**-**
1/1	687	687	-	-	-	3.3	4.2	-	7.5	39.3	10.7	4.2	14.9
1/2	342	342	-	-	-	1.3	0.4	-	1.7	18.1	4.2	0.4	4.6
1/3	345	345	-	-	-	1.3	0.4	-	1.7	18.2	4.2	0.4	4.6
2/1	580	580	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
2/2	849	849	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
3/1	220	220	220	0	0	0.2	4.3	-	4.5	73.5	3.3	4.3	7.6
4/1	315	315	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	652	652	-	-	-	3.3	4.6	-	7.8	43.3	10.3	4.6	14.9
5/2	625	625	-	-	-	3.1	3.6	-	6.7	38.8	9.7	3.6	13.4
6/1	1087	1087	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	476	476	-	-	-	2.4	1.7	-	4.1	31.2	7.1	1.7	8.9
7/2	476	476	-	-	-	2.4	1.7	-	4.1	31.2	7.1	1.7	8.9
8/1	639	639	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/2	353	353	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2+9/1	479	479	-	-	-	1.7	0.7	-	2.4	17.9	6.4	0.7	7.1
10/1	1087	1087	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/2	390	390	-	-	-	0.3	0.4	-	0.7	6.2	0.9	0.4	1.3
10/3	376	376	-	-	-	0.2	0.4	-	0.6	5.4	0.6	0.4	1.0
11/1	419	419	-	-	-	0.1	0.0	-	0.1	0.7	0.3	0.0	0.3
11/2	632	632	-	-	-	0.1	0.0	-	0.1	0.4	0.2	0.0	0.2
12/1	895	895	-	-	-	0.0	0.4	-	0.4	1.7	0.0	0.4	0.4
12/2	849	849	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
12/3	259	259	-	-	-	0.0	0.1	-	0.1	1.1	0.0	0.1	0.1

Full Input Data And Results

C1 - 08-1078	PRC for Signalled Lanes (%):	0.0	Total Delay for Signalled Lanes (pcuHr):	0.00	Cycle Time (s):	60
C2 - 08-1079	PRC for Signalled Lanes (%):	0.0	Total Delay for Signalled Lanes (pcuHr):	0.00	Cycle Time (s):	60
C3 - Proposed Controller, Signle Stage Stream	PRC for Signalled Lanes (%):	-1.4	Total Delay for Signalled Lanes (pcuHr):	37.57	Cycle Time (s):	60
	PRC Over All Lanes (%):	-3.0	Total Delay Over All Lanes(pcuHr):	42.93		