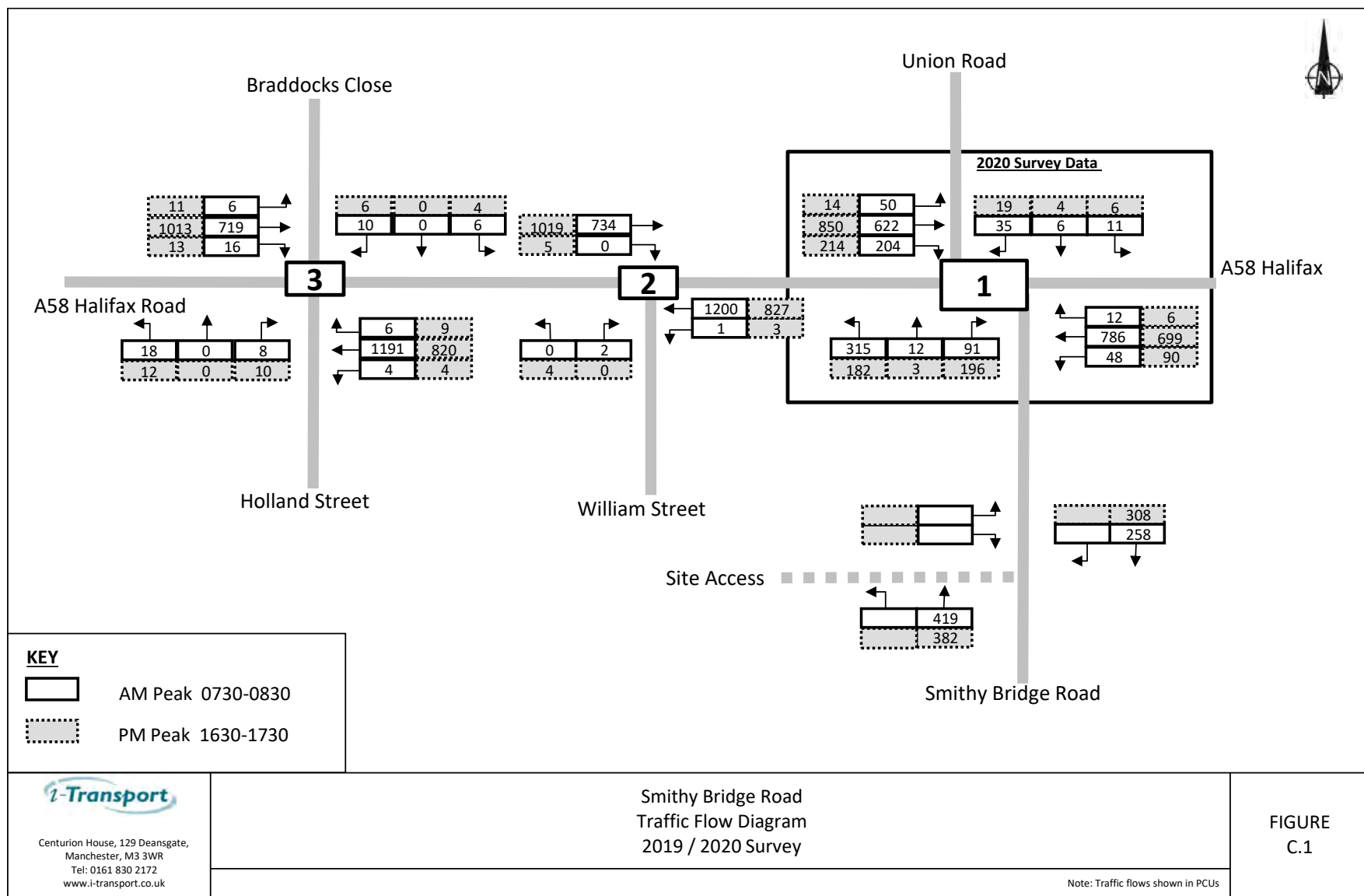


APPENDIX C. Traffic Flow Diagrams



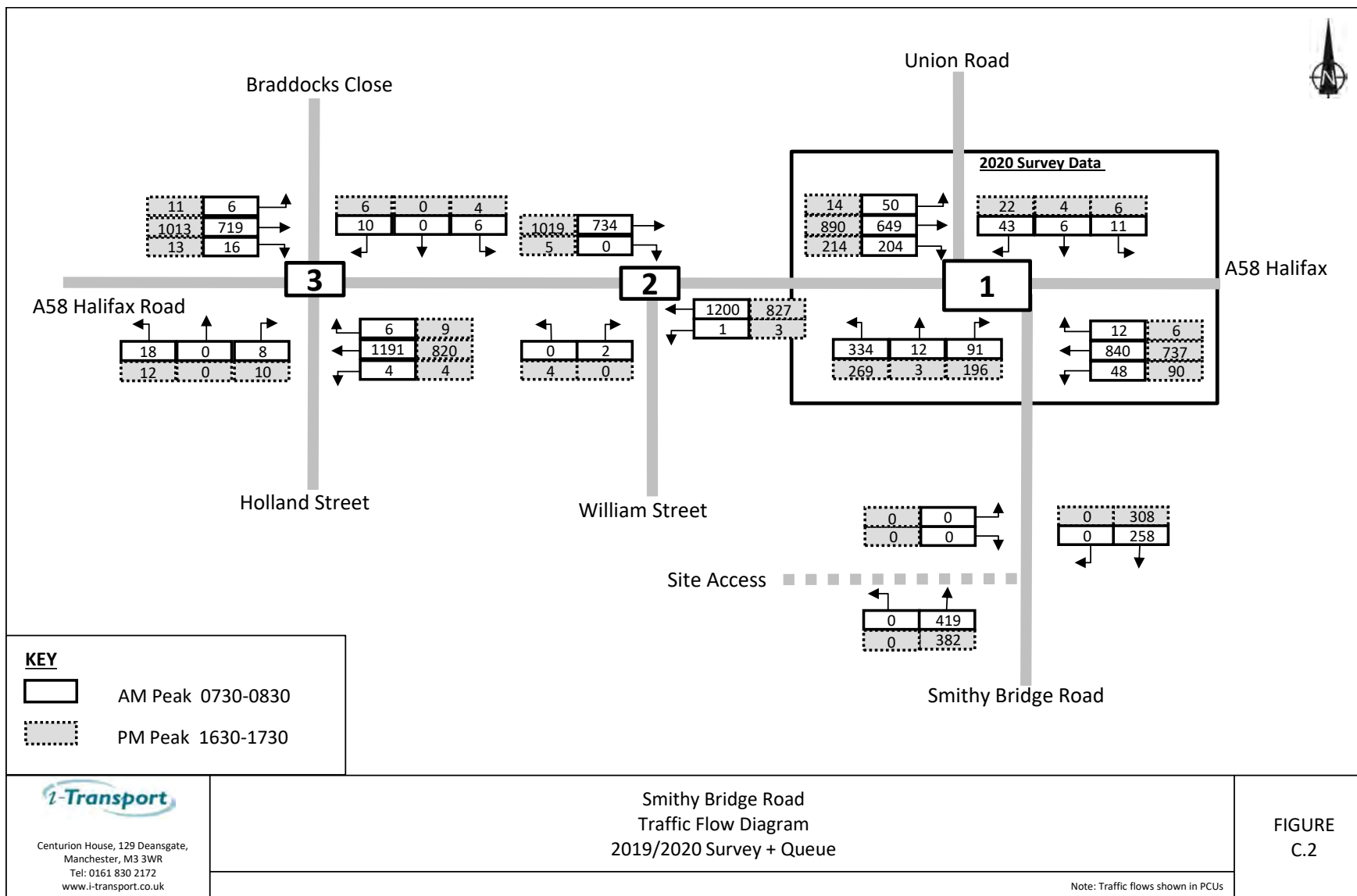
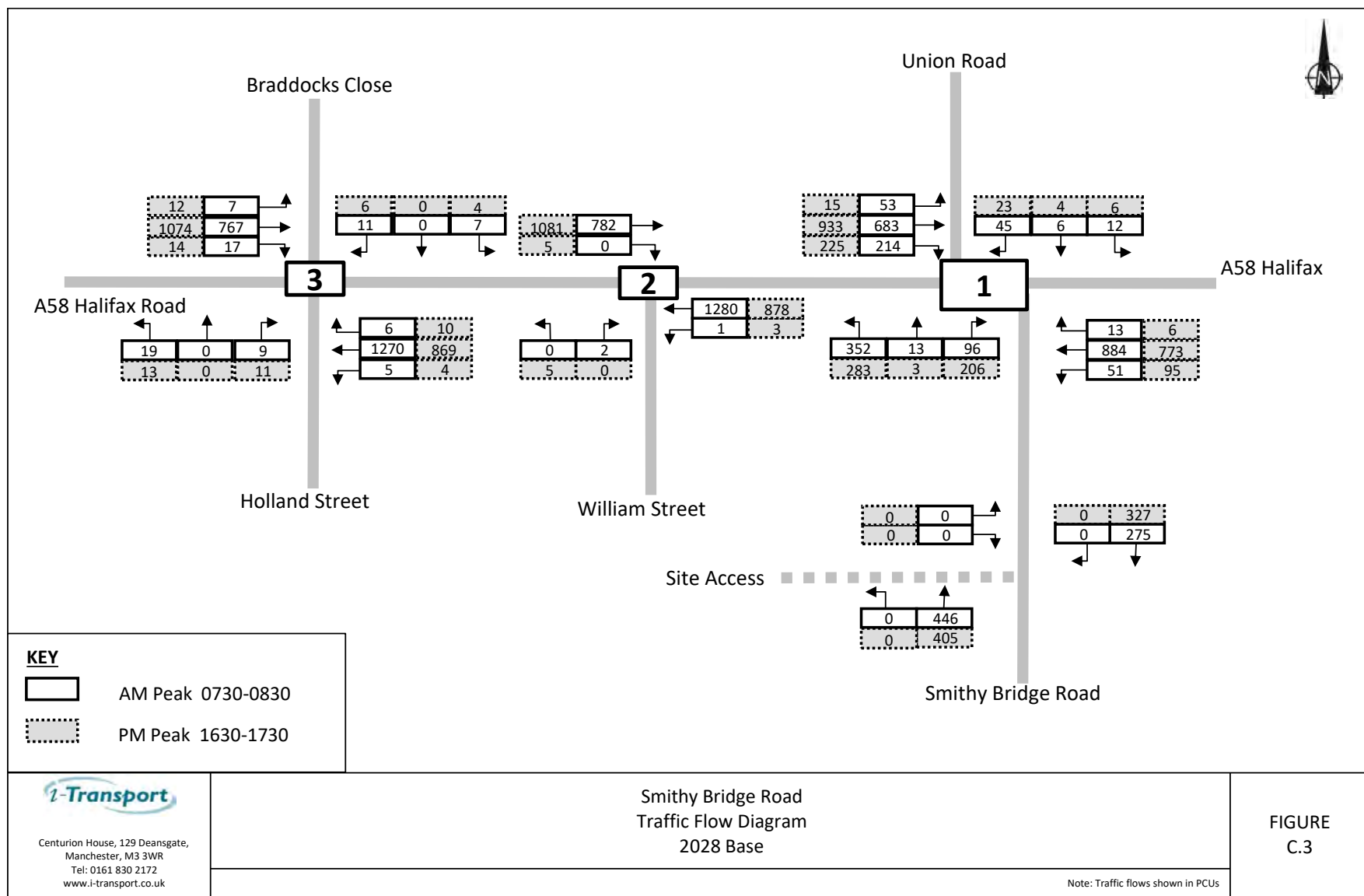


FIGURE C.2



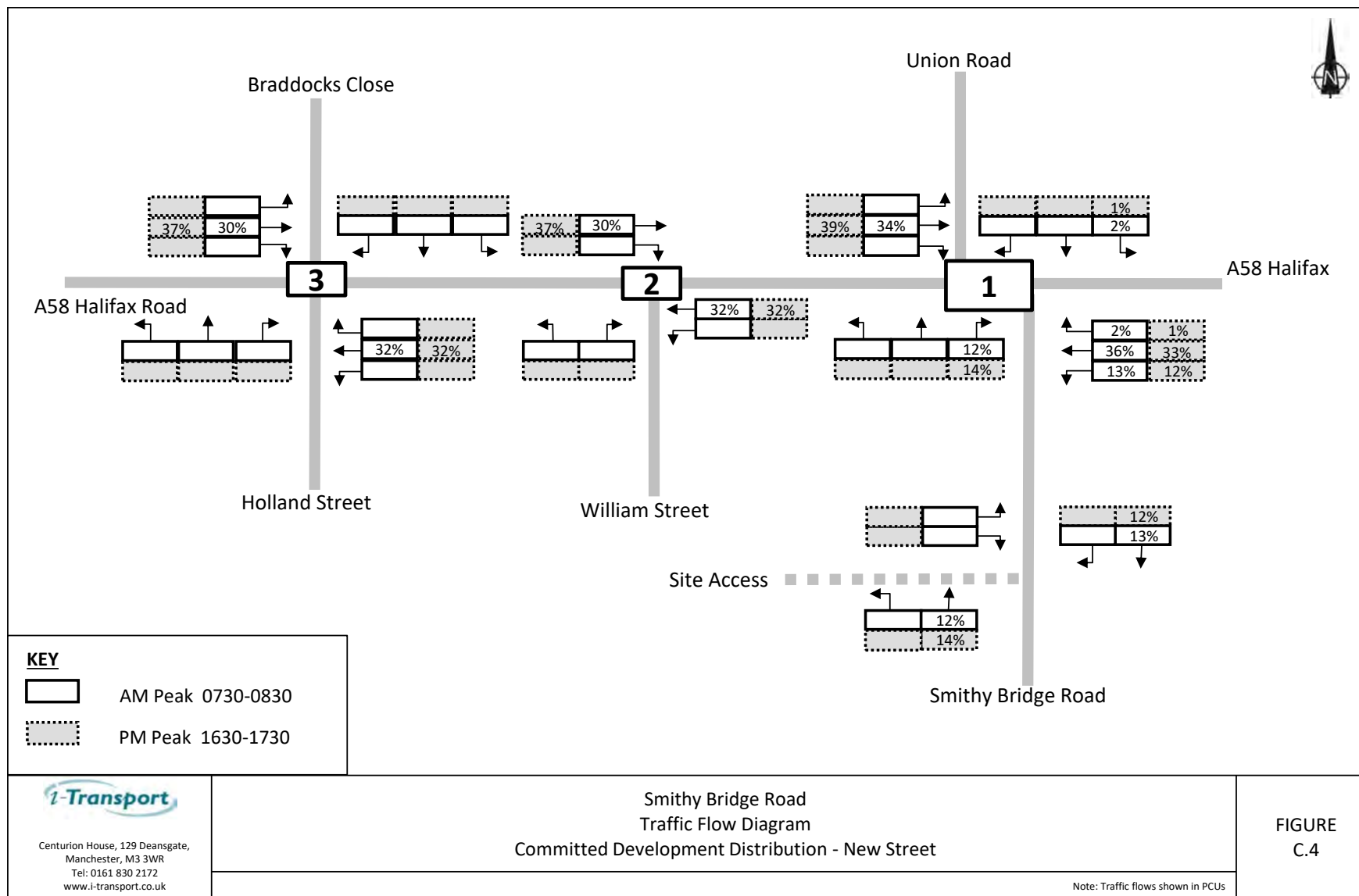
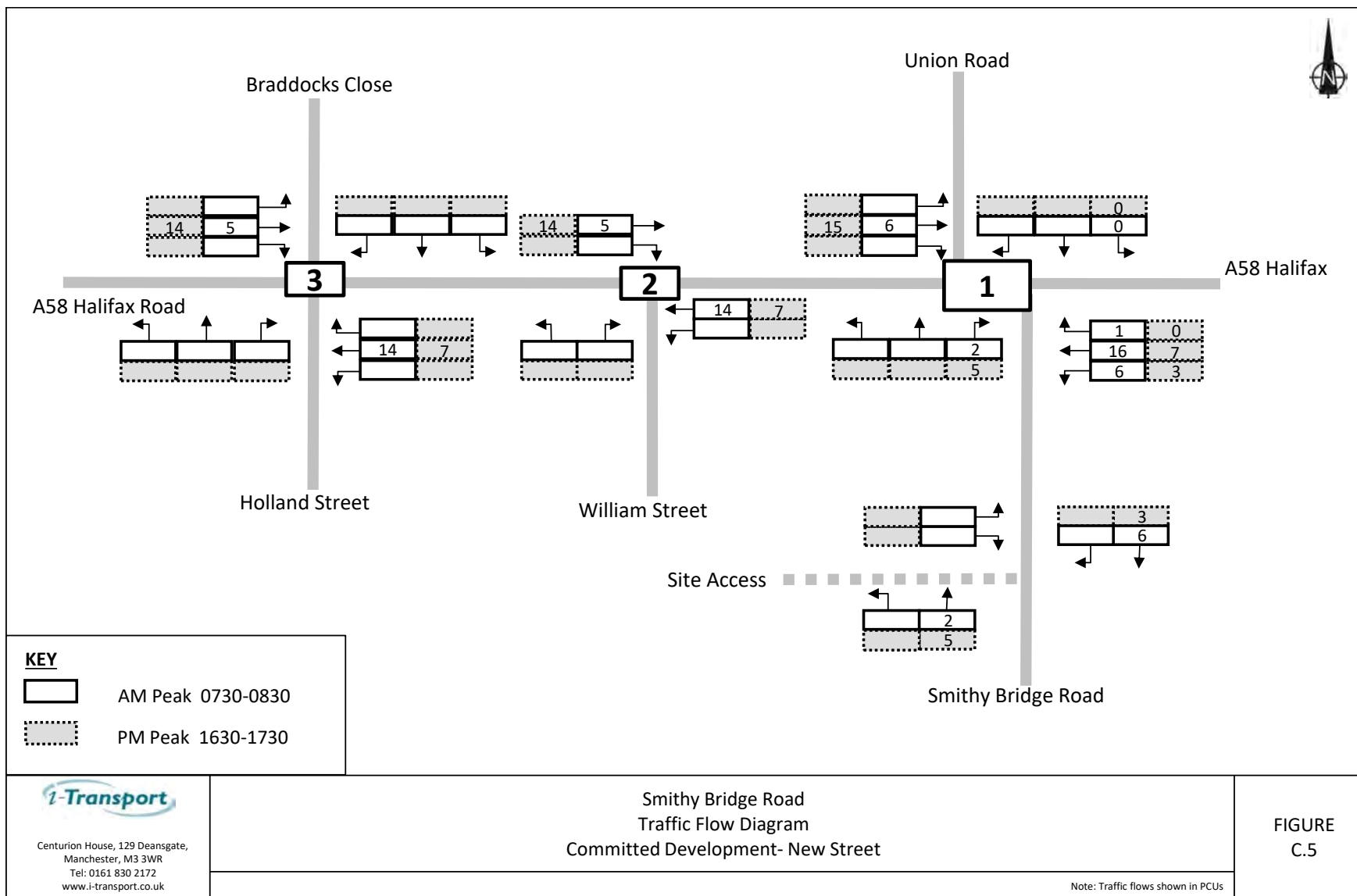
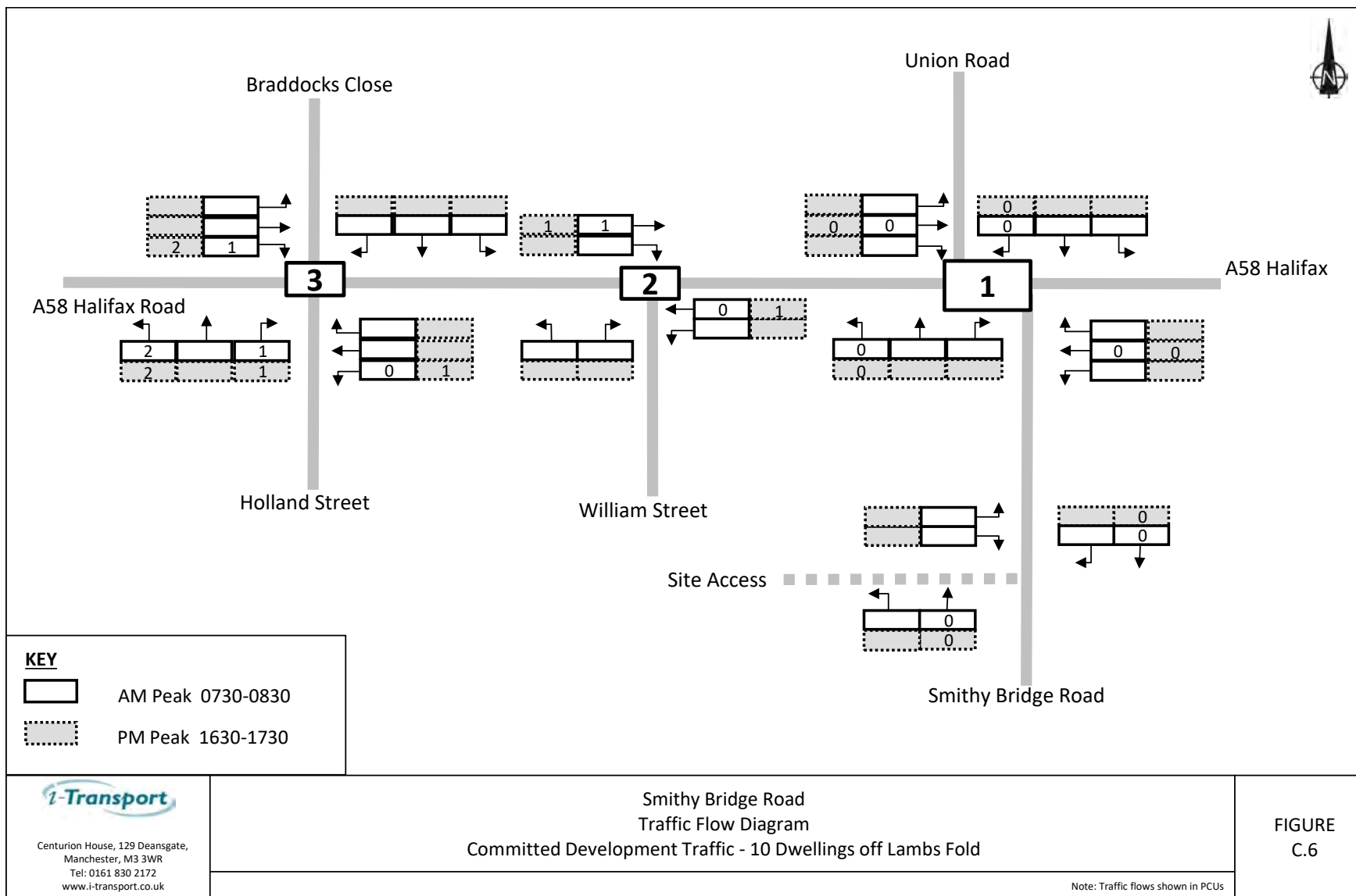
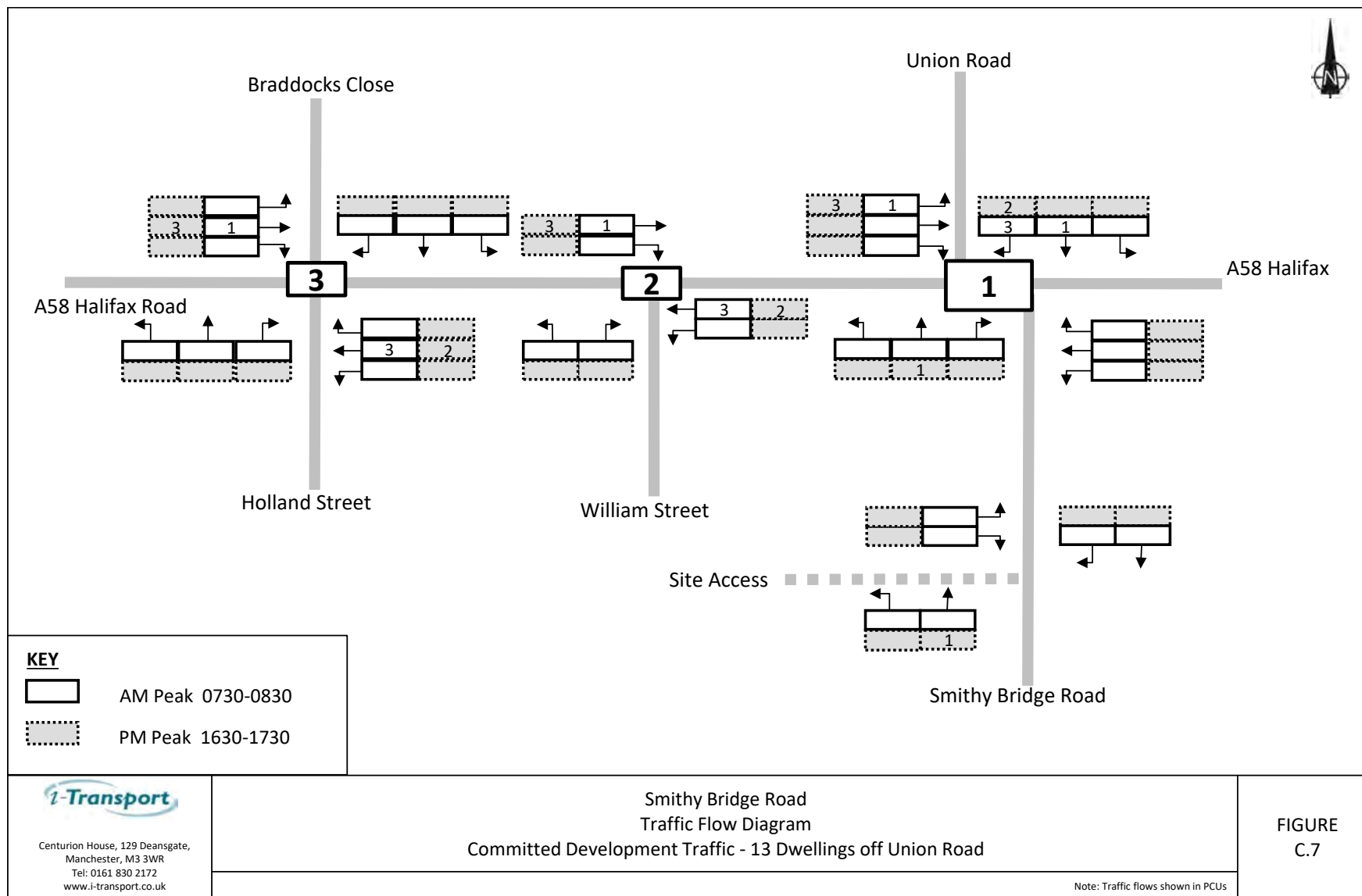
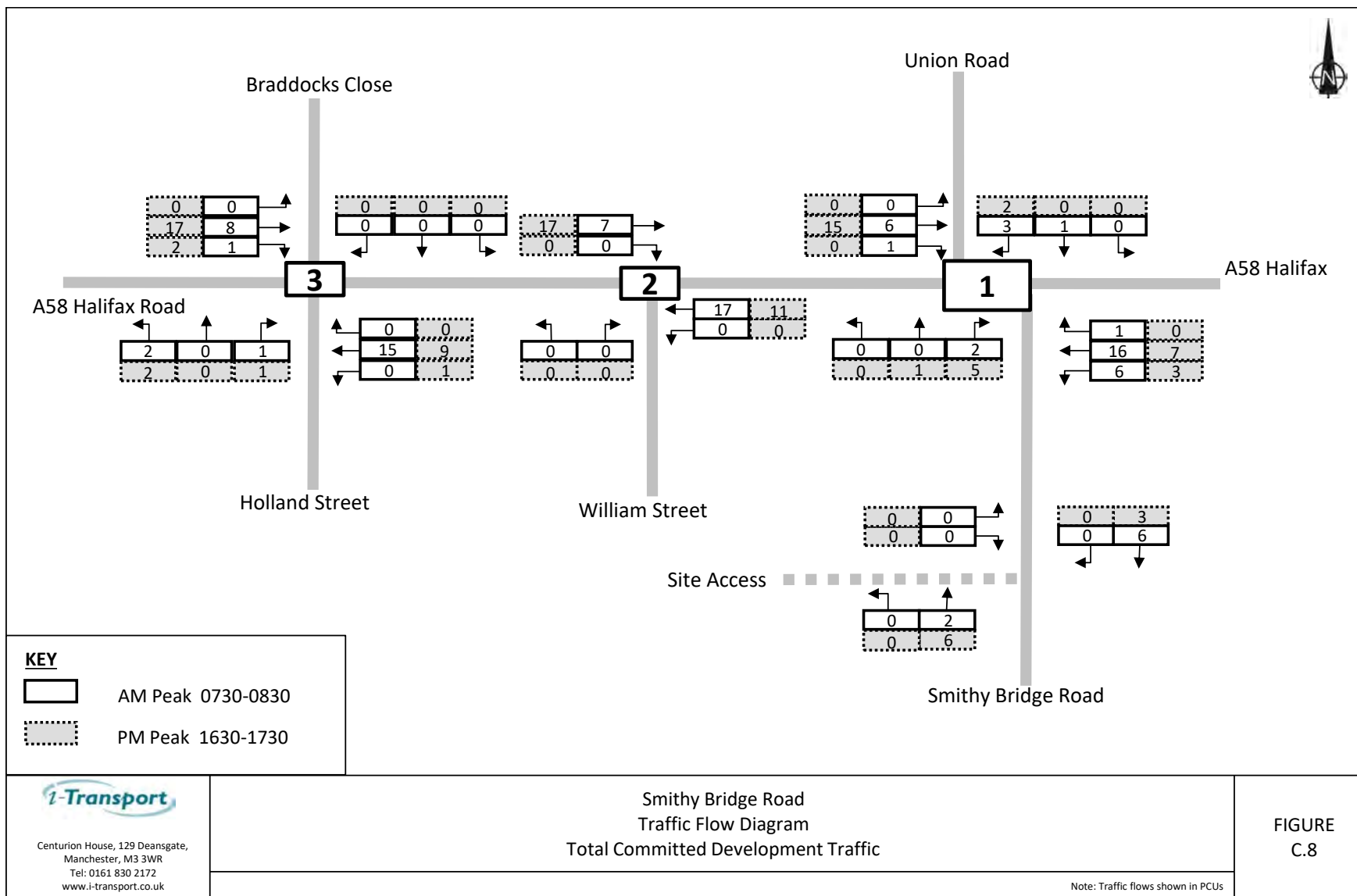


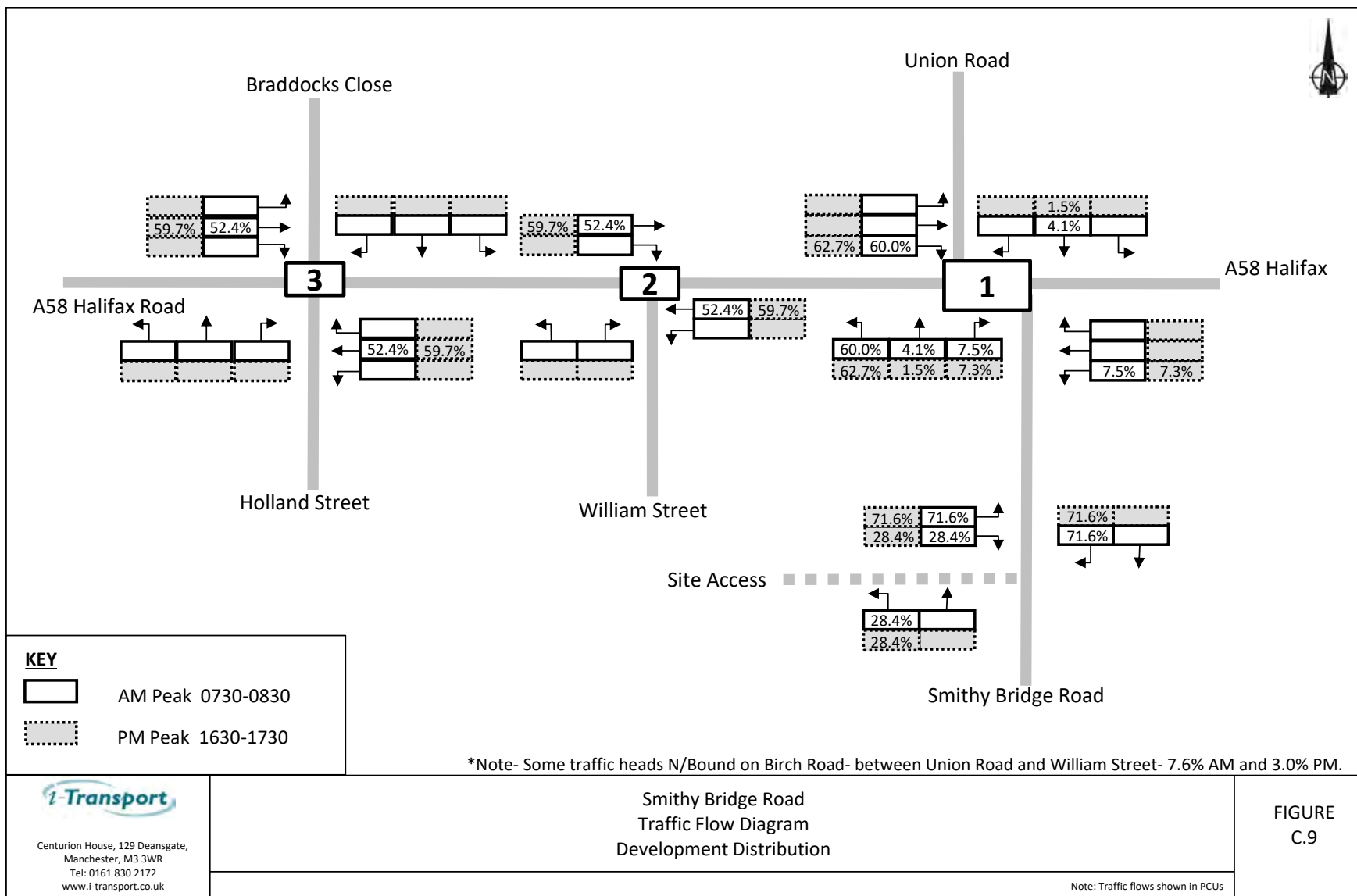
FIGURE
C.4

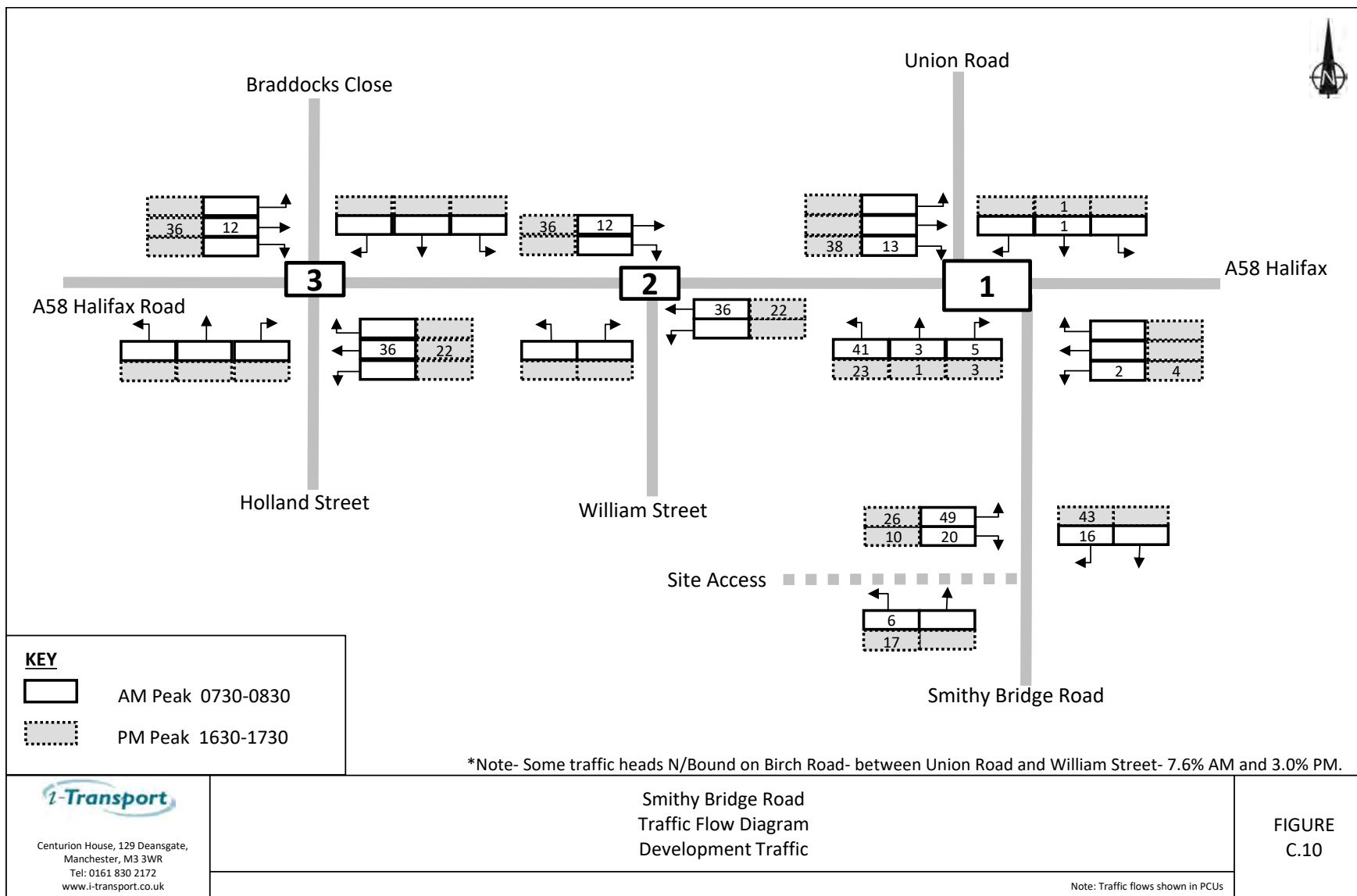












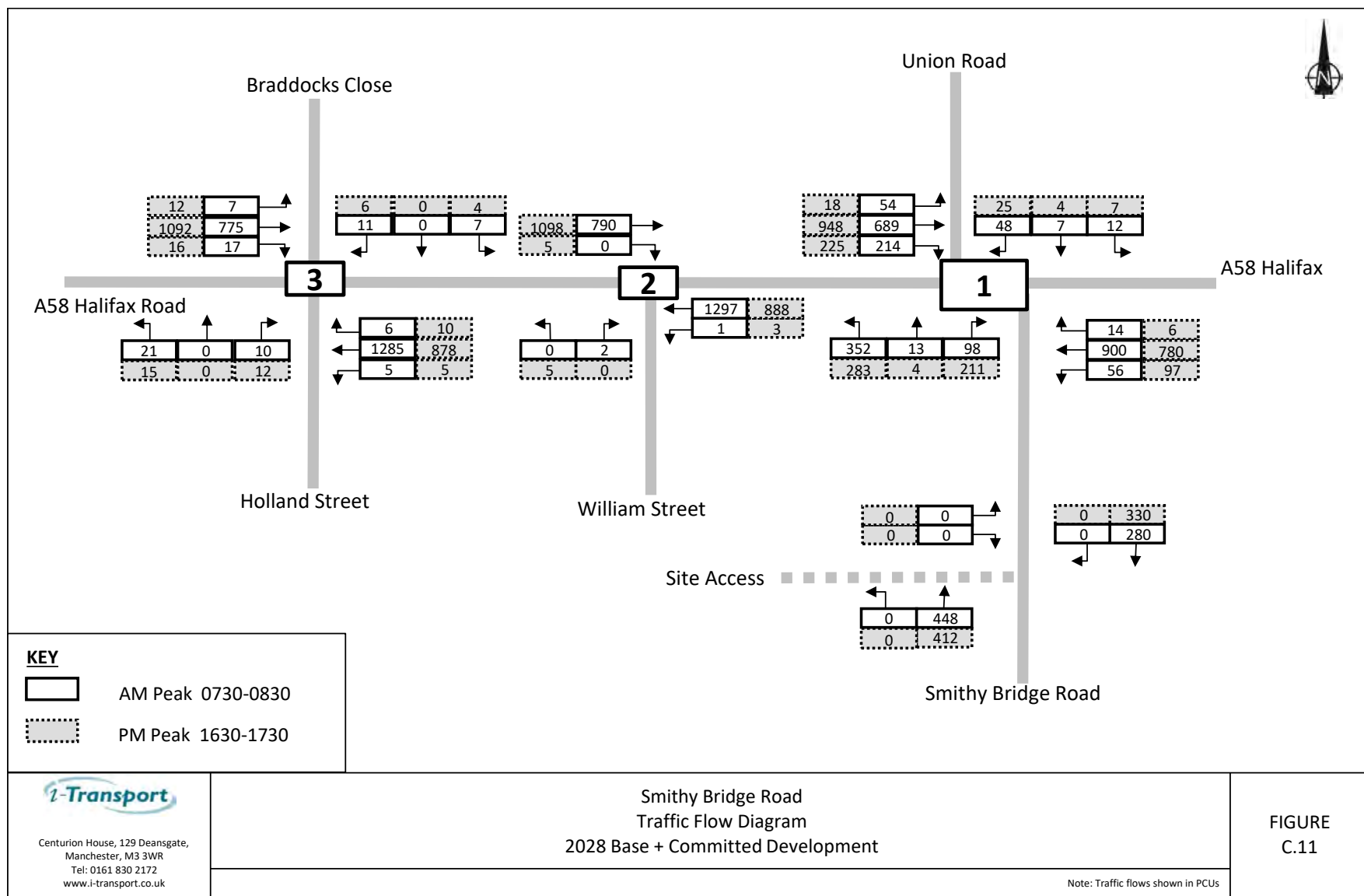
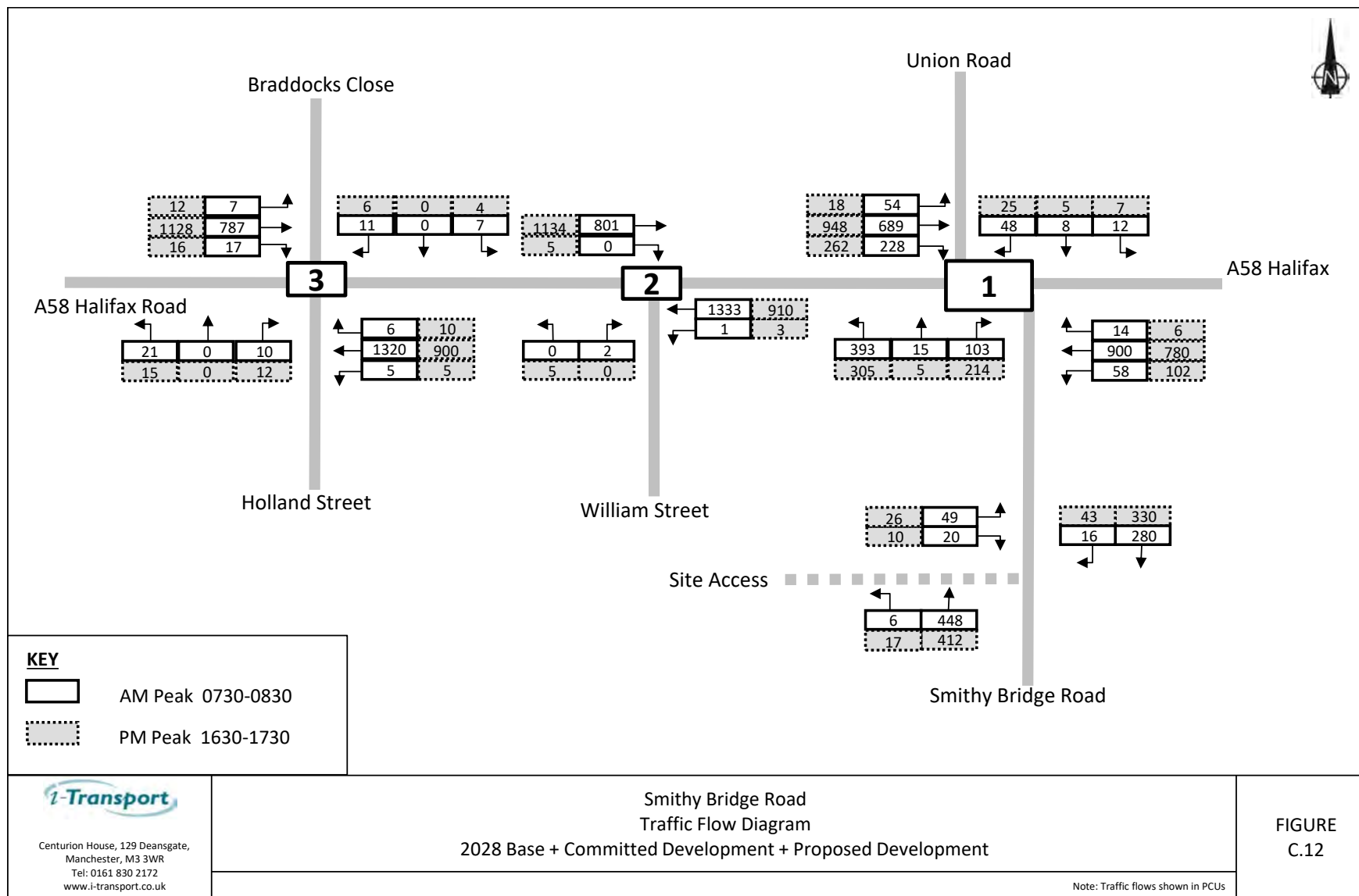


FIGURE C.11



Smithy Bridge Road
Traffic Flow Diagram
2028 Base + Committed Development + Proposed Development

FIGURE
C.12

Note: Traffic flows shown in PCUs



Centurion House, 129 Deansgate,
Manchester, M3 3WR
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APPENDIX D.Baseline Junction Capacity Assessment Outputs

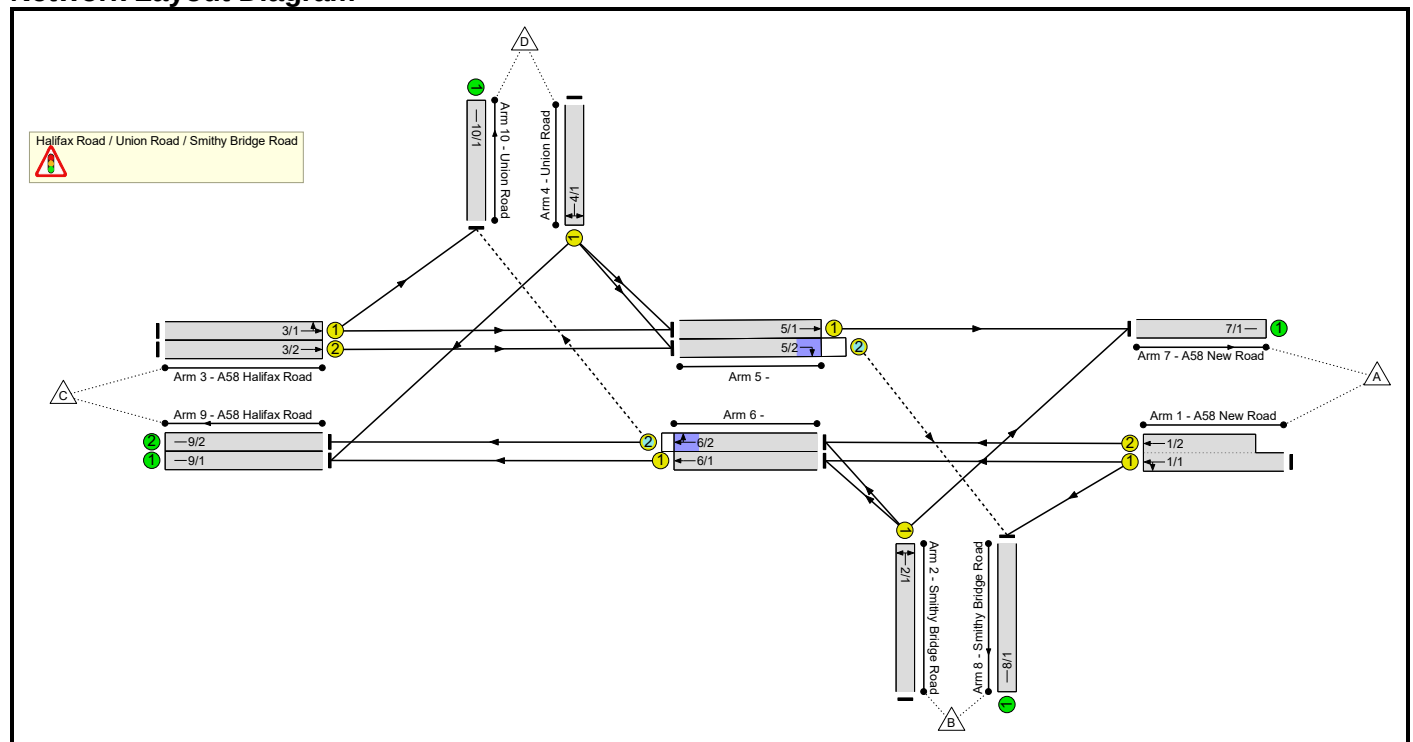
Full Input Data And Results

Full Input Data And Results

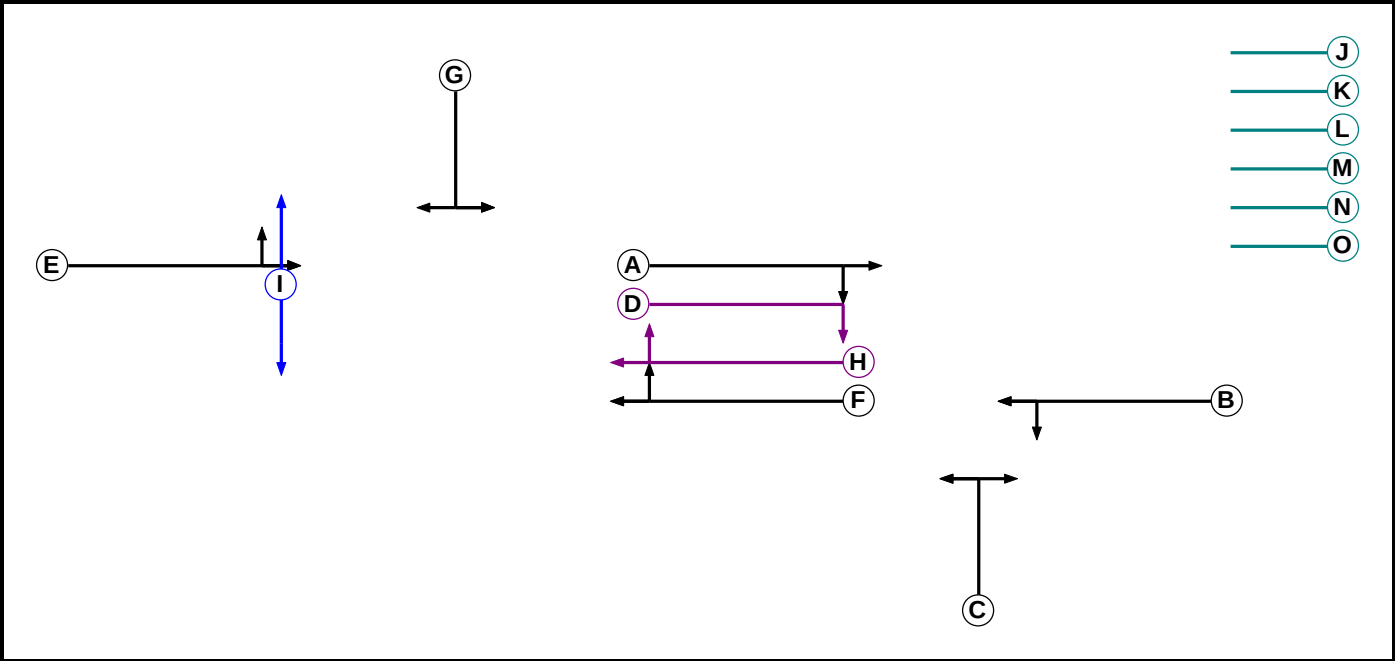
User and Project Details

Project:	Smithy Bridge Road, Rochdale
Title:	Halifax Road / Smithy Bridge Road / Union Road
Location:	
Additional detail:	
File name:	Halifax Rd_Union St_Smithy Bridge Rd - 2022.lsg3x
Author:	Michael Lancaster
Company:	i-Transport
Address:	Centurion House, 129 Deansgate, Manchester, M3 3WR

Network Layout Diagram



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	Ind. Arrow	A	4	4
E	Traffic		7	7
F	Traffic		7	7
G	Traffic		7	7
H	Ind. Arrow	F	4	4
I	Pedestrian		8	8
J	Dummy		1	1
K	Dummy		1	1
L	Dummy		2	2
M	Dummy		1	1
N	Dummy		1	1
O	Dummy		1	1

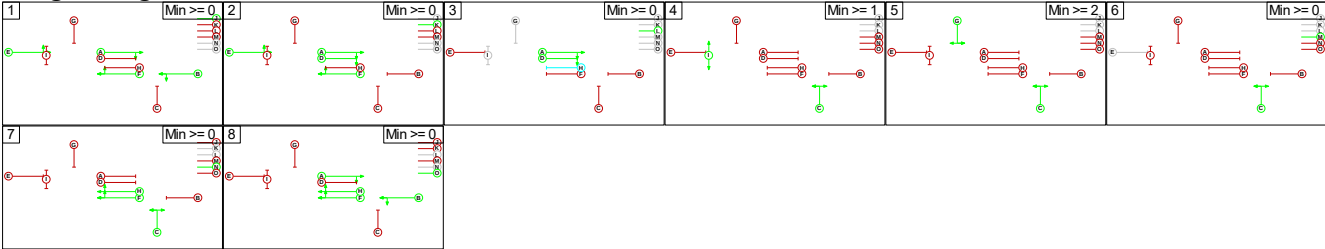
Phase Intergreens Matrix

Terminating Phase	Starting Phase																
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
	A		-	7	-	-	-	-	-	-	-	-	-	-	-	-	-
	B	-		7	4	-	-	-	-	-	-	4	-	-	-	-	-
	C	8	8		8	-	-	-	-	-	-	-	-	-	-	-	8
	D	-	4	7		-	-	-	-	-	-	-	-	-	-	-	-
	E	-	-	-	-		-	7	4	5	-	-	4	-	-	-	-
	F	-	-	-	-	-		7	-	7	-	-	-	-	-	-	-
	G	-	-	-	-	6	7		7	10	-	-	-	3	7	-	-
	H	-	-	-	-	3	-	7		7	3	-	-	-	-	-	-
	I	-	-	-	-	5	5	5	5		-	-	-	1	5	-	-
	J	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
	K	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
	L	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-
	M	-	-	-	-	-	2	-	2	-	-	-	-		2	-	-
	N	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-
	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
2	3	F	Losing	1	1

Prohibited Stage Change

From Stage	To Stage								
		1	2	3	4	5	6	7	8
	1			4	4	7	7	7	4
	2	4		4	7	7	7	7	4
	3	4	2		7	7	7	X	X
	4	8	8	8		5	1	5	8
	5	8	8	8	10		3	7	8
	6	8	8	8	0	2		2	8
	7	8	8	8	7	7	0		8
	8	3	4	4	7	7	7	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Halifax Road / Union Road / Smithy Bridge Road											
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)
5/2	8/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00
				1/2	1.09	All					
6/2	10/1 (Right)	1439	0	3/1	1.09	All	1.00	-	0.50	1	2.00
				3/2	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Halifax Road / Union Road / Smithy Bridge Road												
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 (A58 New Road)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Ahead	Inf
											Arm 8 Left	6.00
1/2 (A58 New Road)	U	B	2	3	9.6	Geom	-	3.00	0.00	N	Arm 6 Ahead	Inf
2/1 (Smithy Bridge Road)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Left	7.50
											Arm 7 Right	12.50
3/1 (A58 Halifax Road)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 10 Left	5.00
3/2 (A58 Halifax Road)	U	E	2	3	60.0	Geom	-	3.00	0.00	N	Arm 5 Ahead	Inf
4/1 (Union Road)	U	G	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 5 Left	5.00
											Arm 9 Right	15.00
5/1	U	A	2	3	5.2	Geom	-	3.00	0.00	Y	Arm 7 Ahead	Inf
5/2	O	A D	2	3	5.2	Geom	-	3.00	0.00	N	Arm 8 Right	5.00
6/1	U	F	2	3	5.2	Geom	-	3.00	0.00	Y	Arm 9 Ahead	Inf
6/2	O	F H	2	3	5.2	Geom	-	3.00	0.00	N	Arm 9 Ahead	Inf
											Arm 10 Right	10.00
7/1 (A58 New Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Smithy Bridge Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1 (A58 Halifax Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/2 (A58 Halifax Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1 (Union Road)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2020 Survey AM'	07:45	08:45	01:00	
2: '2020 Survey PM'	16:45	17:45	01:00	

Scenario 1: '2020 Survey - AM Peak' (FG1: '2020 Survey AM', Plan 2: 'Observed with Ped')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	48	840	12	900
	B	91	0	334	12	437
	C	649	204	0	50	903
	D	11	6	43	0	60
	Tot.	751	258	1217	74	2300

Traffic Lane Flows

Lane	Scenario 1: 2020 Survey - AM Peak
Junction: Halifax Road / Union Road / Smithy Bridge Road	
1/1 (with short)	900(In) 652(Out)
1/2 (short)	248
2/1	437
3/1	699
3/2	204
4/1	60
5/1	660
5/2	210
6/1	772
6/2	426
7/1	751
8/1	258
9/1	815
9/2	402
10/1	74

Lane Saturation Flows

Junction: Halifax Road / Union Road / Smithy Bridge Road								
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 (A58 New Road)	3.00	0.00	Y	Arm 6 Ahead	Inf	92.6 %	1880	1880
				Arm 8 Left	6.00	7.4 %		
1/2 (A58 New Road)	3.00	0.00	N	Arm 6 Ahead	Inf	100.0 %	2055	2055
2/1 (Smithy Bridge Road)	3.50	0.00	Y	Arm 6 Left	7.50	79.2 %	1661	1661
				Arm 7 Right	12.50	20.8 %		
3/1 (A58 Halifax Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	92.8 %	1875	1875
				Arm 10 Left	5.00	7.2 %		
3/2 (A58 Halifax Road)	3.00	0.00	N	Arm 5 Ahead	Inf	100.0 %	2055	2055
4/1 (Union Road)	3.25	0.00	Y	Arm 5 Left	5.00	28.3 %	1677	1677
				Arm 9 Right	15.00	71.7 %		
5/1	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915	1915
5/2	3.00	0.00	N	Arm 8 Right	5.00	100.0 %	1581	1581
6/1	3.00	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1915	1915
6/2	3.00	0.00	N	Arm 9 Ahead	Inf	94.4 %	2038	2038
				Arm 10 Right	10.00	5.6 %		
7/1 (A58 New Road Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Smithy Bridge Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (A58 Halifax Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (A58 Halifax Road Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (Union Road Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2020 Survey - PM Peak' (FG2: '2020 Survey PM', Plan 2: 'Observed with Ped')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	90	737	6	833
	B	196	0	269	3	468
	C	890	214	0	14	1118
	D	6	4	22	0	32
	Tot.	1092	308	1028	23	2451

Full Input Data And Results

Traffic Lane Flows

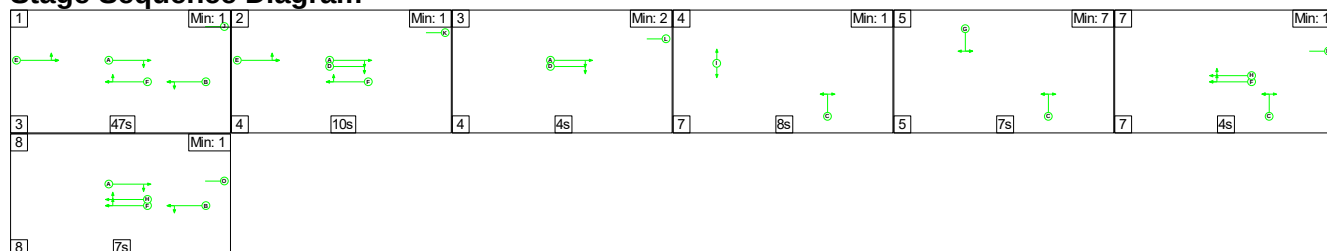
Lane	Scenario 2: 2020 Survey - PM Peak
Junction: Halifax Road / Union Road / Smithy Bridge Road	
1/1 (with short)	833(In) 631(Out)
1/2 (short)	202
2/1	468
3/1	904
3/2	214
4/1	32
5/1	896
5/2	218
6/1	705
6/2	310
7/1	1092
8/1	308
9/1	727
9/2	301
10/1	23

Lane Saturation Flows

Junction: Halifax Road / Union Road / Smithy Bridge Road								
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 (A58 New Road)	3.00	0.00	Y	Arm 6 Ahead	Inf	85.7 %	1849	1849
				Arm 8 Left	6.00	14.3 %		
1/2 (A58 New Road)	3.00	0.00	N	Arm 6 Ahead	Inf	100.0 %	2055	2055
2/1 (Smithy Bridge Road)	3.50	0.00	Y	Arm 6 Left	7.50	58.1 %	1685	1685
				Arm 7 Right	12.50	41.9 %		
3/1 (A58 Halifax Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	98.5 %	1906	1906
				Arm 10 Left	5.00	1.5 %		
3/2 (A58 Halifax Road)	3.00	0.00	N	Arm 5 Ahead	Inf	100.0 %	2055	2055
4/1 (Union Road)	3.25	0.00	Y	Arm 5 Left	5.00	31.3 %	1669	1669
				Arm 9 Right	15.00	68.8 %		
5/1	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915	1915
5/2	3.00	0.00	N	Arm 8 Right	5.00	100.0 %	1581	1581
6/1	3.00	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1915	1915
6/2	3.00	0.00	N	Arm 9 Ahead	Inf	97.1 %	2046	2046
				Arm 10 Right	10.00	2.9 %		
7/1 (A58 New Road Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Smithy Bridge Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (A58 Halifax Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (A58 Halifax Road Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (Union Road Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2020 Survey - AM Peak' (FG1: '2020 Survey AM', Plan 2: 'Observed with Ped')

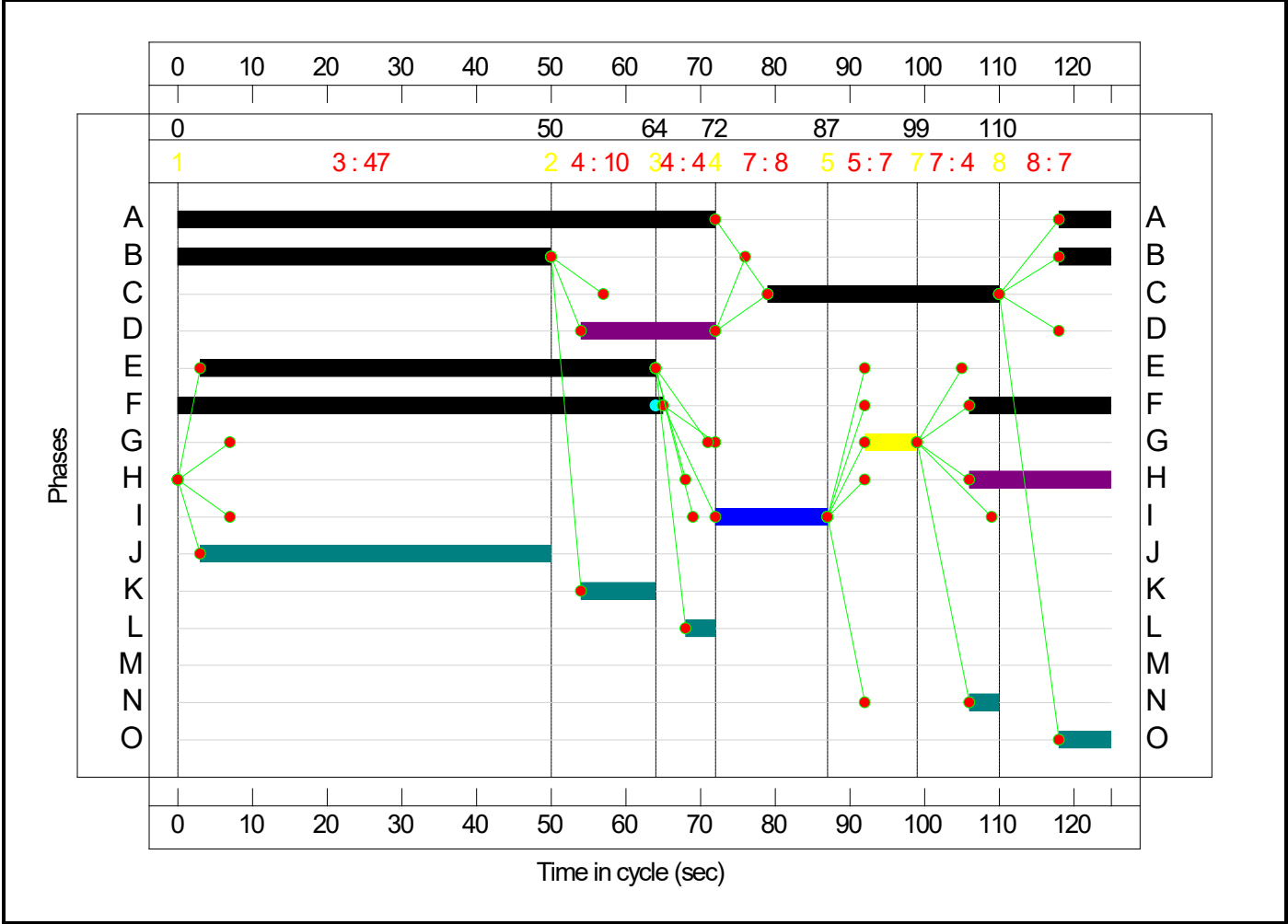
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	5	7	8
Duration	47	10	4	8	7	4	7
Change Point	0	50	64	72	87	99	110

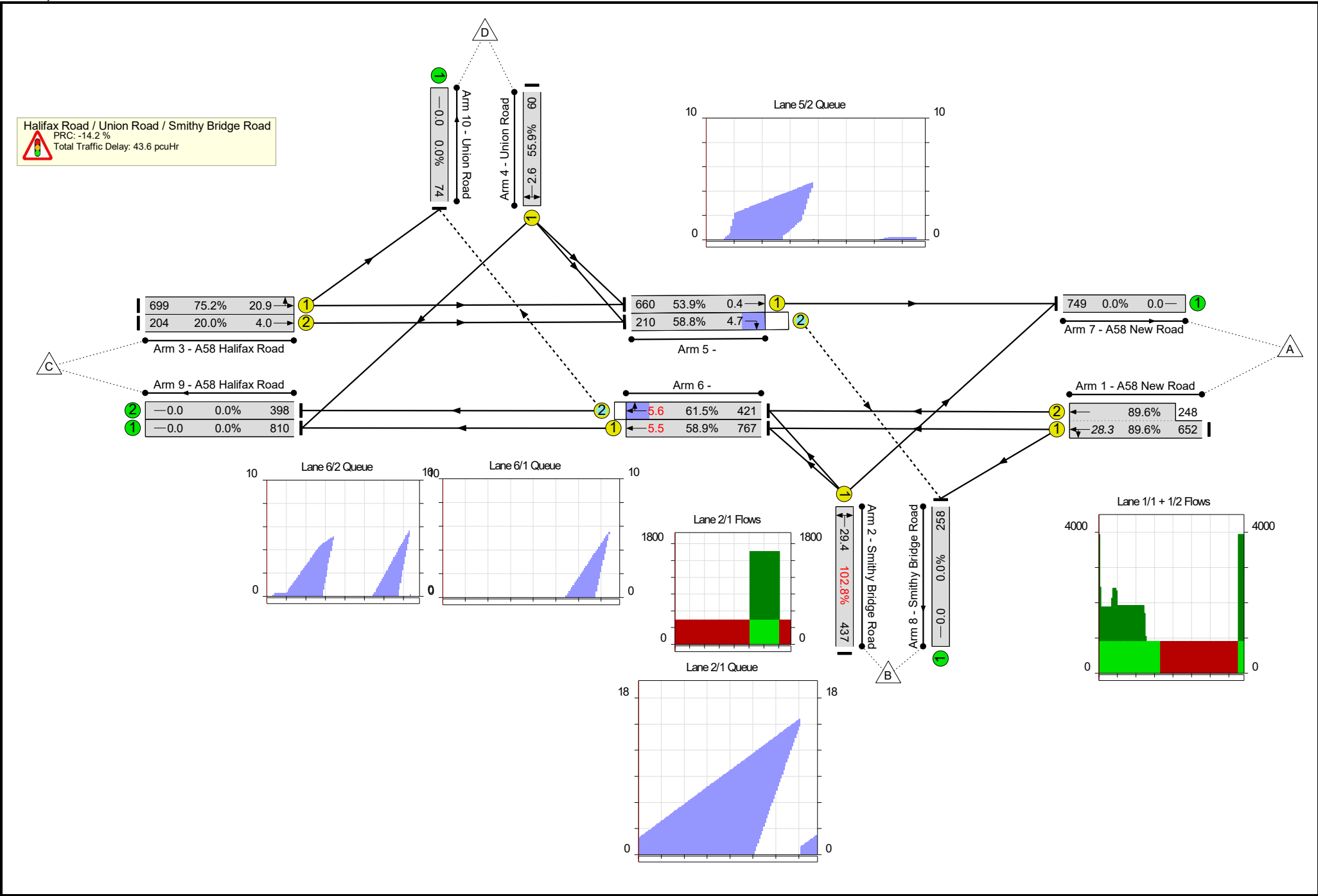
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Halifax Road / Smithy Bridge Road / Union Road	-	-	N/A	-	-		-	-	-	-	-	-	102.8%
Halifax Road / Union Road / Smithy Bridge Road	-	-	N/A	-	-		-	-	-	-	-	-	102.8%
1/1+1/2	A58 New Road Ahead Left	U	N/A	N/A	B		1	57	-	900	1880:2055	728+277	89.6 : 89.6%
2/1	Smithy Bridge Road Left Right	U	N/A	N/A	C		1	31	-	437	1661	425	102.8%
3/1	A58 Halifax Road Ahead Left	U	N/A	N/A	E		1	61	-	699	1875	930	75.2%
3/2	A58 Halifax Road Ahead	U	N/A	N/A	E		1	61	-	204	2055	1019	20.0%
4/1	Union Road Left Right	U	N/A	N/A	G		1	7	-	60	1677	107	55.9%
5/1	Ahead	U	N/A	N/A	A		1	79	-	660	1915	1226	53.9%
5/2	Right	O	N/A	N/A	A	D	1	79	18	210	1581	357	58.8%
6/1	Ahead	U	N/A	N/A	F		1	84	-	772	1915	1302	58.9%
6/2	Ahead Right	O	N/A	N/A	F	H	1	84	19	426	2038	685	61.5%
7/1	A58 New Road	U	N/A	N/A	-		-	-	-	751	Inf	Inf	0.0%
8/1	Smithy Bridge Road	U	N/A	N/A	-		-	-	-	258	Inf	Inf	0.0%
9/1	A58 Halifax Road	U	N/A	N/A	-		-	-	-	815	Inf	Inf	0.0%
9/2	A58 Halifax Road	U	N/A	N/A	-		-	-	-	402	Inf	Inf	0.0%
10/1	Union Road	U	N/A	N/A	-		-	-	-	74	Inf	Inf	0.0%

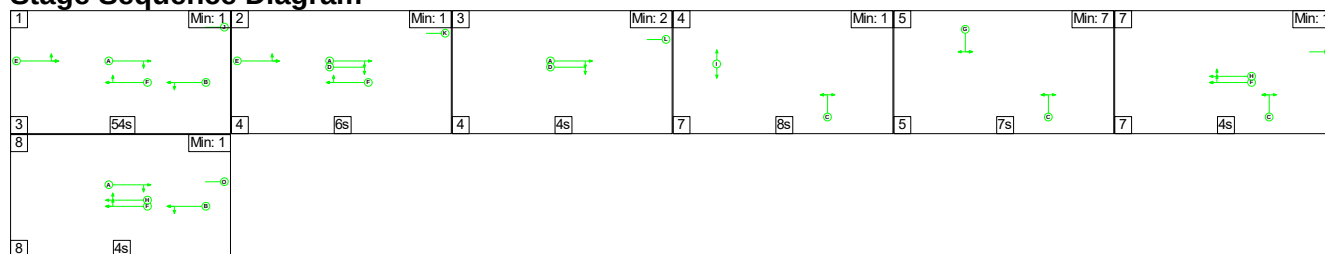
Full Input Data And Results

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: Halifax Road / Smithy Bridge Road / Union Road	-	-	55	178	0	22.8	20.0	0.8	43.6	-	-	-	-
Halifax Road / Union Road / Smithy Bridge Road	-	-	55	178	0	22.8	20.0	0.8	43.6	-	-	-	-
1/1+1/2	900	900	-	-	-	7.0	4.0	-	10.9	43.7	24.3	4.0	28.3
2/1	437	425	-	-	-	6.1	13.8	-	20.0	164.4	15.6	13.8	29.4
3/1	699	699	-	-	-	4.9	1.5	-	6.4	33.0	19.4	1.5	20.9
3/2	204	204	-	-	-	1.0	0.1	-	1.1	19.8	3.9	0.1	4.0
4/1	60	60	-	-	-	0.9	0.6	-	1.6	93.9	2.0	0.6	2.6
5/1	660	660	-	-	-	0.1	0.0	-	0.1	0.3	0.4	0.0	0.4
5/2	210	210	46	164	0	1.1	0.0	0.8	1.8	31.1	4.7	0.0	4.7
6/1	767	767	-	-	-	0.5	0.0	-	0.5	2.2	5.5	0.0	5.5
6/2	421	421	9	15	0	1.3	0.0	0.0	1.3	11.1	5.6	0.0	5.6
7/1	749	749	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	258	258	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	810	810	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	398	398	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	74	74	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -14.2 Total Delay for Signalled Lanes (pcuHr): 43.63 Cycle Time (s): 125 PRC Over All Lanes (%): -14.2 Total Delay Over All Lanes(pcuHr): 43.63													

Full Input Data And Results

Scenario 2: '2020 Survey - PM Peak' (FG2: '2020 Survey PM', Plan 2: 'Observed with Ped')

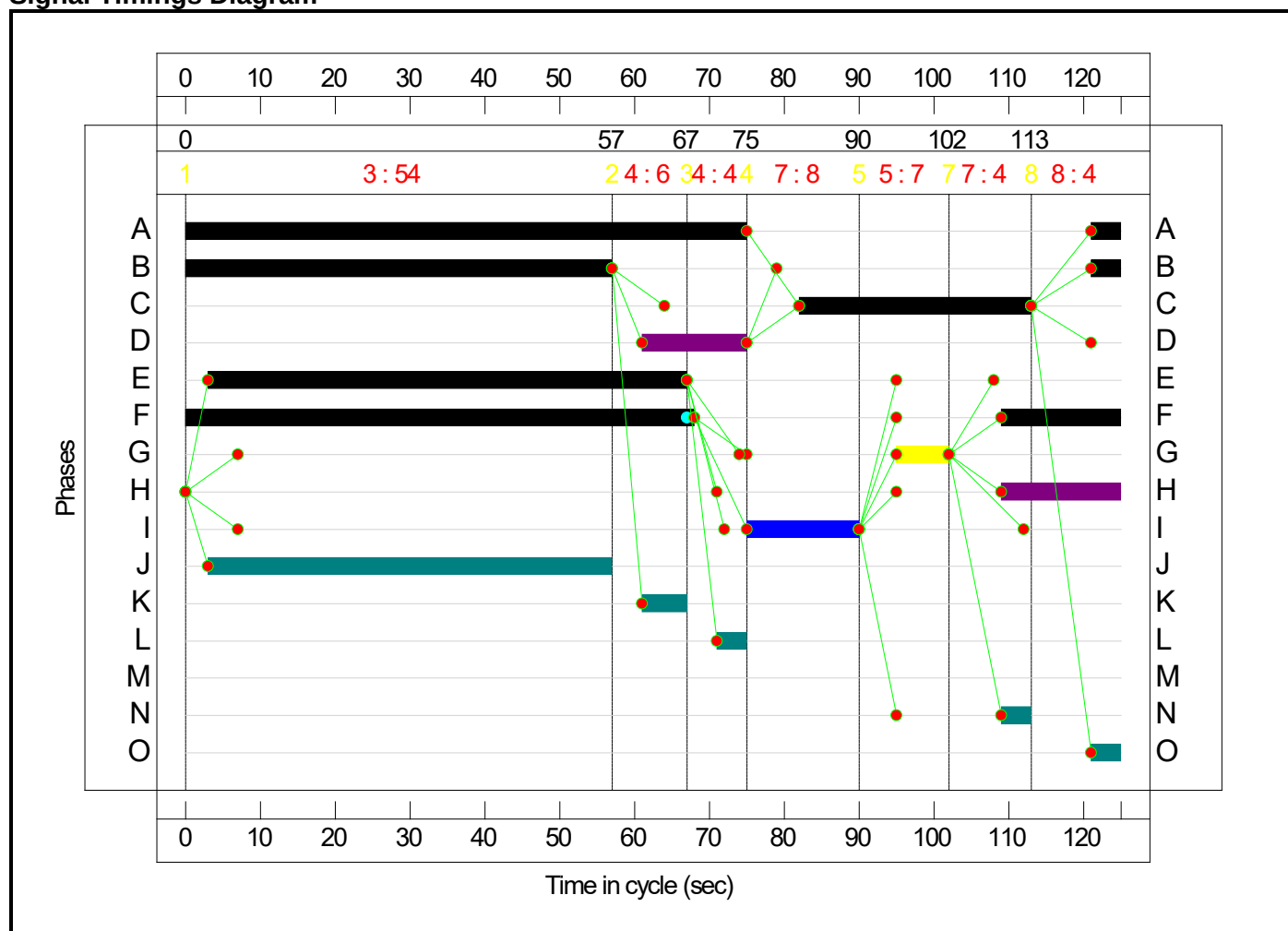
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	5	7	8
Duration	54	6	4	8	7	4	4
Change Point	0	57	67	75	90	102	113

Signal Timings Diagram



Full Input Data And Results

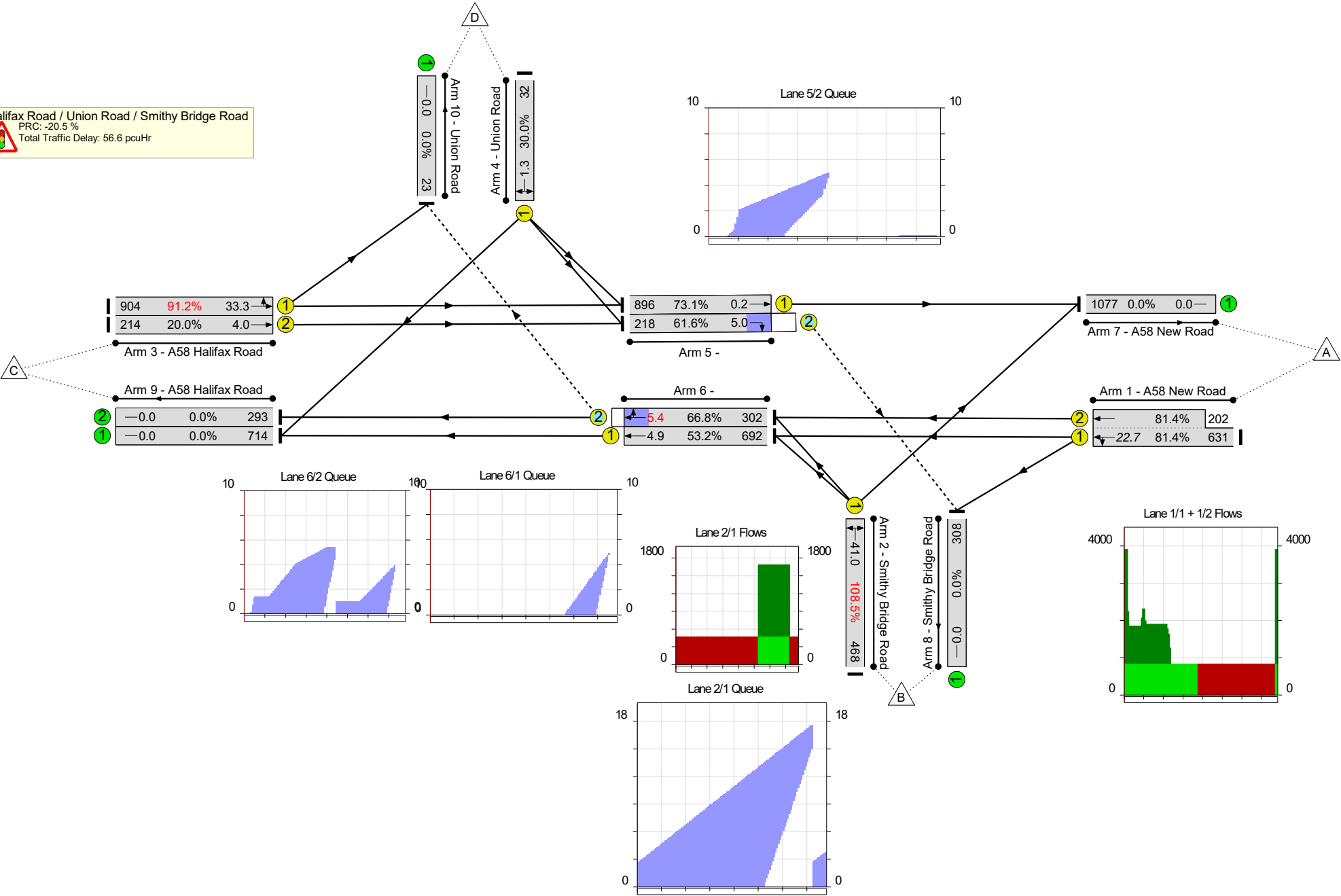
Network Layout Diagram

Full Input Data And Results

Halifax Road / Union Road / Smithy Bridge Road

PRC: -20.5 %

Total Traffic Delay: 56.6 pcuHr



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: Halifax Road / Smithy Bridge Road / Union Road	-	-	N/A	-	-		-	-	-	-	-	-	108.5%
Halifax Road / Union Road / Smithy Bridge Road	-	-	N/A	-	-		-	-	-	-	-	-	108.5%
1/1+1/2	A58 New Road Ahead Left	U	N/A	N/A	B		1	61	-	833	1849:2055	776+248	81.4 : 81.4%
2/1	Smithy Bridge Road Left Right	U	N/A	N/A	C		1	31	-	468	1685	431	108.5%
3/1	A58 Halifax Road Ahead Left	U	N/A	N/A	E		1	64	-	904	1906	991	91.2%
3/2	A58 Halifax Road Ahead	U	N/A	N/A	E		1	64	-	214	2055	1069	20.0%
4/1	Union Road Left Right	U	N/A	N/A	G		1	7	-	32	1669	107	30.0%
5/1	Ahead	U	N/A	N/A	A		1	79	-	896	1915	1226	73.1%
5/2	Right	O	N/A	N/A	A	D	1	79	14	218	1581	354	61.6%
6/1	Ahead	U	N/A	N/A	F		1	84	-	705	1915	1302	53.2%
6/2	Ahead Right	O	N/A	N/A	F	H	1	84	16	310	2046	452	66.8%
7/1	A58 New Road	U	N/A	N/A	-		-	-	-	1092	Inf	Inf	0.0%
8/1	Smithy Bridge Road	U	N/A	N/A	-		-	-	-	308	Inf	Inf	0.0%
9/1	A58 Halifax Road	U	N/A	N/A	-		-	-	-	727	Inf	Inf	0.0%
9/2	A58 Halifax Road	U	N/A	N/A	-		-	-	-	301	Inf	Inf	0.0%
10/1	Union Road	U	N/A	N/A	-		-	-	-	23	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: Halifax Road / Smithy Bridge Road / Union Road	-	-	98	128	1	25.3	30.5	0.8	56.6	-	-	-	-
Halifax Road / Union Road / Smithy Bridge Road	-	-	98	128	1	25.3	30.5	0.8	56.6	-	-	-	-
1/1+1/2	833	833	-	-	-	5.6	2.1	-	7.7	33.3	20.5	2.1	22.7
2/1	468	431	-	-	-	7.7	23.3	-	31.0	238.6	17.6	23.3	41.0
3/1	904	904	-	-	-	6.9	4.7	-	11.6	46.0	28.6	4.7	33.3
3/2	214	214	-	-	-	1.0	0.1	-	1.1	18.2	3.9	0.1	4.0
4/1	32	32	-	-	-	0.5	0.2	-	0.7	79.8	1.1	0.2	1.3
5/1	896	896	-	-	-	0.0	0.0	-	0.0	0.1	0.2	0.0	0.2
5/2	218	218	94	124	0	1.0	0.0	0.8	1.8	30.5	5.0	0.0	5.0
6/1	692	692	-	-	-	0.4	0.0	-	0.4	2.2	4.9	0.0	4.9
6/2	302	302	4	4	1	2.2	0.0	0.0	2.3	26.9	5.4	0.0	5.4
7/1	1077	1077	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	308	308	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	714	714	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	293	293	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	23	23	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -20.5 Total Delay for Signalled Lanes (pcuHr): 56.61 Cycle Time (s): 125 PRC Over All Lanes (%): -20.5 Total Delay Over All Lanes(pcuHr): 56.61													

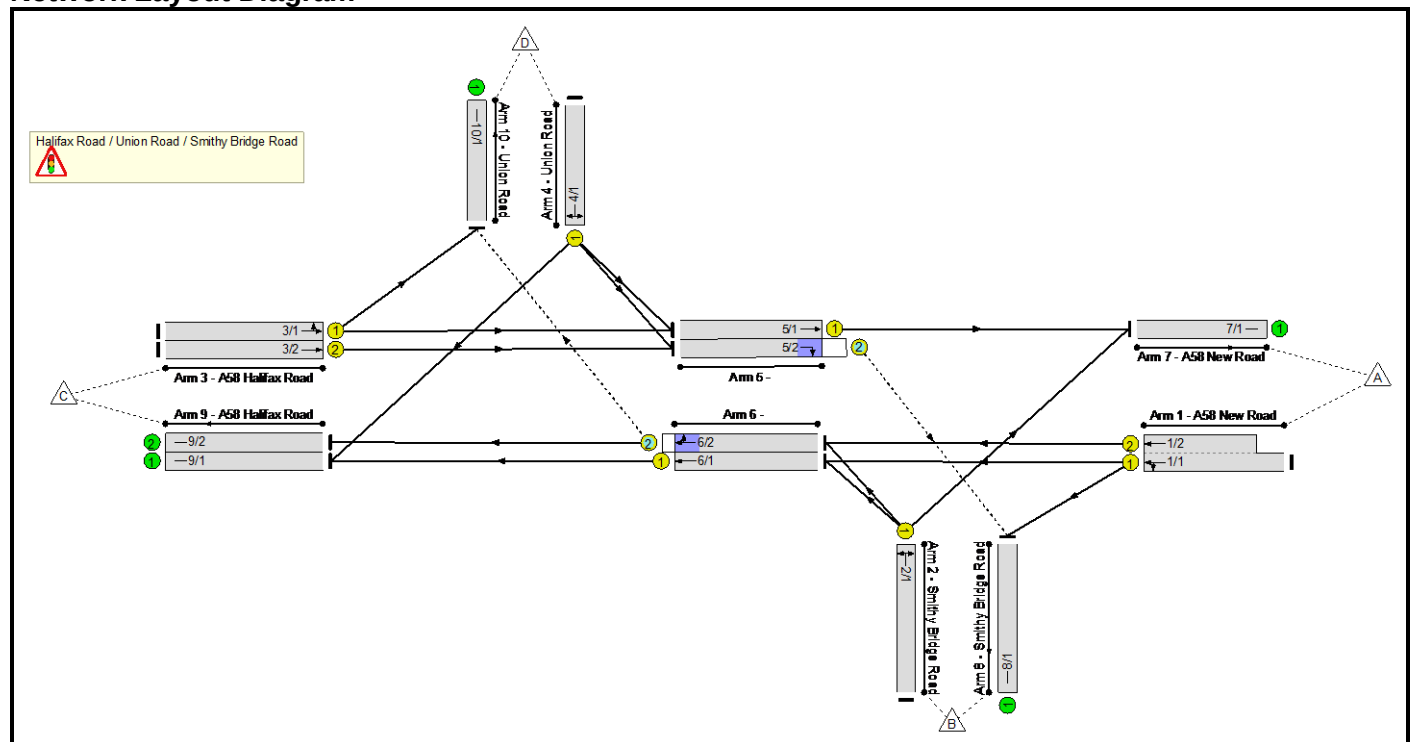
Full Input Data And Results

Full Input Data And Results

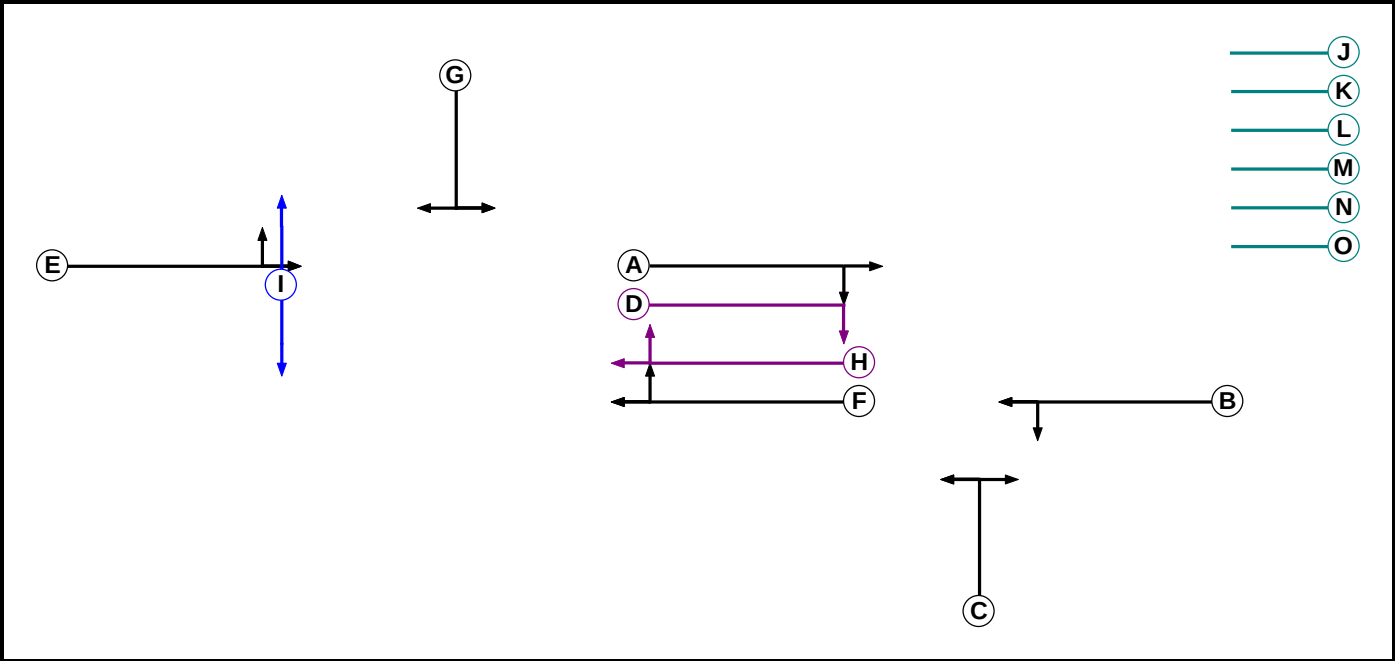
User and Project Details

Project:	Smithy Bridge Road, Rochdale
Title:	Halifax Road / Smithy Bridge Road / Union Road
Location:	
Additional detail:	
File name:	Halifax Rd_Union St_Smithy Bridge Rd - 2022 - Reduced Sat Flow.lsg3x
Author:	Michael Lancaster
Company:	i-Transport
Address:	Centurion House, 129 Deansgate, Manchester, M3 3WR

Network Layout Diagram



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	Ind. Arrow	A	4	4
E	Traffic		7	7
F	Traffic		7	7
G	Traffic		7	7
H	Ind. Arrow	F	4	4
I	Pedestrian		8	8
J	Dummy		1	1
K	Dummy		1	1
L	Dummy		2	2
M	Dummy		1	1
N	Dummy		1	1
O	Dummy		1	1

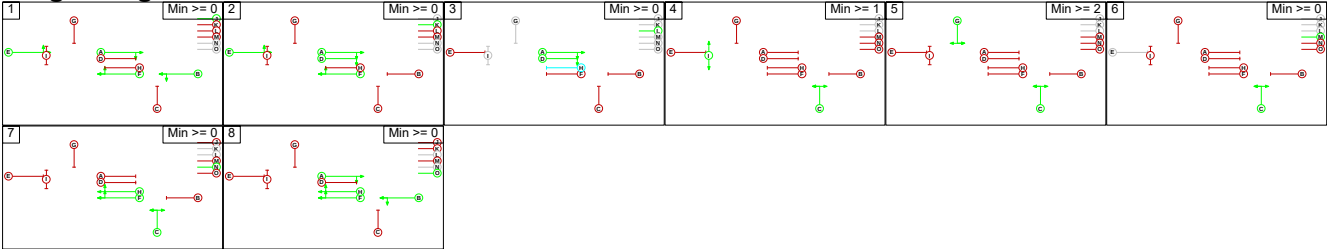
Phase Intergreens Matrix

Terminating Phase		Starting Phase																
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
		A		-	7	-	-	-	-	-	-	-	-	-	-	-	-	-
		B	-		7	4	-	-	-	-	-	-	4	-	-	-	-	
		C	8	8		8	-	-	-	-	-	-	-	-	-	-	8	
		D	-	4	7		-	-	-	-	-	-	-	-	-	-	-	
		E	-	-	-	-		-	7	4	5	-	-	4	-	-	-	
		F	-	-	-	-	-		7	-	7	-	-	-	-	-	-	
		G	-	-	-	-	6	7		7	10	-	-	-	3	7	-	
		H	-	-	-	-	3	-	7		7	3	-	-	-	-	-	
		I	-	-	-	-	5	5	5	5		-	-	-	1	5	-	
		J	-	-	-	-	-	-	-	-	-		-	-	-	-	-	
		K	-	-	-	-	-	-	-	-	-	-		-	-	-	-	
		L	-	-	-	-	-	-	-	-	-	-	-		-	-	-	
		M	-	-	-	-	-	2	-	2	-	-	-	-		2	-	
		N	-	-	-	-	-	-	-	-	-	-	-	-	-		-	
		O	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
2	3	F	Losing	1	1

Prohibited Stage Change

From Stage	To Stage								
		1	2	3	4	5	6	7	8
	1		4	4	7	7	7	7	4
	2	4		4	7	7	7	7	4
	3	4	2		7	7	7	X	X
	4	8	8	8		5	1	5	8
	5	8	8	8	10		3	7	8
	6	8	8	8	0	2		2	8
	7	8	8	8	7	7	0		8
	8	3	4	4	7	7	7	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Halifax Road / Union Road / Smithy Bridge Road											
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)
5/2	8/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00
				1/2	1.09	All					
6/2	10/1 (Right)	1439	0	3/1	1.09	All	1.00	-	0.50	1	2.00
				3/2	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Halifax Road / Union Road / Smithy Bridge Road												
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 (A58 New Road)	U	B	2	3	60.0	User	1600	-	-	-	-	-
1/2 (A58 New Road)	U	B	2	3	9.6	Geom	-	3.00	0.00	N	Arm 6 Ahead	Inf
2/1 (Smithy Bridge Road)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Left	7.50
											Arm 7 Right	12.50
3/1 (A58 Halifax Road)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 10 Left	5.00
3/2 (A58 Halifax Road)	U	E	2	3	60.0	Geom	-	3.00	0.00	N	Arm 5 Ahead	Inf
4/1 (Union Road)	U	G	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 5 Left	5.00
											Arm 9 Right	15.00
5/1	U	A	2	3	5.2	Geom	-	3.00	0.00	Y	Arm 7 Ahead	Inf
5/2	O	A D	2	3	5.2	Geom	-	3.00	0.00	N	Arm 8 Right	5.00
6/1	U	F	2	3	5.2	Geom	-	3.00	0.00	Y	Arm 9 Ahead	Inf
6/2	O	F H	2	3	5.2	Geom	-	3.00	0.00	N	Arm 9 Ahead	Inf
											Arm 10 Right	10.00
7/1 (A58 New Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Smithy Bridge Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1 (A58 Halifax Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/2 (A58 Halifax Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1 (Union Road)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2020 Survey AM'	07:45	08:45	01:00	
2: '2020 Survey PM'	16:45	17:45	01:00	

Scenario 1: '2020 Survey - AM Peak' (FG1: '2020 Survey AM', Plan 2: 'Observed with Ped')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	48	840	12	900
	B	91	0	334	12	437
	C	649	204	0	50	903
	D	11	6	43	0	60
	Tot.	751	258	1217	74	2300

Traffic Lane Flows

Lane	Scenario 1: 2020 Survey - AM Peak
Junction: Halifax Road / Union Road / Smithy Bridge Road	
1/1 (with short)	900(In) 652(Out)
1/2 (short)	248
2/1	437
3/1	699
3/2	204
4/1	60
5/1	660
5/2	210
6/1	772
6/2	426
7/1	751
8/1	258
9/1	815
9/2	402
10/1	74

Lane Saturation Flows

Junction: Halifax Road / Union Road / Smithy Bridge Road								
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 (A58 New Road Lane 1)	This lane uses a directly entered Saturation Flow						1600	1600
1/2 (A58 New Road)	3.00	0.00	N	Arm 6 Ahead	Inf	100.0 %	2055	2055
2/1 (Smithy Bridge Road)	3.50	0.00	Y	Arm 6 Left	7.50	79.2 %	1661	1661
				Arm 7 Right	12.50	20.8 %		
3/1 (A58 Halifax Road)	3.00	0.00	Y	Arm 5 Ahead Arm 10 Left	Inf 5.00	92.8 % 7.2 %	1875	1875
3/2 (A58 Halifax Road)	3.00	0.00	N	Arm 5 Ahead	Inf	100.0 %	2055	2055
4/1 (Union Road)	3.25	0.00	Y	Arm 5 Left	5.00	28.3 %	1677	1677
				Arm 9 Right	15.00	71.7 %		
5/1	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915	1915
5/2	3.00	0.00	N	Arm 8 Right	5.00	100.0 %	1581	1581
6/1	3.00	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1915	1915
6/2	3.00	0.00	N	Arm 9 Ahead	Inf	94.4 %	2038	2038
				Arm 10 Right	10.00	5.6 %		
7/1 (A58 New Road Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Smithy Bridge Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (A58 Halifax Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (A58 Halifax Road Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (Union Road Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2020 Survey - PM Peak' (FG2: '2020 Survey PM', Plan 2: 'Observed with Ped')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	90	737	6	833
	B	196	0	269	3	468
	C	890	214	0	14	1118
	D	6	4	22	0	32
	Tot.	1092	308	1028	23	2451

Full Input Data And Results

Traffic Lane Flows

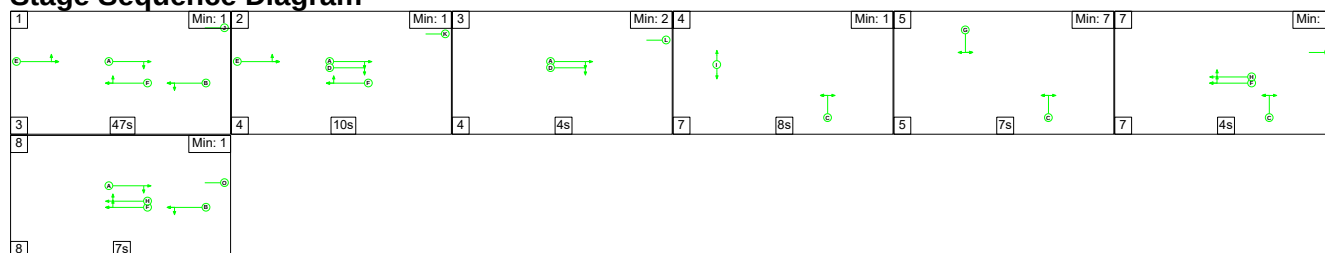
Lane	Scenario 2: 2020 Survey - PM Peak
Junction: Halifax Road / Union Road / Smithy Bridge Road	
1/1 (with short)	833(In) 631(Out)
1/2 (short)	202
2/1	468
3/1	904
3/2	214
4/1	32
5/1	896
5/2	218
6/1	705
6/2	310
7/1	1092
8/1	308
9/1	727
9/2	301
10/1	23

Lane Saturation Flows

Junction: Halifax Road / Union Road / Smithy Bridge Road								
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 (A58 New Road Lane 1)	This lane uses a directly entered Saturation Flow						1600	1600
1/2 (A58 New Road)	3.00	0.00	N	Arm 6 Ahead	Inf	100.0 %	2055	2055
2/1 (Smithy Bridge Road)	3.50	0.00	Y	Arm 6 Left	7.50	58.1 %	1685	1685
				Arm 7 Right	12.50	41.9 %		
3/1 (A58 Halifax Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	98.5 %	1906	1906
				Arm 10 Left	5.00	1.5 %		
3/2 (A58 Halifax Road)	3.00	0.00	N	Arm 5 Ahead	Inf	100.0 %	2055	2055
4/1 (Union Road)	3.25	0.00	Y	Arm 5 Left	5.00	31.3 %	1669	1669
				Arm 9 Right	15.00	68.8 %		
5/1	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915	1915
5/2	3.00	0.00	N	Arm 8 Right	5.00	100.0 %	1581	1581
6/1	3.00	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1915	1915
6/2	3.00	0.00	N	Arm 9 Ahead	Inf	97.1 %	2046	2046
				Arm 10 Right	10.00	2.9 %		
7/1 (A58 New Road Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Smithy Bridge Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (A58 Halifax Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (A58 Halifax Road Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (Union Road Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2020 Survey - AM Peak' (FG1: '2020 Survey AM', Plan 2: 'Observed with Ped')

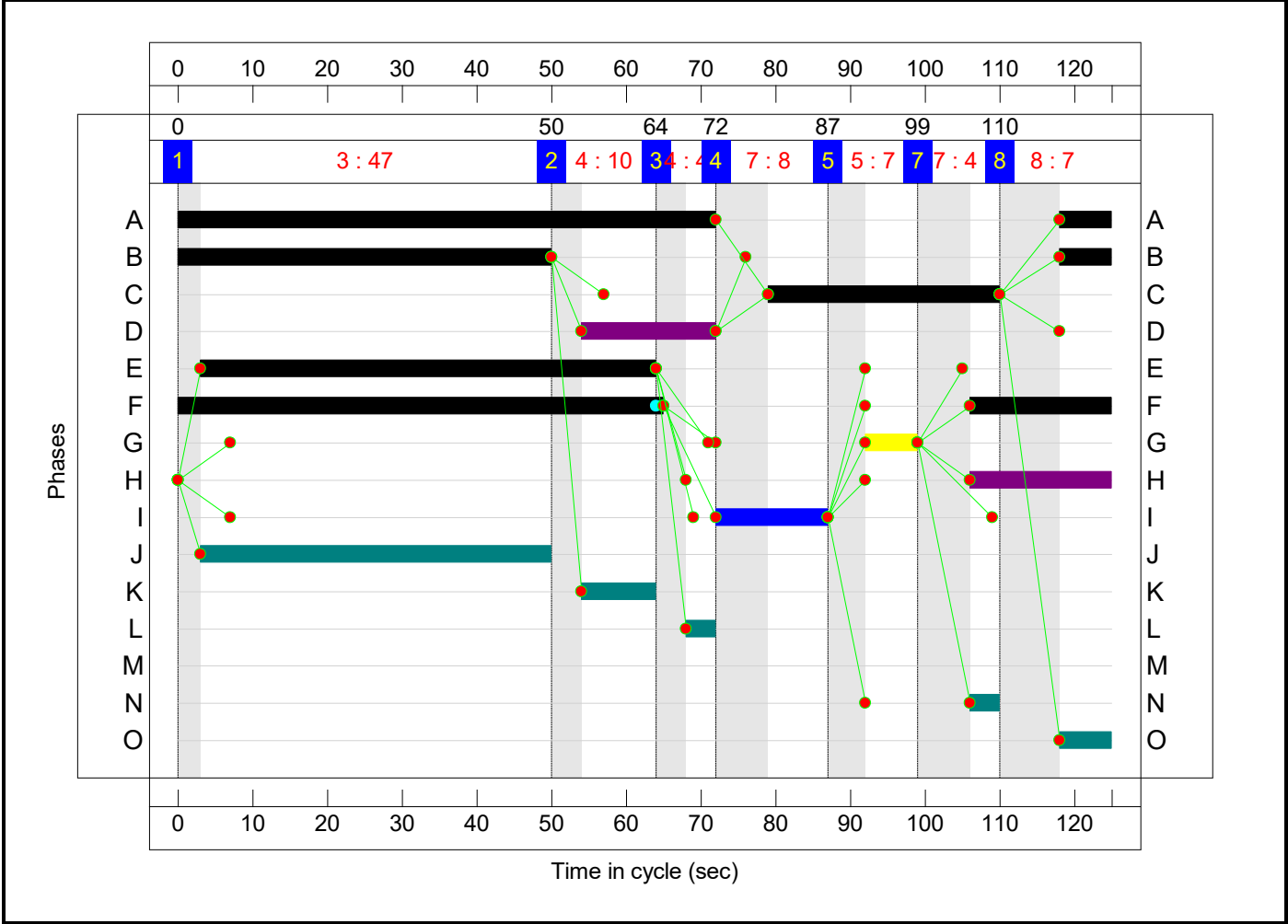
Stage Sequence Diagram



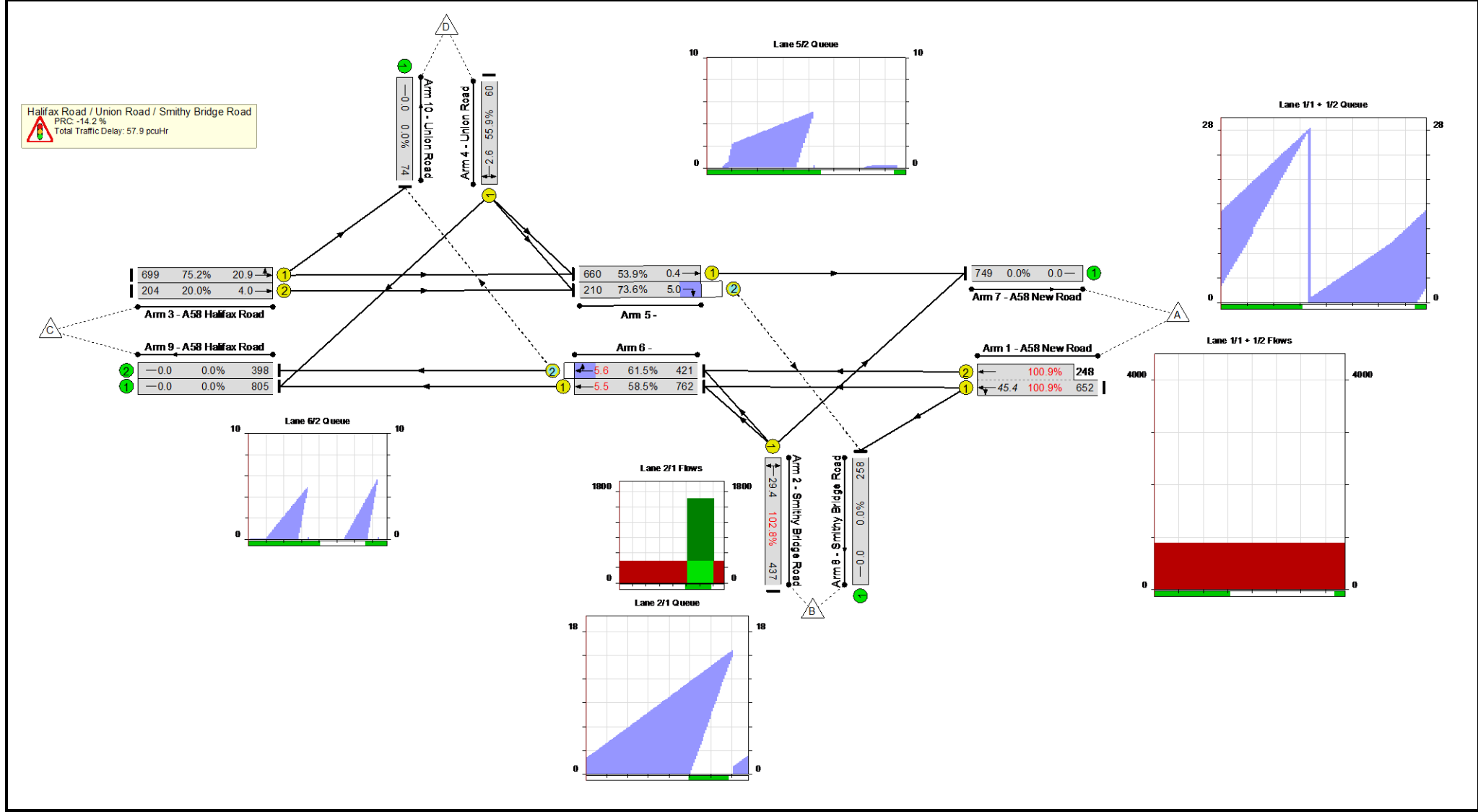
Stage Timings

Stage	1	2	3	4	5	7	8
Duration	47	10	4	8	7	4	7
Change Point	0	50	64	72	87	99	110

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: Halifax Road / Smithy Bridge Road / Union Road	-	-	N/A	-	-		-	-	-	-	-	-	102.8%
Halifax Road / Union Road / Smithy Bridge Road	-	-	N/A	-	-		-	-	-	-	-	-	102.8%
1/1+1/2	A58 New Road Ahead Left	U	N/A	N/A	B		1	57	-	900	1600:2055	646+246	100.9 : 100.9%
2/1	Smithy Bridge Road Left Right	U	N/A	N/A	C		1	31	-	437	1661	425	102.8%
3/1	A58 Halifax Road Ahead Left	U	N/A	N/A	E		1	61	-	699	1875	930	75.2%
3/2	A58 Halifax Road Ahead	U	N/A	N/A	E		1	61	-	204	2055	1019	20.0%
4/1	Union Road Left Right	U	N/A	N/A	G		1	7	-	60	1677	107	55.9%
5/1	Ahead	U	N/A	N/A	A		1	79	-	660	1915	1226	53.9%
5/2	Right	O	N/A	N/A	A	D	1	79	18	210	1581	285	73.6%
6/1	Ahead	U	N/A	N/A	F		1	84	-	772	1915	1302	58.5%
6/2	Ahead Right	O	N/A	N/A	F	H	1	84	19	426	2038	685	61.5%
7/1	A58 New Road	U	N/A	N/A	-		-	-	-	751	Inf	Inf	0.0%
8/1	Smithy Bridge Road	U	N/A	N/A	-		-	-	-	258	Inf	Inf	0.0%
9/1	A58 Halifax Road	U	N/A	N/A	-		-	-	-	815	Inf	Inf	0.0%
9/2	A58 Halifax Road	U	N/A	N/A	-		-	-	-	402	Inf	Inf	0.0%
10/1	Union Road	U	N/A	N/A	-		-	-	-	74	Inf	Inf	0.0%

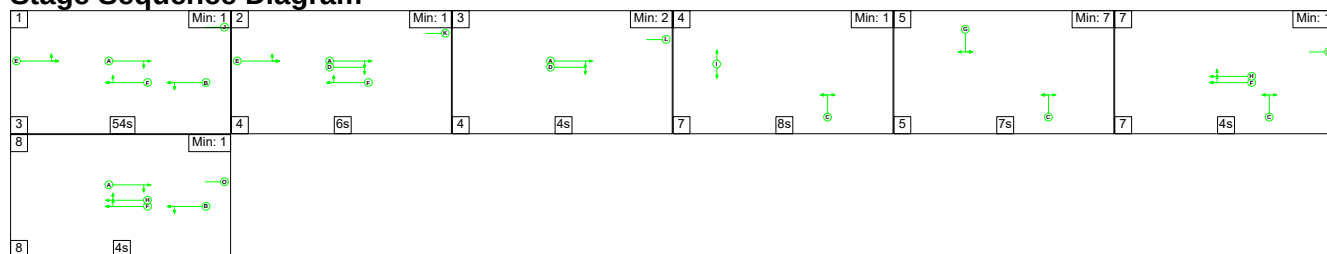
Full Input Data And Results

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: Halifax Road / Smithy Bridge Road / Union Road	-	-	9	225	0	24.0	33.1	0.8	57.9	-	-	-	-
Halifax Road / Union Road / Smithy Bridge Road	-	-	9	225	0	24.0	33.1	0.8	57.9	-	-	-	-
1/1+1/2	900	894	-	-	-	8.0	17.0	-	25.1	100.3	28.4	17.0	45.4
2/1	437	425	-	-	-	6.1	13.8	-	20.0	164.4	15.6	13.8	29.4
3/1	699	699	-	-	-	4.9	1.5	-	6.4	33.0	19.4	1.5	20.9
3/2	204	204	-	-	-	1.0	0.1	-	1.1	19.8	3.9	0.1	4.0
4/1	60	60	-	-	-	0.9	0.6	-	1.6	93.9	2.0	0.6	2.6
5/1	660	660	-	-	-	0.1	0.0	-	0.1	0.3	0.4	0.0	0.4
5/2	210	210	0	210	0	1.3	0.0	0.7	2.1	35.7	5.0	0.0	5.0
6/1	762	762	-	-	-	0.5	0.0	-	0.5	2.2	5.5	0.0	5.5
6/2	421	421	9	15	0	1.1	0.0	0.0	1.1	9.6	5.6	0.0	5.6
7/1	749	749	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	258	258	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	805	805	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	398	398	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	74	74	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -14.2 Total Delay for Signalled Lanes (pcuHr): 57.85 Cycle Time (s): 125 PRC Over All Lanes (%): -14.2 Total Delay Over All Lanes(pcuHr): 57.85													

Full Input Data And Results

Scenario 2: '2020 Survey - PM Peak' (FG2: '2020 Survey PM', Plan 2: 'Observed with Ped')

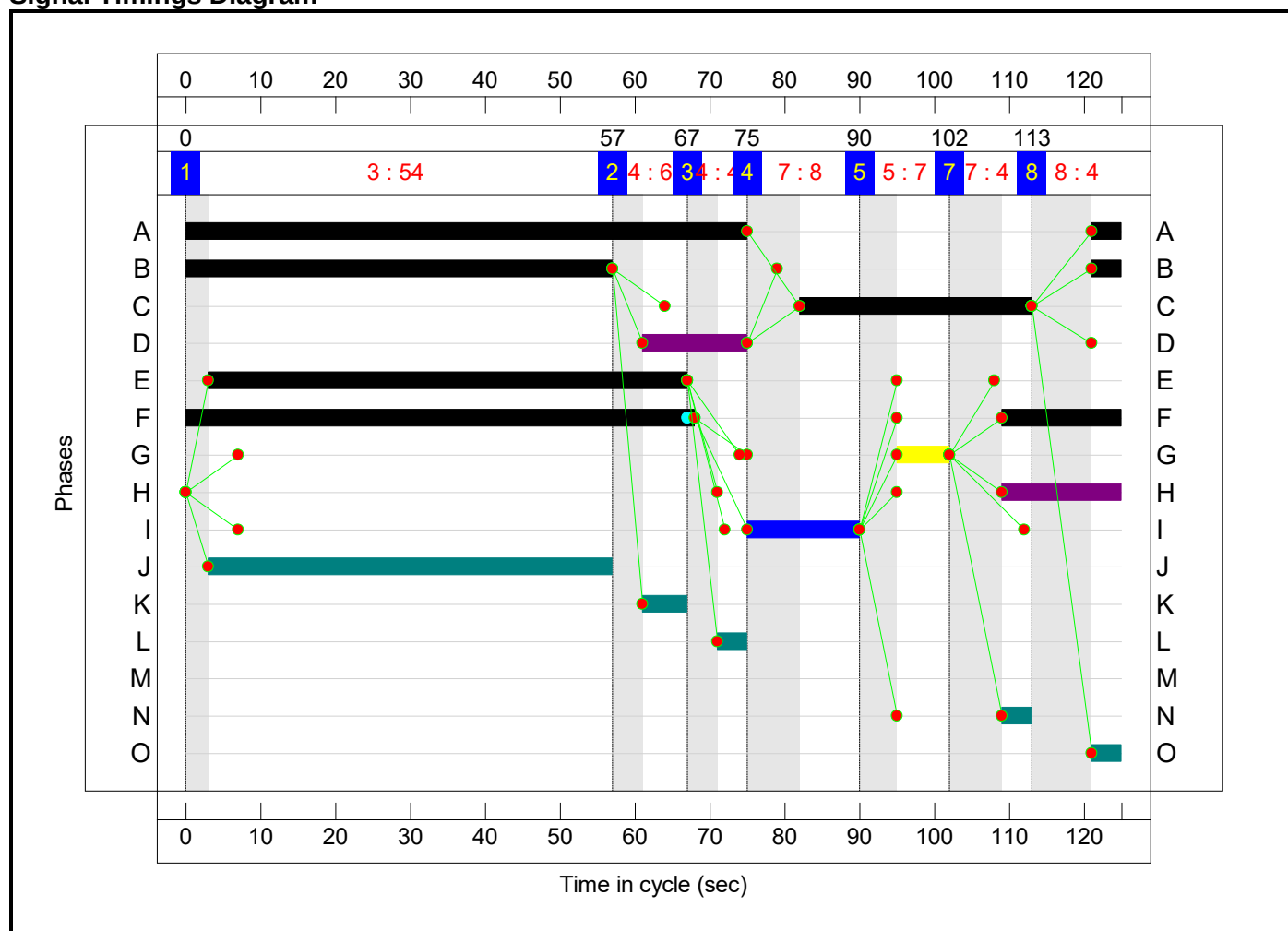
Stage Sequence Diagram



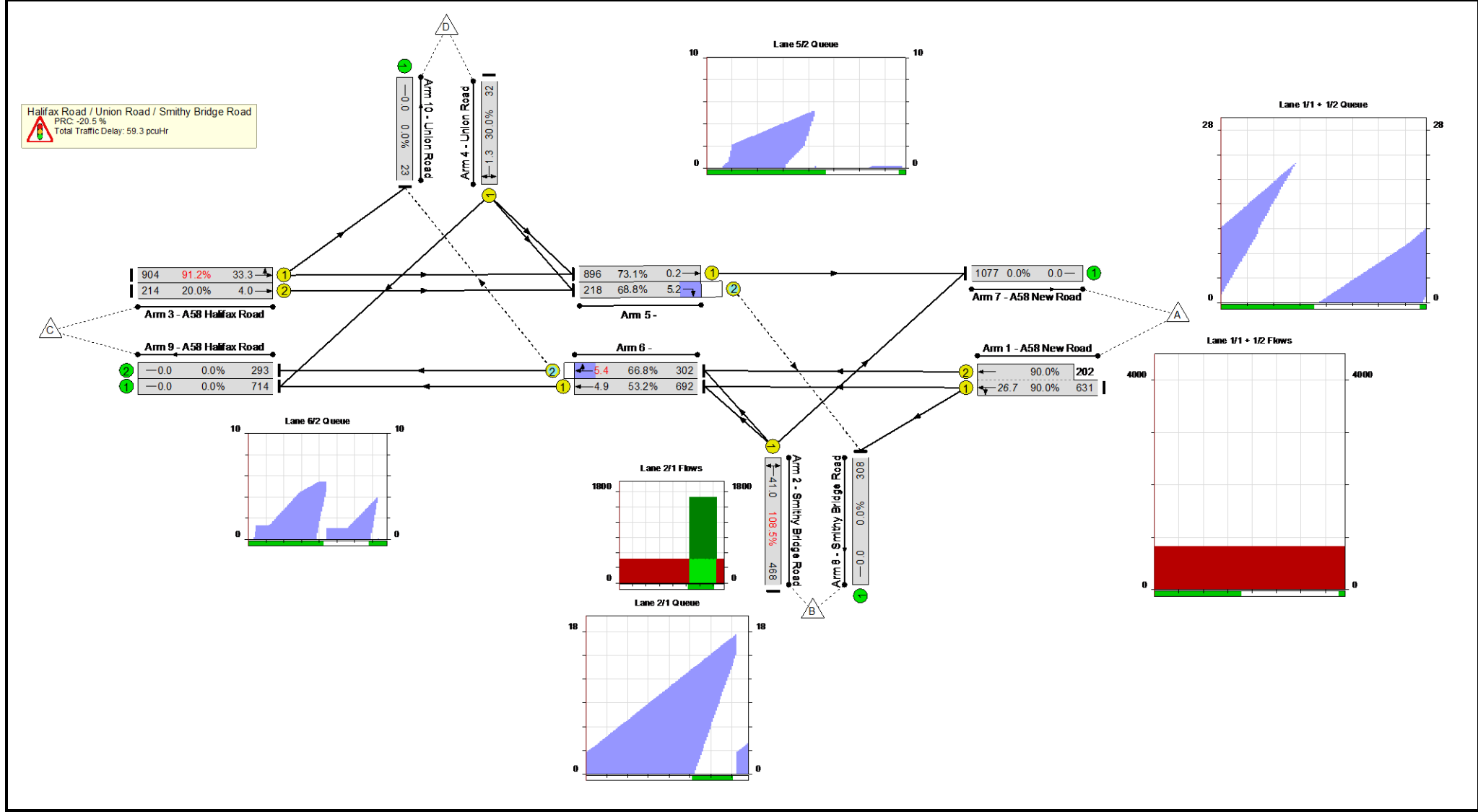
Stage Timings

Stage	1	2	3	4	5	7	8
Duration	54	6	4	8	7	4	4
Change Point	0	57	67	75	90	102	113

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: Halifax Road / Smithy Bridge Road / Union Road	-	-	N/A	-	-		-	-	-	-	-	-	108.5%
Halifax Road / Union Road / Smithy Bridge Road	-	-	N/A	-	-		-	-	-	-	-	-	108.5%
1/1+1/2	A58 New Road Ahead Left	U	N/A	N/A	B		1	61	-	833	1600:2055	701+224	90.0 : 90.0%
2/1	Smithy Bridge Road Left Right	U	N/A	N/A	C		1	31	-	468	1685	431	108.5%
3/1	A58 Halifax Road Ahead Left	U	N/A	N/A	E		1	64	-	904	1906	991	91.2%
3/2	A58 Halifax Road Ahead	U	N/A	N/A	E		1	64	-	214	2055	1069	20.0%
4/1	Union Road Left Right	U	N/A	N/A	G		1	7	-	32	1669	107	30.0%
5/1	Ahead	U	N/A	N/A	A		1	79	-	896	1915	1226	73.1%
5/2	Right	O	N/A	N/A	A	D	1	79	14	218	1581	317	68.8%
6/1	Ahead	U	N/A	N/A	F		1	84	-	705	1915	1302	53.2%
6/2	Ahead Right	O	N/A	N/A	F	H	1	84	16	310	2046	452	66.8%
7/1	A58 New Road	U	N/A	N/A	-		-	-	-	1092	Inf	Inf	0.0%
8/1	Smithy Bridge Road	U	N/A	N/A	-		-	-	-	308	Inf	Inf	0.0%
9/1	A58 Halifax Road	U	N/A	N/A	-		-	-	-	727	Inf	Inf	0.0%
9/2	A58 Halifax Road	U	N/A	N/A	-		-	-	-	301	Inf	Inf	0.0%
10/1	Union Road	U	N/A	N/A	-		-	-	-	23	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: Halifax Road / Smithy Bridge Road / Union Road	-	-	60	165	1	25.9	32.5	0.9	59.3	-	-	-	-
Halifax Road / Union Road / Smithy Bridge Road	-	-	60	165	1	25.9	32.5	0.9	59.3	-	-	-	-
1/1+1/2	833	833	-	-	-	6.0	4.1	-	10.1	43.7	22.6	4.1	26.7
2/1	468	431	-	-	-	7.7	23.3	-	31.0	238.6	17.6	23.3	41.0
3/1	904	904	-	-	-	6.9	4.7	-	11.6	46.0	28.6	4.7	33.3
3/2	214	214	-	-	-	1.0	0.1	-	1.1	18.2	3.9	0.1	4.0
4/1	32	32	-	-	-	0.5	0.2	-	0.7	79.8	1.1	0.2	1.3
5/1	896	896	-	-	-	0.0	0.0	-	0.0	0.1	0.2	0.0	0.2
5/2	218	218	57	161	0	1.3	0.0	0.9	2.1	35.4	5.2	0.0	5.2
6/1	692	692	-	-	-	0.4	0.0	-	0.4	2.2	4.9	0.0	4.9
6/2	302	302	4	4	1	2.2	0.0	0.0	2.2	26.1	5.4	0.0	5.4
7/1	1077	1077	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	308	308	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	714	714	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	293	293	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	23	23	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -20.5 Total Delay for Signalled Lanes (pcuHr): 59.27 Cycle Time (s): 125 PRC Over All Lanes (%): -20.5 Total Delay Over All Lanes(pcuHr): 59.27													

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.5.0.6896							
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Filename: A58_Holland Street_Braddocks Close- Baseline.j9

Path: M:\Projects\11353ITM Smithy Bridge Road, Rochdale\Tech\Picady\2022 updated application

Report generation date: 05/09/2022 13:35:39

»2019 Base, AM

»2019 Base, PM

Summary of junction performance

	AM						PM					
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
2019 Base												
Stream B-ACD	0.2	19.29	0.14	C	0.52	13 % [Stream B-ACD]	0.1	15.44	0.09	C	0.37	18 % [Stream D-ABC]
Stream A-BCD	0.0	7.81	0.01	A			0.0	9.22	0.03	A		
Stream D-ABC	0.1	18.13	0.09	C			0.1	19.10	0.06	C		
Stream C-ABD	0.1	11.65	0.05	B			0.0	8.74	0.03	A		

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	Halifax Road_Holland Street_Braddocks Close
Location	Smithy Bridge
Site number	
Date	13/02/2018
Version	
Status	(new file)
Identifier	HB
Client	
Jobnumber	ITM11353
Enumerator	I-TRANSPORT\ManchesterHotdesk
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	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75			✓	Delay	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)	Run automatically
D1	2019 Base	AM	ONE HOUR	07:15	08:45	15	✓
D2	2019 Base	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

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

2019 Base, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		0.52	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	13	Stream B-ACD

Arms

Arms

Arm	Name	Description	Arm type
A	Halifax Road (E)		Major
B	Holland Street		Minor
C	Halifax Road (W)		Major
D	Braddocks Close		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A	8.95		✓	2.20	100.0	✓	1.00
C	8.95		✓	2.60	100.0	✓	2.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.80	19	22
D	One lane	3.80	24	26

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
1	A-D	632	-	-	-	-	-	-	0.213	0.305	0.213	-	-	-
1	B-A	534	0.085	0.214	0.214	-	-	-	0.135	0.306	-	0.214	0.214	0.107
1	B-C	689	0.092	0.233	-	-	-	-	-	-	-	-	-	-
1	B-D, nearside lane	534	0.085	0.214	0.214	-	-	-	0.135	0.306	0.135	-	-	-
1	B-D, offside lane	534	0.085	0.214	0.214	-	-	-	0.135	0.306	0.135	-	-	-
1	C-B	659	0.223	0.223	0.318	-	-	-	-	-	-	-	-	-
1	D-A	691	-	-	-	-	-	-	0.234	-	0.092	-	-	-
1	D-B, nearside lane	538	0.136	0.136	0.308	-	-	-	0.216	0.216	0.085	-	-	-
1	D-B, offside lane	538	0.136	0.136	0.308	-	-	-	0.216	0.216	0.085	-	-	-
1	D-C	538	-	0.136	0.308	0.108	0.216	0.216	0.216	0.216	0.085	-	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2019 Base	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1255	100.000
B		ONE HOUR	✓	27	100.000
C		ONE HOUR	✓	775	100.000
D		ONE HOUR	✓	18	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		A	B	C	D
	A	0	4	1245	6
	B	9	0	18	0
	C	752	16	0	7
	D	7	0	11	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		A	B	C	D
	A	0	0	2	0
	B	0	0	0	0
	C	5	9	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.14	19.29	0.2	C	25	37
ABCD	0.01	7.81	0.0	A	6	9
A-B					4	6
A-C					1142	1713
D-ABC	0.09	18.13	0.1	C	17	25
C-ABD	0.05	11.65	0.1	B	15	22
C-D					6	10
C-A					690	1035

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	20	5	363	0.056	20	0.0	0.1	10.481	B
ABCD	5	1	515	0.009	5	0.0	0.0	7.059	A
AB	3	0.75			3				
AC	937	234			937				
D-ABC	14	3	348	0.039	13	0.0	0.0	10.768	B
C-ABD	12	3	449	0.027	12	0.0	0.0	8.970	A
C-D	5	1			5				
C-A	566	142			566				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	24	6	306	0.079	24	0.1	0.1	12.785	B
ABCD	6	1	494	0.011	6	0.0	0.0	7.366	A
AB	4	0.90			4				
AC	1119	280			1119				
D-ABC	16	4	295	0.055	16	0.0	0.1	12.885	B
C-ABD	14	4	409	0.035	14	0.0	0.0	9.939	A
C-D	6	2			6				
C-A	676	169			676				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	30	7	216	0.137	29	0.1	0.2	19.227	C
ABCD	7	2	468	0.015	7	0.0	0.0	7.807	A
AB	4	1			4				
AC	1370	343			1370				
D-ABC	20	5	218	0.091	20	0.1	0.1	18.092	C
C-ABD	18	4	355	0.050	18	0.0	0.1	11.645	B
C-D	8	2			8				
C-A	828	207			828				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	30	7	216	0.137	30	0.2	0.2	19.288	C
ABCD	7	2	468	0.015	7	0.0	0.0	7.807	A
AB	4	1			4				
AC	1370	343			1370				
D-ABC	20	5	218	0.091	20	0.1	0.1	18.128	C
C-ABD	18	4	354	0.050	18	0.1	0.1	11.649	B
C-D	8	2			8				
C-A	828	207			828				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	24	6	306	0.079	25	0.2	0.1	12.817	B
ABCD	6	1	494	0.011	6	0.0	0.0	7.370	A
A-B	4	0.90			4				
A-C	1119	280			1119				
D-ABC	16	4	295	0.055	16	0.1	0.1	12.912	B
C-ABD	14	4	409	0.035	15	0.1	0.0	9.946	A
C-D	6	2			6				
C-A	676	169			676				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	20	5	363	0.056	20	0.1	0.1	10.504	B
ABCD	5	1	515	0.009	5	0.0	0.0	7.063	A
A-B	3	0.75			3				
A-C	937	234			937				
D-ABC	14	3	347	0.039	14	0.1	0.0	10.784	B
C-ABD	12	3	449	0.027	12	0.0	0.0	8.975	A
C-D	5	1			5				
C-A	566	142			566				

2019 Base, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		0.37	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	18	Stream D-ABC

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)	Run automatically
D2	2019 Base	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	867	100.000
B		ONE HOUR	✓	22	100.000
C		ONE HOUR	✓	1080	100.000
D		ONE HOUR	✓	10	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
From		A	B	C	D
	A	0	4	854	9
	B	10	0	12	0
	C	1055	14	0	11
	D	4	0	6	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		A	B	C	D
	A	0	0	2	0
	B	0	0	0	0
	C	2	5	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.09	15.44	0.1	C	20	30
ABCD	0.03	9.22	0.0	A	9	13
AB					4	6
AC					783	1175
D-ABC	0.06	19.10	0.1	C	9	14
C-ABD	0.03	8.74	0.0	A	13	19
C-D					10	15
C-A					968	1452

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	17	4	382	0.043	16	0.0	0.0	9.847	A
ABCD	7	2	467	0.015	7	0.0	0.0	7.826	A
AB	3	0.75			3				
AC	643	161			643				
D-ABC	8	2	333	0.023	7	0.0	0.0	11.059	B
C-ABD	11	3	514	0.021	10	0.0	0.0	7.508	A
C-D	8	2			8				
C-A	794	199			794				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	20	5	332	0.060	20	0.0	0.1	11.520	B
ABCD	8	2	438	0.019	8	0.0	0.0	8.379	A
AB	4	0.90			4				
AC	767	192			767				
D-ABC	9	2	279	0.032	9	0.0	0.0	13.340	B
C-ABD	13	3	486	0.026	13	0.0	0.0	7.985	A
C-D	10	2			10				
C-A	948	237			948				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	24	6	257	0.094	24	0.1	0.1	15.420	C
ABCD	11	3	401	0.026	11	0.0	0.0	9.218	A
AB	4	1			4				
AC	940	235			940				
D-ABC	11	3	200	0.055	11	0.0	0.1	19.076	C
C-ABD	15	4	448	0.035	15	0.0	0.0	8.742	A
C-D	12	3			12				
C-A	1162	290			1162				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	24	6	257	0.094	24	0.1	0.1	15.442	C
ABCD	11	3	402	0.026	11	0.0	0.0	9.221	A
A-B	4	1			4				
A-C	940	235			940				
D-ABC	11	3	199	0.055	11	0.1	0.1	19.100	C
C-ABD	15	4	448	0.035	15	0.0	0.0	8.742	A
C-D	12	3			12				
C-A	1162	290			1162				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	20	5	332	0.060	20	0.1	0.1	11.537	B
ABCD	8	2	438	0.019	8	0.0	0.0	8.383	A
A-B	4	0.90			4				
A-C	767	192			767				
D-ABC	9	2	279	0.032	9	0.1	0.0	13.356	B
C-ABD	13	3	486	0.026	13	0.0	0.0	7.986	A
C-D	10	2			10				
C-A	948	237			948				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	17	4	382	0.043	17	0.1	0.0	9.862	A
ABCD	7	2	467	0.015	7	0.0	0.0	7.830	A
A-B	3	0.75			3				
A-C	643	161			643				
D-ABC	8	2	333	0.023	8	0.0	0.0	11.069	B
C-ABD	11	3	514	0.021	11	0.0	0.0	7.510	A
C-D	8	2			8				
C-A	794	199			794				

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.5.0.6896							
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Filename: A58_William St- Baseline.j9

Path: M:\Projects\11353ITM Smithy Bridge Road, Rochdale\Tech\Picady\2022 updated application

Report generation date: 05/09/2022 13:37:00

»2019, AM

»2019, PM

Summary of junction performance

	AM						PM					
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
2019												
Stream B-AC	0.0	0.00	0.00	A	0.00	900 %	0.0	0.00	0.00	A	0.05	48 %
Stream C-AB	0.0	0.00	0.00	A		[]	0.0	3.39	0.03	A		[Stream C-AB]

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	A58 / William Street
Location	
Site number	
Date	21/07/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	ITM11353
Enumerator	ML
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	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75			✓	Delay	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)	Run automatically
D1	2019	AM	ONE HOUR	07:15	08:45	15	✓
D2	2019	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

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

2019, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A58 / William Street	T-Junction	Two-way		0.00	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	900	

Arms

Arms

Arm	Name	Description	Arm type
A	A58 (East)		Major
B	William Street		Minor
C	A58 (West)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - A58 (West)	10.55			150.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - William Street	One lane	3.30	20	17

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	508	0.074	0.187	0.118	0.268
1	B-C	654	0.080	0.203	-	-
1	C-B	661	0.205	0.205	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2019	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A58 (East)		ONE HOUR	✓	1256	100.000
B - William Street		ONE HOUR	✓	2	100.000
C - A58 (West)		ONE HOUR	✓	767	100.000

Origin-Destination Data

Demand (PCU/hr)

	To		
	A - A58 (East)	B - William Street	C - A58 (West)
From			
A - A58 (East)	0	1	1255
B - William Street	2	0	0
C - A58 (West)	767	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To		
	A - A58 (East)	B - William Street	C - A58 (West)
From			
A - A58 (East)	0	0	2
B - William Street	0	0	0
C - A58 (West)	5	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	A	0	0
C-AB	0.00	0.00	0.0	A	0	0
C-A					704	1056
AB					0.92	1
AC					1152	1727

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	335	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	467	0.000	0	0.0	0.0	0.000	A
C-A	577	144			577				
AB	0.75	0.19			0.75				
AC	945	236			945				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	285	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	429	0.000	0	0.0	0.0	0.000	A
C-A	690	172			690				
A-B	0.90	0.22			0.90				
A-C	1128	282			1128				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	213	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	377	0.000	0	0.0	0.0	0.000	A
C-A	844	211			844				
A-B	1	0.28			1				
A-C	1382	345			1382				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	213	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	377	0.000	0	0.0	0.0	0.000	A
C-A	844	211			844				
A-B	1	0.28			1				
A-C	1382	345			1382				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	285	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	429	0.000	0	0.0	0.0	0.000	A
C-A	690	172			690				
A-B	0.90	0.22			0.90				
A-C	1128	282			1128				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	335	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	467	0.000	0	0.0	0.0	0.000	A
C-A	577	144			577				
A-B	0.75	0.19			0.75				
A-C	945	236			945				

2019, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A58 / William Street	T-Junction	Two-way		0.05	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	48	Stream C-AB

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)	Run automatically
D2	2019	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A58 (East)		ONE HOUR	✓	865	100.000
B - William Street		ONE HOUR	✓	4	100.000
C - A58 (West)		ONE HOUR	✓	1066	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A58 (East)	B - William Street	C - A58 (West)
From	A - A58 (East)	0	3	862
	B - William Street	0	0	4
	C - A58 (West)	1061	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A58 (East)	B - William Street	C - A58 (West)
From	A - A58 (East)	0	0	2
	B - William Street	0	0	0
	C - A58 (West)	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	A	0	0
C-AB	0.03	3.39	0.0	A	27	41
C-A					951	1426
A-B					3	4
A-C					791	1186

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	373	0.000	0	0.0	0.0	0.000	A
C-AB	14	4	1092	0.013	14	0.0	0.0	3.387	A
C-A	789	197			789				
A-B	2	0.56			2				
A-C	649	162			649				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	331	0.000	0	0.0	0.0	0.000	A
C-AB	23	6	1189	0.019	23	0.0	0.0	3.132	A
C-A	936	234			936				
A-B	3	0.67			3				
A-C	775	194			775				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	269	0.000	0	0.0	0.0	0.000	A
C-AB	45	11	1332	0.034	45	0.0	0.0	2.845	A
C-A	1129	282			1129				
A-B	3	0.83			3				
A-C	949	237			949				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	269	0.000	0	0.0	0.0	0.000	A
C-AB	45	11	1332	0.034	45	0.0	0.0	2.848	A
C-A	1129	282			1129				
A-B	3	0.83			3				
A-C	949	237			949				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	331	0.000	0	0.0	0.0	0.000	A
C-AB	23	6	1190	0.019	23	0.0	0.0	3.137	A
C-A	936	234			936				
A-B	3	0.67			3				
A-C	775	194			775				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	373	0.000	0	0.0	0.0	0.000	A
C-AB	14	4	1092	0.013	14	0.0	0.0	3.393	A
C-A	788	197			788				
A-B	2	0.56			2				
A-C	649	162			649				

Junctions 10									
ARCADY 10 - Roundabout Module									
Version: 10.0.2.1574									
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Filename: Smithy Bridge Road _ Milnrow Road Mini Roundabout.j10
Path: M:\Projects\11353ITM Smithy Bridge Road, Rochdale\Tech\Arcady
Report generation date: 27/04/2022 11:33:14

»2019 Observed, AM
 »2019 Observed, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2019 Observed										
Arm 1	D1	7.3	41.03	0.90	E	D2	1.4	10.52	0.57	B
Arm 2		2.2	14.93	0.69	B		86.2	373.68	1.19	F
Arm 3		1.0	12.11	0.50	B		0.8	12.04	0.43	B

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	Smithy Bridge Road / Milnrow Road Mini roundbaout
Location	Rochdale
Site number	
Date	25/04/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	ITM11353
Enumerator	I-TRANSPORT\manchesterhotdesk
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	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
JUNCTIONS 9	5.75						0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2019 Observed	AM	ONE HOUR	07:15	08:45	15	✓
D2	2019 Observed	PM	ONE HOUR	16:15	17:45	15	✓
D3	2028 Base + Committed Development	AM	ONE HOUR	07:15	08:45	15	
D4	2028 Base + Committed Development	PM	ONE HOUR	16:15	17:45	15	
D5	2028 Base + Committed + Development	AM	ONE HOUR	07:15	08:45	15	
D6	2028 Base + Committed + Development	PM	ONE HOUR	16:15	17:45	15	

Analysis Set Details

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

2019 Observed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	25.92	D

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		25.92	D

Arms

Arms

Arm	Name	Description
1	B6225 Smithy Bridge Road	
2	Milnrow Road	
3	Smithy Bridge Road	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.70	3.30	4.40	1.4	14.00	10.80	0.0	
2	2.90	2.80	3.50	7.1	11.60	8.80	0.0	
3	3.20	3.00	3.80	0.8	13.80	13.20	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.616	915
2	0.604	857
3	0.607	822

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)	Run automatically
D1	2019 Observed	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	620	100.000
2		ONE HOUR	✓	501	100.000
3		ONE HOUR	✓	280	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	541	79
	2	314	0	187
	3	53	227	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	1	1
	2	8	0	1
	3	4	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.90	41.03	7.3	E	569	853
2	0.69	14.93	2.2	B	460	690
3	0.50	12.11	1.0	B	257	385

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	467	117	169	811	0.576	461	274	0.0	1.3	10.257	B
2	377	94	59	821	0.459	374	572	0.0	0.9	8.402	A
3	211	53	234	680	0.310	209	198	0.0	0.5	7.796	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	557	139	203	790	0.706	554	329	1.3	2.3	15.132	C
2	450	113	71	814	0.553	449	686	0.9	1.3	10.324	B
3	252	63	281	651	0.386	251	238	0.5	0.6	9.188	A

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	683	171	249	762	0.896	666	402	2.3	6.4	33.284	D
2	552	138	85	806	0.685	548	830	1.3	2.2	14.502	B
3	308	77	343	614	0.502	307	289	0.6	1.0	11.950	B

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	683	171	250	761	0.897	679	404	6.4	7.3	41.034	E
2	552	138	87	805	0.686	551	843	2.2	2.2	14.934	B
3	308	77	346	612	0.503	308	292	1.0	1.0	12.112	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	557	139	205	789	0.707	576	332	7.3	2.6	18.412	C
2	450	113	73	812	0.554	454	708	2.2	1.3	10.673	B
3	252	63	285	649	0.388	253	243	1.0	0.7	9.335	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	467	117	172	810	0.577	471	278	2.6	1.4	10.894	B
2	377	94	60	821	0.460	379	583	1.3	0.9	8.616	A
3	211	53	237	678	0.311	212	201	0.7	0.5	7.915	A

2019 Observed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 2 have 86% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	219.54	F

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		219.54	F

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)	Run automatically
D2	2019 Observed	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	426	100.000
2		ONE HOUR	✓	859	100.000
3		ONE HOUR	✓	209	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	336	90
	2	514	0	345
	3	63	146	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	2	0
	2	1	0	1
	3	2	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.57	10.52	1.4	B	391	586
2	1.19	373.68	86.2	F	788	1182
3	0.43	12.04	0.8	B	192	288

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	321	80	109	848	0.378	318	426	0.0	0.6	6.869	A
2	647	162	67	816	0.792	633	360	0.0	3.5	18.624	C
3	157	39	379	592	0.266	156	321	0.0	0.4	8.330	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	383	96	131	835	0.459	382	503	0.6	0.8	8.062	A
2	772	193	81	808	0.956	745	432	3.5	10.2	45.019	E
3	188	47	446	551	0.341	187	380	0.4	0.5	10.000	B

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	469	117	160	817	0.574	467	543	0.8	1.3	10.402	B
2	946	236	99	797	1.186	791	528	10.2	48.8	148.183	F
3	230	58	474	535	0.430	229	417	0.5	0.7	11.938	B

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	469	117	161	816	0.575	469	546	1.3	1.4	10.523	B
2	946	236	99	797	1.187	796	531	48.8	86.2	314.379	F
3	230	58	476	533	0.432	230	419	0.7	0.8	12.036	B

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	383	96	132	834	0.459	385	535	1.4	0.9	8.176	A
2	772	193	81	808	0.956	798	435	86.2	79.7	373.683	F
3	188	47	478	532	0.353	189	402	0.8	0.6	10.645	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	321	80	110	847	0.379	322	530	0.9	0.6	6.969	A
2	647	162	68	816	0.793	806	364	79.7	40.0	270.238	F
3	157	39	482	529	0.297	158	392	0.6	0.4	9.826	A

Junctions 10							
ARCADY 10 - Roundabout Module							
Version: 10.0.2.1574							
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+44 (0)1344 379777 software@trl.co.uk trlsoftware.com							
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution							

Filename: Smithy Bridge Road _ Milnrow Road Mini Roundabout - Adjusted PM.j10

Path: M:\Projects\11353ITM Smithy Bridge Road, Rochdale\TechArcady

Report generation date: 27/04/2022 11:44:04

«2019 Observed, PM

- »Junction Network
- »Arms
- »Traffic Demand
- »Origin-Destination Data
- »Vehicle Mix
- »Results

Summary of junction performance

PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2019 Observed					
Arm 1	D1	1.4	10.52	0.57	B
Arm 2		5.8	23.25	0.86	C
Arm 3		0.9	14.63	0.48	B

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	Smithy Bridge Road / Milnrow Road Mini roundbaout
Location	Rochdale
Site number	
Date	25/04/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	ITM11353
Enumerator	I-TRANSPORT\manchesterhotdesk
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	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
JUNCTIONS 9	5.75						0.85	36.00	20.00		500

Analysis Set Details

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

2019 Observed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 2 have 86% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	18.41	C

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		18.41	C

Arms

Arms

Arm	Name	Description
1	B6225 Smithy Bridge Road	
2	Milnrow Road	
3	Smithy Bridge Road	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.70	3.30	4.40	1.4	14.00	10.80	0.0	
2	2.90	2.80	3.50	7.1	11.60	8.80	0.0	
3	3.20	3.00	3.80	0.8	13.80	13.20	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.616	915
2	0.604	857
3	0.607	822

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

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
2	Direct	Calibrate to Queue Survey	300

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)	Run automatically
D1	2019 Observed	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	426	100.000
2		ONE HOUR	✓	859	100.000
3		ONE HOUR	✓	209	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		1	2	3
From	1	0	336	90
	2	514	0	345
	3	63	146	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		1	2	3
From	1	0	2	0
	2	1	0	1
	3	2	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.57	10.52	1.4	B	391	586
2	0.86	23.25	5.8	C	788	1182
3	0.48	14.63	0.9	B	192	288

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	321	80	109	848	0.378	318	431	0.0	0.6	6.869	A
2	647	162	67	1116	0.579	641	360	0.0	1.4	7.571	A
3	157	39	384	589	0.267	156	325	0.0	0.4	8.389	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	383	96	131	835	0.459	382	516	0.6	0.8	8.062	A
2	772	193	81	1108	0.697	769	432	1.4	2.2	10.600	B
3	188	47	460	543	0.346	187	389	0.4	0.5	10.234	B

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	469	117	160	817	0.574	467	627	0.8	1.3	10.395	B
2	946	236	99	1097	0.862	933	528	2.2	5.4	20.673	C
3	230	58	558	483	0.476	229	473	0.5	0.9	14.245	B

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	469	117	161	816	0.575	469	634	1.3	1.4	10.522	B
2	946	236	99	1097	0.862	944	531	5.4	5.8	23.246	C
3	230	58	565	479	0.480	230	478	0.9	0.9	14.630	B

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	383	96	132	834	0.459	385	527	1.4	0.9	8.181	A
2	772	193	81	1108	0.697	786	436	5.8	2.4	11.732	B
3	188	47	470	537	0.350	189	397	0.9	0.6	10.542	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	321	80	110	847	0.379	322	437	0.9	0.6	6.973	A
2	647	162	68	1116	0.580	651	364	2.4	1.4	7.882	A
3	157	39	389	586	0.269	158	329	0.6	0.4	8.540	A

APPENDIX E. Personal Injury Accident Data

TRANSPORT FOR GREATER MANCHESTER



Traffic Accident Data for

i-transport

**Reported Road Injury Accidents in the Specified Area of Smithy
Bridge Road, Rochdale, from 01/02/2017 to 31/01/2022**

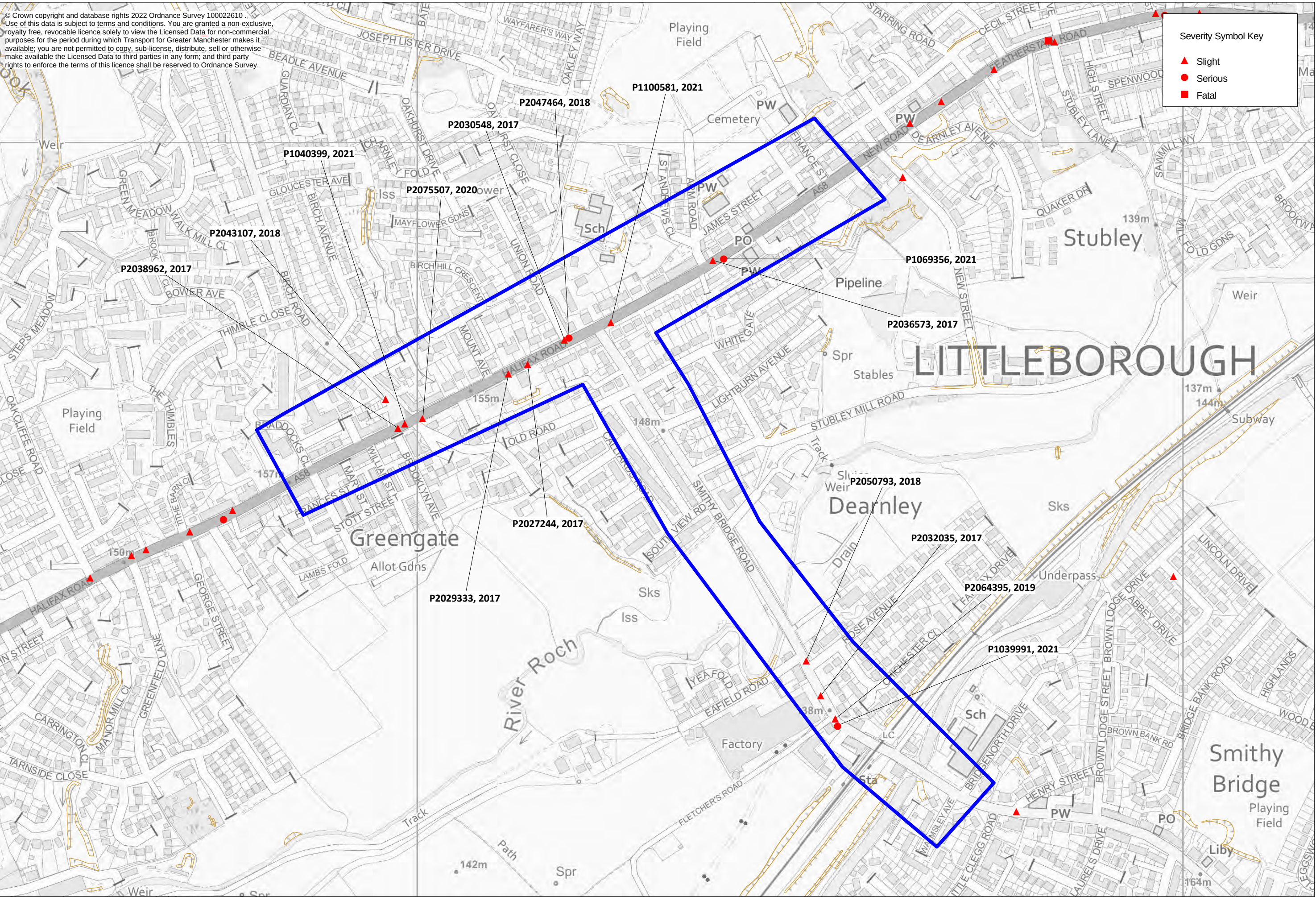
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Severity Symbol Key

▲ Slight

● Serious

■ Fatal



TRANSPORT FOR GREATER MANCHESTER



Reported Road Injury Accidents in the Specified Area of Smithy Bridge Road, Rochdale, 01/02/2017 to 31/01/2022

Injury Accidents	Feb - Dec 2017	2018	2019	2020	2021	Jan 2022	Total
Fatal	0	0	0	0	0	0	0
Serious	0	1	0	0	2	0	3
Slight	6	2	1	1	2	0	12
Total	6	3	1	1	4	0	15

Standard Totals Report : Reported Injury Accidents in Specified Area of Smithy Bridge Road, Rochdale, from 01/02/2017 to 31/01/2022

Accidents

Serious	3
Slight	12
Total Accidents	15

Casualties Broken Down By Type

Car (Driver)	0-15	16+	Total
Serious	0	1	1
Slight	0	11	11
Total	0	12	12
Pedestrian	0-15	16+	Total
Serious	0	1	1
Slight	0	1	1
Total	0	2	2
TWPV (Rider)	0-15	16+	Total
Serious	0	1	1
Slight	0	1	1
Total	0	2	2
Cyclist (Rider)	0-15	16+	Total
Slight	0	1	1
Total	0	1	1
Total	0	17	17

Casualties By Age and Sex

Severity	0 - 15	16 - 59	60 - 69	70 +	Total
Serious					
Male	0	1	0	0	1
Female	0	1	1	0	2
Total	0	2	1	0	3
Slight					
Male	0	8	0	0	8
Female	0	6	0	0	6
Total	0	14	0	0	14
Total Casualties	0	16	1	0	17

Casualties By Age and Class

Severity	0 - 15	16 - 59	60 - 69	70 +	Total
Serious					
Driver or rider	0	1	1	0	2
Pedestrian	0	1	0	0	1
Total	0	2	1	0	3
Slight					
Driver or rider	0	13	0	0	13
Pedestrian	0	1	0	0	1
Total	0	14	0	0	14
Total Casualties	0	16	1	0	17

Cyclist (Rider and Pillion) and Pedestrian Casualties By Age

Severity	0 - 15	16 - 59	60 - 69	70 +	Total
Serious	0	1	0	0	1
Slight	0	2	0	0	2
Total Casualties	0	3	0	0	3

Standard Report - Reported Injury Accidents in Specified Area of Smithy Bridge Road, Rochdale, from 01/02/2017 to 31/01/2022

This printout has been generated from the Transport for Greater Manchester's database of road traffic accident records using the query system, GMAXI.

The road traffic accident database contains STATS19 data supplied by Greater Manchester Police and further validated by the Highways Forecasting and Analytical Services (HFAS) section of Transport for Greater Manchester. It is maintained by HFAS on behalf of the ten District Councils in Greater Manchester.

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Accident Reference Number: P1039991				Day: Monday		Contributory Factors			Date: 12/04/2021				Time: 15:00		
Place Reported: Scene				District: Rochdale											
Location: Smithy Bridge Road 10 metres NW Of Barke Street						Factor			Conf			Ref			
Description: V1 (Motorcycle) Trav Nw Smithy Bridge Rd At High Speed Appr R/H/B Unable To Correct Steering Continues To Crash Into Corner Property. C1 Is Ejected Thru Window						DSpee			VLike			V1			
						DCare			VLike			V1			
						m/c			Rbend			E NW			
						1 Rid			M			36 Serious Un			

Accident Reference Number: P2032035					Day: Friday		Contributory Factors			Date: 23/06/2017					Time: 17:45																		
Place Reported: Else					District: Rochdale		Factor			Conf			Ref			Vehicle Details					Casualty Details												
Location: Smithy Bridge Road 40 metres South East of Rose Avenue					Type											Move					From To Skid					Type Sex Age Sev Pupil							
Description: Both Vehs Trav Nw Smithy Bridge Rd. V1 Travelling Behind V2 Collides With Rear Of V2. V1 Denies Colliding With V2					Car											Start					SE NW					1 Drv F 46 Slight							
Locational Details					Conditions					Accident Details																							
Road: C					Junction Details:					Road Surface: Dry					Severity: Slight																		
OSGR: 392528 415279					Junction Control: n/a					Light Conditions: Light					No. of Vehicles: 2																		
Speed Limit: 30					Ped Crossing:					Weather Conditions: Fine					No. of Casualties: 1																		

Accident Reference Number: P2050793					Day: Friday		Contributory Factors			Date: 16/11/2018					Time: 08:33																		
Place Reported: Scene					District: Rochdale		Factor			Conf			Ref			Vehicle Details					Casualty Details												
Location: Smithy Bridge Road at junction with Rose Avenue					Type											Move					From To Skid					Type Sex Age Sev Pupil							
Description: V1 Trav Se Smithy Bridge Rd Overtakes Veh, Fails To See C1 (Pedestrian) Crossing Road From N/s Trav Sw & Collides C1					Car											O/Ts					NW SE					1 Ped F 25 Slight							
Locational Details					Conditions					Accident Details																							
Road: C/U					Junction Details: Tjun					Road Surface: Dry					Severity: Slight																		
OSGR: 392509 415325					Junction Control: GW					Light Conditions: Light					No. of Vehicles: 1																		
Speed Limit: 30					Ped Crossing:					Weather Conditions: Fine					No. of Casualties: 1																		

Accident Reference Number: P2038962					Day: Thursday		Contributory Factors			Date: 09/11/2017					Time: 17:20																			
Place Reported: Scene					District: Rochdale		Factor			Conf			Ref			Vehicle Details					Casualty Details													
Location: Halifax Road at junction with Birch Road					Type											Move					From To Skid					Type Sex Age Sev Pupil								
Description: Both Vehs Trav Sw Halifax Rd. V1 Waiting To Turn Right At ATS, V2 Collides With Rear of V1.					DFLoo											VLike					V2					DAIcoh					Poss			
Locational Details					Conditions					Accident Details																								
Road: A58/C					Junction Details: Tjun					Road Surface: Dry					Severity: Slight																			
OSGR: 391976 415628					Junction Control: TS					Light Conditions: Light					No. of Vehicles: 2																			
Speed Limit: 30					Ped Crossing: TSX					Weather Conditions: Fine					No. of Casualties: 2																			

Accident Reference Number: P1040399					Day: Saturday		Contributory Factors			Date: 03/04/2021					Time: 08:10																		
Place Reported: Else					District: Rochdale		Factor			Conf			Ref			Vehicle Details					Casualty Details												
Location: Halifax Road at junction with Birch Road					Type											Move					From To Skid					Type Sex Age Sev Pupil							
Description: V1 Trav Ne Halifax Rd Thru Green Ats, When Suddenly V2 Trav Sw Halifax Rd Overtakes Several Cars, Enters Opp C/way & Collides Head On With V1. V2 Fts					Car											Ahead					SW NE					1 Drv M 26 Slight Un							
Locational Details					Conditions					Accident Details																							
Road: A58/C					Junction Details: Xrds					Road Surface: Dry					Severity: Slight																		
OSGR: 391985 415634					Junction Control: TS					Light Conditions: Light					No. of Vehicles: 2																		
Speed Limit: 30					Ped Crossing:					Weather Conditions: Fine					No. of Casualties: 1																		

Accident Reference Number: P2075507						Day: Saturday		Contributory Factors			Date: 12/09/2020					Time: 20:45										
Place Reported: Else						District: Rochdale		Factor			Conf			Ref			Vehicle Details					Casualty Details				
Location: Halifax Road 10 metres NE Of Birch Road																	Type					Type				
Description: Both Vehs Trav Sw Halifax Rd, V2 Waiting To Go Ahead But Held Up. V1 Collides With Rear Of V2. V1 Fts																	Type					Type				
Locational Details						Conditions		Accident Details									Type					Type				
Road: A58/C						Junction Details: Xrds		Road Surface: Dry			Severity: Slight						Car					1 Drv M 42 Slight				
OSGR: 392008 415641						Junction Control: TS		Light Conditions: Dark			No. of Vehicles: 2						Car									
Speed Limit: 30						Ped Crossing:		Weather Conditions: Fine			No. of Casualties: 1															
Accident Reference Number: P2043107						Day: Tuesday		Contributory Factors			Date: 24/04/2018					Time: 09:21										
Place Reported: Scene						District: Rochdale		Factor			Conf			Ref			Vehicle Details					Casualty Details				
Location: Birch Road 35 metres Northwest of Halifax Road																	Type					Type				
Description: Both Vehs Trav Nw On Birch Rd. V1 Collides With Rear Of V2.																	Type					Type				
Locational Details						Conditions		Accident Details									Type					Type				
Road: C						Junction Details:		Road Surface: Dry			Severity: Slight						Car					1 Drv M 31 Slight				
OSGR: 391960 415666						Junction Control: n/a		Light Conditions: Light			No. of Vehicles: 2						Car									
Speed Limit: 30						Ped Crossing:		Weather Conditions: Fine			No. of Casualties: 1															
Accident Reference Number: P2029333						Day: Friday		Contributory Factors			Date: 03/03/2017					Time: 17:25										
Place Reported: Scene						District: Rochdale		Factor			Conf			Ref			Vehicle Details					Casualty Details				
Location: Halifax Road metres North East of Mount Avenue																	Type					Type				
Description: V2 Trav Sw Halifax Rd Twds Birch Rd. V1 Leaves Spar Garage To Trav Ne Halifax Rd But View Is Blocked By Lorry. V1 Hits V2 And Fails To Stop																	Type					Type				
Locational Details						Conditions		Accident Details									Type					Type				
Road: A58/U						Junction Details: ent		Road Surface: Dry			Severity: Slight						Car					1 Drv F 27 Slight				
OSGR: 392120 415699						Junction Control: GW		Light Conditions: Light			No. of Vehicles: 2						Car									
Speed Limit: 30						Ped Crossing:		Weather Conditions: Fine			No. of Casualties: 1															
Accident Reference Number: P2027244						Day: Monday		Contributory Factors			Date: 13/02/2017					Time: 18:30										
Place Reported: Else						District: Rochdale		Factor			Conf			Ref			Vehicle Details					Casualty Details				
Location: Halifax Road at junction with Petrol Station, 50 metres North East of Mount Avenue																	Type					Type				
Description: V2 (Motorcycle) Trav Se Halifax Rd Twds Rochdale At Petrol Station V1 Trav Ne Halifax Rd Turns R And Collides V2																	Type					Type				
Locational Details						Conditions		Accident Details									Type					Type				
Road: A58/U						Junction Details: ent		Road Surface: Dry			Severity: Slight						Car					1 Rid M 20 Slight				
OSGR: 392145 415711						Junction Control: GW		Light Conditions: Dark			No. of Vehicles: 2						m/s									
Speed Limit: 30						Ped Crossing:		Weather Conditions: Fine			No. of Casualties: 1															

Accident Reference Number: P2030548				Day: Thursday		Contributory Factors			Date: 30/03/2017				Time: 15:15																													
Place Reported: Scene				District: Rochdale		Factor			Vehicle Details			Casualty Details																														
Location: Halifax Road at junction with Union Road				DFLoo			Poss			Ref			Type			Move			From			To			Skid			Type			Sex			Age			Sev			Pupil		
Description: V2 Trav Sw Halifax Rd Turns Right Into Union Rd Into Path of V1 Trav Ne Halifax Rd. Collision Occurs				DFLoo			Poss			V1			Car			Ahead			SW			NE			1 Drv			M			26			Slight								
Road: A58/U				Junction Details: Tjun		Road Surface: Dry		Severity: Slight		Car			TurnR			NE			NW			2 Drv			F			44			Slight											
OSGR: 392193 415743				Junction Control: TS		Light Conditions: Light		No. of Vehicles: 2		Car			TurnR			NE			NW			2 Drv			F			44			Slight											
Speed Limit: 30				Ped Crossing: TSX		Weather Conditions: Fine		No. of Casualties: 2		Car			TurnR			NE			NW			2 Drv			F			44			Slight											

Accident Reference Number: P2047464				Day: Friday		Contributory Factors			Date: 24/08/2018				Time: 09:45																													
Place Reported: Scene				District: Rochdale		Factor			Vehicle Details			Casualty Details																														
Location: Halifax Road 5 metres NE of Union Road				DFLoo			Poss			Ref			Type			Move			From			To			Skid			Type			Sex			Age			Sev			Pupil		
Description: V1 Trav Ne Halifax Rd Collides C1 (Pedestrian) Crossing Road From Offside.				DFLoo			Poss			V1			Car			Ahead			SW			NE			1 Ped			F			40			Serious								
Road: A58/U				Junction Details: Tjun		Road Surface: Wet		Severity: Serious		Car			Ahead			SW			NE			1 Ped			F			40			Serious											
OSGR: 392199 415746				Junction Control: TS		Light Conditions: Light		No. of Vehicles: 1		Car			Ahead			SW			NE			1 Ped			F			40			Serious											
Speed Limit: 30				Ped Crossing: TSX		Weather Conditions: Rain		No. of Casualties: 1		Car			Ahead			SW			NE			1 Ped			F			40			Serious											

Accident Reference Number: P1100581				Day: Wednesday		Contributory Factors			Date: 06/10/2021				Time: 20:40																													
Place Reported: Self				District: Rochdale		Factor			Vehicle Details			Casualty Details																														
Location: New Road 15 metres NE Of Smithy Bridge Road				DFLoo			Poss			Ref			Type			Move			From			To			Skid			Type			Sex			Age			Sev			Pupil		
Description: Both Vehs Trav Sw New Rd. V1 Staty At Traffic Lights Waiting To Turn Left Onto Smithy Bridge Rd, Front Of V1 Collides With Rear Of V1				DFLoo			Poss			V1			Car			wtgTL			NE			SE			1 Drv			F			36			Slight			Un					
Road: A58/C				Junction Details: Tjun		Road Surface: Dry		Severity: Slight		Car			wtgTL			NE			SE			1 Drv			F			36			Slight			Un								
OSGR: 392254 415766				Junction Control: TS		Light Conditions: Dark		No. of Vehicles: 2		Car			wtgTL			NE			SE			1 Drv			F			36			Slight			Un								
Speed Limit: 30				Ped Crossing:		Weather Conditions: Fine		No. of Casualties: 1		Car			wtgTL			NE			SE			1 Drv			F			36			Slight			Un								

Accident Reference Number: P2036573				Day: Thursday		Contributory Factors			Date: 19/10/2017				Time: 20:50																													
Place Reported: Else				District: Rochdale		Factor			Vehicle Details			Casualty Details																														
Location: New Road 13 metres NE of Arm Road				DFLoo			Poss			Ref			Type			Move			From			To			Skid			Type			Sex			Age			Sev			Pupil		
Description: V2 Trav Ne On New Rd When V1 Travelling Behind Collides With Rear Of V2. V1 Left Scene Not Exchanging Details.				DFLoo			Poss			V1			Car			O/Tkg			SW			NE			1 Drv			F			55			Slight								
Road: A58/U				Junction Details: Tjun		Road Surface: Wet		Severity: Slight		Car			O/Tkg			SW			NE			1 Drv			F			55			Slight											
OSGR: 392387 415847				Junction Control: GW		Light Conditions: Dark		No. of Vehicles: 2		Car			O/Tkg			SW			NE			1 Drv			F			55			Slight											
Speed Limit: 30				Ped Crossing: PeIX		Weather Conditions: Othr		No. of Casualties: 1		Car			O/Tkg			SW			NE			1 Drv			F			55			Slight											

Accident Reference Number: P1069356				Day: Wednesday		Contributory Factors			Date: 02/06/2021				Time: 16:05					
Place Reported: Scene				District: Rochdale														
Location: New Road 25 metres NE Of Arm Road						Factor Conf Ref			Vehicle Details				Casualty Details					
Description: V1 (Illness) Trav Sw New Rd, Loses Control & Front Collides With Front Of V2 (Parked)						DIIIIns VLike V1			Type	Move	From	To	Skid	Type	Sex	Age	Sev	Pupil
						DTired Poss V1			Car	Ahead	NE	SW		1 Drv	F	69	Serious	Un
									Car	Parkd	Pk	Pk						
Locational Details				Conditions		Accident Details												
Road:	A58		Junction Details:	Road Surface:	Dry	Severity:	Serious											
OSGR:	392401	415849	Junction Control: n/a	Light Conditions:	Light	No. of Vehicles:	2											
Speed Limit:	30		Ped Crossing: PelX	Weather Conditions:	Fine	No. of Casualties:	1											

Abbreviations used in GMAXI Reports for New Contributory Factors - 2005/06

WARNING: Please note that -

Codes 101 to 999 only relate to accidents from 1 April 2005. - New National Factors introduced by DfT

Codes 1001 to 1154 relate to accidents from 1 April 1999 to 31 March 2005 only. - Local Factors introduced

Accidents before 1 April 1999 do not have contributory factors attached.

Code	ContribFactor1Name	ContribFactor1Abb
0	None	
101	Poor or defective road surface	Surf
102	Deposit on road (eg oil, mud, chippings)	Dposit
103	Slippery road (due to weather)	Slip
104	Inadequate/masked signs or road markings	Mark
105	Defective traffic signals	DefATS
106	Traffic calming (eg speed cushions, road humps, chicanes)	TCalm
107	Temporary road layout (eg contraflow)	TmpRd
108	Road layout (eg bend, hill, narrow carriageway)	RdLay
109	Animal or object in carriageway	ObjInC
201	Tyres illegal, defective or under inflated	VTyres
202	Defective lights or indicators	VLight
203	Defective brakes	VBrake
204	Defective steering or suspension	VSteer
205	Defective or missing mirrors	VMirr
206	Overloaded or poorly loaded vehicle or trailer	VLoad
301	Disobeyed automatic traffic signal	DATS
302	Disobeyed Give Way or Stop sign or markings	DGWorS
303	Disobeyed double white line	DWhite
304	Disobeyed pedestrian crossing facility	DPedX
305	Illegal turn or direction of travel	DITurn
306	Exceeding speed limit	DSpeed
307	Travelling too fast for conditions	DFast
308	Following too close	DTgate
309	Vehicle travelling along pavement	DPave
310	Cyclist entering road from pavement	DCPave
401	Junction overshoot	DJnOvr
402	Junction restart	DJnRst
403	Poor turn or manoeuvre	DTurn
404	Failed to signal/misleading signal	DSign
405	Failed to look properly	DFLook
406	Failed to judge other person's path or speed	DJudge
407	Passing too close to cyclist, horse rider or pedestrian	DClose
408	Sudden braking	DBrake
409	Swerved	DSwerv
410	Loss of control	DLossC
501	Impaired by alcohol	DAlcoh
502	Impaired by drugs (illicit or medicinal)	DDrugs
503	Fatigue	DTired
504	Uncorrected, defective eyesight	DEye
505	Illness or disability, mental or physical	DIllns
506	Not displaying lights at night or in poor visibility	DNoLit
507	Cyclist wearing dark clothing at night	DCDark
508	Driver using mobile phone	DMobPh
509	Distraction in vehicle	DDisIn
510	Distraction outside vehicle	DDisOu
601	Aggressive driving	DAggre
602	Careless/reckless/in a hurry	DCare

603	Nervous/uncertain/panic	DPanic
604	Driving too slow or conditions or slow vehicle (eg tractor)	DSlow
605	Learner or inexperienced driver/rider	DLearn
606	Inexperience of driving on the left	DInDrL
607	Inexperience with type of vehicle	DInVeh
701	Stationary or parked vehicle(s)	DStat
702	Vegetation	DVeg
703	Road layout (eg bend, winding road, hill crest)	DRdLay
704	Buildings, road signs, street furniture	DBuild
705	Dazzling headlights	DHLigt
706	Dazzling sun	DSun
707	Rain, sleet, snow, or fog	DRain
708	Spray from other vehicles	DFog
709	Visor or windscreen dirty or scratched	DSpray
710	Vehicle blind spot	DWscrn
801	Crossed road masked by stationary or parked vehicle	PXMask
802	Failed to look properly	PFLook
803	Failed to judge vehicle's path or speed	PJudge
804	Wrong use of pedestrian crossing facility	PPedX
805	Dangerous action in carriageway (eg playing)	PDange
806	Impaired by alcohol	PAlcoh
807	Impaired by drugs (illicit or medicinal)	PDrugs
808	Careless/reckless/in a hurry	PCare
809	Pedestrian wearing dark clothing at night	PCloth
810	Disability or illness, mental or physical	Pllns
901	Stolen vehicle	StoVeh
902	Vehicle in course of crime	VCrime
903	Emergency vehicle on call	EmVeh
904	Vehicle door opened or closed negligently	VDoor
999	Other	Other
1001	Failed to stop (mandatory sign)	Fstop
1002	Failed to give way	Fgive
1003	Failed to avoid pedestrian (pedestrian not to blame)	FAPed
1004	Failed to avoid vehicle or object in carriageway	FAObj
1005	Failure to signal/misleading signal	Fsig
1006	Loss of control of vehicle	Loss
1007	Pedestrian entered carriageway without due care	Ped
1008	Passenger fell in or near PSV	Pfell
1009	Swerved to avoid object in carriageway	Swerv
1010	Sudden braking	Brake
1011	Poor turn/manoeuvre	Turn
1012	Poor overtaking	Over
1013	Drove wrong way (e.g. 1-way street)	1Way
1014	Opening door carelessly	Door
1015	Other	Other
1101	Impairment alcohol	Alcoh
1102	Impairment drugs	Drugs
1103	Impairment fatigue	Tired
1104	Impairment illness	Ill
1105	Distraction stress/emotional state of mind	Stress
1106	Distraction physical in/on vehicle	DPhIn
1107	Distraction physical outside vehicle	DPhOut
1108	Behaviour panic	Panic
1109	Behaviour careless/thoughtless/reckless	Care
1110	Behaviour nervous/uncertain	Nerve
1111	Behaviour in a hurry	Hurry

1112	Failure to judge other person's path or speed	Fjudg
1113	Disability	Disab
1114	Failed to look	F2look
1115	Looked but did not see	Nsee
1116	Inattention	Inatt
1117	Person hit wore dark or inconspicuous clothing	Cloth
1118	Other (Personal details)	Pother
1119	Crossed from behind parked vehicle etc	Cross
1120	Ignored lights at crossing	Xlight
1121	Excessive Speed	Speed
1122	Following too close	Tgate
1123	Inexperience of driving	InDri
1124	Inexperience of vehicle	InVeh
1125	Interaction or competition with other road users	Users
1126	Aggressive driving	Aggr
1127	Lack of judgement of own path	Judge
1128	Tyres wrong pressure	Press
1129	Tyres deflation before impact	Deflat
1130	Tyres worn/insufficient tread	Tread
1131	Defective lights or signals	Signal
1132	Defective brakes	Brakes
1133	Other (Vehicle defects)	Vother
1134	Site details poor road surface	Surf
1135	Site details poor/no street lighting	Lightg
1136	Site details inadequate signing	Sign
1137	Site details steep hill	Hill
1138	Site details narrow road	Narr
1139	Site details bend/winding road	Rbend
1140	Site details roadworks	Works
1141	Slippery road	Slip
1142	High winds	Winds
1143	Earlier accident	Earli
1144	Other (Local conditions)	Lother
1145	View windows obscured	Obs
1146	View glare from sun	Glare
1147	View glare from headlights	Head
1148	Surroundings bend/winding road	Bend
1149	Surroundings stationary parked vehicle	Stat
1150	Surroundings moving vehicle	Move
1151	Surroundings buildings, fences, vegetation etc	Fence
1152	Weather (e.g. mist or sleet)	Weath
1153	Failed to see pedestrian or vehicle in blindspot	Blind
1154	Animal out of control	Animal
9999	GMP Out of Range	OoR

APPENDIX F. Rochdale Cycle Map

-
- A detailed map of the Dublin area in Ireland, showing the city center, surrounding suburbs, and the River Liffey. The map includes major roads, public transport routes, and landmarks. A scale bar indicates 500m and 1000ft.

APPENDIX G.Bus Timetable Information



From 24 April

456

Withdrawn and partially replaced by additional bus 458 journeys and new bus R5 serving Stubley

458

Times are changed with additional journeys introduced partially replacing bus 456. Evening, Sunday and public holiday journeys are replaced by bus 457 between Littleborough, Shore and Stansfield. All journeys are now run by Rosso

Bus

Replacement

458



Easy access on all buses

Littleborough
Hollingworth Lake
Smithy Bridge
Birch Hill
Wardle
Low Hill
Smallbridge
Rochdale

Including early morning, schoolday and early evening journeys to Shore and Stansfield

From 24 April 2022

For public transport information
phone **0161 244 1000**

7am – 8pm Mon to Fri

8am – 8pm Sat, Sun & public holidays

This timetable is available online at
www.tfgm.com

Operated by
Rosso

Additional information

Alternative format

To ask for leaflets to be sent to you, or to request large print, Braille or recorded information phone 0161 244 1000 or visit www.tfgm.com

Easy access on buses



Journeys run with low floor buses have no steps at the entrance, making getting on and off easier. Where shown, low floor buses have a ramp for access and a dedicated space for wheelchairs and pushchairs inside the bus. The bus operator will always try to provide easy access services where these services are scheduled to run.

Using this timetable

Timetables show the direction of travel, bus numbers and the days of the week. Main stops on the route are listed on the left. Where no time is shown against a particular stop, the bus does not stop there on that journey. Check any letters which are shown in the timetable against the key at the bottom of the page.

Where to find information about service changes

www.tfgm.com

Bus station posters

Leaflets from outlets.

Tickets and information

Bus companies offer a range of tickets for use on their own buses. For travel on any service in the County, use System One tickets, including DaySaver. Travelshops provide tickets, information and journey planning advice on buses, trains and trams for work and pleasure.

Using the 24 hour clock

Times are shown in four figures. The first two are the hour and the last two are the minutes.

0753 is 53 minutes past 7am

1953 is 53 minutes past 7pm



Operator details

Rosso

Queensgate Depot

Colne Road

Burnley

BB10 1HH

Telephone 01706 390 520

email info@rossendalebus.co.uk

Travelshops

Rochdale Interchange

Mon to Fri 7am to 5.30pm

Saturday 8.30am to 1.15pm and 2pm to 4pm

Sunday* Closed

*Including public holidays

Littleborough — Hollingworth Lake — Wardle — Rochdale

458

Including early morning, schoolday and early evening journeys serving Shore and Stansfield

Mondays to Fridays

	SD			SH			SH			SD														
Littleborough, Train Station												1505								1832				
Littleborough, Church Street	0632	0652		0751																				
Shore, Cote Lane	0638	0658		0759															1513					1838
Stansfield, Frobisher Road	0645	0705		0808															1521					1846
Littleborough, Train Station	0652	0712	0742	0818	0818	0835	0905	0935		1435	1510	1530	1540	1610	1643	1715	1748	1853	1934					
Hollingworth Lake	0657	0717	0747	0823	0823	0840	0910	0940	and	1440	1515		1545	1615	1648	1720	1753	1857	1938					
Smithy Bridge Rd/South View Rd	0701	0721	0752	0828	0828	0844	0914	0945	every	1445	1520		1550	1620	1653	1725	1758	1902	1943					
Wardle Academy	0704	0724	0756	0830	0830	0847	0917	0947	30	1447	1522		1552	1622	1655	1727	1800	1904	1945					
Wardle, Chapel	0707	0727	0800	0833	0833	0850	0920	0950	mins	1450	1525		1555	1625	1658	1730	1803	1906	1947					
Low Hill	0712	0732	0805	0838	0838	0855	0925	0955	until	1455	1530		1600	1630	1703	1735	1808	1910	1951					
Smallbridge, Library	0714	0734	0807	0840	0840	0857	0927	0957		1457	1532		1602	1632	1705	1737	1810	1912	1953					
Rochdale, Interchange	0722	0742	0817	0846	0846	0905	0935	1003		1503	1542		1612	1642	1715	1747	1818	1919	2000					
																								
Littleborough, Train Station	2034	2134	2234																					
Hollingworth Lake	2038	2138	2238																					
Smithy Bridge Rd/South View Rd	2043	2143	2243																					
Wardle Academy	2045	2145	2245																					
Wardle, Chapel	2047	2147	2247																					
Low Hill	2051	2151	2251																					
Smallbridge, Library	2053	2153	2253																					
Rochdale, Interchange	2100	2200	2300																					

 – Journey provided with the financial support of Transport for Greater Manchester

Bus 458 is also provided with the financial support of Transport for Greater Manchester between Littleborough and Wardle

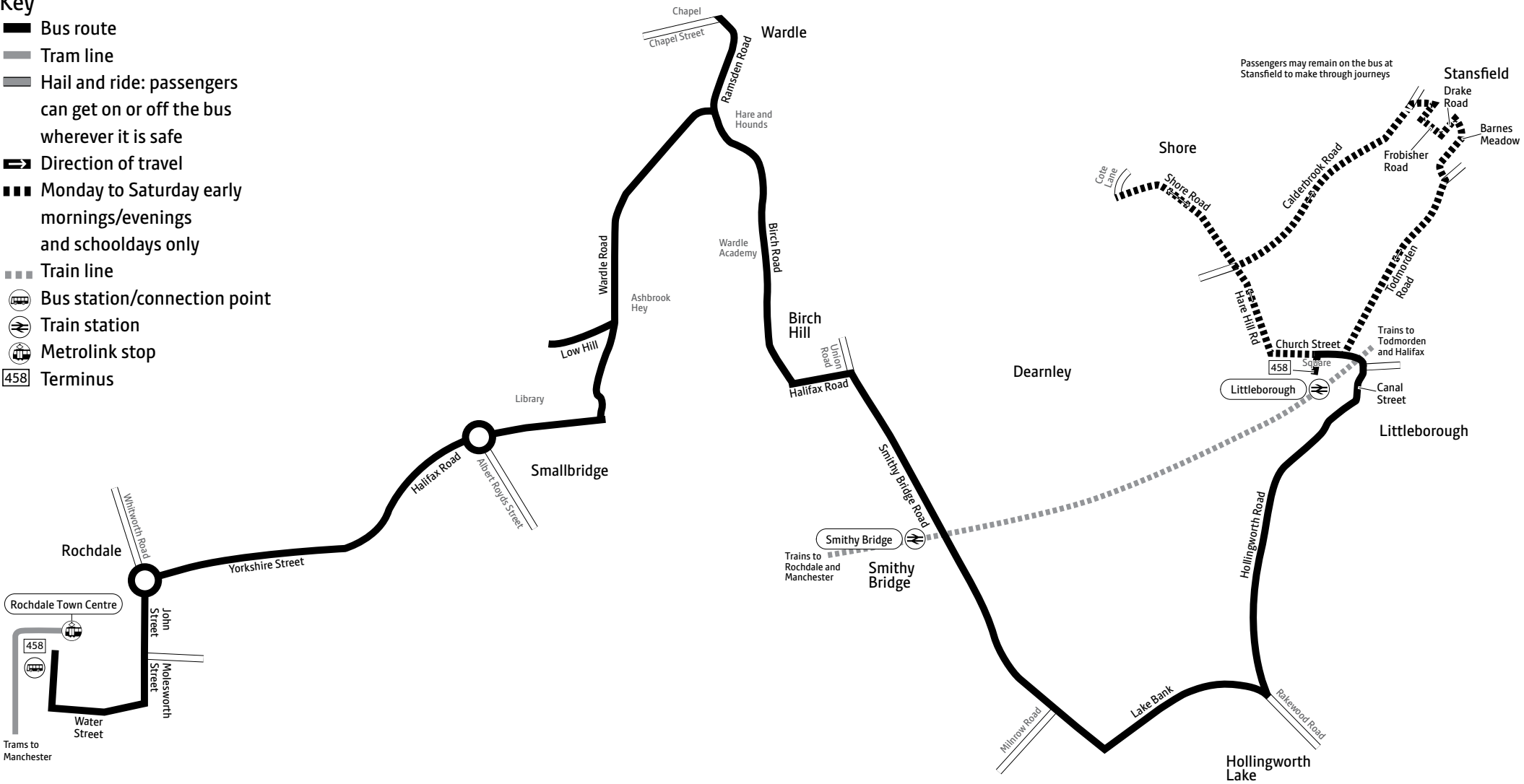
SD – Schooldays only

SH – School holidays only

 – All bus 458 journeys are run using easy access buses. See inside front cover of this leaflet for details

Continues after route plan

- Key
- Bus route
 - Tram line
 - Hail and ride: passengers can get on or off the bus wherever it is safe
 - Direction of travel
 - Monday to Saturday early mornings/evenings and schooldays only
 - Train line
 - Bus station/connection point
 - Train station
 - Metrolink stop
 - Terminus



Saturdays

Littleborough, Train Station	0715											
Shore, Cote Lane	0721											
Stansfield, Frobisher Road	0728											
Littleborough, Train Station	0735	0805	0835	0935		1705	1740	1840	1934	2034	2134	2234
Hollingworth Lake	0740	0810	0840	0940	and	1710	1745	1845	1938	2038	2138	2238
Smithy Bridge Rd/South View Rd	0744	0814	0844	0945	every	1715	1750	1850	1943	2043	2143	2243
Wardle Academy	0747	0817	0847	0947	30	1717	1752	1852	1945	2045	2145	2245
Wardle, Chapel	0750	0820	0850	0950	mins	1720	1755	1855	1947	2047	2147	2247
Low Hill	0755	0825	0855	0955	until	1725	1800	1900	1951	2051	2151	2251
Smallbridge, Library	0757	0827	0857	0957		1727	1802	1902	1953	2053	2153	2253
Rochdale, Interchange	0805	0835	0905	1003		1733	1808	1908	2000	2100	2200	2300

Sundays and public holidays (except Christmas and New Year period)

	☞	☞
Littleborough, Train Station	0834	2234
Hollingsworth Lake	0838	2238
Smithy Bridge Rd/South View Rd	0843 and	2243
Wardle Academy	0845 every	2245
Wardle, Chapel	0847 hour	2247
Low Hill	0851 until	2251
Smallbridge, Library	0853	2253
Rochdale, Interchange	0900	2300

For details of buses during the Christmas and New Year period, please phone 0161 244 1000

nn – Journey provided with the financial support of Transport for Greater Manchester

Bus 458 is also provided with the financial support of Transport for Greater Manchester between Littleborough and Wardle

♿ – All bus 458 journeys are run using easy access buses. See inside front cover of this leaflet for details

Rochdale — Wardle — Hollingworth Lake — Littleborough

Including schoolday and early evening journey serving Shore and Stansfield

458

Mondays to Fridays

	🕒				SD		SH											🕒	🕒	🕒	🕒	🕒
Rochdale, Interchange	0755	0830	0903		1403	1433	1433	1503	1533	1603	1638	1708	1738	1800	1905	2005	2105	2205	2305			
Smallbridge, Library	0803	0838	0911	and	1411	1441	1441	1515	1545	1615	1650	1720	1750	1808	1911	2011	2111	2211	2311			
Low Hill	0805	0840	0913	every	1413	1443	1443	1518	1548	1618	1653	1723	1753	1810	1913	2013	2113	2213	2313			
Wardle, Chapel	0810	0845	0918	30	1418	1448	1448	1523	1553	1623	1658	1728	1758	1815	1918	2018	2118	2218	2318			
Wardle Academy	0813	0848	0921	mins	1421	1451	1451	1526	1556	1626	1701	1731	1801	1818	1921	2021	2121	2221				
Smithy Bridge Rd/South View Rd	0817	0852	0925	until	1425	1455	1455	1530	1600	1630	1705	1735	1805	1822	1924	2024	2124	2224				
Hollingworth Lake	0822	0857	0930		1430	1500	1500	1535	1605	1635	1710	1740	1810	1827	1928	2028	2128	2228				
Littleborough, Train Station	0830	0902	0935		1435	1505	1505	1540	1610	1640	1715	1745	1815	1832	1933	2033	2133	2233				
Shore, Cote Lane						1513												1838				
Stansfield, Frobisher Road						1521												1846				
Littleborough, Church Street						1530																
Littleborough, Train Station																		1853				

Saturdays

	🕒				🕒	🕒	🕒	🕒	🕒													
Rochdale, Interchange	0903		1803	1905	2005	2105	2205	2305														
Smallbridge, Library	0911	and	1811	1911	2011	2111	2211	2311														
Low Hill	0913	every	1813	1913	2013	2113	2213	2313														
Wardle, Chapel	0918	30	1818	1918	2018	2118	2218	2318														
Wardle Academy	0921	mins	1821	1921	2021	2121	2221															
Smithy Bridge Rd/South View Rd	0925	until	1825	1924	2024	2124	2224															
Hollingworth Lake	0930		1830	1928	2028	2128	2228															
Littleborough, Train Station	0935		1835	1933	2033	2133	2233															

🕒 – Journey provided with the financial support of Transport for Greater Manchester
 Bus 458 is also provided with the financial support of Transport for Greater Manchester between Wardle and Littleborough
 SD – Schooldays only
 SH – School holidays only
 ♿ – All bus 458 journeys are run using easy access buses. See inside front cover of this leaflet for details

Sundays and public holidays (except Christmas and New Year period)

							
Rochdale, Interchange	0903		1803	1905		2205	2305
Smallbridge, Library	0909		1809	1911		2211	2311
Low Hill	0911	and	1811	1913	and	2213	2313
Wardle, Chapel	0916	every	1816	1918	every	2218	2318
Wardle Academy	0919	hour	1819	1921	hour	2221	
Smithy Bridge Rd/South View Rd	0922	until	1822	1924	until	2224	
Hollingworth Lake	0926		1826	1928		2228	
Littleborough, Train Station	0931		1831	1933		2233	

For details of buses during the Christmas and New Year period, please phone 0161 244 1000

 – Journey provided with the financial support of Transport for Greater Manchester

Bus 458 is also provided with the financial support of Transport for Greater Manchester between Wardle and Littleborough

 – All bus 458 journeys are run using easy access buses. See inside front cover of this leaflet for details



From 24 April

R5

Route changed to run between Littleborough, Stubley, Smithy Bridge, Milnrow, Firgrove and Rochdale. Times are changed with all journeys now run by Rosso

Bus

R5



Easy access on all buses

Littleborough
Stubley
Smithy Bridge
Milnrow
Firgrove
Rochdale

From 24 April 2022

For public transport information
phone **0161 244 1000**

7am – 8pm Mon to Fri

8am – 8pm Sat, Sun & public holidays

This timetable is available online at
www.tfgm.com

Operated by
Rosso

Additional information

Alternative format

To ask for leaflets to be sent to you, or to request large print, Braille or recorded information phone 0161 244 1000 or visit www.tfgm.com

Easy access on buses



Journeys run with low floor buses have no steps at the entrance, making getting on and off easier. Where shown, low floor buses have a ramp for access and a dedicated space for wheelchairs and pushchairs inside the bus. The bus operator will always try to provide easy access services where these services are scheduled to run.

Using this timetable

Timetables show the direction of travel, bus numbers and the days of the week. Main stops on the route are listed on the left. Where no time is shown against a particular stop, the bus does not stop there on that journey. Check any letters which are shown in the timetable against the key at the bottom of the page.

Where to find information about service changes

www.tfgm.com

Bus station posters

Leaflets from outlets.

Tickets and information

Bus companies offer a range of tickets for use on their own buses. For travel on any service in the County, use System One tickets, including DaySaver. Travelshops provide tickets, information and journey planning advice on buses, trains and trams for work and pleasure.

Using the 24 hour clock

Times are shown in four figures. The first two are the hour and the last two are the minutes.

0753 is 53 minutes past 7am

1953 is 53 minutes past 7pm



Operator details

Rosso

Queensgate Depot

Colne Road

Burnley

BB10 1HH

Telephone 01706 390 520

email getintouch@rossobus.com

Travelshops

Rochdale Interchange

Mon to Fri 7am to to 5.30pm

Saturday 8.30am to 1.15pm and 2pm to 4pm

Sunday* Closed

*Including public holidays

R5

Key

Bus route

Hail and ride:
passengers can get on or off
the bus wherever it is safe

Train line

Tram line

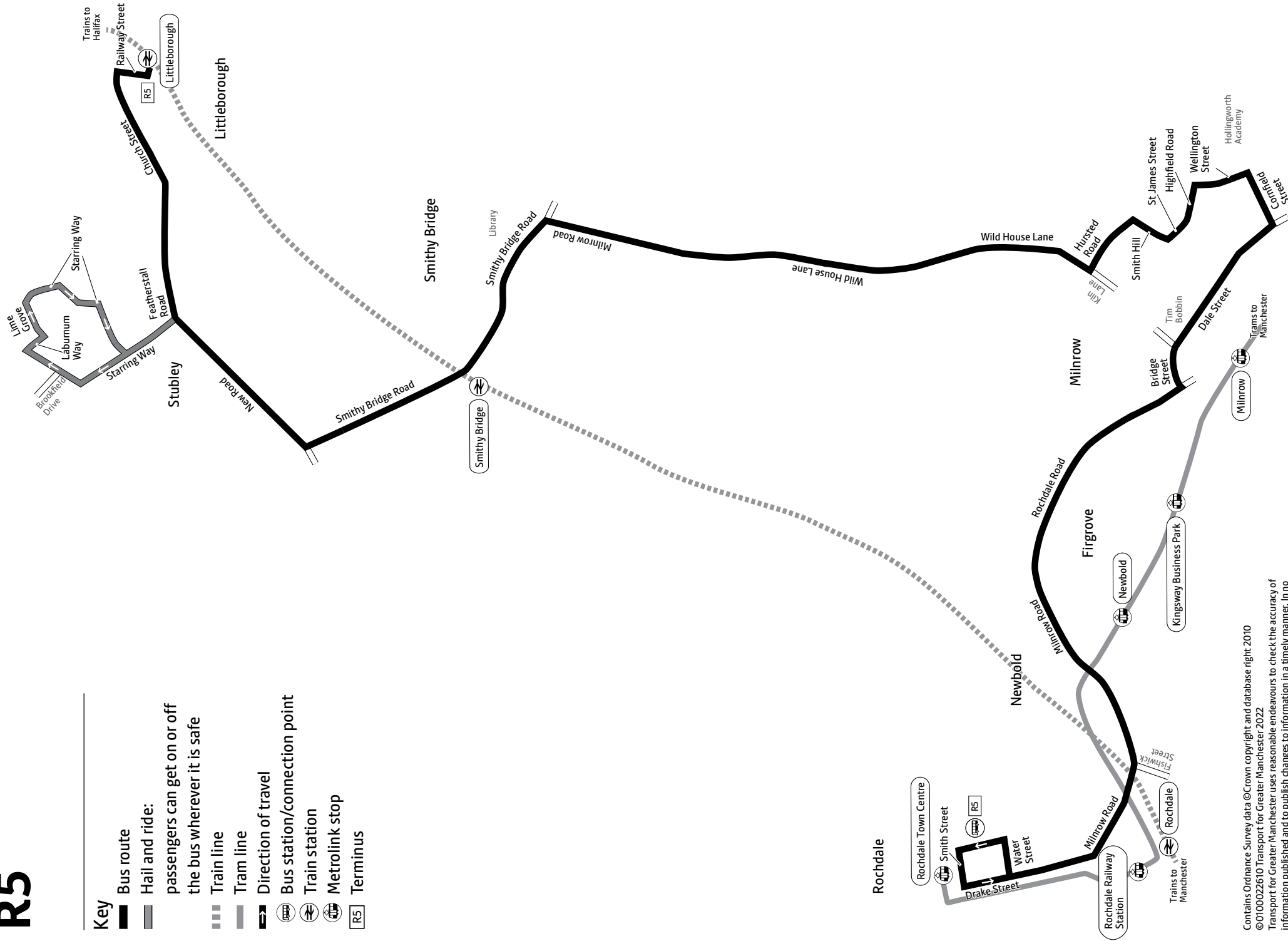
Direction of travel

Bus station/connection point

Train station

Metrolink stop

Terminus



Littleborough — Smithy Bridge — Milnrow — Rochdale

R5

Mondays to Fridays

	SH	SD				SH			
Littleborough, Train Station	0809		0835	0942		1442	1512	1647	1747 1847
Starring Way/Brookfield Drive	a		0841	0948	and	1448	1518	1653	1753 1853
Smithy Bridge, Library	0816		0846	0953	every	1453	1523	1658	1758 1858
Hollingworth Academy		0830			hour				
Milnrow, Tim Bobbin	0825	0834	0855	1002	until	1502	1532	1707	1807 1907
Rochdale, Interchange	0835	0844	0905	1012		1512	1542	1717	1817 1917

Saturdays

Littleborough, Train Station	0834	0942	and	1542	1647	1747	1847	
Starring Way/Brookfield Drive	0840	0948	every	1548	1653	1753	1853	
Smithy Bridge, Library	0845	0953	hour	1553	1658	1758	1858	
Milnrow, Tim Bobbin	0854	1002	until	1602	1707	1807	1907	
Rochdale, Interchange	0904	1012		1612	1717	1817	1917	

Bus R5 does not run on Sundays or public holidays

Bus R5 is provided with the financial support of Transport for Greater Manchester

a – Runs direct along Featherstall Road and New Road. Does not serve Starring Way, Laburnum Way or Lime Grove

SD – Schooldays only

SH – School holidays only

♿ – All bus R5 journeys are run using easy access buses. See inside front cover of this leaflet for details

Rochdale — Milnrow — Smithy Bridge — Littleborough

R5

Mondays to Fridays

	SH					SD		SH			
Rochdale, Interchange	0735	0805	0910		1410	1440	1440	1615	1715	1815	
Milnrow, Tim Bobbin	0745	0815	0920	and	1420	1450	1450	1625	1725	1825	
Hollingworth Academy				every		1455					
Smithy Bridge, Library	0753	0823	0928	hour	1428		1458	1633	1733	1833	
Starring Way/Brookfield Drive	a	0828	0933	until	1433		1503	1638	1738	1838	
Littleborough, Train Station	0759	0834	0939		1439		1509	1644	1744	1844	

Saturdays

Rochdale, Interchange	0805	0910	and	1510	1615	1715	1815				
Milnrow, Tim Bobbin	0815	0920	every	1520	1625	1725	1825				
Smithy Bridge, Library	0823	0928	hour	1528	1633	1733	1833				
Starring Way/Brookfield Drive	0828	0933	until	1533	1638	1738	1838				
Littleborough, Train Station	0834	0939		1539	1644	1744	1844				

Bus R5 does not run on Sundays or public holidays

Bus R5 is provided with the financial support of Transport for Greater Manchester

a – Runs direct along New Road and Featherstall Road. Does not serve Starring Way, Laburnum Way or Lime Grove

SD – Schooldays only

SH – School holidays only

♿ – All bus R5 journeys are run using easy access buses. See inside front cover of this leaflet for details



From 24 April

457

Evening, Sunday and public holiday
journeys are introduced

Buses

457 590



Easy access on all buses

Halifax
Mytholmroyd
Hebden Bridge
Todmorden
Stansfield
Shore
Littleborough
Smallbridge
Rochdale

From 24 April 2022

For public transport information
phone **0161 244 1000**

7am – 8pm Mon to Fri

8am – 8pm Sat, Sun & public holidays

This timetable is available online at
www.tfgm.com

Operated by
**First West Yorkshire
Rosso**

Additional information

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Easy access on buses



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Using the 24 hour clock

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0753 is 53 minutes past 7am

1953 is 53 minutes past 7pm



Operator details

First West Yorkshire

Hunslet Park

Donisthorpe Street

Leeds

LS10 1PL

Telephone 0113 381 5000

Rosso

Queensgate Depot

Colne Road

Burnley

BB10 1HH

Telephone 01706 390 520

email getintouch@rossobus.com

Travelshops

Rochdale Interchange

Mon to Fri 7am to 5.30pm

Saturday 8.30am to 1.15pm and 2pm to 4pm

Sunday* Closed

*Including public holidays

Littleborough — Stansfield — Smallbridge — Rochdale

Including early morning bus 458 journeys from Shore and Stansfield to Rochdale

457

Mondays to Fridays

	a	a									🕒	🕒
Littleborough, Train Station	0632a	0652a	0742	0840		1340	1440	1544	1644	1749	1908	2308
Shore, Cote Lane	0638	0658	0750	0848	and	1348	1448	1552	1652	1757	1914	2314
Stansfield, Frobisher Road	0645	0705	0759	0857	every	1357	1457	1601	1701	1806	1922	2322
Littleborough, Church Street	0652b	0712b	0809	0906	hour	1406	1507	1611	1711	1816	1931	2331
Smallbridge, Library	0714	0734	0817	0915	until	1415	1515	1619	1719	1824	1938	2338
Rochdale, Interchange	0722	0742	0825	0923		1423	1525	1629	1727	1832	1945	2345

Saturdays

	a					🕒		🕒
Littleborough, Train Station	0715	0810	0940		1740	1810	1908	2308
Shore, Cote Lane	0721	0818	0948	and	1748	1818	1914	2314
Stansfield, Frobisher Road	0728	0827	0957	every	1757	1827	1922	2322
Littleborough, Church Street	0735b	0836	1006	hour	1806	1836	1931	2331
Smallbridge, Library	0757	0845	1015	until	1815	1845	1938	2338
Rochdale, Interchange	0805	0853	1023		1823	1853	1945	2345

Sundays and public holidays (except Christmas and New Year period)

	🕒	🕒
Littleborough, Train Station	0908	2308
Shore, Cote Lane	0914	and 2314
Stansfield, Frobisher Road	0922	every 2322
Littleborough, Church Street	0931	hour 2331
Smallbridge, Library	0938	until 2338
Rochdale, Interchange	0945	2345

For details of buses during the Christmas and New Year period, please phone 0161 244 1000

🕒 – Journey provided with the financial support of Transport for Greater Manchester. Bus 457 is run by Rosso

a – Bus 458 running via Hollingworth Lake, Smithy Bridge and Wardle, not direct via Featherstall Road, New Road and Halifax Road.

b – Departs from the train station not Church Street

♿ – All bus 457 journeys are run using easy access buses. See inside front cover of this leaflet for details

Mondays to Fridays

Rochdale, Interchange	0725	0823		1323	1423	1523	1623	1728	1850		2250	
Smallbridge, Library	0733	0831	and	1331	1431	1535	1635	1740	1900	and	2300	
Littleborough, Train Station	0742	0840	every	1340	1440	1544	1644	1749	1908	every	2308	
Shore, Cote Lane	0750	0848	hour	1348	1448	1552	1652	1757	1914	hour	2314	
Stansfield, Frobisher Road	0759	0857	until	1357	1457	1601	1701	1806	1922	until	2322	
Littleborough, Church Street	0809	0906		1406	1507	1611	1711	1816	1931		2331	

Saturdays

Rochdale, Interchange	0753	0808	0923		1723	1850		2250				
Smallbridge, Library	0801	0816	0931	and	1731	1900	and	2300				
Littleborough, Train Station	0810	0825	0940	every	1740	1908	every	2308				
Shore, Cote Lane	0818		0948	hour	1748	1914	hour	2314				
Stansfield, Frobisher Road	0827		0957	until	1757	1922	until	2322				
Littleborough, Church Street	0836		1006		1806	1931		2331				

Sundays and public holidays (except Christmas and New Year period)

Rochdale, Interchange	0850		2250									
Smallbridge, Library	0900	and	2300									
Littleborough, Train Station	0908	every	2308									
Shore, Cote Lane	0914	hour	2314									
Stansfield, Frobisher Road	0922	until	2322									
Littleborough, Church Street	0931		2331									

For details of buses during the Christmas and New Year period, please phone 0161 244 1000

— Journey provided with the financial support of Transport for Greater Manchester

Bus 457 is run by Rosso

— All bus 457 journeys are run using easy access buses. See inside front cover of this leaflet for details

Mondays to Fridays

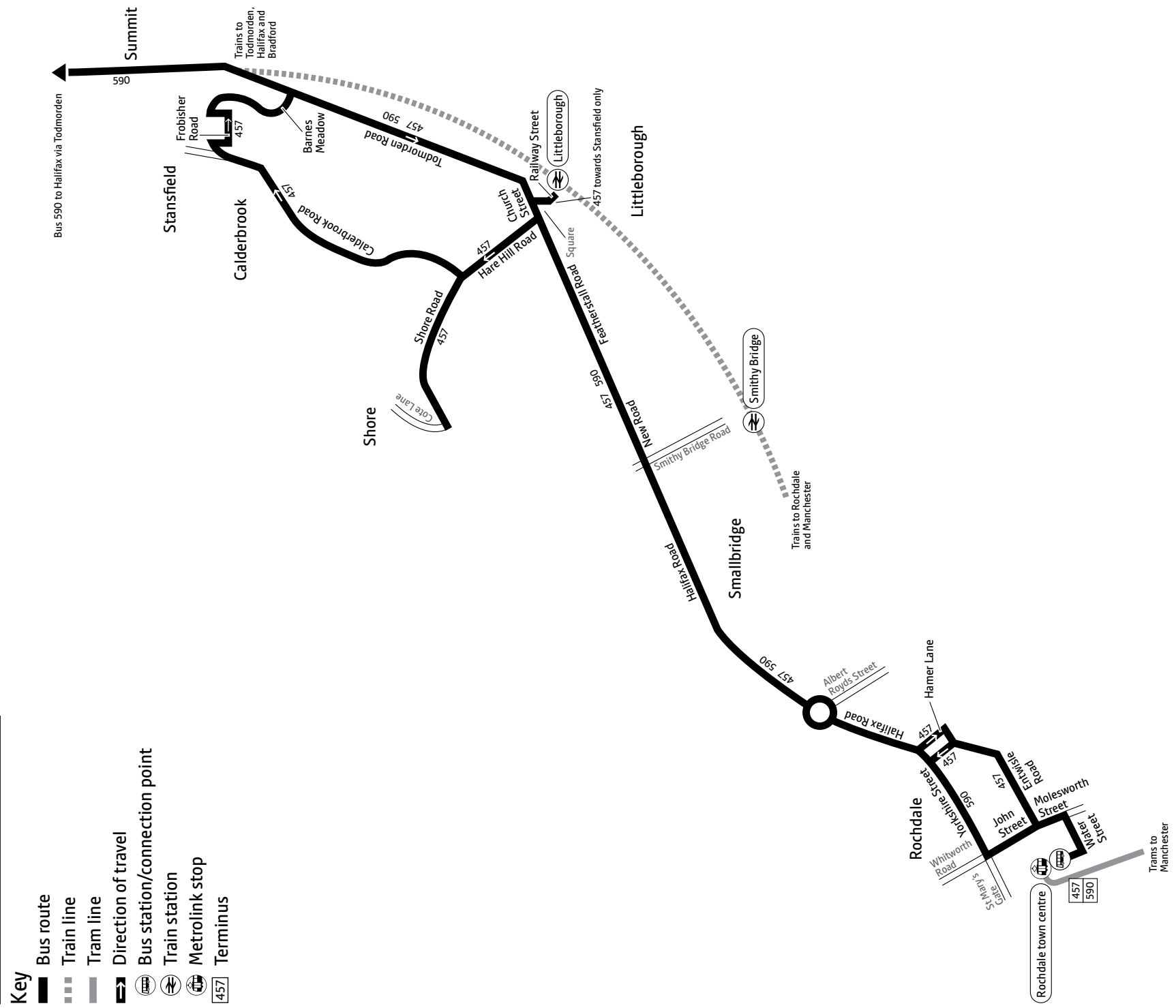
Halifax, Bus Station			0535	0550		0630	0700	0730	0800	0830	0900		1330	1400	1430	1500	1535	1605	1635
Tuel Lane Top			0547	0602		0645	0715	0745	0815	0845	0915		1345	1415	1447	1517	1552	1622	1652
Mytholmroyd, Burnley Road			0558	0613		0659	0731	0801	0831	0901	0929		1359	1429	1459	1529	1604	1634	1704
Hebden Bridge, New Road			0604	0619		0705	0737	0807	0837	0907	0935	and	1405	1435	1505	1535	1610	1640	1710
Eastwood			0609	0624		0712	0744	0814	0844	0914	0942	every	1412	1442	1512	1542	1617	1647	1717
Todmorden, Bus Station arr			0616	0632		0719	0751	0821	0851	0922	0950	30	1420	1452	1522	1552	1627	1657	1727
Todmorden, Bus Station dep	0500	0600	0624		0654	0724	0759	0827	0857	0927	0955	mins	1425	1457	1527	1557	1632	1702	1732
Walsden, Waggon and Horses	0508	0608	0633		0702	0733	0808	0836	0906	0936	1004	until	1434	1507	1537	1607	1642	1712	1742
Littleborough, Church Street	0518	0618	0645		0712	0745	0820	0848	0918	0948	1016		1446	1519	1549	1619	1654	1724	1754
Smallbridge, Library	0525	0625	0654		0719	0754	0829	0857	0927	0957	1025		1455	1528	1558	1628	1703	1733	1803
Rochdale, Interchange	0535	0635	0702		0729	0802	0837	0905	0935	1005	1033		1503	1536	1606	1636	1711	1741	1811

Halifax, Bus Station	1705	1740	1855	1950	2050	2150													
Tuel Lane Top	1722	1757	1904	2002	2102	2202													
Mytholmroyd, Burnley Road	1734	1809	1915	2013	2113	2213													
Hebden Bridge, New Road	1740	1815	1921	2019	2119	2219													
Eastwood	1747	1821	1927	2024	2124	2224													
Todmorden, Bus Station arr	1757	1828	1934	2031	2131	2231													
Todmorden, Bus Station dep	1802	1833	1939	2036	2136	2236													
Walsden, Waggon and Horses	1812	1843	1949	2046	2146	2246													
Littleborough, Church Street	1824	1855	2001	2058	2158	2258													
Smallbridge, Library	1832	1903	2009	2106	2206	2306													
Rochdale, Interchange	1840	1911	2017	2114	2214	2314													

Bus 590 is run by First West Yorkshire

♿ – All bus 590 journeys are run using easy access buses. See inside front cover of this leaflet for details

457 590



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Transport for Greater Manchester uses reasonable endeavours to check the accuracy of information published and to publish changes to information in a timely manner. In no event will Transport for Greater Manchester be liable for any loss that may arise from this information being inaccurate.

Saturdays

Halifax, Bus Station			0650		0750	0840	0900		1500	1535	1605	1635	1705	1740	1855	1950	2050	2150
Tuel Lane Top			0702		0802	0855	0915		1515	1550	1620	1650	1720	1755	1907	2002	2102	2202
Mytholmroyd, Burnley Road			0713		0813	0909	0929		1529	1604	1634	1704	1734	1809	1918	2013	2113	2213
Hebden Bridge, New Road			0719		0819	0915	0935	and	1535	1610	1640	1710	1740	1815	1924	2019	2119	2219
Eastwood			0724		0824	0922	0942	every	1542	1617	1647	1717	1747	1821	1930	2024	2124	2224
Todmorden, Bus Station arr			0731		0831	0930	0950	30	1550	1625	1655	1725	1755	1828	1937	2031	2131	2231
Todmorden, Bus Station dep	0540	0645	0739	0825	0836	0930	0955	mins	1555	1630	1700	1730	1800	1833	1942	2036	2136	2236
Walsden, Waggon and Horses	0548	0653	0749	0834	0845	0939	1004	until	1604	1639	1709	1739	1810	1843	1952	2046	2146	2246
Littleborough, Church Street	0558	0703	0801	0846	0857	0951	1016		1616	1651	1721	1751	1822	1855	2004	2058	2158	2258
Smallbridge, Library	0605	0710	0809	0855	0906	1000	1025		1625	1700	1730	1800	1830	1903	2012	2106	2206	2306
Rochdale, Interchange	0615	0720	0817	0903	0914	1008	1033		1633	1708	1738	1808	1838	1911	2020	2114	2214	2314

Sundays and public holidays (except Christmas and New Year period)

Halifax, Bus Station			0850	0950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	
Tuel Lane Top			0902	1002	1102	1202	1302	1402	1502	1602	1702	1802	1902	2002	2102	2202	
Mytholmroyd, Burnley Road			0913	1013	1113	1213	1313	1413	1513	1613	1713	1813	1913	2013	2113	2213	
Hebden Bridge, New Road			0919	1019	1119	1219	1319	1419	1519	1619	1719	1819	1919	2019	2119	2219	
Eastwood			0926	1026	1126	1226	1326	1426	1526	1626	1726	1826	1926	2026	2126	2226	
Todmorden, Bus Station arr			0934	1034	1134	1234	1334	1434	1534	1634	1734	1834	1934	2034	2134	2234	
Todmorden, Bus Station dep	0740	0840	0940	1040	1140	1240	1340	1440	1540	1640	1740	1834	1939	2039	2139	2239	
Walsden, Waggon and Horses	0748	0850	0950	1050	1150	1250	1350	1450	1550	1650	1750	1844	1949	2049	2149	2249	
Littleborough, Church Street	0758	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1854	1959	2059	2159	2259	
Smallbridge, Library	0803	0905	1005	1105	1205	1305	1405	1505	1605	1705	1805	1859	2004	2104	2204	2304	
Rochdale, Interchange	0810	0915	1015	1115	1215	1315	1415	1515	1615	1715	1815	1909	2014	2114	2214	2314	

For details of buses during the Christmas and New Year period, please phone 0161 244 1000

Bus 590 is run by First West Yorkshire

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Mondays to Fridays

Rochdale, Interchange	0543	0643	0713	0743	0813	0843	0913		1313	1343		1643	1718	1748	1818	1848	1920
Smallbridge, Library	0548	0648	0720	0750	0820	0850	0920		1320	1350		1650	1725	1755	1825	1855	1927
Littleborough, Church Street	0558	0658	0730	0800	0830	0900	0930		1330	1400		1700	1735	1805	1838	1905	1937
Walsden, Cricket Ground	0608	0708	0740	0810	0840	0910	0943	and	1343	1413	and	1713	1748	1818	1851	1918	1950
Todmorden, Bus Station arr	0618	0718	0750	0820	0850	0920	0953	every	1353	1423	every	1723	1758	1828	1906	1928	2005
Todmorden, Bus Station dep	0630	0700	0725	0757	0825	0855	0925	30	1358	1428	30	1728	1803	1833	1913	1933	2005
Eastwood	0637	0708	0733	0805	0833	0903	0933	mins	1406	1436	mins	1736	1810	1840	1920	1940	2012
Hebden Bridge, New Road	0649	0717	0742	0814	0842	0912	0944	until	1417	1448	until	1748	1822	1852	1932	1950	2022
Mytholmroyd, Burnley Road	0653	0721	0746	0818	0846	0916	0948	1021	1421	1455		1755	1826	1856	1936	1954	2026
Whitty Lane	0707	0741	0806	0838	0906	0936	1003	1036	1436	1510		1810	1840	1910	1950	2002	2034
Halifax, Bus Station	0722	0756	0821	0853	0921	0951	1018	1051	1451	1525		1826	1856	1926	2005	2012	2044
Rochdale, Interchange	2025	2120	2220	2320													
Smallbridge, Library	2030	2125	2225	2325													
Littleborough, Church Street	2037	2132	2232	2332													
Walsden, Cricket Ground	2050	2145	2245	2345													
Todmorden, Bus Station arr	2100	2155	2255	2355													
Todmorden, Bus Station dep	2105	2200	2300														
Eastwood	2112	2207	2307														
Hebden Bridge, New Road	2122	2217	2317														
Mytholmroyd, Burnley Road	2126	2221	2321														
Whitty Lane	2134	2229	2329														
Halifax, Bus Station	2144	2239	2339														

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Saturdays

Rochdale, Interchange	0520	0620	0720	0820	0913		1613	1643	1718	1748	1818	1848	1920	2025	2120	2220
Smallbridge, Library	0525	0625	0725	0825	0920		1620	1650	1725	1755	1825	1855	1927	2036	2125	2225
Littleborough, Church Street	0532	0632	0732	0832	0930		1630	1700	1735	1805	1835	1905	1937	2037	2132	2232
Walsden, Cricket Ground	0545	0645	0745	0845	0943	and	1643	1713	1748	1818	1848	1918	1950	2050	2145	2245
Todmorden, Bus Station arr	0555	0655	0800	0855	0953	every	1653	1723	1758	1828	1858	1928	2000	2100	2155	2255
Todmorden, Bus Station dep	0600	0700	0800	0905	0958	30	1658		1813		1903	1933	2005	2105	2200	2300
Eastwood	0607	0707	0807	0913	1006	mins	1706		1820		1910	1940	2012	2112	2207	2307
Hebden Bridge, New Road	0617	0717	0817	0924	1017	until	1717		1832		1922	1950	2022	2122	2217	2317
Mytholmroyd, Burnley Road	0621	0721	0821	0928	1021		1721		1836		1926	1954	2026	2126	2221	2321
Whitty Lane	0629	0729	0829	0943	1036		1736		1850		1940	2002	2034	2134	2229	2329
Halifax, Bus Station	0639	0739	0839	0958	1051		1751		1906		1955	2012	2044	2144	2239	2339

Sundays and public holidays (except Christmas and New Year period)

Rochdale, Interchange	0820	0920	1020	1120	1220	1320	1420	1520	1620	1720	1820	1920	2020	2120	2220	2315
Smallbridge, Library	0825	0925	1025	1125	1225	1325	1425	1525	1625	1725	1825	1925	2025	2125	2225	2320
Littleborough, Church Street	0832	0932	1032	1132	1232	1332	1432	1532	1632	1732	1832	1932	2032	2132	2232	2327
Walsden, Cricket Ground	0845	0945	1045	1145	1245	1345	1445	1545	1645	1745	1845	1945	2045	2145	2245	2337
Todmorden, Bus Station arr	0855	0955	1055	1155	1255	1355	1455	1555	1655	1755	1855	1955	2055	2155	2255	2347
Todmorden, Bus Station dep	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2347
Eastwood	0907	1007	1107	1207	1307	1407	1507	1607	1707	1807	1907	2007	2107	2207	2307	2352
Hebden Bridge, New Road	0917	1017	1117	1217	1317	1417	1517	1617	1717	1817	1917	2017	2117	2217	2317	0002
Mytholmroyd, Burnley Road	0922	1022	1122	1222	1322	1422	1522	1622	1722	1822	1922	2022	2122	2222	2322	
Whitty Lane	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330	
Halifax, Bus Station	0943	1043	1143	1243	1343	1443	1543	1643	1743	1843	1943	2043	2143	2243	2340	

For details of buses during the Christmas and New Year period, please phone 0161 244 1000

Bus 590 is run by First West Yorkshire

♿ – All bus 590 journeys are run using easy access buses. See inside front cover of this leaflet for details



From 24 July

587

Times of Monday to Friday morning journeys at 0625 from Rochdale and 0730 from Halifax are changed. All journeys are now run by Team Pennine

Bus

587



Easy access on all buses

Halifax
King Cross
Sowerby Bridge
Triangle
Kebroyd
Ripponden
Littleborough
Smallbridge
Rochdale

From 24 July 2022

For public transport information
phone **0161 244 1000**

7am – 8pm Mon to Fri

8am – 8pm Sat, Sun & public holidays

This timetable is available online at
www.tfgm.com

Operated by
Team Pennine

Additional information

Alternative format

To ask for leaflets to be sent to you, or to request large print, Braille or recorded information phone 0161 244 1000 or visit www.tfgm.com

Easy access on buses



Journeys run with low floor buses have no steps at the entrance, making getting on and off easier. Where shown, low floor buses have a ramp for access and a dedicated space for wheelchairs and pushchairs inside the bus. The bus operator will always try to provide easy access services where these services are scheduled to run.

Using this timetable

Timetables show the direction of travel, bus numbers and the days of the week. Main stops on the route are listed on the left. Where no time is shown against a particular stop, the bus does not stop there on that journey. Check any letters which are shown in the timetable against the key at the bottom of the page.

Where to find information about service changes

www.tfgm.com

Bus station posters

Leaflets from outlets.

Tickets and information

Bus companies offer a range of tickets for use on their own buses. For travel on any service in the County, use System One tickets, including DaySaver. Travelshops provide tickets, information and journey planning advice on buses, trains and trams for work and pleasure.

Using the 24 hour clock

Times are shown in four figures. The first two are the hour and the last two are the minutes.

0753 is 53 minutes past 7am

1953 is 53 minutes past 7pm



Operator details

Team Pennine

Unit G10 Lowfields Business Park

Elland

West Yorkshire

HX5 9HD

Telephone 01535 603284

Email talk@teampennine.co.uk

Travelshops

Rochdale Interchange

Mon to Fri 7am to 5.30pm

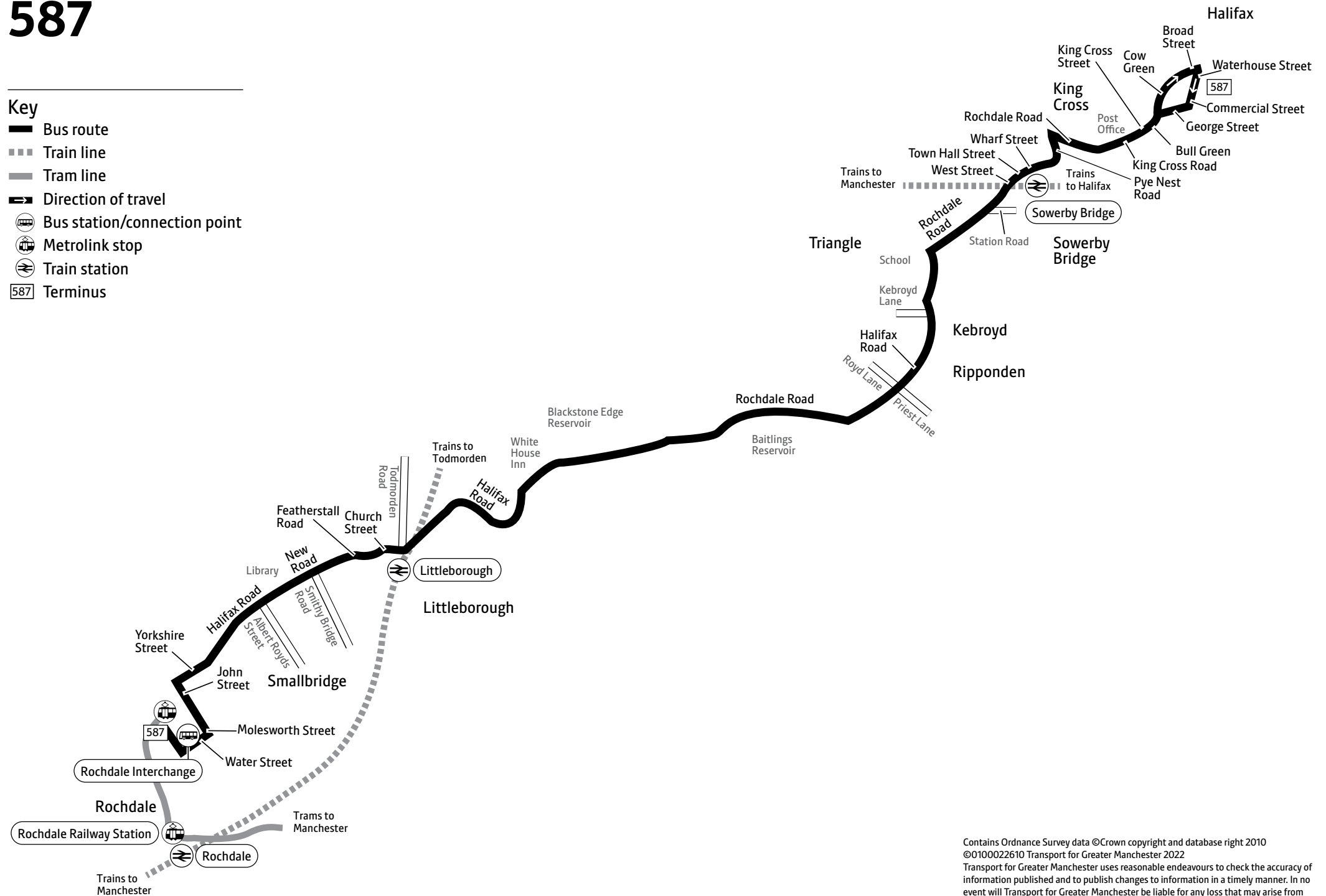
Saturday 8.30am to 1.15pm and 2pm to 4pm

Sunday* Closed

*Including public holidays

Key

-  Bus route
-  Train line
-  Tram line
-  Direction of travel
-  Bus station/connection point
-  Metrolink stop
-  Train station
-  Terminus



Mondays to Fridays

Halifax, Waterhouse Street	0620	0735	0850		1350	1455	1600	1710	1825
King Cross	0625	0740	0857		1357	1502	1607	1717	1832
Sowerby Bridge, Station Road	0633	0748	0905	and	1405	1510	1615	1725	1840
Ripponden, Halifax Road	0640	0756	0913	every	1413	1518	1623	1733	1848
White House Inn	0650	0806	0923	hour	1423	1528	1633	1743	1858
Littleborough, Church Street	0656	0813	0930	until	1430	1535	1640	1750	1905
Smallbridge, Library	0702	0820	0937		1437	1542	1647	1757	1912
Rochdale, Interchange	0709	0830	0947		1447	1552	1657	1807	1922

Saturdays

Halifax, Waterhouse Street	0730	0850		1350	1455	1600	1710		
King Cross	0737	0857		1357	1502	1607	1717		
Sowerby Bridge, Station Road	0745	0905	and	1405	1510	1615	1725		
Ripponden, Halifax Road	0753	0913	every	1413	1518	1623	1733		
White House Inn	0803	0923	hour	1423	1528	1633	1743		
Littleborough, Church Street	0810	0930	until	1430	1535	1640	1750		
Smallbridge, Library	0817	0937		1437	1542	1647	1757		
Rochdale, Interchange	0827	0947		1447	1552	1657	1807		

Sundays and public holidays (except Christmas and New Year period)

Halifax, Waterhouse Street	0925	1125	1420	1620
King Cross	0932	1132	1427	1627
Sowerby Bridge, Station Road	0940	1140	1435	1635
Ripponden, Halifax Road	0946	1146	1441	1641
White House Inn	0955	1155	1450	1650
Littleborough, Church Street	1000	1200	1455	1655
Smallbridge, Library	1007	1207	1502	1702
Rochdale, Interchange	1016	1216	1511	1711

For details of buses during the Christmas and New Year period, please phone 0161 244 1000

♿ – All bus 587 journeys are run using easy access buses. See inside front cover of this leaflet for details

Mondays to Fridays

Rochdale, Interchange	0630	0725	0845	0955	1055	1155	1255	1400	1500	1600	1710	1830	1930
Smallbridge, Library	0636	0733	0853	1003	1103	1203	1303	1408	1508	1608	1718	1838	1937
Littleborough, Church Street	0643	0740	0900	1010	1110	1210	1310	1415	1515	1615	1725	1845	1943
White House Inn	0650	0747	0907	1017	1117	1217	1317	1422	1522	1622	1732	1852	1949
Ripponden, Royd Lane	0702	0757	0917	1027	1127	1227	1327	1432	1532	1632	1742	1901	2001
Sowerby Bridge, Station Road	0712	0805	0925	1035	1135	1235	1335	1440	1540	1640	1750	1909	2007
King Cross	0720	0811	0931	1041	1141	1241	1341	1446	1546	1646	1756	1915	2013
Halifax, Waterhouse Street	0730	0821	0941	1051	1151	1251	1351	1456	1556	1656	1806	1925	2021

Saturdays

Rochdale, Interchange	0845	0955	1055	1155	1255	1400	1500	1600	1710	1824			
Smallbridge, Library	0853	1003	1103	1203	1303	1408	1508	1608	1718	1831			
Littleborough, Church Street	0900	1010	1110	1210	1310	1415	1515	1615	1725	1837			
White House Inn	0907	1017	1117	1217	1317	1422	1522	1622	1732	1843			
Ripponden, Royd Lane	0917	1027	1127	1227	1327	1432	1532	1632	1742	1855			
Sowerby Bridge, Station Road	0925	1035	1135	1235	1335	1440	1540	1640	1750	1901			
King Cross	0931	1041	1141	1241	1341	1446	1546	1646	1756	1907			
Halifax, Waterhouse Street	0941	1051	1151	1251	1351	1456	1556	1656	1806	1917			

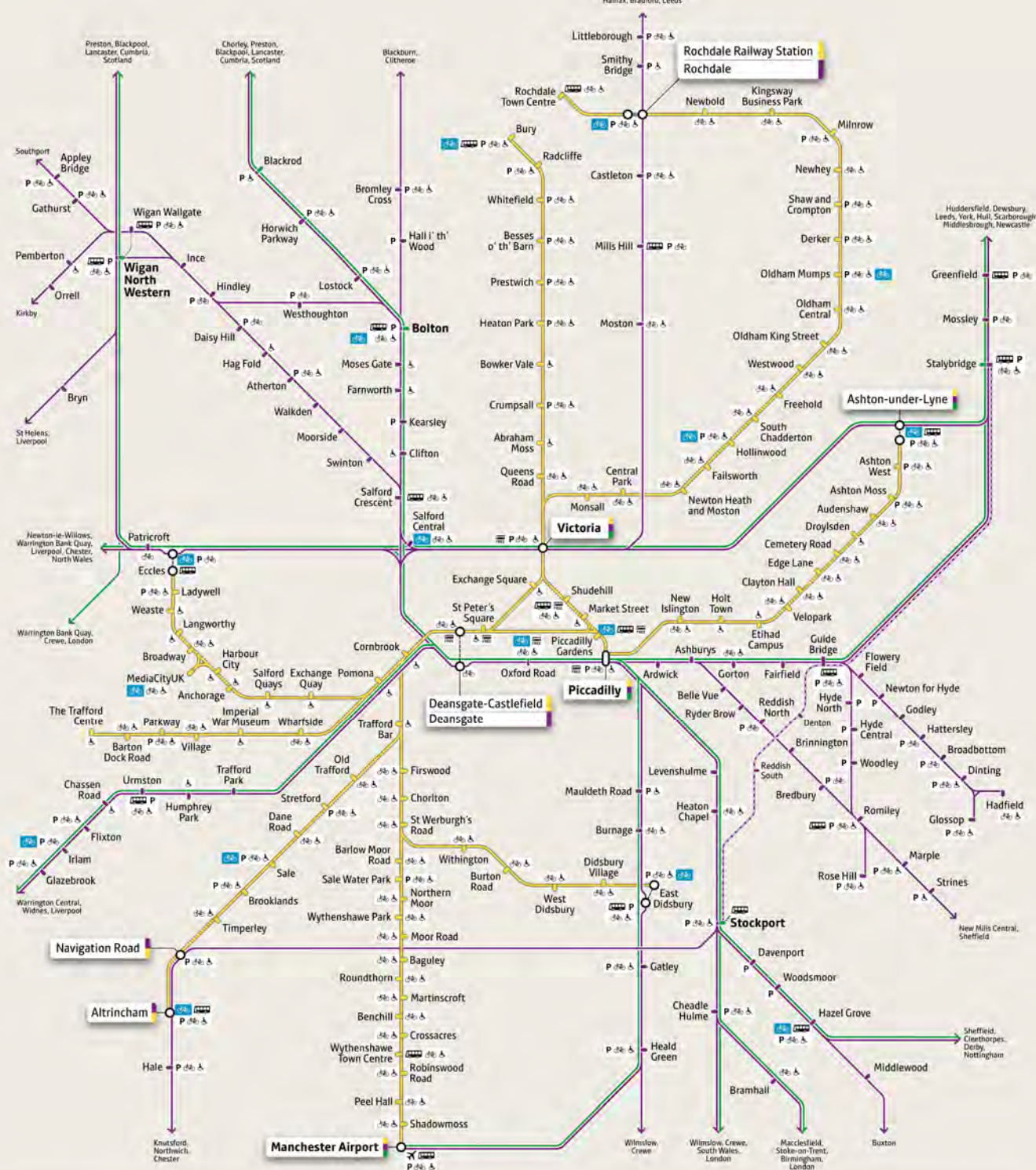
Sundays and public holidays (except Christmas and New Year period)

Rochdale, Interchange	1022	1222	1517	1717									
Smallbridge, Library	1029	1229	1524	1724									
Littleborough, Church Street	1036	1236	1531	1731									
White House Inn	1042	1242	1537	1737									
Ripponden, Royd Lane	1051	1254	1549	1749									
Sowerby Bridge, Station Road	1058	1258	1553	1753									
King Cross	1106	1306	1601	1801									
Halifax, Waterhouse Street	1116	1316	1611	1811									

For details of buses during the Christmas and New Year period, please phone 0161 244 1000

♿ – All bus 587 journeys are run using easy access buses. See inside front cover of this leaflet for details

APPENDIX H.Greater Manchester Rail Map



- Metrolink and stop
- Northern
- Limited service (one train per week)
- Rail/Metrolink interchange
- Other trains:
 - Avanti West Coast
 - Cross Country
 - East Midlands Railway
 - TransPennine Express
- Major bus interchange
- Interchange with free bus
- Parking available
- Cycle parking or storage available
- Within easy walking distance
- Station or stop with step-free access to all platforms

National Rail Enquiries
 08457 48 49 50
 @nationalrailenq

APPENDIX I. TRICS Outputs

Calculation Reference: AUDIT-236602-170620-0625

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED
MULTI-MODAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	WS WEST SUSSEX	1 days
03	SOUTH WEST	
	DV DEVON	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NE NORTH EAST LINCOLNSHIRE	1 days
	NY NORTH YORKSHIRE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
 Actual Range: 108 to 432 (units:)
 Range Selected by User: 100 to 491 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/09 to 25/09/15

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Thursday	2 days
Friday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	3
Edge of Town	2

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	3
No Sub Category	2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3	5 days
----	--------

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000	1 days
10,001 to 15,000	3 days
20,001 to 25,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	2 days
50,001 to 75,000	1 days
75,001 to 100,000	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	4 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	4 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	5 days
-----------------	--------

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	DV-03-A-02	HOUSES & BUNGALOWS	DEVON
	MILLHEAD ROAD		
	HONITON		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	116	
	Survey date: FRIDAY	25/09/15	Survey Type: MANUAL
2	NE-03-A-02	SEMI DETACHED & DETACHED	NORTH EAST LINCOLNSHIRE
	HANOVER WALK		
	SCUNTHORPE		
	Edge of Town		
	No Sub Category		
	Total Number of dwellings:	432	
	Survey date: MONDAY	12/05/14	Survey Type: MANUAL
3	NY-03-A-06	BUNGALOWS & SEMI DET.	NORTH YORKSHIRE
	HORSEFAIR		
	BOROUGHBRIDGE		
	Suburban Area (PPS6 Out of Centre)		
	Residential Zone		
	Total Number of dwellings:	115	
	Survey date: FRIDAY	14/10/11	Survey Type: MANUAL
4	SH-03-A-04	TERRACED	SHROPSHIRE
	ST MICHAEL'S STREET		
	SHREWSBURY		
	Suburban Area (PPS6 Out of Centre)		
	No Sub Category		
	Total Number of dwellings:	108	
	Survey date: THURSDAY	11/06/09	Survey Type: MANUAL
5	WS-03-A-04	MIXED HOUSES	WEST SUSSEX
	HILLS FARM LANE		
	BROADBRIDGE HEATH		
	HORSHAM		
	Edge of Town		
	Residential Zone		
	Total Number of dwellings:	151	
	Survey date: THURSDAY	11/12/14	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	184	0.049	5	184	0.233	5	184	0.282
08:00 - 09:00	5	184	0.113	5	184	0.345	5	184	0.458
09:00 - 10:00	5	184	0.142	5	184	0.137	5	184	0.279
10:00 - 11:00	5	184	0.144	5	184	0.179	5	184	0.323
11:00 - 12:00	5	184	0.123	5	184	0.145	5	184	0.268
12:00 - 13:00	5	184	0.158	5	184	0.157	5	184	0.315
13:00 - 14:00	5	184	0.152	5	184	0.132	5	184	0.284
14:00 - 15:00	5	184	0.154	5	184	0.182	5	184	0.336
15:00 - 16:00	5	184	0.254	5	184	0.195	5	184	0.449
16:00 - 17:00	5	184	0.256	5	184	0.161	5	184	0.417
17:00 - 18:00	5	184	0.302	5	184	0.181	5	184	0.483
18:00 - 19:00	5	184	0.220	5	184	0.175	5	184	0.395
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.067			2.222			4.289

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	108 - 432 (units:)
Survey date range:	01/01/09 - 25/09/15
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL TAXIS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	184	0.001	5	184	0.001	5	184	0.002
08:00 - 09:00	5	184	0.002	5	184	0.002	5	184	0.004
09:00 - 10:00	5	184	0.002	5	184	0.002	5	184	0.004
10:00 - 11:00	5	184	0.002	5	184	0.002	5	184	0.004
11:00 - 12:00	5	184	0.000	5	184	0.000	5	184	0.000
12:00 - 13:00	5	184	0.000	5	184	0.000	5	184	0.000
13:00 - 14:00	5	184	0.000	5	184	0.000	5	184	0.000
14:00 - 15:00	5	184	0.001	5	184	0.000	5	184	0.001
15:00 - 16:00	5	184	0.007	5	184	0.007	5	184	0.014
16:00 - 17:00	5	184	0.001	5	184	0.002	5	184	0.003
17:00 - 18:00	5	184	0.000	5	184	0.000	5	184	0.000
18:00 - 19:00	5	184	0.001	5	184	0.000	5	184	0.001
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.017			0.016			0.033

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	108 - 432 (units:)
Survey date range:	01/01/09 - 25/09/15
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL OGVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	184	0.000	5	184	0.000	5	184	0.000
08:00 - 09:00	5	184	0.000	5	184	0.000	5	184	0.000
09:00 - 10:00	5	184	0.001	5	184	0.000	5	184	0.001
10:00 - 11:00	5	184	0.003	5	184	0.003	5	184	0.006
11:00 - 12:00	5	184	0.000	5	184	0.001	5	184	0.001
12:00 - 13:00	5	184	0.003	5	184	0.001	5	184	0.004
13:00 - 14:00	5	184	0.001	5	184	0.002	5	184	0.003
14:00 - 15:00	5	184	0.002	5	184	0.004	5	184	0.006
15:00 - 16:00	5	184	0.001	5	184	0.001	5	184	0.002
16:00 - 17:00	5	184	0.002	5	184	0.000	5	184	0.002
17:00 - 18:00	5	184	0.000	5	184	0.000	5	184	0.000
18:00 - 19:00	5	184	0.000	5	184	0.000	5	184	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.013			0.012			0.025

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	108 - 432 (units:)
Survey date range:	01/01/09 - 25/09/15
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PSVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	184	0.000	5	184	0.000	5	184	0.000
08:00 - 09:00	5	184	0.000	5	184	0.000	5	184	0.000
09:00 - 10:00	5	184	0.000	5	184	0.000	5	184	0.000
10:00 - 11:00	5	184	0.000	5	184	0.000	5	184	0.000
11:00 - 12:00	5	184	0.000	5	184	0.000	5	184	0.000
12:00 - 13:00	5	184	0.000	5	184	0.000	5	184	0.000
13:00 - 14:00	5	184	0.000	5	184	0.000	5	184	0.000
14:00 - 15:00	5	184	0.000	5	184	0.000	5	184	0.000
15:00 - 16:00	5	184	0.000	5	184	0.000	5	184	0.000
16:00 - 17:00	5	184	0.000	5	184	0.000	5	184	0.000
17:00 - 18:00	5	184	0.000	5	184	0.000	5	184	0.000
18:00 - 19:00	5	184	0.000	5	184	0.000	5	184	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	108 - 432 (units:)
Survey date range:	01/01/09 - 25/09/15
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL CYCLISTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	184	0.003	5	184	0.005	5	184	0.008
08:00 - 09:00	5	184	0.002	5	184	0.005	5	184	0.007
09:00 - 10:00	5	184	0.000	5	184	0.001	5	184	0.001
10:00 - 11:00	5	184	0.003	5	184	0.007	5	184	0.010
11:00 - 12:00	5	184	0.003	5	184	0.001	5	184	0.004
12:00 - 13:00	5	184	0.004	5	184	0.002	5	184	0.006
13:00 - 14:00	5	184	0.002	5	184	0.002	5	184	0.004
14:00 - 15:00	5	184	0.002	5	184	0.001	5	184	0.003
15:00 - 16:00	5	184	0.001	5	184	0.003	5	184	0.004
16:00 - 17:00	5	184	0.001	5	184	0.004	5	184	0.005
17:00 - 18:00	5	184	0.008	5	184	0.007	5	184	0.015
18:00 - 19:00	5	184	0.002	5	184	0.001	5	184	0.003
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.031			0.039			0.070

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	108 - 432 (units:)
Survey date range:	01/01/09 - 25/09/15
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL VEHICLE OCCUPANTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	184	0.056	5	184	0.270	5	184	0.326
08:00 - 09:00	5	184	0.130	5	184	0.466	5	184	0.596
09:00 - 10:00	5	184	0.165	5	184	0.176	5	184	0.341
10:00 - 11:00	5	184	0.172	5	184	0.231	5	184	0.403
11:00 - 12:00	5	184	0.145	5	184	0.196	5	184	0.341
12:00 - 13:00	5	184	0.192	5	184	0.194	5	184	0.386
13:00 - 14:00	5	184	0.193	5	184	0.167	5	184	0.360
14:00 - 15:00	5	184	0.193	5	184	0.235	5	184	0.428
15:00 - 16:00	5	184	0.383	5	184	0.238	5	184	0.621
16:00 - 17:00	5	184	0.374	5	184	0.218	5	184	0.592
17:00 - 18:00	5	184	0.379	5	184	0.232	5	184	0.611
18:00 - 19:00	5	184	0.272	5	184	0.244	5	184	0.516
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.654			2.867			5.521

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	108 - 432 (units:)
Survey date range:	01/01/09 - 25/09/15
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PEDESTRIANS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	184	0.024	5	184	0.046	5	184	0.070
08:00 - 09:00	5	184	0.015	5	184	0.069	5	184	0.084
09:00 - 10:00	5	184	0.039	5	184	0.046	5	184	0.085
10:00 - 11:00	5	184	0.060	5	184	0.041	5	184	0.101
11:00 - 12:00	5	184	0.022	5	184	0.024	5	184	0.046
12:00 - 13:00	5	184	0.029	5	184	0.025	5	184	0.054
13:00 - 14:00	5	184	0.025	5	184	0.042	5	184	0.067
14:00 - 15:00	5	184	0.053	5	184	0.055	5	184	0.108
15:00 - 16:00	5	184	0.073	5	184	0.052	5	184	0.125
16:00 - 17:00	5	184	0.073	5	184	0.026	5	184	0.099
17:00 - 18:00	5	184	0.057	5	184	0.033	5	184	0.090
18:00 - 19:00	5	184	0.039	5	184	0.038	5	184	0.077
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.509			0.497			1.006

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	108 - 432 (units:)
Survey date range:	01/01/09 - 25/09/15
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL BUS/TRAM PASSENGERS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	184	0.000	5	184	0.003	5	184	0.003
08:00 - 09:00	5	184	0.001	5	184	0.003	5	184	0.004
09:00 - 10:00	5	184	0.001	5	184	0.002	5	184	0.003
10:00 - 11:00	5	184	0.001	5	184	0.002	5	184	0.003
11:00 - 12:00	5	184	0.002	5	184	0.001	5	184	0.003
12:00 - 13:00	5	184	0.002	5	184	0.000	5	184	0.002
13:00 - 14:00	5	184	0.001	5	184	0.001	5	184	0.002
14:00 - 15:00	5	184	0.000	5	184	0.001	5	184	0.001
15:00 - 16:00	5	184	0.003	5	184	0.002	5	184	0.005
16:00 - 17:00	5	184	0.003	5	184	0.004	5	184	0.007
17:00 - 18:00	5	184	0.005	5	184	0.001	5	184	0.006
18:00 - 19:00	5	184	0.002	5	184	0.000	5	184	0.002
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.021			0.020			0.041

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected: 108 - 432 (units:)
 Survey date range: 01/01/09 - 25/09/15
 Number of weekdays (Monday-Friday): 5
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 0
 Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL TOTAL RAIL PASSENGERS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	184	0.000	5	184	0.002	5	184	0.002
08:00 - 09:00	5	184	0.000	5	184	0.001	5	184	0.001
09:00 - 10:00	5	184	0.000	5	184	0.001	5	184	0.001
10:00 - 11:00	5	184	0.000	5	184	0.001	5	184	0.001
11:00 - 12:00	5	184	0.000	5	184	0.000	5	184	0.000
12:00 - 13:00	5	184	0.000	5	184	0.000	5	184	0.000
13:00 - 14:00	5	184	0.000	5	184	0.000	5	184	0.000
14:00 - 15:00	5	184	0.000	5	184	0.000	5	184	0.000
15:00 - 16:00	5	184	0.000	5	184	0.003	5	184	0.003
16:00 - 17:00	5	184	0.000	5	184	0.000	5	184	0.000
17:00 - 18:00	5	184	0.003	5	184	0.000	5	184	0.003
18:00 - 19:00	5	184	0.003	5	184	0.000	5	184	0.003
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.006			0.008			0.014

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected: 108 - 432 (units:)
 Survey date range: 01/01/09 - 25/09/15
 Number of weekdays (Monday-Friday): 5
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 0
 Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL COACH PASSENGERS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	184	0.000	5	184	0.000	5	184	0.000
08:00 - 09:00	5	184	0.000	5	184	0.000	5	184	0.000
09:00 - 10:00	5	184	0.000	5	184	0.000	5	184	0.000
10:00 - 11:00	5	184	0.000	5	184	0.000	5	184	0.000
11:00 - 12:00	5	184	0.000	5	184	0.000	5	184	0.000
12:00 - 13:00	5	184	0.000	5	184	0.000	5	184	0.000
13:00 - 14:00	5	184	0.000	5	184	0.000	5	184	0.000
14:00 - 15:00	5	184	0.000	5	184	0.000	5	184	0.000
15:00 - 16:00	5	184	0.000	5	184	0.000	5	184	0.000
16:00 - 17:00	5	184	0.000	5	184	0.000	5	184	0.000
17:00 - 18:00	5	184	0.000	5	184	0.000	5	184	0.000
18:00 - 19:00	5	184	0.000	5	184	0.000	5	184	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.000			0.000			0.000

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected: 108 - 432 (units:)
 Survey date range: 01/01/09 - 25/09/15
 Number of weekdays (Monday-Friday): 5
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 0
 Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
MULTI-MODAL PUBLIC TRANSPORT USERS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	184	0.000	5	184	0.005	5	184	0.005
08:00 - 09:00	5	184	0.001	5	184	0.004	5	184	0.005
09:00 - 10:00	5	184	0.001	5	184	0.003	5	184	0.004
10:00 - 11:00	5	184	0.001	5	184	0.003	5	184	0.004
11:00 - 12:00	5	184	0.002	5	184	0.001	5	184	0.003
12:00 - 13:00	5	184	0.002	5	184	0.000	5	184	0.002
13:00 - 14:00	5	184	0.001	5	184	0.001	5	184	0.002
14:00 - 15:00	5	184	0.000	5	184	0.001	5	184	0.001
15:00 - 16:00	5	184	0.003	5	184	0.005	5	184	0.008
16:00 - 17:00	5	184	0.003	5	184	0.004	5	184	0.007
17:00 - 18:00	5	184	0.009	5	184	0.001	5	184	0.010
18:00 - 19:00	5	184	0.005	5	184	0.000	5	184	0.005
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.028			0.028			0.056

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected: 108 - 432 (units:)
 Survey date range: 01/01/09 - 25/09/15
 Number of weekdays (Monday-Friday): 5
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 0
 Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL TOTAL PEOPLE

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	184	0.084	5	184	0.326	5	184	0.410
08:00 - 09:00	5	184	0.149	5	184	0.546	5	184	0.695
09:00 - 10:00	5	184	0.205	5	184	0.226	5	184	0.431
10:00 - 11:00	5	184	0.236	5	184	0.282	5	184	0.518
11:00 - 12:00	5	184	0.172	5	184	0.222	5	184	0.394
12:00 - 13:00	5	184	0.228	5	184	0.221	5	184	0.449
13:00 - 14:00	5	184	0.221	5	184	0.213	5	184	0.434
14:00 - 15:00	5	184	0.248	5	184	0.293	5	184	0.541
15:00 - 16:00	5	184	0.460	5	184	0.298	5	184	0.758
16:00 - 17:00	5	184	0.451	5	184	0.253	5	184	0.704
17:00 - 18:00	5	184	0.452	5	184	0.272	5	184	0.724
18:00 - 19:00	5	184	0.319	5	184	0.283	5	184	0.602
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.225			3.435			6.660

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

Parameter summary

Trip rate parameter range selected:	108 - 432 (units:)
Survey date range:	01/01/09 - 25/09/15
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

APPENDIX J. TEMPro Journey Purpose and Census Journey to Work Distribution Data

TEMPro Journey Purpose Data

Area Description	Time Period	HB Work		HB Employers Business		HB Education		HB Shopping		HB Personal Business		HB Recreation/Social		HB Visiting Friends and Relatives		HB Holiday/Day Trip		Total	
Name		Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Rochdale 003	AM	921	364	125	50	159	105	171	121	94	60	47	20	21	18	31	16	1,569	754
	PM	308	703	50	104	50	71	194	249	99	121	110	101	133	154	33	43	977	1546
	Average AM	643		88		132		146		77		34		20		24		1162	
	AM Proportion	55%		8%		11%		13%		7%		3%		2%		2%			
	Average PM	506		77		61		222		110		106		144		38		1262	
	PM Proportion	40%		6%		5%		18%		9%		8%		11%		3%			

Area Description	Time Period	HB Work		HB Employers Business		HB Education		HB Shopping		HB Personal Business		HB Recreation/Social		HB Visiting Friends and Relatives		HB Holiday/Day Trip		Total	
Name		Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Rochdale 004	AM	507	511	63	70	171	281	112	72	71	137	24	12	17	19	13	5	978	1107
	PM	427	424	59	55	102	67	158	168	156	139	82	64	139	143	15	21	1138	1081
	Average AM	509		67		226		92		104		18		18		9		1043	
	AM Proportion	49%		6%		22%		9%		10%		2%		2%		1%			
	Average PM	426		57		85		163		148		73		141		18		1110	
	PM Proportion	38%		5%		8%		15%		13%		7%		13%		2%			

Area Description	Time Period	HB Work		HB Employers Business		HB Education		HB Shopping		HB Personal Business		HB Recreation/Social		HB Visiting Friends and Relatives		HB Holiday/Day Trip		Total	
Name		Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
Rochdale 003 & 004 Combined	AM	1,428	875	188	120	330	386	283	193	165	197	71	32	38	37	44	21	2,547	1861
	PM	735	1,127	109	159	152	138	352	417	255	260	192	165	272	297	48	64	2115	2627
	Average AM	1152		154		358		238		181		52		38		33		2204	
	AM Proportion	52%		7%		16%		11%		8%		2%		2%		1%			
	Average PM	931		134		145		385		258		179		285		56		2371	
	PM Proportion	39%		6%		6%		16%		11%		8%		12%		2%			

Journey Purpose	AM	PM
HB Work	52.2%	39.3%
HB Employers Business	7.0%	5.7%
HB Education	16.2%	6.1%
HB Shopping	10.8%	16.2%
HB Personal Business	8.2%	10.9%
HB Recreation/Social	2.3%	7.5%
HB Visiting Friends and Relatives	1.7%	12.0%
HB Holiday/Day Trip	1.5%	2.4%
Total	100.0%	100.0%

place of work	Usual Residence	Rochdale 03 and 04 MSOA used		
E02001132 : Rochdale 001	182	5.67%		
E02001133 : Rochdale 002	18	0.56%		
E02001134 : Rochdale 003	118	3.67%		
E02001135 : Rochdale 004	104	3.24%		
E02001136 : Rochdale 005	84	2.62%		
E02001137 : Rochdale 006	3	0.09%		
E02001138 : Rochdale 007	14	0.44%		
E02001139 : Rochdale 008	142	4.42%		
E02001140 : Rochdale 009	63	1.96%		
E02001141 : Rochdale 010	405	12.61%		
E02001142 : Rochdale 011	6	0.19%		
E02001143 : Rochdale 012	97	3.02%		
E02001144 : Rochdale 013	67	2.09%	1.04%	1.04%
E02001145 : Rochdale 014	28	0.87%	0.44%	0.44%
E02001146 : Rochdale 015	72	2.24%		
E02001147 : Rochdale 016	32	1.00%	0.50%	0.50%
E02001148 : Rochdale 017	71	2.21%		
E02001149 : Rochdale 018	57	1.77%	0.89%	0.89%
E02001150 : Rochdale 019	19	0.59%	0.30%	0.30%
E02001151 : Rochdale 020	71	2.21%	1.11%	1.11%
E02001152 : Rochdale 021	43	1.34%	0.67%	0.67%
E02001153 : Rochdale 022	7	0.22%	0.11%	0.11%
E02001154 : Rochdale 023	9	0.28%	0.14%	0.14%
E02001155 : Rochdale 024	51	1.59%	0.79%	0.79%
E02001156 : Rochdale 025	2	0.06%	0.03%	0.03%
Oldham	361	11.24%	5.62%	5.62%
Manchester	204	6.35%		
Bury	159	4.95%	2.48%	2.48%
Calderdale	98	3.05%		
Salford	90	2.80%		
Trafford	64	1.99%		
Rossendale	52	1.62%		
Tameside	44	1.37%		
Bolton	38	1.18%		
Stockport	38	1.18%		
Kirklees	26	0.81%		
Bradford	23	0.72%		
Leeds	23	0.72%		
Wigan	21	0.65%		
Warrington	12	0.37%		
Hyndburn	11	0.34%	0.17%	0.17%
Blackburn with Darwen	10	0.31%	0.16%	0.16%
Burnley	10	0.31%	0.16%	0.16%
Preston	10	0.31%		
Cheshire East	9	0.28%		
Cheshire West and Chester	8	0.25%		
St. Helens	8	0.25%		
Ribble Valley	7	0.22%	0.11%	0.11%
Pendle	5	0.16%	0.08%	0.08%
Wakefield	5	0.16%		
Birmingham	5	0.16%		
Liverpool	4	0.12%		
Stafford	4	0.12%		
Chorley	3	0.09%		
South Ribble	3	0.09%		
West Lancashire	3	0.09%		
Knowsley	3	0.09%		
Sheffield	3	0.09%		
Westminster,City of London	3	0.09%		
Flintshire	3	0.09%		
Halton	2	0.06%		
Carlisle	2	0.06%		
South Lakeland	2	0.06%		
Fylde	2	0.06%		
Lancaster	2	0.06%		
Harrogate	2	0.06%		
Selby	2	0.06%		
High Peak	2	0.06%		
Blaby	2	0.06%		
Charnwood	2	0.06%		
Northampton	2	0.06%		
Stoke-on-Trent	2	0.06%		
Lichfield	2	0.06%		
Coventry	2	0.06%		
Broxbourne	2	0.06%		
Tower Hamlets	2	0.06%		
Bracknell Forest	2	0.06%		
Milton Keynes	2	0.06%		
Cherwell	2	0.06%		
Darlington	1	0.03%		
Northumberland	1	0.03%		
Newcastle upon Tyne	1	0.03%		
Copeland	1	0.03%		
Wyre	1	0.03%		
Sefton	1	0.03%		
Craven	1	0.03%		
Barnsley	1	0.03%		
Rotherham	1	0.03%		
Nottingham	1	0.03%		
Amber Valley	1	0.03%		
Bolsover	1	0.03%		
Derbyshire Dales	1	0.03%		
Lincoln	1	0.03%		
Daventry	1	0.03%		
Bassetlaw	1	0.03%		
Broxtowe	1	0.03%		
Mansfield	1	0.03%		
Telford and Wrekin	1	0.03%		
Stratford-on-Avon	1	0.03%		
Sandwell	1	0.03%		
Walsall	1	0.03%		
Three Rivers	1	0.03%		
South Norfolk	1	0.03%		
Forest Heath	1	0.03%		
Mid Suffolk	1	0.03%		
St Edmundsbury	1	0.03%		
Suffolk Coastal	1	0.03%		

Routes		
A58 East	9.1%	
A58 West	49.4%	
Smithy Bridge Road (south)	3.7%	
Birch Road	0.6%	
Wildhouse Lane	2.0%	
M62	35.3%	
	100.0%	
	AM	PM
Split to Journey Purpose Proportions		
A58 East	59.2%	44.9%
A58 West	5.4%	4.1%
Smithy Bridge Road (south)	29.3%	22.2%
Birch Road	2.2%	1.7%
Wildhouse Lane	0.3%	0.3%
M62	1.2%	0.9%
	35.3%	15.9%

Census Data

Bexley	1	0.03%
Croydon	1	0.03%
Haringey	1	0.03%
Hillingdon	1	0.03%
Aylesbury Vale	1	0.03%
Hart	1	0.03%
Surrey Heath	1	0.03%
Mid Sussex	1	0.03%
Wiltshire	1	0.03%
South Hams	1	0.03%
West Somerset	1	0.03%
	3212	100.00%

Journey Purpose Facilities and Routing

		AM			PM		
HB Work		52.2%			39.3%		
HB Employers Business		7.0%			5.7%		
HB Education		16.2%			6.1%		
Primary School	50%	8.1%			3.1%		
St Andrews CofE Primary	50.00%	4.1%			1.5%		
Smithy Bridge Foundation Primary	50.00%	4.1%			1.5%		
Secondary School	50%	8.1%			3.1%		
Wardle Academy	90%	7.3%			2.8%		
schools in Rochdale	10%	0.8%			0.3%		
HB Shopping		10.8%			16.2%		
Food	50%	5.4%			8.1%		
Rochdale Town Centre	50.00%	2.7%			4.1%		
Littlebrough Town Centre	20%	1.1%			1.6%		
Milnrow	30%	1.6%			2.4%		
Non-Food	50%	5.4%			8.1%		
Rochdale Town Centre	50.00%	2.7%			4.1%		
Littlebrough Town Centre	20%	1.1%			1.6%		
Manchester	30%	1.6%	0.8%	0.8%	2.4%	1.2%	1.2%
Leisure		13.7%			32.7%		
Smithy Bridge	20.00%	2.7%			6.5%		
Rochdale Town Centre	50.00%	6.9%			16.4%		
Manchester	30%	4.1%	2.1%	2.1%	9.8%	4.9%	4.9%

	AM	PM
A58 East	2.2%	3.2%
A58 West	15.9%	30.9%
Smithy Bridge Road (south)	6.8%	8.1%
Birch Road	7.3%	2.8%
Wildhouse Lane	1.6%	2.4%
M62	2.9%	6.1%
Union Road	4.1%	1.5%
	40.8%	55.1%

	Proportion - Journey Purposes					
	Census Data		Facilities in Area		Total	
	HB Work & Employers Business		Other Journey Purposes			
	AM	PM	AM	PM	AM	PM
A58 East	5.4%	4.1%	2.2%	3.2%	7.5%	7.3%
A58 West	29.3%	22.2%	15.9%	30.9%	45.2%	53.1%
Smithy Bridge Road (south)	2.2%	1.7%	6.8%	8.1%	9.0%	9.7%
Birch Road	0.3%	0.3%	7.3%	2.8%	7.6%	3.0%
Wildhouse Lane	1.2%	0.9%	1.6%	2.4%	2.8%	3.3%
M62	20.9%	15.9%	2.9%	6.1%	23.8%	22.0%
Union Road	0.0%	0.0%	4.1%	1.5%	4.1%	1.5%
					100%	100%

APPENDIX K. Walk, Cycle, Bus and Rail Trip Distribution and Generation

Appendix K

Trip Rate Param: Number of dwellings

199 Dwelling

TRICS 7.4.4

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

Calculation Factor: 1 DWELLS

Count Type: TOTAL PEOPLE

Time Range	ARRIVALS				DEPARTURES				TOTALS			
	No. Days	Ave. DWELLS	Trip Rate		No. Days	Ave. DWELLS	Trip Rate		No. Days	Ave. DWELLS	Trip Rate	
00:00-01:00												
01:00-02:00												
02:00-03:00												
03:00-04:00												
04:00-05:00												
05:00-06:00												
06:00-07:00												
07:00-08:00	5	184	0.084	17	5	184	0.326	65	5	184	0.41	82
08:00-09:00	5	184	0.149	30	5	184	0.546	109	5	184	0.695	138
09:00-10:00	5	184	0.205	41	5	184	0.226	45	5	184	0.431	86
10:00-11:00	5	184	0.236	47	5	184	0.282	56	5	184	0.518	103
11:00-12:00	5	184	0.172	34	5	184	0.222	44	5	184	0.394	78
12:00-13:00	5	184	0.228	45	5	184	0.221	44	5	184	0.449	89
13:00-14:00	5	184	0.221	44	5	184	0.213	42	5	184	0.434	86
14:00-15:00	5	184	0.248	49	5	184	0.293	58	5	184	0.541	108
15:00-16:00	5	184	0.46	92	5	184	0.298	59	5	184	0.758	151
16:00-17:00	5	184	0.451	90	5	184	0.253	50	5	184	0.704	140
17:00-18:00	5	184	0.452	90	5	184	0.272	54	5	184	0.724	144
18:00-19:00	5	184	0.319	63	5	184	0.283	56	5	184	0.602	120
19:00-20:00												
20:00-21:00												
21:00-22:00												
22:00-23:00												
23:00-24:00												
Daily Trip Rates:			3.225				3.435				6.66	

Nomis Modal Split - Rochdale 003 & 004

		AM		PM	
		Arr	Dep	Arr	Dep
Method of Travel to work	% Modal Split	30	109	90	54
Work mainly at or from home	0%	0	0	0	0
Underground, metro, light rail or tram	0%	0	0	0	0
Train	4%	1	5	4	2
Bus, minibus or coach	7%	2	7	6	4
Taxi	2%	1	2	2	1
Motorcycle, scooter or moped	1%	0	1	1	0
Driving a car or van	68%	20	74	62	37
Passenger in a car or van	7%	2	8	6	4
Bicycle	1%	0	1	1	1
On foot	9%	3	10	8	5
Other method of travel to work	0%	0	0	0	0
Total	100%	30	109	90	54

Non-Car Modes

21%

Motorised vehicles (drivers and passengers)

78% broadly comparable with TRICS mode split used in vehicles trip rates.

TEMPro Journey Purpose for each mode (Rochdale 003 & 004 Combined)

Journey Purpose	Walk		Cycle		Bus		Rail	
	AM	PM	AM	PM	AM	PM	AM	PM
HB Work	11%	17%	52%	38%	28%	30%	62%	47%
HB Employers Business	1%	1%	2%	3%	1%	2%	9%	9%
HB Education	70%	23%	29%	5%	51%	14%	19%	5%
HB Shopping	9%	21%	6%	11%	9%	18%	4%	10%
HB Personal Business	7%	14%	4%	5%	7%	10%	3%	6%
HB Recreation/Social	1%	8%	1%	8%	2%	9%	2%	8%
HB Visiting Friends and Relat	1%	16%	1%	14%	1%	15%	0%	10%
HB Holiday/Day Trip	0%	0%	6%	17%	0%	2%	1%	6%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Journey Purpose	Walk		Cycle		Bus		Rail	
	AM	PM	AM	PM	AM	PM	AM	PM
HB Work	1	2	1	1	3	3	4	3
HB Employers Business	0	0	0	0	0	0	1	1
HB Education	9	3	0	0	5	1	1	0
HB Shopping	1	3	0	0	1	2	0	1
HB Personal Business	1	2	0	0	1	1	0	0
HB Recreation/Social	0	1	0	0	0	1	0	1
HB Visiting Friends and Relat	0	2	0	0	0	1	0	1
HB Holiday/Day Trip	0	0	0	0	0	0	0	0
Total	13	13	1	2	9	10	6	6

Total People Journey Purpose Split - Non-Car Modes					Walking		Cycling		Bus		Rail	
					AM	PM	AM	PM	AM	PM	AM	PM
HB Work					1	2	1	1	3	3	4	3
HB Employers Business					0	0	0	0	0	0	1	1
Work and Business	W	C	B	R	2	2	1	1	3	3	4	4
Business Parks in Littleborough	30%	10%	20%		0	1	0	0	1	1	0	0
Business Parks in Howarth Cross	30%	10%			0	1	0	0	0	0	0	0
Rochdale via A58	10%	50%	70%		0	0	0	0	2	2	0	0
Rochdale via Wildhouse Lane		20%			0	0	0	0	0	0	0	0
Smithy Bridge	30%	10%	10%		0	1	0	0	0	0	0	0
Towards Manchester				75%	0	0	0	0	0	0	3	3
Towards Leeds				25%	0	0			0	0	1	1
HB Education					9	3	0	0	5	1	1	0
Primary School	50%	50%	0%	0%	4	2	0	0	0	0	0	0
St Andrews CofE Primary	50%	50%			2	1	0	0	0	0	0	0
Smithy Bridge Foundation Primary	50%	50%			2	1	0	0	0	0	0	0
Secondary School	50%	50%	100%	100%	4	2	0	0	5	1	1	0
Wardle Academy	75%	50%	50%		3	1	0	0	2	1	0	0
Rochdale via A58	25%	25%	50%	50%	1	0	0	0	2	1	1	0
Towards Manchester		25%		50%	0	0	0	0	0	0	1	0
HB Shopping					1	3	0	0	1	2	0	1
Food	50%	50%	50%	50%	1	1	0	0	0	1	0	0
Spar and Texaco	15%	5%			0	0	0	0	0	0	0	0
Top Shop Lake Supermarket	15%	5%			0	0	0	0	0	0	0	0
Premier, Smithy Bridge	15%	10%			0	0	0	0	0	0	0	0
Premier, Halifax Road	15%	10%			0	0	0	0	0	0	0	0
Post Office/Local Shops on New Road	15%	5%			0	0	0	0	0	0	0	0
Coulmans Newsagents, Small Bridge	15%	5%			0	0	0	0	0	0	0	0
Littleborough Food Stores (co-op, sainsburys local)	10%	25%	30%		0	0	0	0	0	0	0	0
Rochdale via A58		25%	70%	100%	0	0	0	0	0	1	0	0
Rochdale via Wildhouse Lane		10%			0	0	0	0	0	0	0	0
Non-Food	50%	50%	50%	50%	1	1	0	0	0	1	0	0
Local Shops on New Road	33%	15%			0	0	0	0	0	0	0	0
Local Shops in Smithy Bridge	33%	15%			0	0	0	0	0	0	0	0
Local Shops in Littleborough	33%	20%	30%		0	0	0	0	0	0	0	0
Rochdale via A58		40%	70%		0	0	0	0	0	1	0	0
Towards Manchester				100%	0	0	0	0	0	0	0	0
Rochdale via Wildhouse Lane		10%			0	0	0	0	0	0	0	0
Leisure					1	5	0	1	1	3	0	2
Smithy Bridge Library	25%	10%	10%		0	1	0	0	0	0	0	0
Hollingswoth Lake Park/Activity Centre	25%	10%	10%		0	1	0	0	0	0	0	0
Soccer Village		15%			0	0	0	0	0	0	0	0
Littleborough Library	25%	5%	10%		0	1	0	0	0	0	0	0
Littleborough- Various Sports Clubs	25%	10%	10%		0	1	0	0	0	0	0	0
Rochdale via A58		40%	60%		0	0	0	0	1	2	0	0
Rochdale via Wildhouse Lane		10%			0	0	0	0	0	0	0	0
Towards Manchester				85%	0	0	0	0	0	0	0	2
Towards Leeds				15%	0	0	0	0	0	0	0	0

Total People - non car modes		
AM	PM	
10	12	Past/To Railway Station
19	19	Not Past Railway Station
30	31	total

APPENDIX L. Future Year Junction Capacity Assessment Outputs

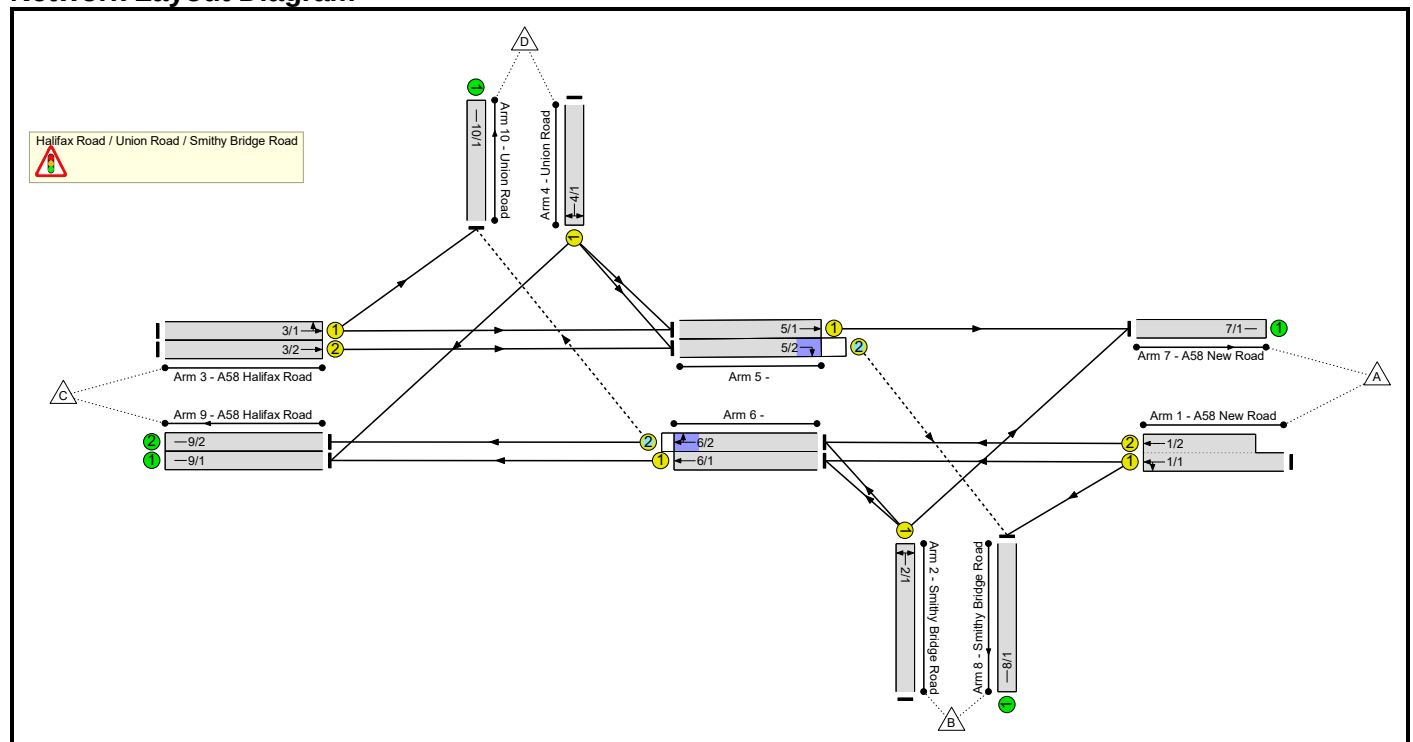
Full Input Data And Results

Full Input Data And Results

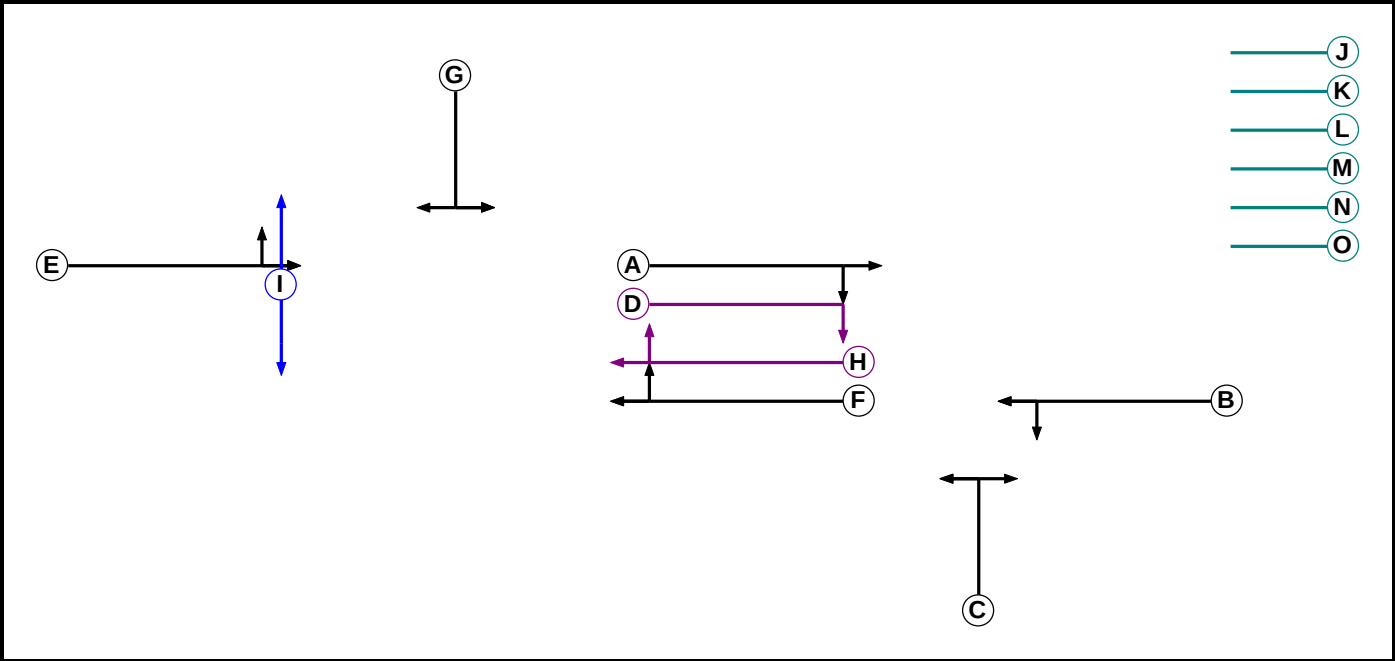
User and Project Details

Project:	Smithy Bridge Road, Rochdale
Title:	Halifax Road / Smithy Bridge Road / Union Road
Location:	
Additional detail:	
File name:	Halifax Rd_Union St_Smithy Bridge Rd - 2022.lsg3x
Author:	Michael Lancaster
Company:	i-Transport
Address:	Centurion House, 129 Deansgate, Manchester, M3 3WR

Network Layout Diagram



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	Ind. Arrow	A	4	4
E	Traffic		7	7
F	Traffic		7	7
G	Traffic		7	7
H	Ind. Arrow	F	4	4
I	Pedestrian		8	8
J	Dummy		1	1
K	Dummy		1	1
L	Dummy		2	2
M	Dummy		1	1
N	Dummy		1	1
O	Dummy		1	1

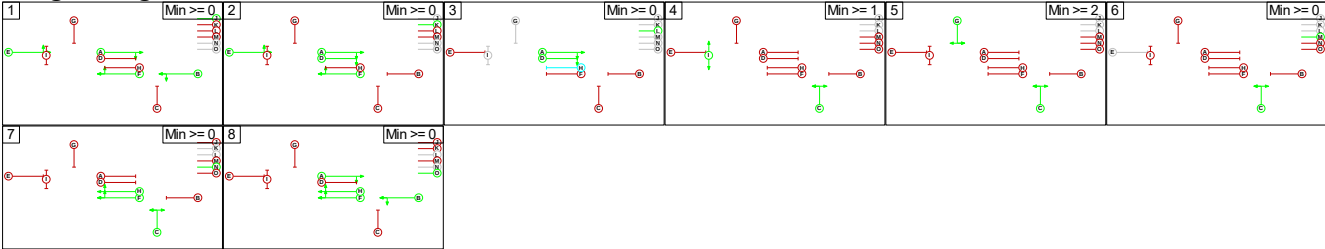
Phase Intergreens Matrix

Terminating Phase	Starting Phase																
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
	A		-	7	-	-	-	-	-	-	-	-	-	-	-	-	-
	B	-		7	4	-	-	-	-	-	-	4	-	-	-	-	-
	C	8	8		8	-	-	-	-	-	-	-	-	-	-	-	8
	D	-	4	7		-	-	-	-	-	-	-	-	-	-	-	-
	E	-	-	-	-		-	7	4	5	-	-	4	-	-	-	-
	F	-	-	-	-	-		7	-	7	-	-	-	-	-	-	-
	G	-	-	-	-	6	7		7	10	-	-	-	3	7	-	-
	H	-	-	-	-	3	-	7		7	3	-	-	-	-	-	-
	I	-	-	-	-	5	5	5	5		-	-	-	1	5	-	-
	J	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
	K	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
	L	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-
	M	-	-	-	-	-	2	-	2	-	-	-	-		2	-	-
	N	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-
	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
2	3	F	Losing	1	1

Prohibited Stage Change

From Stage	To Stage								
		1	2	3	4	5	6	7	8
	1			4	4	7	7	7	4
	2	4		4	7	7	7	7	4
	3	4	2		7	7	7	X	X
	4	8	8	8		5	1	5	8
	5	8	8	8	10		3	7	8
	6	8	8	8	0	2		2	8
	7	8	8	8	7	7	0		8
	8	3	4	4	7	7	7	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Halifax Road / Union Road / Smithy Bridge Road											
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)
5/2	8/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00
				1/2	1.09	All					
6/2	10/1 (Right)	1439	0	3/1	1.09	All	1.00	-	0.50	1	2.00
				3/2	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Halifax Road / Union Road / Smithy Bridge Road												
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 (A58 New Road)	U	B	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Ahead	Inf
											Arm 8 Left	6.00
1/2 (A58 New Road)	U	B	2	3	9.6	Geom	-	3.00	0.00	N	Arm 6 Ahead	Inf
2/1 (Smithy Bridge Road)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Left	7.50
											Arm 7 Right	12.50
3/1 (A58 Halifax Road)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 10 Left	5.00
3/2 (A58 Halifax Road)	U	E	2	3	60.0	Geom	-	3.00	0.00	N	Arm 5 Ahead	Inf
4/1 (Union Road)	U	G	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 5 Left	5.00
											Arm 9 Right	15.00
5/1	U	A	2	3	5.2	Geom	-	3.00	0.00	Y	Arm 7 Ahead	Inf
5/2	O	A D	2	3	5.2	Geom	-	3.00	0.00	N	Arm 8 Right	5.00
6/1	U	F	2	3	5.2	Geom	-	3.00	0.00	Y	Arm 9 Ahead	Inf
6/2	O	F H	2	3	5.2	Geom	-	3.00	0.00	N	Arm 9 Ahead	Inf
											Arm 10 Right	10.00
7/1 (A58 New Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Smithy Bridge Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1 (A58 Halifax Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/2 (A58 Halifax Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1 (Union Road)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2028 Base + Committed Dev AM'	07:45	08:45	01:00	
2: '2028 Base + Committed Dev PM'	16:45	17:45	01:00	
3: '2028 Base + Com + Dev AM'	07:45	08:45	01:00	
4: '2028 Base + Com + Dev PM'	16:45	17:45	01:00	

Scenario 1: '2028 Base + Committed Dev AM' (FG1: '2028 Base + Committed Dev AM', Plan 2: 'Observed with Ped')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	56	900	14	970
	B	98	0	352	13	463
	C	689	214	0	54	957
	D	12	7	48	0	67
	Tot.	799	277	1300	81	2457

Traffic Lane Flows

Lane	Scenario 1: 2028 Base + Committed Dev AM
Junction: Halifax Road / Union Road / Smithy Bridge Road	
1/1 (with short)	970(In) 677(Out)
1/2 (short)	293
2/1	463
3/1	743
3/2	214
4/1	67
5/1	701
5/2	221
6/1	798
6/2	481
7/1	799
8/1	277
9/1	846
9/2	454
10/1	81

Lane Saturation Flows

Junction: Halifax Road / Union Road / Smithy Bridge Road								
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 (A58 New Road)	3.00	0.00	Y	Arm 6 Ahead	Inf	91.7 %	1876	1876
				Arm 8 Left	6.00	8.3 %		
1/2 (A58 New Road)	3.00	0.00	N	Arm 6 Ahead	Inf	100.0 %	2055	2055
2/1 (Smithy Bridge Road)	3.50	0.00	Y	Arm 6 Left	7.50	78.8 %	1661	1661
				Arm 7 Right	12.50	21.2 %		
3/1 (A58 Halifax Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	92.7 %	1874	1874
				Arm 10 Left	5.00	7.3 %		
3/2 (A58 Halifax Road)	3.00	0.00	N	Arm 5 Ahead	Inf	100.0 %	2055	2055
4/1 (Union Road)	3.25	0.00	Y	Arm 5 Left	5.00	28.4 %	1677	1677
				Arm 9 Right	15.00	71.6 %		
5/1	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915	1915
5/2	3.00	0.00	N	Arm 8 Right	5.00	100.0 %	1581	1581
6/1	3.00	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1915	1915
6/2	3.00	0.00	N	Arm 9 Ahead	Inf	94.4 %	2038	2038
				Arm 10 Right	10.00	5.6 %		
7/1 (A58 New Road Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Smithy Bridge Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (A58 Halifax Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (A58 Halifax Road Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (Union Road Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2028 Base + Committed Dev PM' (FG2: '2028 Base + Committed Dev PM', Plan 2: 'Observed with Ped')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	97	780	6	883
	B	211	0	283	4	498
	C	948	225	0	18	1191
	D	7	4	25	0	36
	Tot.	1166	326	1088	28	2608

Traffic Lane Flows

Lane	Scenario 2: 2028 Base + Committed Dev PM
Junction: Halifax Road / Union Road / Smithy Bridge Road	
1/1 (with short)	883(In) 669(Out)
1/2 (short)	214
2/1	498
3/1	966
3/2	225
4/1	36
5/1	955
5/2	229
6/1	843
6/2	230
7/1	1166
8/1	326
9/1	868
9/2	220
10/1	28

Lane Saturation Flows

Junction: Halifax Road / Union Road / Smithy Bridge Road								
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 (A58 New Road)	3.00	0.00	Y	Arm 6 Ahead	Inf	85.5 %	1848	1848
				Arm 8 Left	6.00	14.5 %		
1/2 (A58 New Road)	3.00	0.00	N	Arm 6 Ahead	Inf	100.0 %	2055	2055
2/1 (Smithy Bridge Road)	3.50	0.00	Y	Arm 6 Left	7.50	57.6 %	1685	1685
				Arm 7 Right	12.50	42.4 %		
3/1 (A58 Halifax Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	98.1 %	1904	1904
				Arm 10 Left	5.00	1.9 %		
3/2 (A58 Halifax Road)	3.00	0.00	N	Arm 5 Ahead	Inf	100.0 %	2055	2055
4/1 (Union Road)	3.25	0.00	Y	Arm 5 Left	5.00	30.6 %	1671	1671
				Arm 9 Right	15.00	69.4 %		
5/1	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915	1915
5/2	3.00	0.00	N	Arm 8 Right	5.00	100.0 %	1581	1581
6/1	3.00	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1915	1915
6/2	3.00	0.00	N	Arm 9 Ahead	Inf	95.7 %	2042	2042
				Arm 10 Right	10.00	4.3 %		
7/1 (A58 New Road Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Smithy Bridge Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (A58 Halifax Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (A58 Halifax Road Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (Union Road Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2028 Base + Com + Dev AM' (FG3: '2028 Base + Com + Dev AM', Plan 2: 'Observed with Ped')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	58	900	14	972
	B	103	0	393	15	511
	C	689	228	0	54	971
	D	12	8	48	0	68
	Tot.	804	294	1341	83	2522

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 3: 2028 Base + Com + Dev AM
Junction: Halifax Road / Union Road / Smithy Bridge Road	
1/1 (with short)	972(In) 679(Out)
1/2 (short)	293
2/1	511
3/1	743
3/2	228
4/1	68
5/1	701
5/2	236
6/1	819
6/2	503
7/1	804
8/1	294
9/1	867
9/2	474
10/1	83

Lane Saturation Flows

Junction: Halifax Road / Union Road / Smithy Bridge Road								
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 (A58 New Road)	3.00	0.00	Y	Arm 6 Ahead	Inf	91.5 %	1875	1875
				Arm 8 Left	6.00	8.5 %		
1/2 (A58 New Road)	3.00	0.00	N	Arm 6 Ahead	Inf	100.0 %	2055	2055
2/1 (Smithy Bridge Road)	3.50	0.00	Y	Arm 6 Left	7.50	79.8 %	1660	1660
				Arm 7 Right	12.50	20.2 %		
3/1 (A58 Halifax Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	92.7 %	1874	1874
				Arm 10 Left	5.00	7.3 %		
3/2 (A58 Halifax Road)	3.00	0.00	N	Arm 5 Ahead	Inf	100.0 %	2055	2055
4/1 (Union Road)	3.25	0.00	Y	Arm 5 Left	5.00	29.4 %	1674	1674
				Arm 9 Right	15.00	70.6 %		
5/1	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915	1915
5/2	3.00	0.00	N	Arm 8 Right	5.00	100.0 %	1581	1581
6/1	3.00	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1915	1915
6/2	3.00	0.00	N	Arm 9 Ahead	Inf	94.2 %	2037	2037
				Arm 10 Right	10.00	5.8 %		
7/1 (A58 New Road Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Smithy Bridge Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (A58 Halifax Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (A58 Halifax Road Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (Union Road Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2028 Base + Com + Dev PM' (FG4: '2028 Base + Com + Dev PM', Plan 2: 'Observed with Ped')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	102	780	6	888
	B	214	0	305	5	524
	C	948	262	0	18	1228
	D	7	5	25	0	37
	Tot.	1169	369	1110	29	2677

Traffic Lane Flows

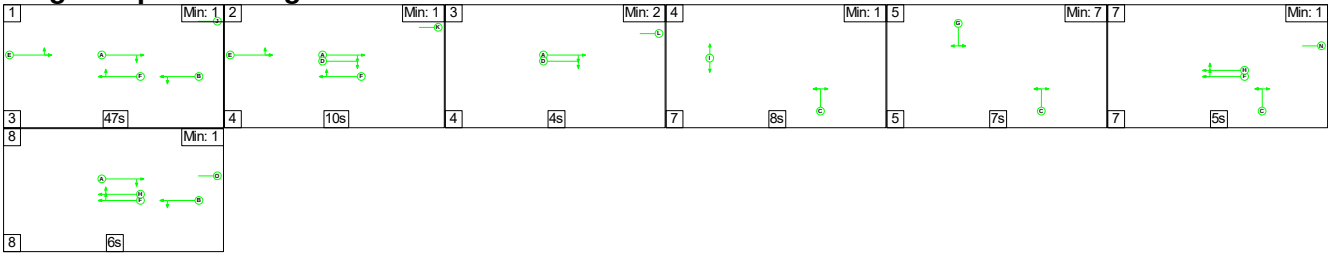
Lane	Scenario 4: 2028 Base + Com + Dev PM
Junction: Halifax Road / Union Road / Smithy Bridge Road	
1/1 (with short)	888(In) 674(Out)
1/2 (short)	214
2/1	524
3/1	966
3/2	262
4/1	37
5/1	955
5/2	267
6/1	870
6/2	226
7/1	1169
8/1	369
9/1	895
9/2	215
10/1	29

Lane Saturation Flows

Junction: Halifax Road / Union Road / Smithy Bridge Road								
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 (A58 New Road)	3.00	0.00	Y	Arm 6 Ahead	Inf	84.9 %	1845	1845
				Arm 8 Left	6.00	15.1 %		
1/2 (A58 New Road)	3.00	0.00	N	Arm 6 Ahead	Inf	100.0 %	2055	2055
2/1 (Smithy Bridge Road)	3.50	0.00	Y	Arm 6 Left	7.50	59.2 %	1683	1683
				Arm 7 Right	12.50	40.8 %		
3/1 (A58 Halifax Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	98.1 %	1904	1904
				Arm 10 Left	5.00	1.9 %		
3/2 (A58 Halifax Road)	3.00	0.00	N	Arm 5 Ahead	Inf	100.0 %	2055	2055
4/1 (Union Road)	3.25	0.00	Y	Arm 5 Left	5.00	32.4 %	1665	1665
				Arm 9 Right	15.00	67.6 %		
5/1	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915	1915
5/2	3.00	0.00	N	Arm 8 Right	5.00	100.0 %	1581	1581
6/1	3.00	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1915	1915
6/2	3.00	0.00	N	Arm 9 Ahead	Inf	95.1 %	2040	2040
				Arm 10 Right	10.00	4.9 %		
7/1 (A58 New Road Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Smithy Bridge Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (A58 Halifax Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (A58 Halifax Road Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (Union Road Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: '2028 Base + Committed Dev AM' (FG1: '2028 Base + Committed Dev AM', Plan 2: 'Observed with Ped')

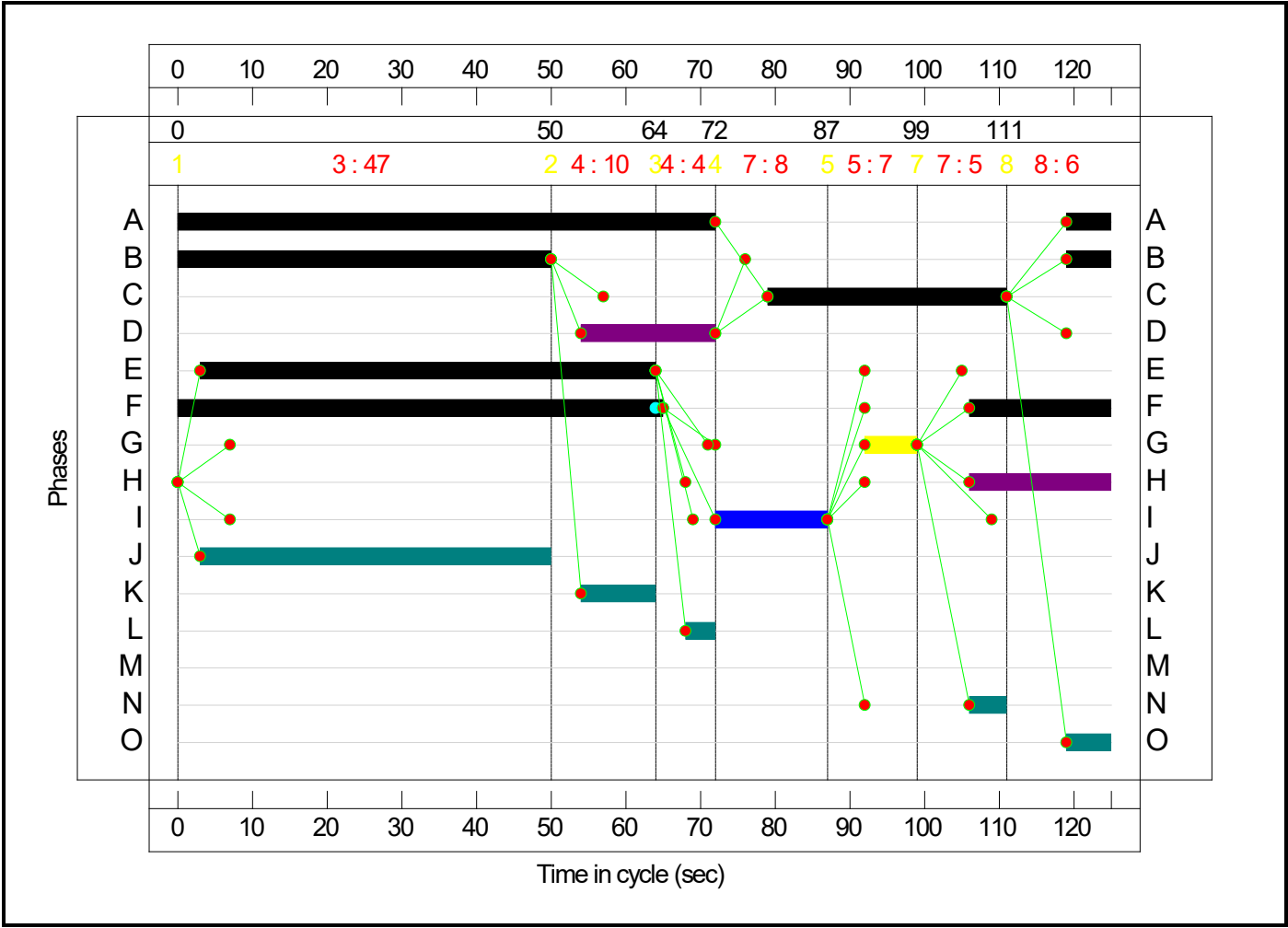
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	5	7	8
Duration	47	10	4	8	7	5	6
Change Point	0	50	64	72	87	99	111

Signal Timings Diagram



Full Input Data And Results

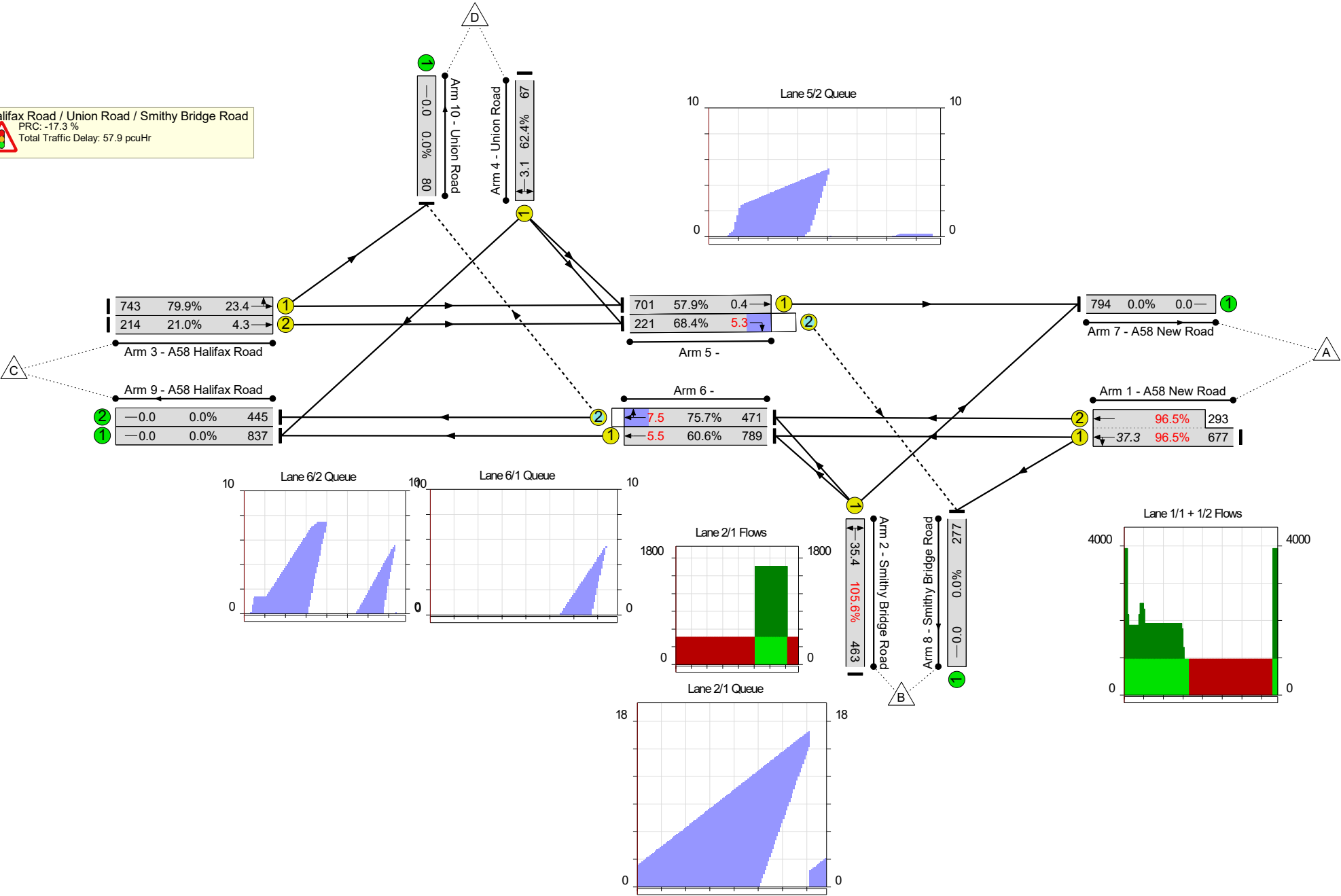
Network Layout Diagram

Full Input Data And Results

Halifax Road / Union Road / Smithy Bridge Road

PRC: -17.3 %

Total Traffic Delay: 57.9 pcuHr



Full Input Data And Results

Network Results

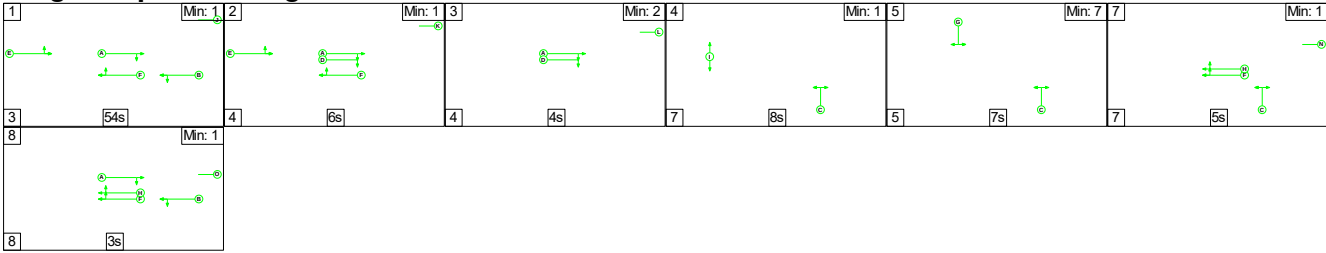
Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Halifax Road / Smithy Bridge Road / Union Road	-	-	N/A	-	-		-	-	-	-	-	-	105.6%
Halifax Road / Union Road / Smithy Bridge Road	-	-	N/A	-	-		-	-	-	-	-	-	105.6%
1/1+1/2	A58 New Road Ahead Left	U	N/A	N/A	B		1	56	-	970	1876:2055	701+303	96.5 : 96.5%
2/1	Smithy Bridge Road Left Right	U	N/A	N/A	C		1	32	-	463	1661	439	105.6%
3/1	A58 Halifax Road Ahead Left	U	N/A	N/A	E		1	61	-	743	1874	930	79.9%
3/2	A58 Halifax Road Ahead	U	N/A	N/A	E		1	61	-	214	2055	1019	21.0%
4/1	Union Road Left Right	U	N/A	N/A	G		1	7	-	67	1677	107	62.4%
5/1	Ahead	U	N/A	N/A	A		1	78	-	701	1915	1210	57.9%
5/2	Right	O	N/A	N/A	A	D	1	78	18	221	1581	323	68.4%
6/1	Ahead	U	N/A	N/A	F		1	84	-	798	1915	1302	60.6%
6/2	Ahead Right	O	N/A	N/A	F	H	1	84	19	481	2038	622	75.7%
7/1	A58 New Road	U	N/A	N/A	-		-	-	-	799	Inf	Inf	0.0%
8/1	Smithy Bridge Road	U	N/A	N/A	-		-	-	-	277	Inf	Inf	0.0%
9/1	A58 Halifax Road	U	N/A	N/A	-		-	-	-	846	Inf	Inf	0.0%
9/2	A58 Halifax Road	U	N/A	N/A	-		-	-	-	454	Inf	Inf	0.0%
10/1	Union Road	U	N/A	N/A	-		-	-	-	81	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: Halifax Road / Smithy Bridge Road / Union Road	-	-	24	223	0	26.5	30.5	0.8	57.9	-	-	-	-
Halifax Road / Union Road / Smithy Bridge Road	-	-	24	223	0	26.5	30.5	0.8	57.9	-	-	-	-
1/1+1/2	970	970	-	-	-	8.1	9.2	-	17.2	63.9	28.2	9.2	37.3
2/1	463	439	-	-	-	7.0	18.5	-	25.5	198.0	16.9	18.5	35.4
3/1	743	743	-	-	-	5.4	2.0	-	7.4	35.8	21.5	2.0	23.4
3/2	214	214	-	-	-	1.1	0.1	-	1.2	20.0	4.2	0.1	4.3
4/1	67	67	-	-	-	1.1	0.8	-	1.9	100.0	2.3	0.8	3.1
5/1	701	701	-	-	-	0.1	0.0	-	0.1	0.3	0.4	0.0	0.4
5/2	221	221	13	208	0	1.3	0.0	0.8	2.2	35.1	5.3	0.0	5.3
6/1	789	789	-	-	-	0.5	0.0	-	0.5	2.1	5.5	0.0	5.5
6/2	471	471	12	15	0	2.1	0.0	0.0	2.1	15.8	7.5	0.0	7.5
7/1	794	794	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	277	277	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	837	837	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	445	445	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	80	80	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -17.3 Total Delay for Signalled Lanes (pcuHr): 57.87 Cycle Time (s): 125 PRC Over All Lanes (%): -17.3 Total Delay Over All Lanes(pcuHr): 57.87													

Full Input Data And Results
Scenario 2: '2028 Base + Committed Dev PM' (FG2: '2028 Base + Committed Dev PM', Plan 2: 'Observed with Ped')

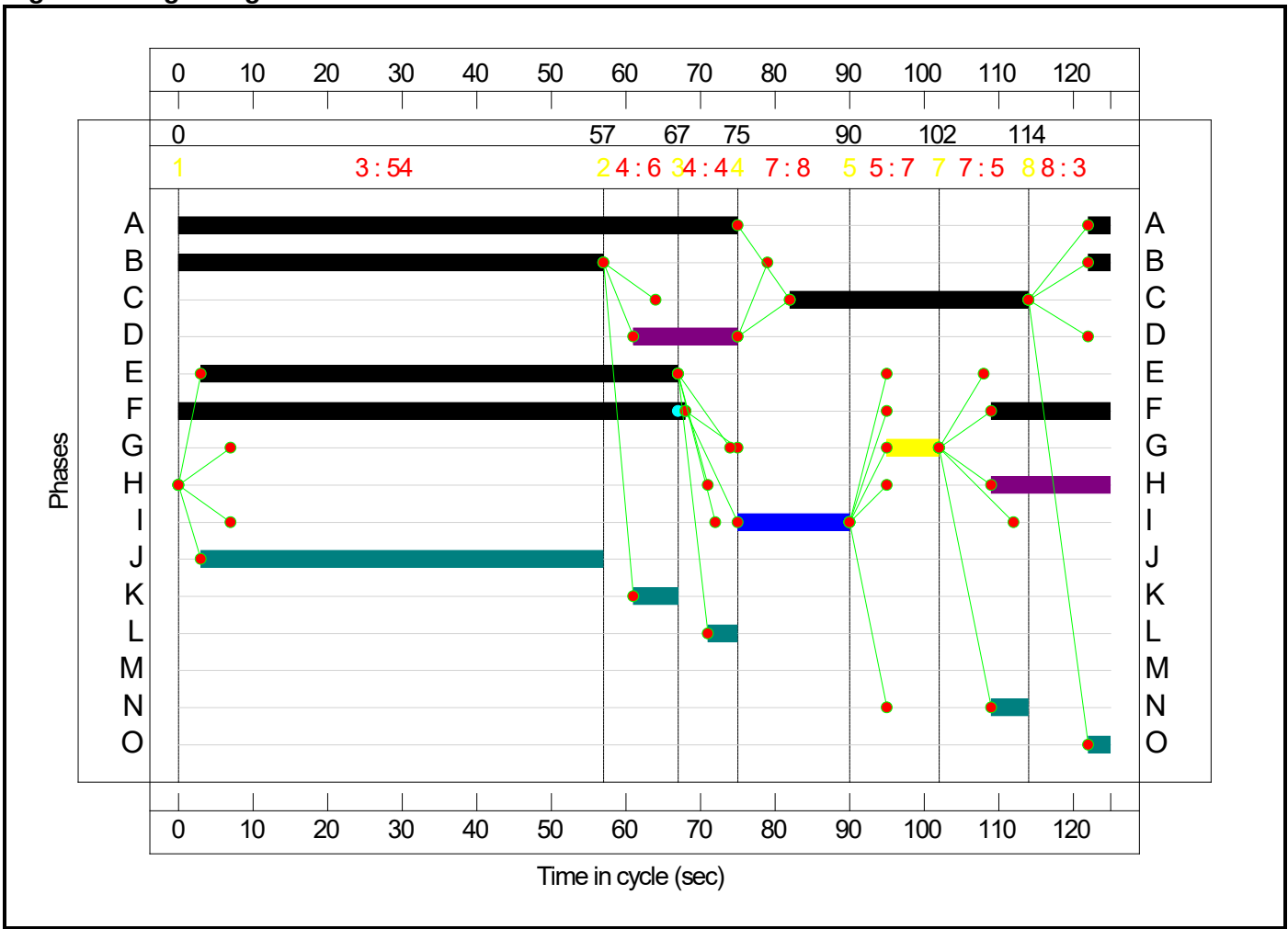
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	5	7	8
Duration	54	6	4	8	7	5	3
Change Point	0	57	67	75	90	102	114

Signal Timings Diagram



Full Input Data And Results

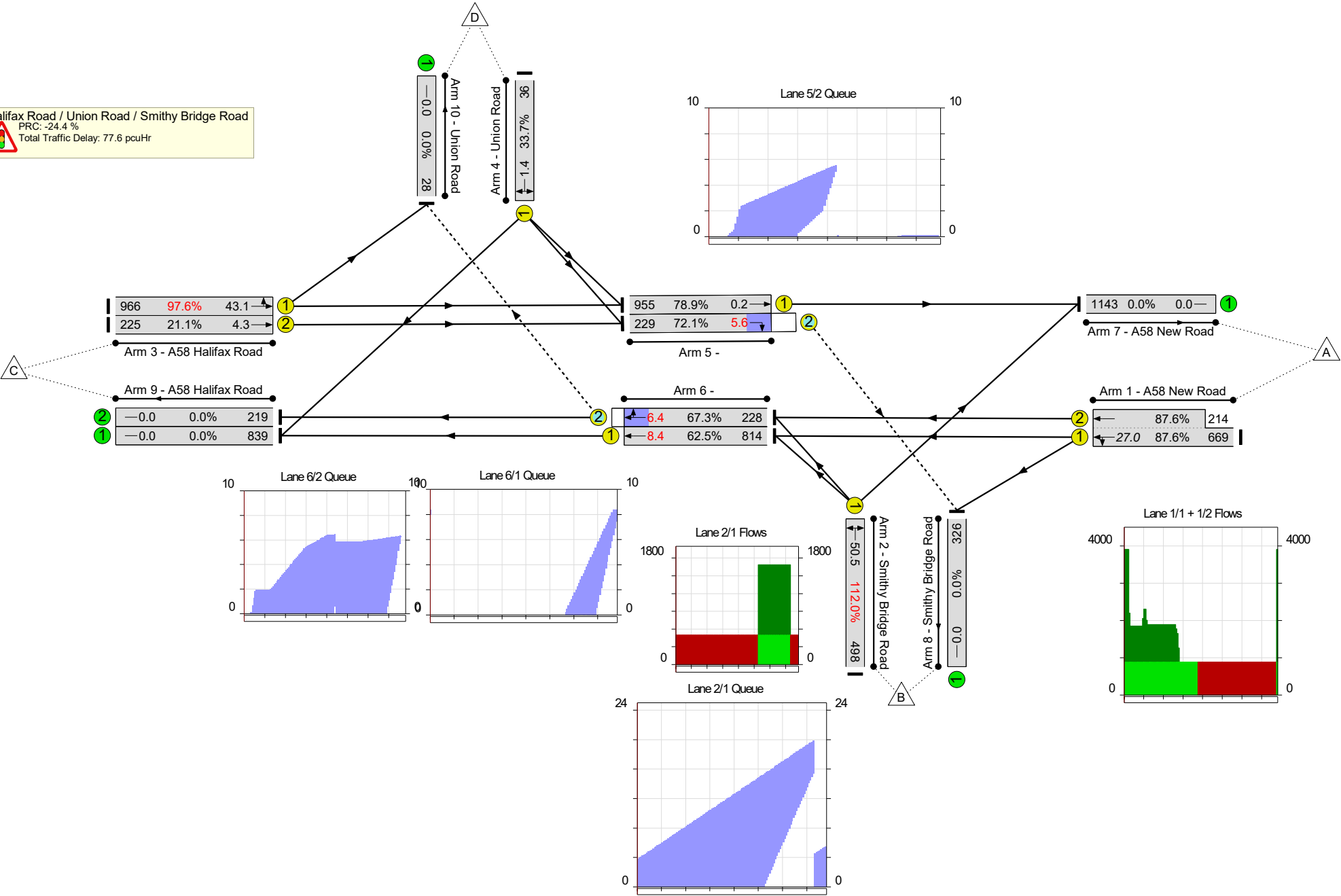
Network Layout Diagram

Full Input Data And Results

Halifax Road / Union Road / Smithy Bridge Road

PRC: -24.4 %

Total Traffic Delay: 77.6 pcuHr



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: Halifax Road / Smithy Bridge Road / Union Road	-	-	N/A	-	-		-	-	-	-	-	-	112.0%
Halifax Road / Union Road / Smithy Bridge Road	-	-	N/A	-	-		-	-	-	-	-	-	112.0%
1/1+1/2	A58 New Road Ahead Left	U	N/A	N/A	B		1	60	-	883	1848:2055	764+244	87.6 : 87.6%
2/1	Smithy Bridge Road Left Right	U	N/A	N/A	C		1	32	-	498	1685	445	112.0%
3/1	A58 Halifax Road Ahead Left	U	N/A	N/A	E		1	64	-	966	1904	990	97.6%
3/2	A58 Halifax Road Ahead	U	N/A	N/A	E		1	64	-	225	2055	1069	21.1%
4/1	Union Road Left Right	U	N/A	N/A	G		1	7	-	36	1671	107	33.7%
5/1	Ahead	U	N/A	N/A	A		1	78	-	955	1915	1210	78.9%
5/2	Right	O	N/A	N/A	A	D	1	78	14	229	1581	318	72.1%
6/1	Ahead	U	N/A	N/A	F		1	84	-	843	1915	1302	62.5%
6/2	Ahead Right	O	N/A	N/A	F	H	1	84	16	230	2042	339	67.3%
7/1	A58 New Road	U	N/A	N/A	-		-	-	-	1166	Inf	Inf	0.0%
8/1	Smithy Bridge Road	U	N/A	N/A	-		-	-	-	326	Inf	Inf	0.0%
9/1	A58 Halifax Road	U	N/A	N/A	-		-	-	-	868	Inf	Inf	0.0%
9/2	A58 Halifax Road	U	N/A	N/A	-		-	-	-	220	Inf	Inf	0.0%
10/1	Union Road	U	N/A	N/A	-		-	-	-	28	Inf	Inf	0.0%

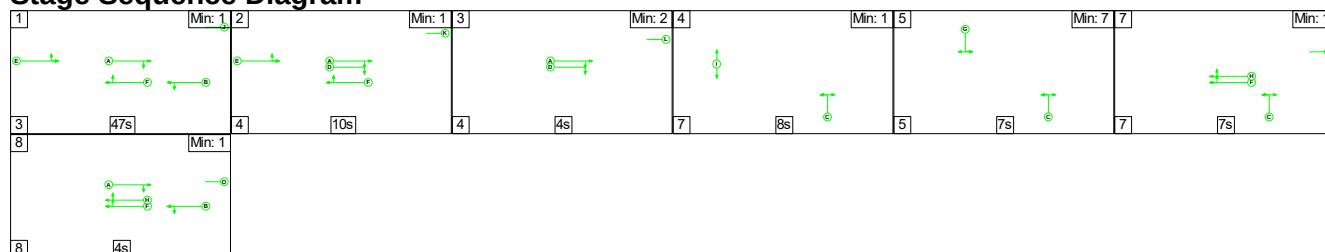
Full Input Data And Results

[illegible]

Full Input Data And Results

Scenario 3: '2028 Base + Com + Dev AM' (FG3: '2028 Base + Com + Dev AM', Plan 2: 'Observed with Ped')

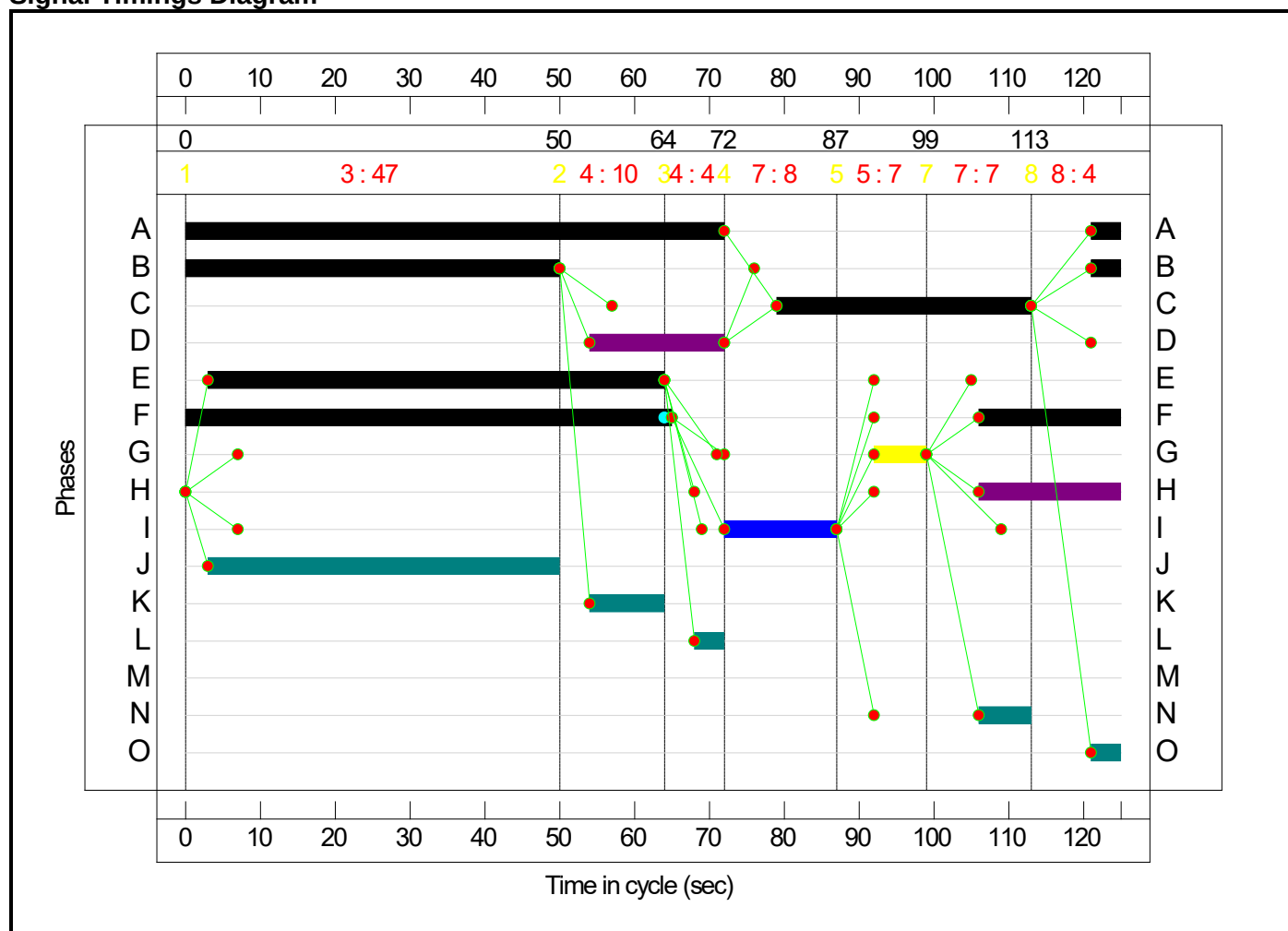
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	5	7	8
Duration	47	10	4	8	7	7	4
Change Point	0	50	64	72	87	99	113

Signal Timings Diagram

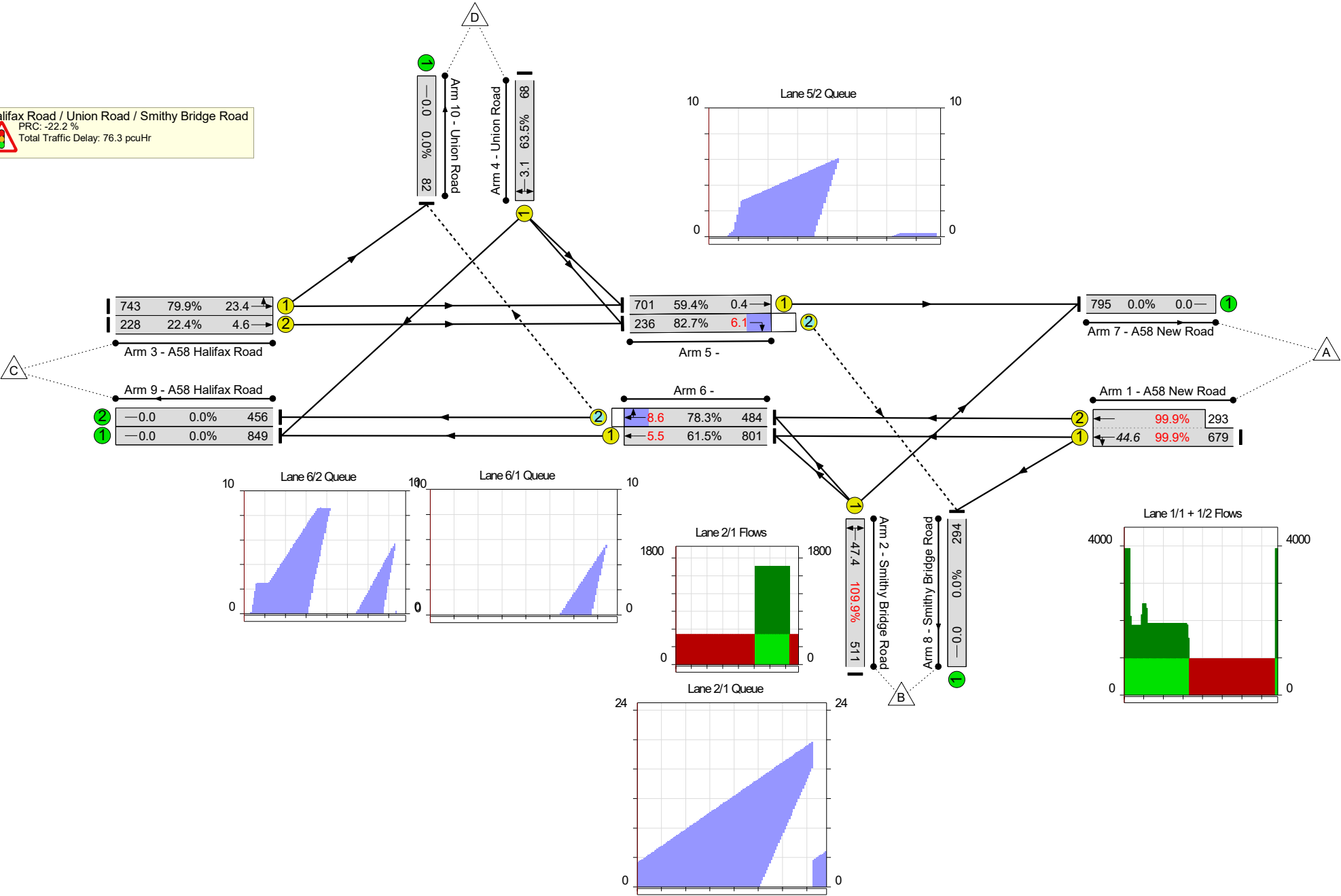


Full Input Data And Results

Network Layout Diagram

Full Input Data And Results

Halifax Road / Union Road / Smithy Bridge Road
PRC: -22.2 %
Total Traffic Delay: 76.3 pcuHr



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: Halifax Road / Smithy Bridge Road / Union Road	-	-	N/A	-	-		-	-	-	-	-	-	109.9%
Halifax Road / Union Road / Smithy Bridge Road	-	-	N/A	-	-		-	-	-	-	-	-	109.9%
1/1+1/2	A58 New Road Ahead Left	U	N/A	N/A	B		1	54	-	972	1875:2055	680+293	99.9 : 99.9%
2/1	Smithy Bridge Road Left Right	U	N/A	N/A	C		1	34	-	511	1660	465	109.9%
3/1	A58 Halifax Road Ahead Left	U	N/A	N/A	E		1	61	-	743	1874	930	79.9%
3/2	A58 Halifax Road Ahead	U	N/A	N/A	E		1	61	-	228	2055	1019	22.4%
4/1	Union Road Left Right	U	N/A	N/A	G		1	7	-	68	1674	107	63.5%
5/1	Ahead	U	N/A	N/A	A		1	76	-	701	1915	1180	59.4%
5/2	Right	O	N/A	N/A	A	D	1	76	18	236	1581	285	82.7%
6/1	Ahead	U	N/A	N/A	F		1	84	-	819	1915	1302	61.5%
6/2	Ahead Right	O	N/A	N/A	F	H	1	84	19	503	2037	619	78.3%
7/1	A58 New Road	U	N/A	N/A	-		-	-	-	804	Inf	Inf	0.0%
8/1	Smithy Bridge Road	U	N/A	N/A	-		-	-	-	294	Inf	Inf	0.0%
9/1	A58 Halifax Road	U	N/A	N/A	-		-	-	-	867	Inf	Inf	0.0%
9/2	A58 Halifax Road	U	N/A	N/A	-		-	-	-	474	Inf	Inf	0.0%
10/1	Union Road	U	N/A	N/A	-		-	-	-	83	Inf	Inf	0.0%

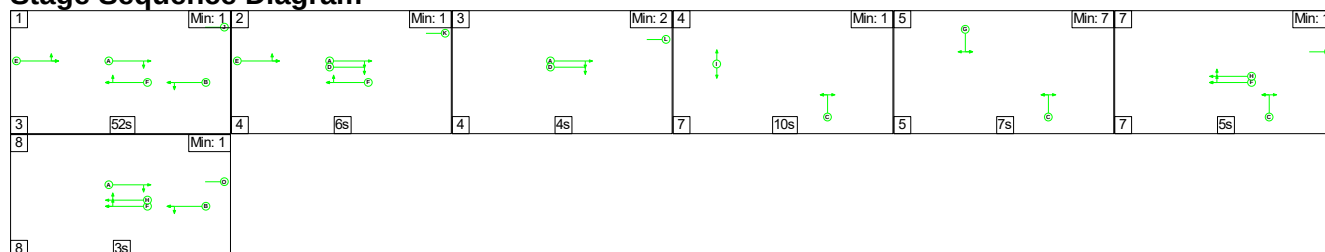
Full Input Data And Results

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: Halifax Road / Smithy Bridge Road / Union Road	-	-	12	250	1	29.6	45.9	0.8	76.3	-	-	-	-
Halifax Road / Union Road / Smithy Bridge Road	-	-	12	250	1	29.6	45.9	0.8	76.3	-	-	-	-
1/1+1/2	972	972	-	-	-	8.6	15.3	-	23.9	88.6	29.3	15.3	44.6
2/1	511	465	-	-	-	8.7	27.7	-	36.4	256.3	19.7	27.7	47.4
3/1	743	743	-	-	-	5.4	2.0	-	7.4	35.8	21.5	2.0	23.4
3/2	228	228	-	-	-	1.1	0.1	-	1.3	20.1	4.4	0.1	4.6
4/1	68	68	-	-	-	1.1	0.8	-	1.9	101.2	2.3	0.8	3.1
5/1	701	701	-	-	-	0.1	0.0	-	0.1	0.4	0.4	0.0	0.4
5/2	236	236	0	236	0	1.7	0.0	0.8	2.4	36.7	6.1	0.0	6.1
6/1	801	801	-	-	-	0.5	0.0	-	0.5	2.1	5.5	0.0	5.5
6/2	484	484	12	14	1	2.5	0.0	0.0	2.5	18.6	8.6	0.0	8.6
7/1	795	795	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	294	294	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	849	849	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	456	456	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	82	82	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -22.2 Total Delay for Signalled Lanes (pcuHr): 76.31 Cycle Time (s): 125 PRC Over All Lanes (%): -22.2 Total Delay Over All Lanes(pcuHr): 76.31													

Full Input Data And Results

Scenario 4: '2028 Base + Com + Dev PM' (FG4: '2028 Base + Com + Dev PM', Plan 2: 'Observed with Ped')

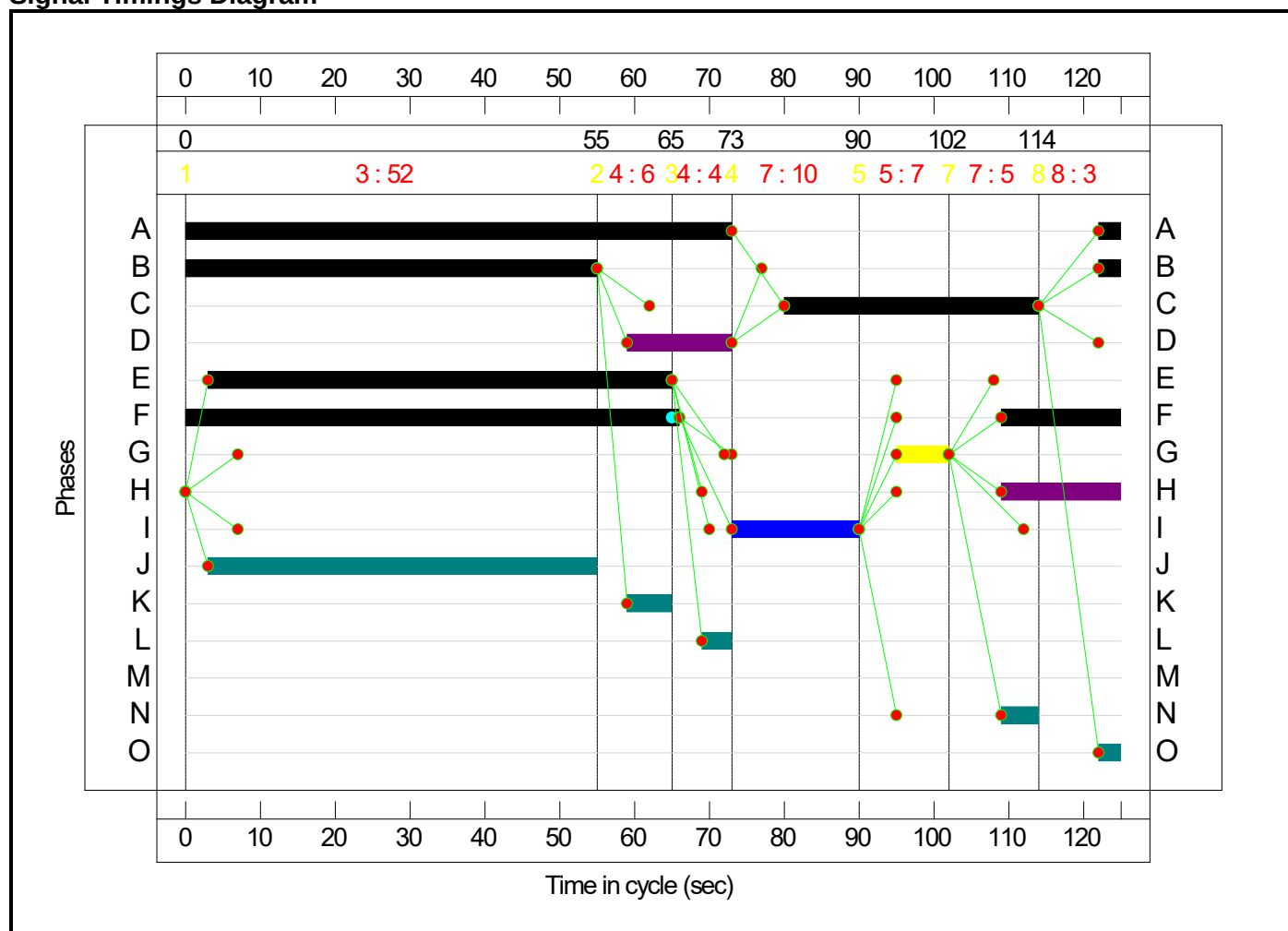
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4	5	7	8
Duration	52	6	4	10	7	5	3
Change Point	0	55	65	73	90	102	114

Signal Timings Diagram



Full Input Data And Results

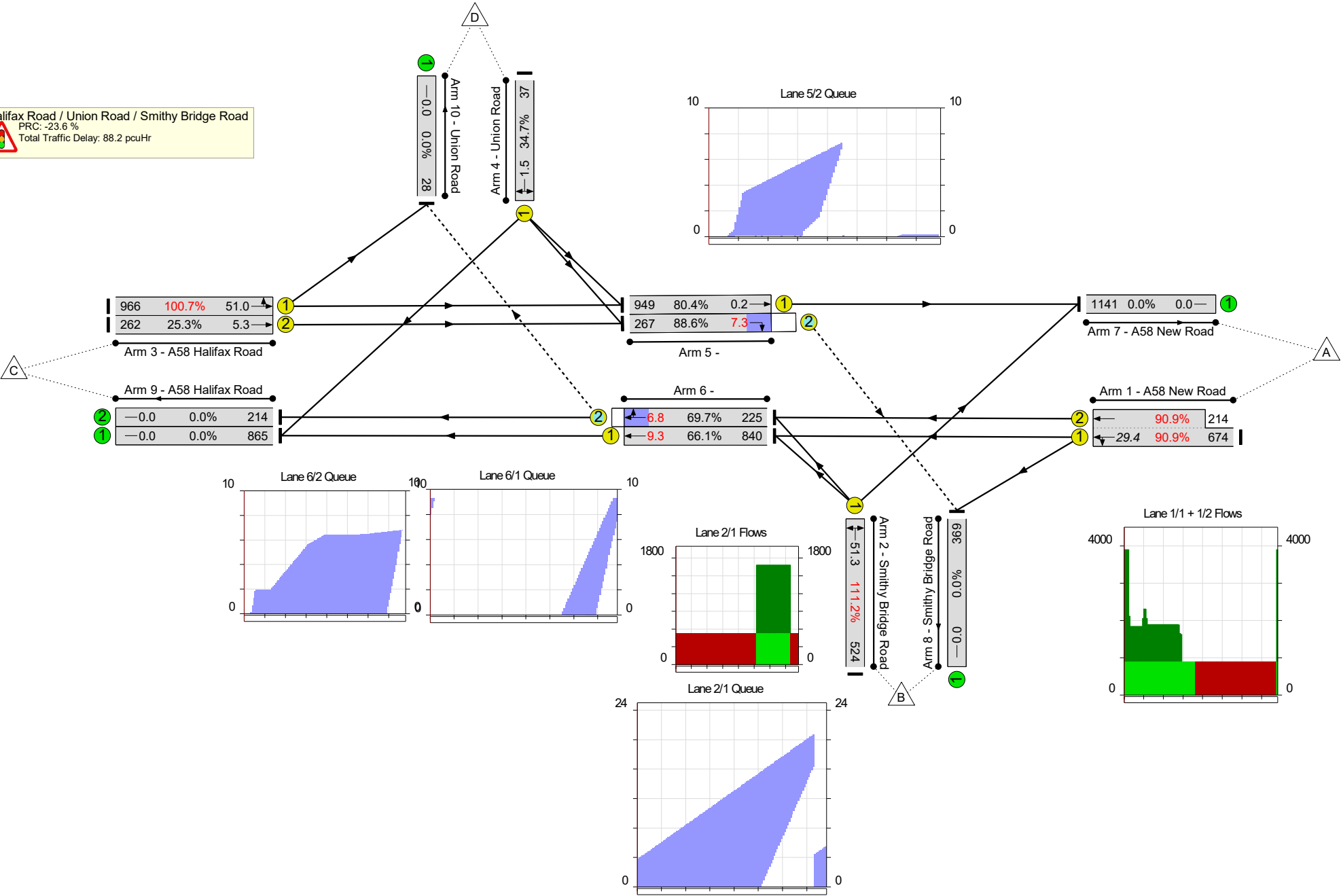
Network Layout Diagram

Full Input Data And Results

Halifax Road / Union Road / Smithy Bridge Road

PRC: -23.6 %

Total Traffic Delay: 88.2 pcuHr



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: Halifax Road / Smithy Bridge Road / Union Road	-	-	N/A	-	-		-	-	-	-	-	-	111.2%
Halifax Road / Union Road / Smithy Bridge Road	-	-	N/A	-	-		-	-	-	-	-	-	111.2%
1/1+1/2	A58 New Road Ahead Left	U	N/A	N/A	B		1	58	-	888	1845:2055	741+235	90.9 : 90.9%
2/1	Smithy Bridge Road Left Right	U	N/A	N/A	C		1	34	-	524	1683	471	111.2%
3/1	A58 Halifax Road Ahead Left	U	N/A	N/A	E		1	62	-	966	1904	960	100.7%
3/2	A58 Halifax Road Ahead	U	N/A	N/A	E		1	62	-	262	2055	1036	25.3%
4/1	Union Road Left Right	U	N/A	N/A	G		1	7	-	37	1665	107	34.7%
5/1	Ahead	U	N/A	N/A	A		1	76	-	955	1915	1180	80.4%
5/2	Right	O	N/A	N/A	A	D	1	76	14	267	1581	301	88.6%
6/1	Ahead	U	N/A	N/A	F		1	82	-	870	1915	1272	66.1%
6/2	Ahead Right	O	N/A	N/A	F	H	1	82	16	226	2040	323	69.7%
7/1	A58 New Road	U	N/A	N/A	-		-	-	-	1169	Inf	Inf	0.0%
8/1	Smithy Bridge Road	U	N/A	N/A	-		-	-	-	369	Inf	Inf	0.0%
9/1	A58 Halifax Road	U	N/A	N/A	-		-	-	-	895	Inf	Inf	0.0%
9/2	A58 Halifax Road	U	N/A	N/A	-		-	-	-	215	Inf	Inf	0.0%
10/1	Union Road	U	N/A	N/A	-		-	-	-	29	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: Halifax Road / Smithy Bridge Road / Union Road	-	-	41	212	24	34.4	52.9	0.9	88.2	-	-	-	-
Halifax Road / Union Road / Smithy Bridge Road	-	-	41	212	24	34.4	52.9	0.9	88.2	-	-	-	-
1/1+1/2	888	888	-	-	-	6.9	4.5	-	11.5	46.4	24.8	4.5	29.4
2/1	524	471	-	-	-	9.4	30.7	-	40.1	275.4	20.7	30.7	51.3
3/1	966	960	-	-	-	8.7	17.2	-	25.9	96.6	33.8	17.2	51.0
3/2	262	262	-	-	-	1.3	0.2	-	1.5	19.9	5.2	0.2	5.3
4/1	37	37	-	-	-	0.6	0.3	-	0.8	81.7	1.2	0.3	1.5
5/1	949	949	-	-	-	0.0	0.0	-	0.0	0.2	0.2	0.0	0.2
5/2	267	267	41	202	23	1.9	0.0	0.9	2.8	37.5	7.3	0.0	7.3
6/1	840	840	-	-	-	1.1	0.0	-	1.1	4.5	9.3	0.0	9.3
6/2	225	225	0	10	1	4.5	0.0	0.0	4.6	72.9	6.8	0.0	6.8
7/1	1141	1141	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	369	369	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	865	865	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	214	214	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	28	28	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -23.6 Total Delay for Signalled Lanes (pcuHr): 88.18 Cycle Time (s): 125 PRC Over All Lanes (%): -23.6 Total Delay Over All Lanes(pcuHr): 88.18													

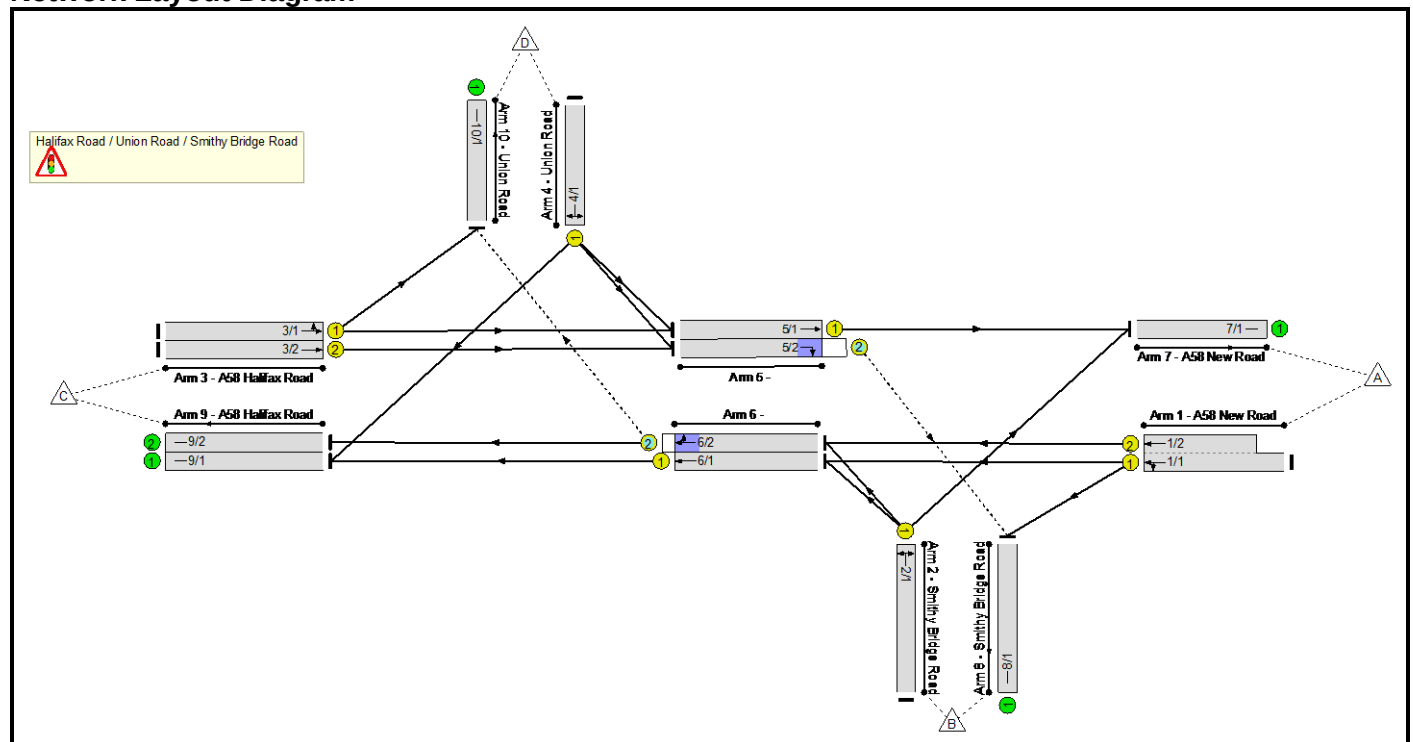
Full Input Data And Results

Full Input Data And Results

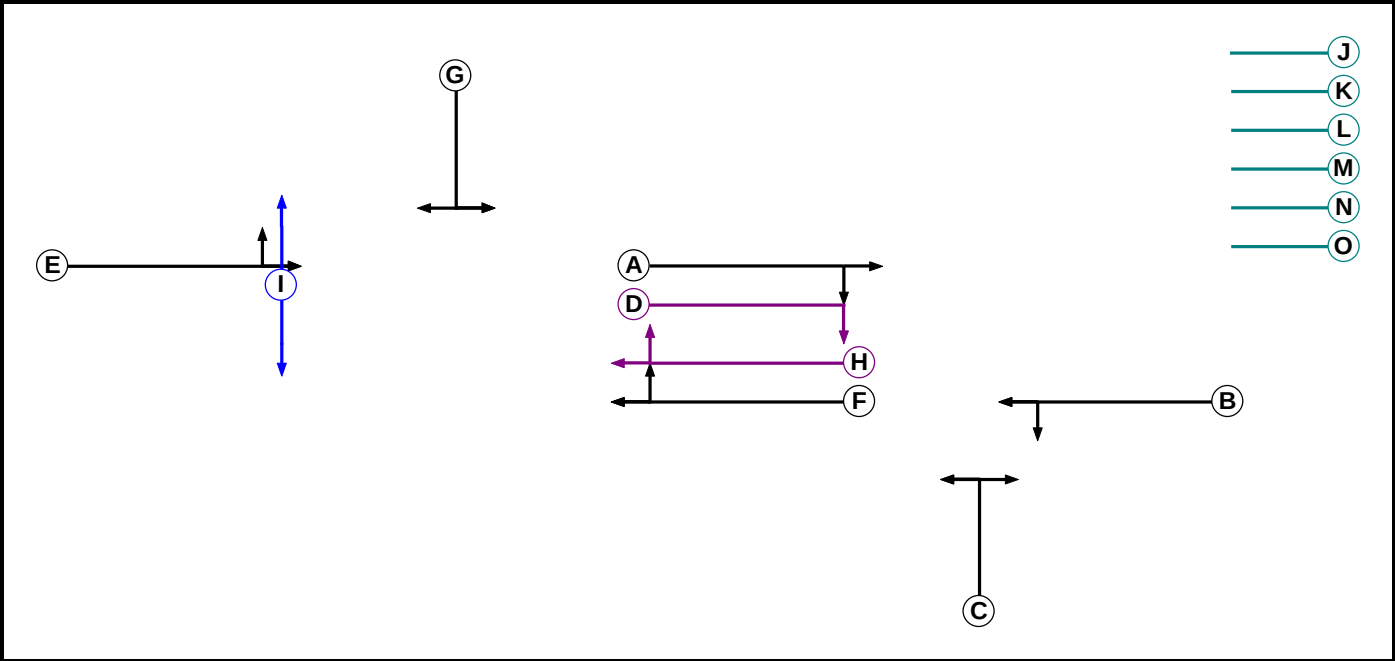
User and Project Details

Project:	Smithy Bridge Road, Rochdale
Title:	Halifax Road / Smithy Bridge Road / Union Road
Location:	
Additional detail:	
File name:	Halifax Rd_Union St_Smithy Bridge Rd - 2022 - Reduced Sat Flow.lsg3x
Author:	Michael Lancaster
Company:	i-Transport
Address:	Centurion House, 129 Deansgate, Manchester, M3 3WR

Network Layout Diagram



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	Ind. Arrow	A	4	4
E	Traffic		7	7
F	Traffic		7	7
G	Traffic		7	7
H	Ind. Arrow	F	4	4
I	Pedestrian		8	8
J	Dummy		1	1
K	Dummy		1	1
L	Dummy		2	2
M	Dummy		1	1
N	Dummy		1	1
O	Dummy		1	1

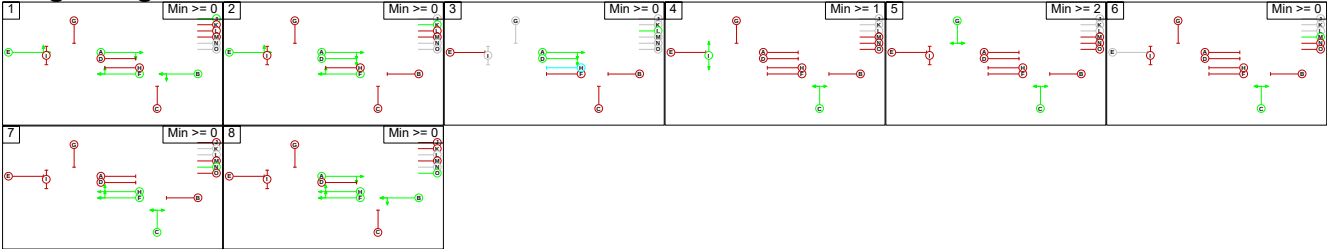
Phase Intergreens Matrix

Terminating Phase	Starting Phase															
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	A		-	7	-	-	-	-	-	-	-	-	-	-	-	-
	B	-		7	4	-	-	-	-	-	-	4	-	-	-	-
	C	8	8		8	-	-	-	-	-	-	-	-	-	-	8
	D	-	4	7		-	-	-	-	-	-	-	-	-	-	-
	E	-	-	-	-		-	7	4	5	-	-	4	-	-	-
	F	-	-	-	-	-		7	-	7	-	-	-	-	-	-
	G	-	-	-	-	6	7		7	10	-	-	-	3	7	-
	H	-	-	-	-	3	-	7		7	3	-	-	-	-	-
	I	-	-	-	-	5	5	5	5		-	-	-	1	5	-
	J	-	-	-	-	-	-	-	-	-		-	-	-	-	-
	K	-	-	-	-	-	-	-	-	-	-		-	-	-	-
	L	-	-	-	-	-	-	-	-	-	-	-		-	-	-
	M	-	-	-	-	-	2	-	2	-	-	-	-		2	-
	N	-	-	-	-	-	-	-	-	-	-	-	-	-		-
	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
2	3	F	Losing	1	1

Prohibited Stage Change

From Stage	To Stage								
		1	2	3	4	5	6	7	8
	1		4	4	7	7	7	7	4
	2	4		4	7	7	7	7	4
	3	4	2		7	7	7	X	X
	4	8	8	8		5	1	5	8
	5	8	8	8	10		3	7	8
	6	8	8	8	0	2		2	8
	7	8	8	8	7	7	0		8
	8	3	4	4	7	7	7	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Halifax Road / Union Road / Smithy Bridge Road											
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)
5/2	8/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00
				1/2	1.09	All					
6/2	10/1 (Right)	1439	0	3/1	1.09	All	1.00	-	0.50	1	2.00
				3/2	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Halifax Road / Union Road / Smithy Bridge Road												
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 (A58 New Road)	U	B	2	3	60.0	User	1600	-	-	-	-	-
1/2 (A58 New Road)	U	B	2	3	9.6	Geom	-	3.00	0.00	N	Arm 6 Ahead	Inf
2/1 (Smithy Bridge Road)	U	C	2	3	60.0	Geom	-	3.50	0.00	Y	Arm 6 Left	7.50
											Arm 7 Right	12.50
3/1 (A58 Halifax Road)	U	E	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Ahead	Inf
											Arm 10 Left	5.00
3/2 (A58 Halifax Road)	U	E	2	3	60.0	Geom	-	3.00	0.00	N	Arm 5 Ahead	Inf
4/1 (Union Road)	U	G	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 5 Left	5.00
											Arm 9 Right	15.00
5/1	U	A	2	3	5.2	Geom	-	3.00	0.00	Y	Arm 7 Ahead	Inf
5/2	O	A D	2	3	5.2	Geom	-	3.00	0.00	N	Arm 8 Right	5.00
6/1	U	F	2	3	5.2	Geom	-	3.00	0.00	Y	Arm 9 Ahead	Inf
6/2	O	F H	2	3	5.2	Geom	-	3.00	0.00	N	Arm 9 Ahead	Inf
											Arm 10 Right	10.00
7/1 (A58 New Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Smithy Bridge Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1 (A58 Halifax Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/2 (A58 Halifax Road)	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1 (Union Road)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
3: '2028 Base + Committed Dev AM'	07:45	08:45	01:00	
4: '2028 Base + Committed Dev PM'	16:45	17:45	01:00	
5: '2028 Base + Com + Dev AM'	07:45	08:45	01:00	
6: '2028 Base + Com + Dev PM'	16:45	17:45	01:00	

Scenario 3: '2028 Base + Committed Dev AM' (FG3: '2028 Base + Committed Dev AM', Plan 2: 'Observed with Ped')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	56	900	14	970
	B	98	0	352	13	463
	C	689	214	0	54	957
	D	12	7	48	0	67
	Tot.	799	277	1300	81	2457

Traffic Lane Flows

Lane	Scenario 3: 2028 Base + Committed Dev AM
Junction: Halifax Road / Union Road / Smithy Bridge Road	
1/1 (with short)	970(In) 677(Out)
1/2 (short)	293
2/1	463
3/1	743
3/2	214
4/1	67
5/1	701
5/2	221
6/1	798
6/2	481
7/1	799
8/1	277
9/1	846
9/2	454
10/1	81

Lane Saturation Flows

Junction: Halifax Road / Union Road / Smithy Bridge Road								
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 (A58 New Road Lane 1)	This lane uses a directly entered Saturation Flow						1600	1600
1/2 (A58 New Road)	3.00	0.00	N	Arm 6 Ahead	Inf	100.0 %	2055	2055
2/1 (Smithy Bridge Road)	3.50	0.00	Y	Arm 6 Left	7.50	78.8 %	1661	1661
				Arm 7 Right	12.50	21.2 %		
3/1 (A58 Halifax Road)	3.00	0.00	Y	Arm 5 Ahead Arm 10 Left	Inf 5.00	92.7 % 7.3 %	1874	1874
3/2 (A58 Halifax Road)	3.00	0.00	N	Arm 5 Ahead	Inf	100.0 %	2055	2055
4/1 (Union Road)	3.25	0.00	Y	Arm 5 Left	5.00	28.4 %	1677	1677
				Arm 9 Right	15.00	71.6 %		
5/1	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915	1915
5/2	3.00	0.00	N	Arm 8 Right	5.00	100.0 %	1581	1581
6/1	3.00	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1915	1915
6/2	3.00	0.00	N	Arm 9 Ahead	Inf	94.4 %	2038	2038
				Arm 10 Right	10.00	5.6 %		
7/1 (A58 New Road Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Smithy Bridge Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (A58 Halifax Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (A58 Halifax Road Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (Union Road Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2028 Base + Committed Dev PM' (FG4: '2028 Base + Committed Dev PM', Plan 2: 'Observed with Ped')

Traffic Flows, Desired**Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	97	780	6	883
	B	211	0	283	4	498
	C	948	225	0	18	1191
	D	7	4	25	0	36
	Tot.	1166	326	1088	28	2608

Traffic Lane Flows

Lane	Scenario 4: 2028 Base + Committed Dev PM
Junction: Halifax Road / Union Road / Smithy Bridge Road	
1/1 (with short)	883(In) 669(Out)
1/2 (short)	214
2/1	498
3/1	966
3/2	225
4/1	36
5/1	955
5/2	229
6/1	844
6/2	229
7/1	1166
8/1	326
9/1	869
9/2	219
10/1	28

Lane Saturation Flows

Junction: Halifax Road / Union Road / Smithy Bridge Road								
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 (A58 New Road Lane 1)	This lane uses a directly entered Saturation Flow						1600	1600
1/2 (A58 New Road)	3.00	0.00	N	Arm 6 Ahead	Inf	100.0 %	2055	2055
2/1 (Smithy Bridge Road)	3.50	0.00	Y	Arm 6 Left	7.50	57.6 %	1685	1685
				Arm 7 Right	12.50	42.4 %		
3/1 (A58 Halifax Road)	3.00	0.00	Y	Arm 5 Ahead Arm 10 Left	Inf 5.00	98.1 % 1.9 %	1904	1904
3/2 (A58 Halifax Road)	3.00	0.00	N	Arm 5 Ahead	Inf	100.0 %	2055	2055
4/1 (Union Road)	3.25	0.00	Y	Arm 5 Left	5.00	30.6 %	1671	1671
				Arm 9 Right	15.00	69.4 %		
5/1	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915	1915
5/2	3.00	0.00	N	Arm 8 Right	5.00	100.0 %	1581	1581
6/1	3.00	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1915	1915
6/2	3.00	0.00	N	Arm 9 Ahead	Inf	95.6 %	2042	2042
				Arm 10 Right	10.00	4.4 %		
7/1 (A58 New Road Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Smithy Bridge Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (A58 Halifax Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (A58 Halifax Road Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (Union Road Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2028 Base + Com + Dev AM' (FG5: '2028 Base + Com + Dev AM', Plan 2: 'Observed with Ped')
Traffic Flows, Desired
Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	58	900	14	972
	B	103	0	393	15	511
	C	689	228	0	54	971
	D	12	8	48	0	68
	Tot.	804	294	1341	83	2522

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 5: 2028 Base + Com + Dev AM
Junction: Halifax Road / Union Road / Smithy Bridge Road	
1/1 (with short)	972(In) 679(Out)
1/2 (short)	293
2/1	511
3/1	743
3/2	228
4/1	68
5/1	701
5/2	236
6/1	819
6/2	503
7/1	804
8/1	294
9/1	867
9/2	474
10/1	83

Lane Saturation Flows

Junction: Halifax Road / Union Road / Smithy Bridge Road								
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 (A58 New Road Lane 1)	This lane uses a directly entered Saturation Flow						1600	1600
1/2 (A58 New Road)	3.00	0.00	N	Arm 6 Ahead	Inf	100.0 %	2055	2055
2/1 (Smithy Bridge Road)	3.50	0.00	Y	Arm 6 Left	7.50	79.8 %	1660	1660
				Arm 7 Right	12.50	20.2 %		
3/1 (A58 Halifax Road)	3.00	0.00	Y	Arm 5 Ahead Arm 10 Left	Inf 5.00	92.7 % 7.3 %	1874	1874
3/2 (A58 Halifax Road)	3.00	0.00	N	Arm 5 Ahead	Inf	100.0 %	2055	2055
4/1 (Union Road)	3.25	0.00	Y	Arm 5 Left	5.00	29.4 %	1674	1674
				Arm 9 Right	15.00	70.6 %		
5/1	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915	1915
5/2	3.00	0.00	N	Arm 8 Right	5.00	100.0 %	1581	1581
6/1	3.00	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1915	1915
6/2	3.00	0.00	N	Arm 9 Ahead	Inf	94.2 %	2037	2037
				Arm 10 Right	10.00	5.8 %		
7/1 (A58 New Road Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Smithy Bridge Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (A58 Halifax Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (A58 Halifax Road Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (Union Road Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2028 Base + Com + Dev PM' (FG6: '2028 Base + Com + Dev PM', Plan 2: 'Observed with Ped')
Traffic Flows, Desired
Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	102	780	6	888
	B	214	0	305	5	524
	C	948	262	0	18	1228
	D	7	5	25	0	37
	Tot.	1169	369	1110	29	2677

Full Input Data And Results

Traffic Lane Flows

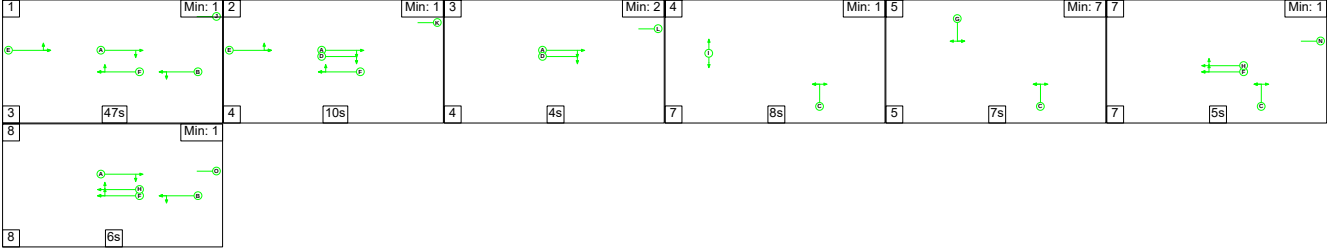
Lane	Scenario 6: 2028 Base + Com + Dev PM
Junction: Halifax Road / Union Road / Smithy Bridge Road	
1/1 (with short)	888(In) 674(Out)
1/2 (short)	214
2/1	524
3/1	966
3/2	262
4/1	37
5/1	955
5/2	267
6/1	870
6/2	226
7/1	1169
8/1	369
9/1	895
9/2	215
10/1	29

Lane Saturation Flows

Junction: Halifax Road / Union Road / Smithy Bridge Road								
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 (A58 New Road Lane 1)	This lane uses a directly entered Saturation Flow						1600	1600
1/2 (A58 New Road)	3.00	0.00	N	Arm 6 Ahead	Inf	100.0 %	2055	2055
2/1 (Smithy Bridge Road)	3.50	0.00	Y	Arm 6 Left	7.50	59.2 %	1683	1683
				Arm 7 Right	12.50	40.8 %		
3/1 (A58 Halifax Road)	3.00	0.00	Y	Arm 5 Ahead	Inf	98.1 %	1904	1904
				Arm 10 Left	5.00	1.9 %		
3/2 (A58 Halifax Road)	3.00	0.00	N	Arm 5 Ahead	Inf	100.0 %	2055	2055
4/1 (Union Road)	3.25	0.00	Y	Arm 5 Left	5.00	32.4 %	1665	1665
				Arm 9 Right	15.00	67.6 %		
5/1	3.00	0.00	Y	Arm 7 Ahead	Inf	100.0 %	1915	1915
5/2	3.00	0.00	N	Arm 8 Right	5.00	100.0 %	1581	1581
6/1	3.00	0.00	Y	Arm 9 Ahead	Inf	100.0 %	1915	1915
6/2	3.00	0.00	N	Arm 9 Ahead	Inf	95.1 %	2040	2040
				Arm 10 Right	10.00	4.9 %		
7/1 (A58 New Road Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Smithy Bridge Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (A58 Halifax Road Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (A58 Halifax Road Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (Union Road Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2028 Base + Committed Dev AM' (FG3: '2028 Base + Committed Dev AM', Plan 2: 'Observed with Ped')

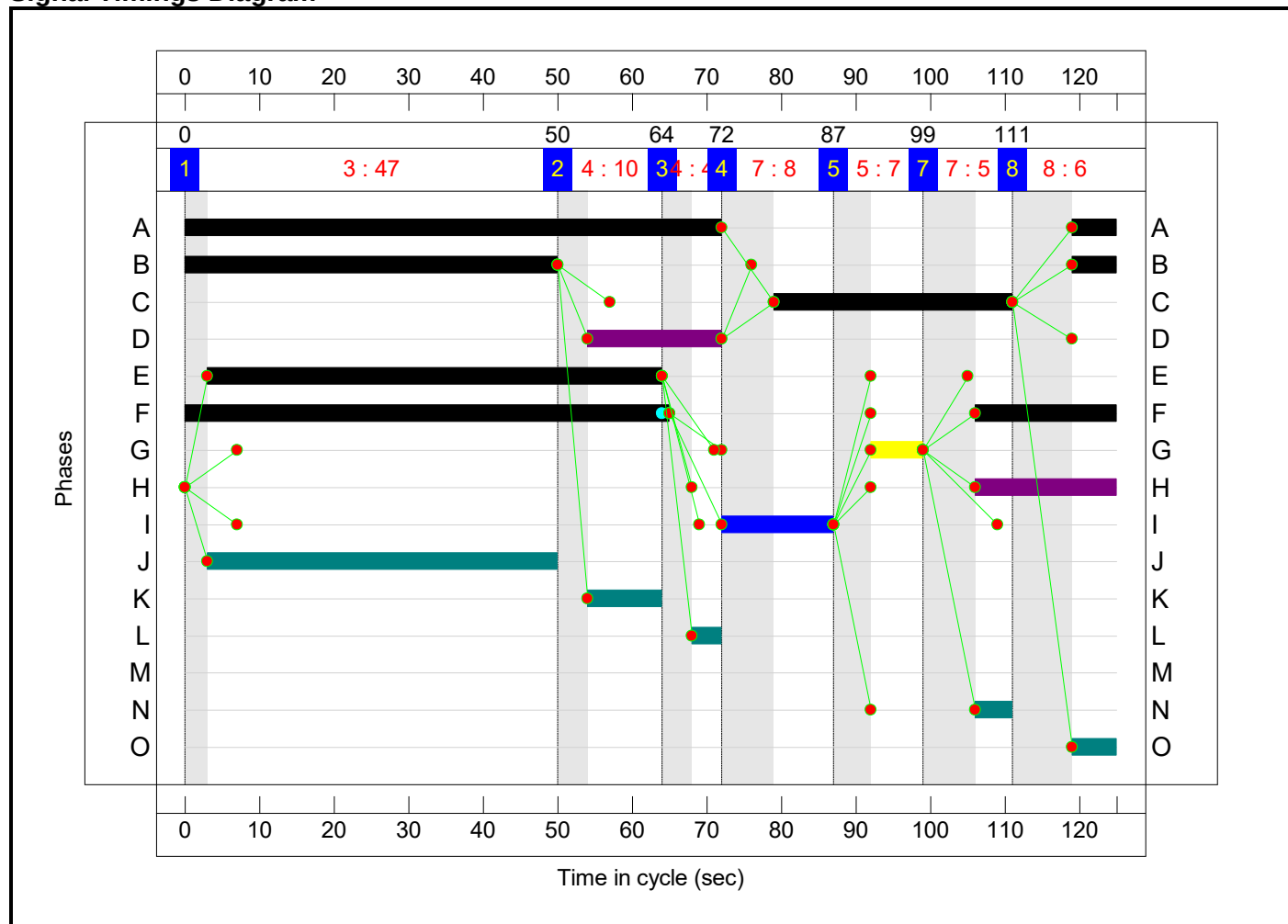
Stage Sequence Diagram



Stage Timings

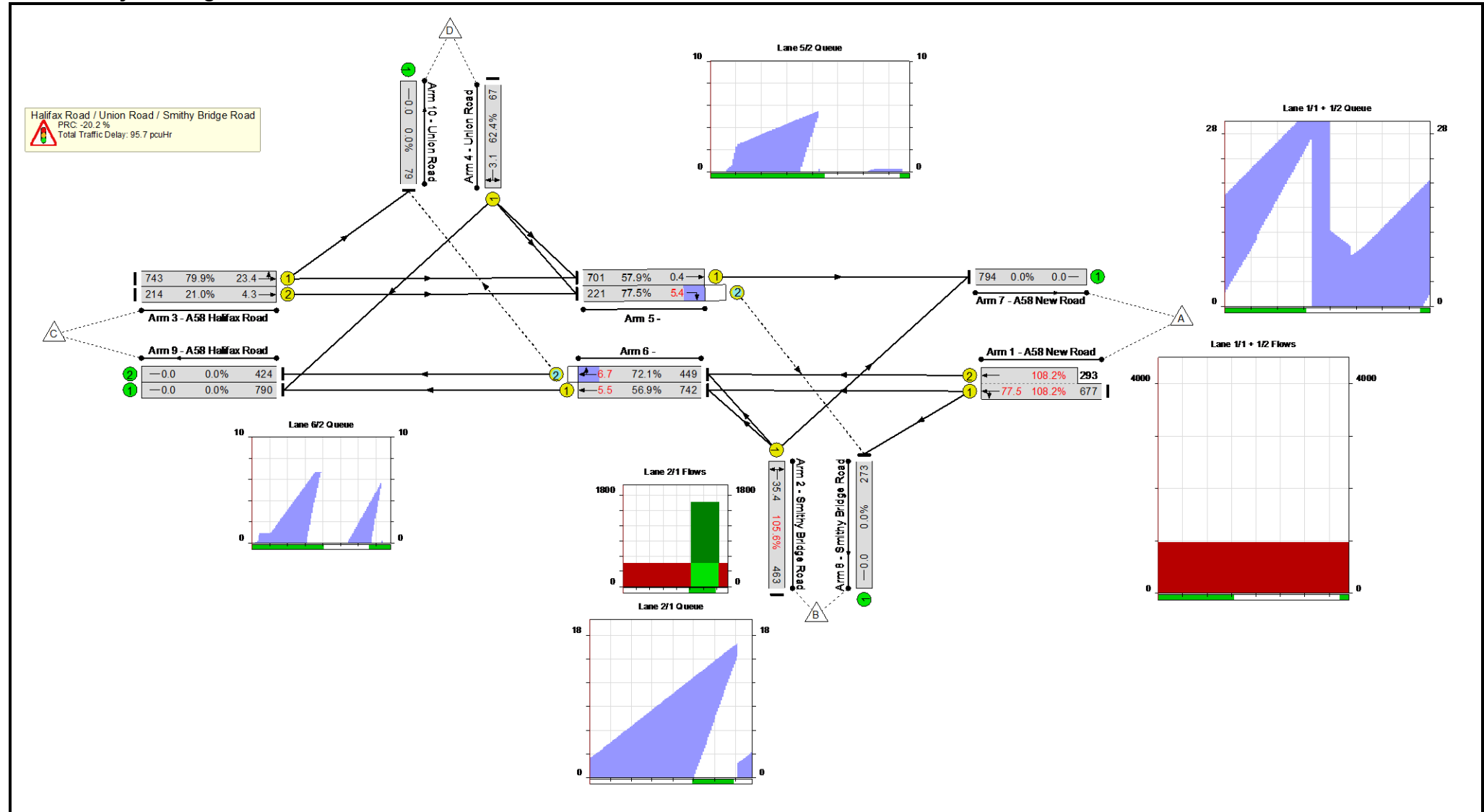
Stage	1	2	3	4	5	7	8
Duration	47	10	4	8	7	5	6
Change Point	0	50	64	72	87	99	111

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

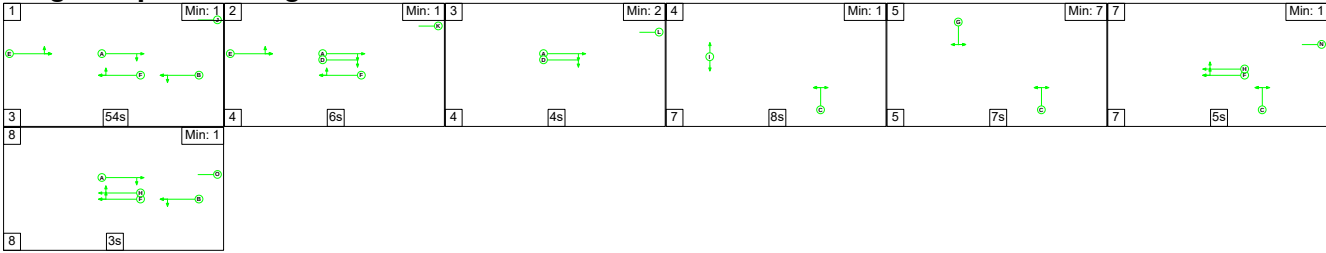
Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Halifax Road / Smithy Bridge Road / Union Road	-	-	N/A	-	-		-	-	-	-	-	-	108.2%
Halifax Road / Union Road / Smithy Bridge Road	-	-	N/A	-	-		-	-	-	-	-	-	108.2%
1/1+1/2	A58 New Road Ahead Left	U	N/A	N/A	B		1	56	-	970	1600:2055	626+271	108.2 : 108.2%
2/1	Smithy Bridge Road Left Right	U	N/A	N/A	C		1	32	-	463	1661	439	105.6%
3/1	A58 Halifax Road Ahead Left	U	N/A	N/A	E		1	61	-	743	1874	930	79.9%
3/2	A58 Halifax Road Ahead	U	N/A	N/A	E		1	61	-	214	2055	1019	21.0%
4/1	Union Road Left Right	U	N/A	N/A	G		1	7	-	67	1677	107	62.4%
5/1	Ahead	U	N/A	N/A	A		1	78	-	701	1915	1210	57.9%
5/2	Right	O	N/A	N/A	A	D	1	78	18	221	1581	285	77.5%
6/1	Ahead	U	N/A	N/A	F		1	84	-	798	1915	1302	56.9%
6/2	Ahead Right	O	N/A	N/A	F	H	1	84	19	481	2038	622	72.1%
7/1	A58 New Road	U	N/A	N/A	-		-	-	-	799	Inf	Inf	0.0%
8/1	Smithy Bridge Road	U	N/A	N/A	-		-	-	-	277	Inf	Inf	0.0%
9/1	A58 Halifax Road	U	N/A	N/A	-		-	-	-	846	Inf	Inf	0.0%
9/2	A58 Halifax Road	U	N/A	N/A	-		-	-	-	454	Inf	Inf	0.0%
10/1	Union Road	U	N/A	N/A	-		-	-	-	81	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: Halifax Road / Smithy Bridge Road / Union Road	-	-	11	236	0	31.0	63.9	0.8	95.7	-	-	-	-
Halifax Road / Union Road / Smithy Bridge Road	-	-	11	236	0	31.0	63.9	0.8	95.7	-	-	-	-
1/1+1/2	970	896	-	-	-	12.8	42.5	-	55.3	205.3	35.0	42.5	77.5
2/1	463	439	-	-	-	7.0	18.5	-	25.5	198.0	16.9	18.5	35.4
3/1	743	743	-	-	-	5.4	2.0	-	7.4	35.8	21.5	2.0	23.4
3/2	214	214	-	-	-	1.1	0.1	-	1.2	20.0	4.2	0.1	4.3
4/1	67	67	-	-	-	1.1	0.8	-	1.9	100.0	2.3	0.8	3.1
5/1	701	701	-	-	-	0.1	0.0	-	0.1	0.3	0.4	0.0	0.4
5/2	221	221	0	221	0	1.5	0.0	0.7	2.2	36.1	5.4	0.0	5.4
6/1	742	742	-	-	-	0.5	0.0	-	0.5	2.3	5.5	0.0	5.5
6/2	449	449	11	15	0	1.7	0.0	0.0	1.7	13.9	6.7	0.0	6.7
7/1	794	794	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	273	273	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	790	790	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	424	424	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	79	79	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -20.2 Total Delay for Signalled Lanes (pcuHr): 95.69 Cycle Time (s): 125 PRC Over All Lanes (%): -20.2 Total Delay Over All Lanes(pcuHr): 95.69													

Full Input Data And Results
Scenario 4: '2028 Base + Committed Dev PM' (FG4: '2028 Base + Committed Dev PM', Plan 2: 'Observed with Ped')

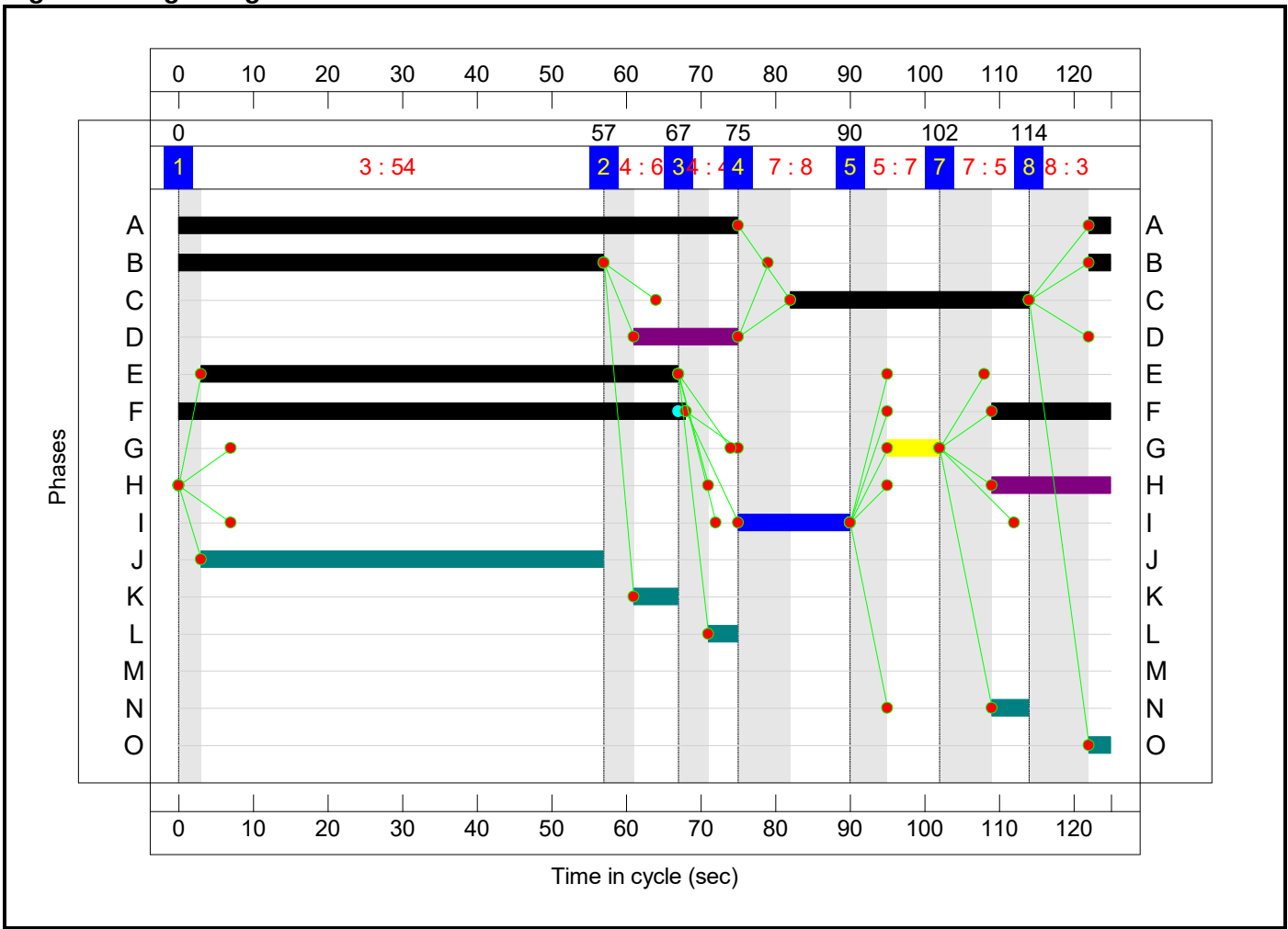
Stage Sequence Diagram



Stage Timings

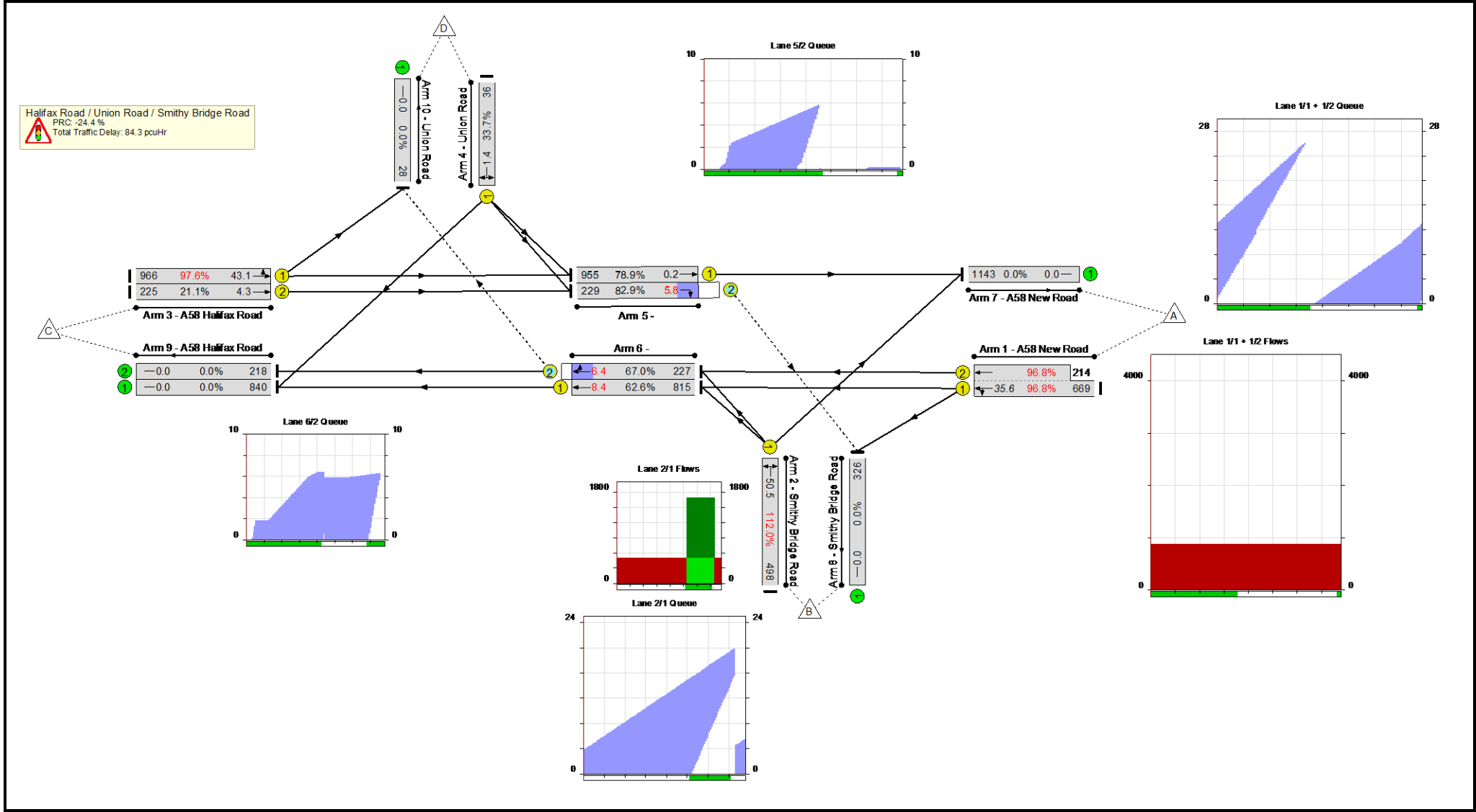
Stage	1	2	3	4	5	7	8
Duration	54	6	4	8	7	5	3
Change Point	0	57	67	75	90	102	114

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: Halifax Road / Smithy Bridge Road / Union Road	-	-	N/A	-	-		-	-	-	-	-	-	112.0%
Halifax Road / Union Road / Smithy Bridge Road	-	-	N/A	-	-		-	-	-	-	-	-	112.0%
1/1+1/2	A58 New Road Ahead Left	U	N/A	N/A	B		1	60	-	883	1600:2055	691+221	96.8 : 96.8%
2/1	Smithy Bridge Road Left Right	U	N/A	N/A	C		1	32	-	498	1685	445	112.0%
3/1	A58 Halifax Road Ahead Left	U	N/A	N/A	E		1	64	-	966	1904	990	97.6%
3/2	A58 Halifax Road Ahead	U	N/A	N/A	E		1	64	-	225	2055	1069	21.1%
4/1	Union Road Left Right	U	N/A	N/A	G		1	7	-	36	1671	107	33.7%
5/1	Ahead	U	N/A	N/A	A		1	78	-	955	1915	1210	78.9%
5/2	Right	O	N/A	N/A	A	D	1	78	14	229	1581	276	82.9%
6/1	Ahead	U	N/A	N/A	F		1	84	-	844	1915	1302	62.6%
6/2	Ahead Right	O	N/A	N/A	F	H	1	84	16	229	2042	339	67.0%
7/1	A58 New Road	U	N/A	N/A	-		-	-	-	1166	Inf	Inf	0.0%
8/1	Smithy Bridge Road	U	N/A	N/A	-		-	-	-	326	Inf	Inf	0.0%
9/1	A58 Halifax Road	U	N/A	N/A	-		-	-	-	869	Inf	Inf	0.0%
9/2	A58 Halifax Road	U	N/A	N/A	-		-	-	-	219	Inf	Inf	0.0%
10/1	Union Road	U	N/A	N/A	-		-	-	-	28	Inf	Inf	0.0%

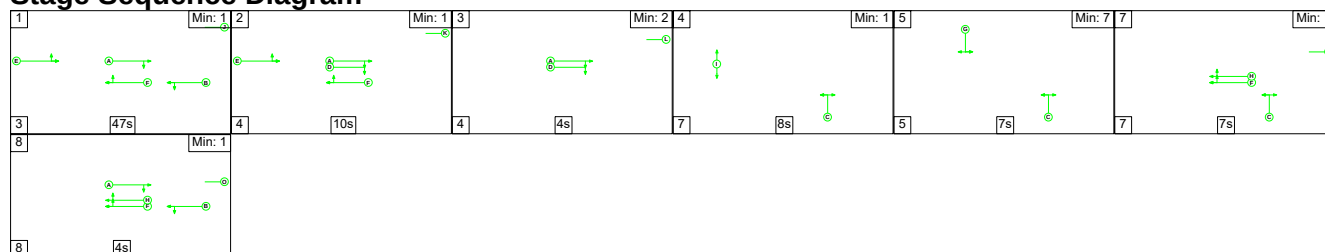
Full Input Data And Results

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: Halifax Road / Smithy Bridge Road / Union Road	-	-	17	211	11	32.4	50.9	0.9	84.3	-	-	-	-
Halifax Road / Union Road / Smithy Bridge Road	-	-	17	211	11	32.4	50.9	0.9	84.3	-	-	-	-
1/1+1/2	883	883	-	-	-	7.0	9.3	-	16.2	66.2	26.4	9.3	35.6
2/1	498	445	-	-	-	9.3	30.6	-	40.0	288.9	19.9	30.6	50.5
3/1	966	966	-	-	-	7.8	10.6	-	18.5	68.9	32.5	10.6	43.1
3/2	225	225	-	-	-	1.0	0.1	-	1.1	18.3	4.2	0.1	4.3
4/1	36	36	-	-	-	0.6	0.3	-	0.8	81.2	1.2	0.3	1.4
5/1	955	955	-	-	-	0.0	0.0	-	0.0	0.2	0.2	0.0	0.2
5/2	229	229	16	202	10	1.6	0.0	0.9	2.5	39.8	5.8	0.0	5.8
6/1	815	815	-	-	-	0.8	0.0	-	0.8	3.7	8.4	0.0	8.4
6/2	227	227	1	8	1	4.2	0.0	0.0	4.2	66.9	6.4	0.0	6.4
7/1	1143	1143	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	326	326	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	840	840	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	218	218	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	28	28	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -24.4 Total Delay for Signalled Lanes (pcuHr): 84.27 Cycle Time (s): 125 PRC Over All Lanes (%): -24.4 Total Delay Over All Lanes(pcuHr): 84.27													

Full Input Data And Results

Scenario 5: '2028 Base + Com + Dev AM' (FG5: '2028 Base + Com + Dev AM', Plan 2: 'Observed with Ped')

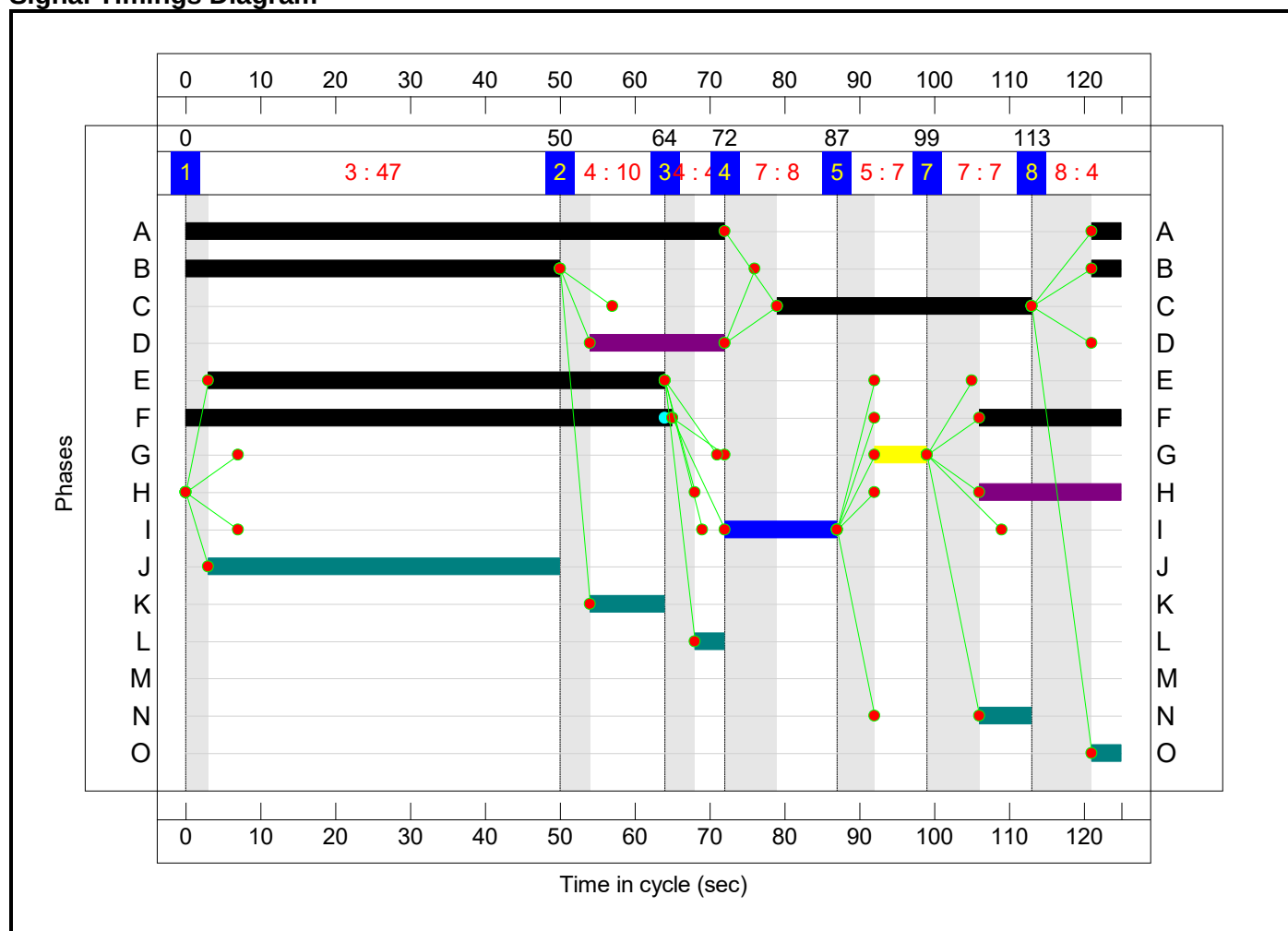
Stage Sequence Diagram



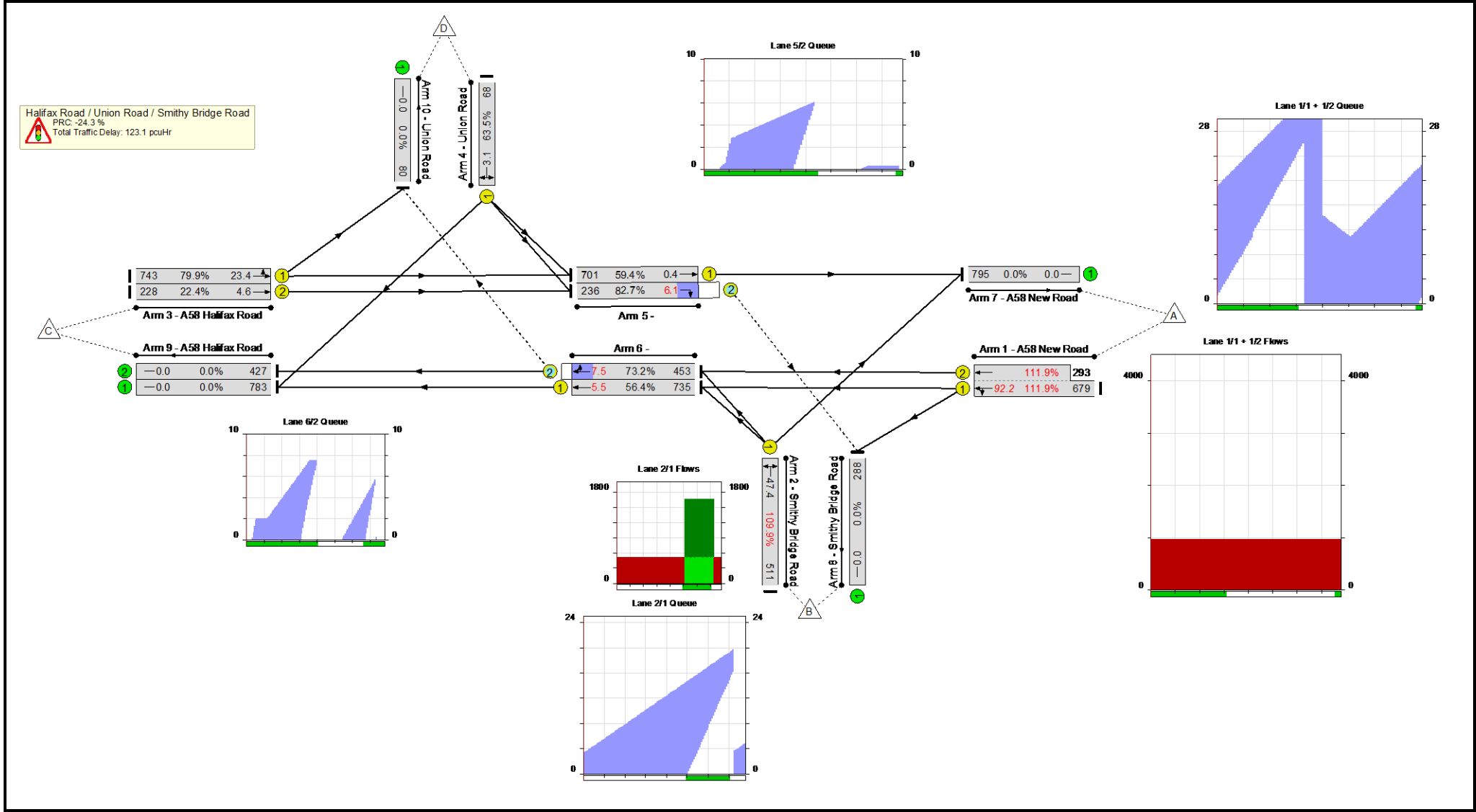
Stage Timings

Stage	1	2	3	4	5	7	8
Duration	47	10	4	8	7	7	4
Change Point	0	50	64	72	87	99	113

Signal Timings Diagram



Full Input Data And Results
Network Layout Diagram



Full Input Data And Results

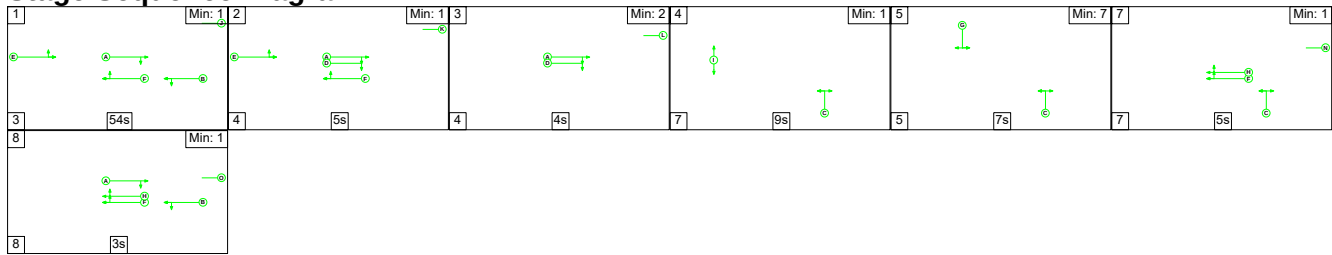
Network Results

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: Halifax Road / Smithy Bridge Road / Union Road	-	-	N/A	-	-		-	-	-	-	-	-	111.9%
Halifax Road / Union Road / Smithy Bridge Road	-	-	N/A	-	-		-	-	-	-	-	-	111.9%
1/1+1/2	A58 New Road Ahead Left	U	N/A	N/A	B		1	54	-	972	1600:2055	607+262	111.9 : 111.9%
2/1	Smithy Bridge Road Left Right	U	N/A	N/A	C		1	34	-	511	1660	465	109.9%
3/1	A58 Halifax Road Ahead Left	U	N/A	N/A	E		1	61	-	743	1874	930	79.9%
3/2	A58 Halifax Road Ahead	U	N/A	N/A	E		1	61	-	228	2055	1019	22.4%
4/1	Union Road Left Right	U	N/A	N/A	G		1	7	-	68	1674	107	63.5%
5/1	Ahead	U	N/A	N/A	A		1	76	-	701	1915	1180	59.4%
5/2	Right	O	N/A	N/A	A	D	1	76	18	236	1581	285	82.7%
6/1	Ahead	U	N/A	N/A	F		1	84	-	819	1915	1302	56.4%
6/2	Ahead Right	O	N/A	N/A	F	H	1	84	19	503	2037	619	73.2%
7/1	A58 New Road	U	N/A	N/A	-		-	-	-	804	Inf	Inf	0.0%
8/1	Smithy Bridge Road	U	N/A	N/A	-		-	-	-	294	Inf	Inf	0.0%
9/1	A58 Halifax Road	U	N/A	N/A	-		-	-	-	867	Inf	Inf	0.0%
9/2	A58 Halifax Road	U	N/A	N/A	-		-	-	-	474	Inf	Inf	0.0%
10/1	Union Road	U	N/A	N/A	-		-	-	-	83	Inf	Inf	0.0%

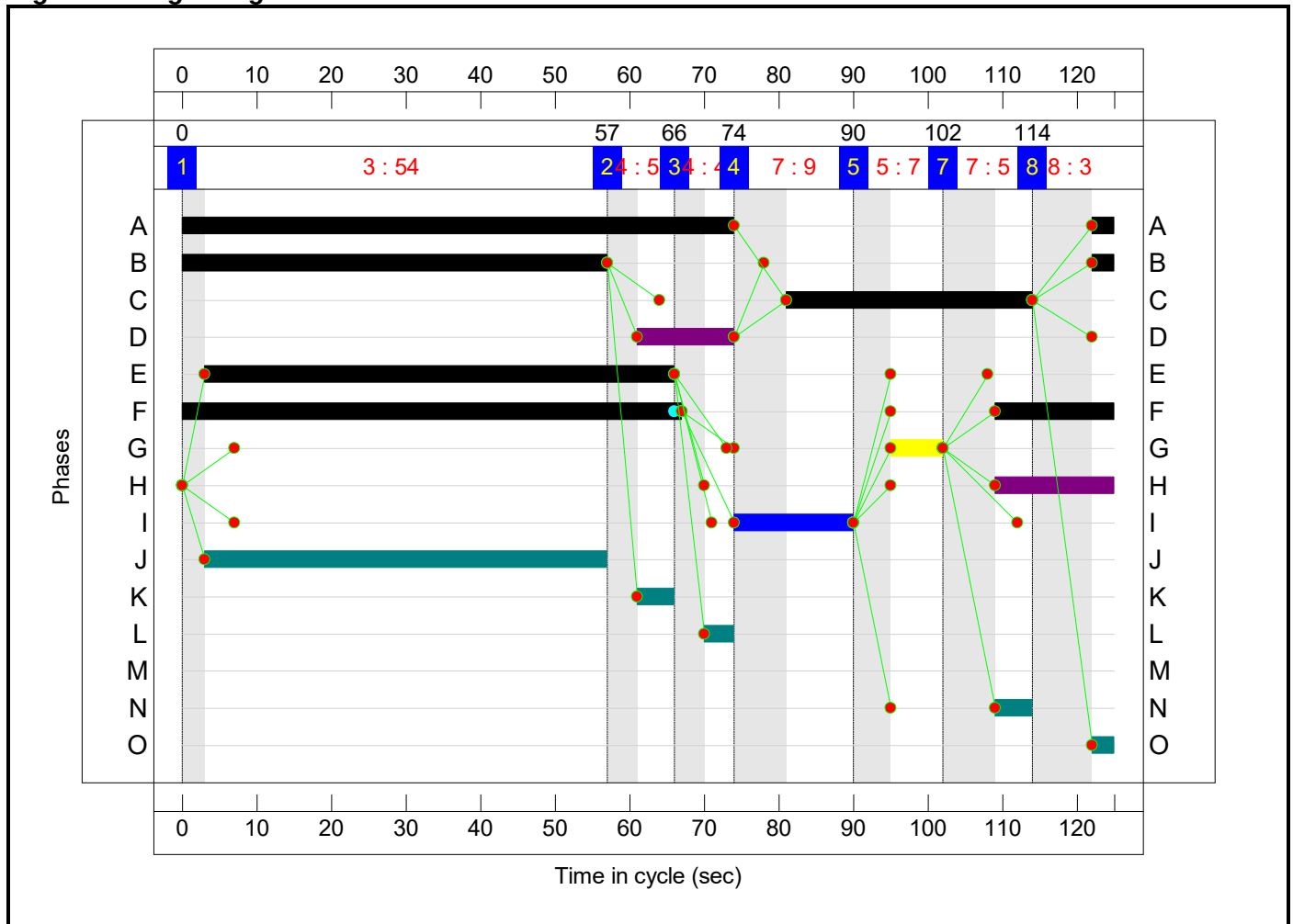
Full Input Data And Results

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: Halifax Road / Smithy Bridge Road / Union Road	-	-	12	250	0	35.6	86.7	0.8	123.1	-	-	-	-
Halifax Road / Union Road / Smithy Bridge Road	-	-	12	250	0	35.6	86.7	0.8	123.1	-	-	-	-
1/1+1/2	972	869	-	-	-	15.0	56.1	-	71.1	263.2	36.2	56.1	92.2
2/1	511	465	-	-	-	8.7	27.7	-	36.4	256.3	19.7	27.7	47.4
3/1	743	743	-	-	-	5.4	2.0	-	7.4	35.8	21.5	2.0	23.4
3/2	228	228	-	-	-	1.1	0.1	-	1.3	20.1	4.4	0.1	4.6
4/1	68	68	-	-	-	1.1	0.8	-	1.9	101.2	2.3	0.8	3.1
5/1	701	701	-	-	-	0.1	0.0	-	0.1	0.4	0.4	0.0	0.4
5/2	236	236	0	236	0	1.7	0.0	0.8	2.4	36.7	6.1	0.0	6.1
6/1	735	735	-	-	-	0.5	0.0	-	0.5	2.3	5.5	0.0	5.5
6/2	453	453	12	14	0	2.1	0.0	0.0	2.1	17.0	7.5	0.0	7.5
7/1	795	795	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	288	288	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	783	783	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	427	427	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	80	80	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -24.3 Total Delay for Signalled Lanes (pcuHr): 123.08 Cycle Time (s): 125 PRC Over All Lanes (%): -24.3 Total Delay Over All Lanes(pcuHr): 123.08													

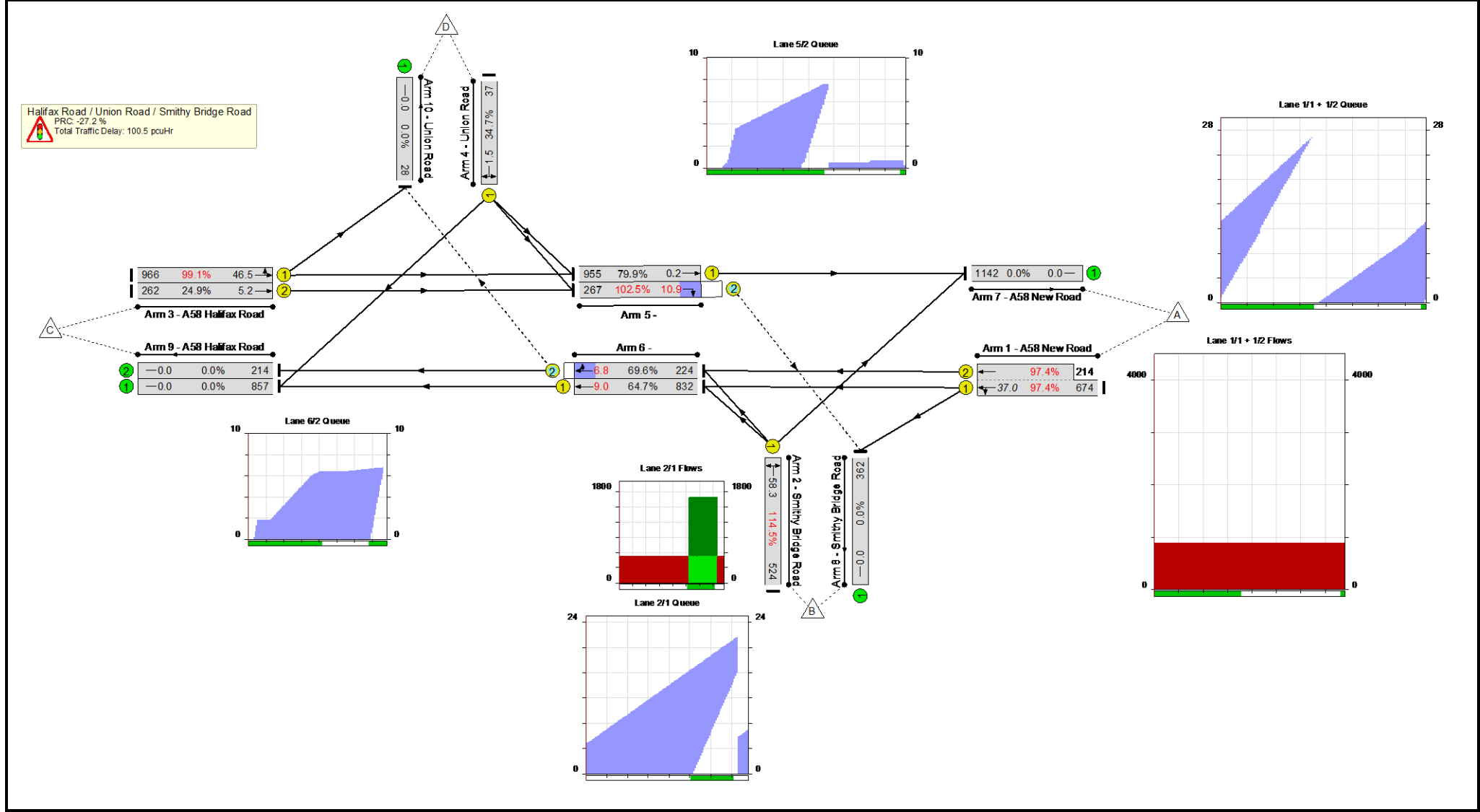
Stage Sequence Diagram



Stage	1	2	3	4	5	7	8
Duration	54	5	4	9	7	5	3
Change Point	0	57	66	74	90	102	114



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: Halifax Road / Smithy Bridge Road / Union Road	-	-	N/A	-	-		-	-	-	-	-	-	114.5%
Halifax Road / Union Road / Smithy Bridge Road	-	-	N/A	-	-		-	-	-	-	-	-	114.5%
1/1+1/2	A58 New Road Ahead Left	U	N/A	N/A	B		1	60	-	888	1600:2055	692+220	97.4 : 97.4%
2/1	Smithy Bridge Road Left Right	U	N/A	N/A	C		1	33	-	524	1683	458	114.5%
3/1	A58 Halifax Road Ahead Left	U	N/A	N/A	E		1	63	-	966	1904	975	99.1%
3/2	A58 Halifax Road Ahead	U	N/A	N/A	E		1	63	-	262	2055	1052	24.9%
4/1	Union Road Left Right	U	N/A	N/A	G		1	7	-	37	1665	107	34.7%
5/1	Ahead	U	N/A	N/A	A		1	77	-	955	1915	1195	79.9%
5/2	Right	O	N/A	N/A	A	D	1	77	13	267	1581	260	102.5%
6/1	Ahead	U	N/A	N/A	F		1	83	-	870	1915	1287	64.7%
6/2	Ahead Right	O	N/A	N/A	F	H	1	83	16	226	2040	323	69.6%
7/1	A58 New Road	U	N/A	N/A	-		-	-	-	1169	Inf	Inf	0.0%
8/1	Smithy Bridge Road	U	N/A	N/A	-		-	-	-	369	Inf	Inf	0.0%
9/1	A58 Halifax Road	U	N/A	N/A	-		-	-	-	895	Inf	Inf	0.0%
9/2	A58 Halifax Road	U	N/A	N/A	-		-	-	-	215	Inf	Inf	0.0%
10/1	Union Road	U	N/A	N/A	-		-	-	-	29	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: Halifax Road / Smithy Bridge Road / Union Road	-	-	13	199	58	35.4	64.1	1.0	100.5	-	-	-	-
Halifax Road / Union Road / Smithy Bridge Road	-	-	13	199	58	35.4	64.1	1.0	100.5	-	-	-	-
1/1+1/2	888	888	-	-	-	7.0	10.2	-	17.2	69.8	26.8	10.2	37.0
2/1	524	458	-	-	-	10.5	36.7	-	47.2	324.3	21.6	36.7	58.3
3/1	966	966	-	-	-	8.1	13.5	-	21.6	80.5	33.0	13.5	46.5
3/2	262	262	-	-	-	1.2	0.2	-	1.4	19.3	5.0	0.2	5.2
4/1	37	37	-	-	-	0.6	0.3	-	0.8	81.7	1.2	0.3	1.5
5/1	955	955	-	-	-	0.0	0.0	-	0.0	0.2	0.2	0.0	0.2
5/2	267	260	13	190	58	2.5	3.3	1.0	6.8	91.3	7.6	3.3	10.9
6/1	832	832	-	-	-	1.0	0.0	-	1.0	4.2	9.0	0.0	9.0
6/2	224	224	0	10	1	4.4	0.0	0.0	4.4	71.2	6.8	0.0	6.8
7/1	1142	1142	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	362	362	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	857	857	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/2	214	214	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	28	28	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -27.2 Total Delay for Signalled Lanes (pcuHr): 100.50 Cycle Time (s): 125 PRC Over All Lanes (%): -27.2 Total Delay Over All Lanes(pcuHr): 100.50													

Junctions 9													
PICADY 9 - Priority Intersection Module													
Version: 9.5.0.6896													
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Filename: A58_Holland Street_Braddocks Close - 2028 scenarios.j9

Path: M:\Projects\11353\ITM Smithy Bridge Road, Rochdale\Tech\Picady\2022 updated application

Report generation date: 22/04/2022 11:11:47

- »2028 Base + Committed, AM
- »2028 Base + Committed, PM
- »2028 Base + Committed + Development, AM
- »2028 Base + Committed + Development, PM

Summary of junction performance

	AM						PM					
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2028 Base + Committed											
Stream B-ACD	0.2	21.48	0.17	C	0.59	10 % [Stream B-ACD]	0.1	6.61	0.08	A	3.41	636 % [Stream D-ABC]
Stream A-BCD	0.0	7.89	0.01	A			0.0	5.79	0.00	A		
Stream D-ABC	0.1	19.57	0.10	C			0.1	6.89	0.08	A		
Stream C-ABD	0.1	12.02	0.05	B			0.0	5.83	0.00	A		
	2028 Base + Committed + Development											
Stream B-ACD	0.2	23.45	0.18	C	0.62	7 % [Stream B-ACD]	0.1	6.61	0.08	A	3.41	636 % [Stream D-ABC]
Stream A-BCD	0.0	7.93	0.02	A			0.0	5.79	0.00	A		
Stream D-ABC	0.1	20.65	0.10	C			0.1	6.89	0.08	A		
Stream C-ABD	0.1	12.34	0.06	B			0.0	5.83	0.00	A		

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	Halifax Road_Holland Street_Braddocks Close
Location	Smithy Bridge
Site number	
Date	26/04/2019
Version	
Status	(new file)
Identifier	LH
Client	
Jobnumber	ITM11353
Enumerator	I-TRANSPORT\ManchesterHotdesk
Description	Single Access Calcs

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	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2028 Base + Committed	AM	ONE HOUR	07:15	08:45		15	✓
D2	2028 Base + Committed	PM	LEVELS	16:15	17:45	90	15	✓
D3	2028 Base + Committed + Development	AM	ONE HOUR	07:15	08:45		15	✓
D4	2028 Base + Committed + Development	PM	LEVELS	16:15	17:45	90	15	✓

Analysis Set Details

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

2028 Base + Committed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		0.59	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	10	Stream B-ACD

Arms

Arms

Arm	Name	Description	Arm type
A	Halifax Road (E)		Major
B	Holland Street		Minor
C	Halifax Road (W)		Major
D	Braddocks Close		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - Halifax Road (E)	8.95		✓	2.20	100.0	✓	1.00
C - Halifax Road (W)	8.95		✓	2.60	100.0	✓	2.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Holland Street	One lane	3.80	19	22
D - Braddocks Close	One lane	3.80	24	26

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
1	A-D	632	-	-	-	-	-	-	0.213	0.305	0.213	-	-	-
1	B-A	534	0.085	0.214	0.214	-	-	-	0.135	0.306	-	0.214	0.214	0.107
1	B-C	689	0.092	0.233	-	-	-	-	-	-	-	-	-	-
1	B-D, nearside lane	534	0.085	0.214	0.214	-	-	-	0.135	0.306	0.135	-	-	-
1	B-D, offside lane	534	0.085	0.214	0.214	-	-	-	0.135	0.306	0.135	-	-	-
1	C-B	659	0.223	0.223	0.318	-	-	-	-	-	-	-	-	-
1	D-A	691	-	-	-	-	-	-	0.234	-	0.092	-	-	-
1	D-B, nearside lane	538	0.136	0.136	0.308	-	-	-	0.216	0.216	0.085	-	-	-
1	D-B, offside lane	538	0.136	0.136	0.308	-	-	-	0.216	0.216	0.085	-	-	-
1	D-C	538	-	0.136	0.308	0.108	0.216	0.216	0.216	0.216	0.085	-	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2028 Base + Committed	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Halifax Road (E)		ONE HOUR	✓	1296	100.000
B - Holland Street		ONE HOUR	✓	31	100.000
C - Halifax Road (W)		ONE HOUR	✓	799	100.000
D - Braddocks Close		ONE HOUR	✓	18	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A - Halifax Road (E)	B - Holland Street	C - Halifax Road (W)	D - Braddocks Close
From A - Halifax Road (E)	0	5	1285	6
From B - Holland Street	10	0	21	0
From C - Halifax Road (W)	775	17	0	7
From D - Braddocks Close	7	0	11	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A - Halifax Road (E)	B - Holland Street	C - Halifax Road (W)	D - Braddocks Close
From A - Halifax Road (E)	0	0	2	0
From B - Holland Street	0	0	0	0
From C - Halifax Road (W)	5	9	0	0
From D - Braddocks Close	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.17	21.48	0.2	C	28	43
ABCD	0.01	7.89	0.0	A	6	9
A-B					5	7
A-C					1179	1768
D-ABC	0.10	19.57	0.1	C	17	25
C-ABD	0.05	12.02	0.1	B	16	24
C-D					6	10
C-A					711	1067

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	23	6	357	0.065	23	0.0	0.1	10.777	B
ABCD	5	1	511	0.009	5	0.0	0.0	7.109	A
AB	4	0.94			4				
AC	967	242			967				
D-ABC	14	3	339	0.040	13	0.0	0.0	11.053	B
C-ABD	13	3	443	0.029	13	0.0	0.0	9.124	A
C-D	5	1			5				
C-A	583	146			583				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	28	7	297	0.094	28	0.1	0.1	13.377	B
ABCD	6	1	490	0.011	6	0.0	0.0	7.429	A
AB	4	1			4				
AC	1155	289			1155				
D-ABC	16	4	284	0.057	16	0.0	0.1	13.411	B
C-ABD	15	4	401	0.038	15	0.0	0.0	10.166	B
C-D	6	2			6				
C-A	697	174			697				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	34	9	202	0.169	34	0.1	0.2	21.379	C
ABCD	7	2	464	0.015	7	0.0	0.0	7.890	A
AB	6	1			6				
AC	1414	354			1414				
D-ABC	20	5	204	0.097	20	0.1	0.1	19.527	C
C-ABD	19	5	345	0.055	19	0.0	0.1	12.017	B
C-D	8	2			8				
C-A	853	213			853				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	34	9	202	0.169	34	0.2	0.2	21.480	C
ABCD	7	2	464	0.015	7	0.0	0.0	7.892	A
AB	6	1			6				
AC	1414	354			1414				
D-ABC	20	5	204	0.097	20	0.1	0.1	19.575	C
C-ABD	19	5	345	0.055	19	0.1	0.1	12.022	B
C-D	8	2			8				
C-A	853	213			853				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	28	7	297	0.094	28	0.2	0.1	13.433	B
ABCD	6	1	490	0.011	6	0.0	0.0	7.433	A
A-B	4	1			4				
A-C	1155	289			1155				
D-ABC	16	4	284	0.057	16	0.1	0.1	13.443	B
C-ABD	15	4	401	0.038	15	0.1	0.0	10.172	B
C-D	6	2			6				
C-A	697	174			697				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	23	6	357	0.065	23	0.1	0.1	10.808	B
ABCD	5	1	511	0.009	5	0.0	0.0	7.110	A
A-B	4	0.94			4				
A-C	967	242			967				
D-ABC	14	3	339	0.040	14	0.1	0.0	11.075	B
C-ABD	13	3	443	0.029	13	0.0	0.0	9.132	A
C-D	5	1			5				
C-A	583	146			583				

2028 Base + Committed, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		3.41	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	636	Stream D-ABC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2028 Base + Committed	PM	LEVELS	16:15	17:45	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Scaling Factor (%)
A - Halifax Road (E)		LEVELS	100.000
B - Holland Street		LEVELS	100.000
C - Halifax Road (W)		LEVELS	100.000
D - Braddocks Close		LEVELS	100.000

LEVELS Data (Traffic)

Arm	Time rising	Flow rising (PCU/hr)	Time peak	Flow peak (PCU/hr)	Time falling	Flow falling (PCU/hr)
A - Halifax Road (E)	16:15	20	16:45	50	17:00	20
B - Holland Street	16:15	20	16:45	50	17:00	20
C - Halifax Road (W)	16:15	20	16:45	50	17:00	20
D - Braddocks Close	16:15	20	16:45	50	17:00	20

Origin-Destination Data

Demand (PCU/hr)

	To			
	A - Halifax Road (E)	B - Holland Street	C - Halifax Road (W)	D - Braddocks Close
From A - Halifax Road (E)	0	5	878	10
From B - Holland Street	12	0	15	0
From C - Halifax Road (W)	1092	16	0	12
From D - Braddocks Close	4	0	6	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		A - Halifax Road (E)	B - Holland Street	C - Halifax Road (W)	D - Braddocks Close
	A - Halifax Road (E)	0	0	2	0
	B - Holland Street	0	0	0	0
	C - Halifax Road (W)	2	5	0	0
	D - Braddocks Close	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.08	6.61	0.1	A	29	44
ABCD	0.00	5.79	0.0	A	0.33	0.50
AB					0.17	0.25
AC					29	43
D-ABC	0.08	6.89	0.1	A	29	44
C-ABD	0.00	5.83	0.0	A	0.42	0.63
C-D					0.32	0.47
C-A					29	43

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	30	7	598	0.050	30	0.0	0.1	6.330	A
ABCD	0.33	0.08	625	0.001	0.33	0.0	0.0	5.758	A
AB	0.17	0.04			0.17				
AC	29	7			29				
D-ABC	30	7	577	0.052	30	0.0	0.1	6.573	A
C-ABD	0.43	0.11	653	0.001	0.42	0.0	0.0	5.794	A
C-D	0.32	0.08			0.32				
C-A	29	7			29				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	47	12	591	0.080	47	0.1	0.1	6.612	A
ABCD	0.53	0.13	622	0.001	0.53	0.0	0.0	5.794	A
AB	0.26	0.07			0.26				
AC	46	12			46				
D-ABC	47	12	569	0.083	47	0.1	0.1	6.893	A
C-ABD	0.67	0.17	649	0.001	0.67	0.0	0.0	5.831	A
C-D	0.51	0.13			0.51				
C-A	46	12			46				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	40	10	594	0.067	40	0.1	0.1	6.492	A
ABCD	0.45	0.11	623	0.001	0.45	0.0	0.0	5.780	A
A-B	0.22	0.06			0.22				
A-C	39	10			39				
D-ABC	40	10	572	0.069	40	0.1	0.1	6.758	A
C-ABD	0.57	0.14	650	0.001	0.57	0.0	0.0	5.817	A
C-D	0.43	0.11			0.43				
C-A	39	10			39				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	20	5	602	0.033	20	0.1	0.0	6.187	A
ABCD	0.22	0.06	628	0.000	0.23	0.0	0.0	5.737	A
A-B	0.11	0.03			0.11				
A-C	20	5			20				
D-ABC	20	5	581	0.034	20	0.1	0.0	6.419	A
C-ABD	0.29	0.07	655	0.000	0.29	0.0	0.0	5.776	A
C-D	0.21	0.05			0.21				
C-A	20	5			20				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	20	5	602	0.033	20	0.0	0.0	6.183	A
ABCD	0.22	0.06	628	0.000	0.22	0.0	0.0	5.739	A
A-B	0.11	0.03			0.11				
A-C	20	5			20				
D-ABC	20	5	581	0.034	20	0.0	0.0	6.415	A
C-ABD	0.29	0.07	655	0.000	0.29	0.0	0.0	5.773	A
C-D	0.21	0.05			0.21				
C-A	20	5			20				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	20	5	602	0.033	20	0.0	0.0	6.186	A
ABCD	0.22	0.06	628	0.000	0.22	0.0	0.0	5.737	A
A-B	0.11	0.03			0.11				
A-C	20	5			20				
D-ABC	20	5	581	0.034	20	0.0	0.0	6.412	A
C-ABD	0.29	0.07	655	0.000	0.29	0.0	0.0	5.775	A
C-D	0.21	0.05			0.21				
C-A	20	5			20				

2028 Base + Committed + Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		0.62	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	7	Stream B-ACD

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)	Run automatically
D3	2028 Base + Committed + Development	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Halifax Road (E)		ONE HOUR	✓	1331	100.000
B - Holland Street		ONE HOUR	✓	31	100.000
C - Halifax Road (W)		ONE HOUR	✓	811	100.000
D - Braddocks Close		ONE HOUR	✓	18	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		A - Halifax Road (E)	B - Holland Street	C - Halifax Road (W)	D - Braddocks Close
From	A - Halifax Road (E)	0	5	1320	6
	B - Holland Street	10	0	21	0
	C - Halifax Road (W)	787	17	0	7
	D - Braddocks Close	7	0	11	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		A - Halifax Road (E)	B - Holland Street	C - Halifax Road (W)	D - Braddocks Close
From	A - Halifax Road (E)	0	0	2	0
	B - Holland Street	0	0	0	0
	C - Halifax Road (W)	5	9	0	0
	D - Braddocks Close	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.18	23.45	0.2	C	28	43
ABCD	0.02	7.93	0.0	A	6	9
AB					5	7
AC					1211	1817
D-ABC	0.10	20.65	0.1	C	17	25
C-ABD	0.06	12.34	0.1	B	16	24
C-D					6	10
C-A					722	1083

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	23	6	349	0.067	23	0.0	0.1	11.020	B
ABCD	5	1	509	0.009	5	0.0	0.0	7.132	A
AB	4	0.94			4				
AC	994	248			994				
D-ABC	14	3	333	0.041	13	0.0	0.0	11.246	B
C-ABD	13	3	437	0.029	13	0.0	0.0	9.250	A
C-D	5	1			5				
C-A	592	148			592				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	28	7	287	0.097	28	0.1	0.1	13.863	B
ABCD	6	1	488	0.011	6	0.0	0.0	7.459	A
AB	4	1			4				
AC	1186	297			1186				
D-ABC	16	4	277	0.058	16	0.0	0.1	13.770	B
C-ABD	15	4	394	0.039	15	0.0	0.0	10.352	B
C-D	6	2			6				
C-A	707	177			707				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	34	9	188	0.182	34	0.1	0.2	23.316	C
ABCD	7	2	461	0.015	7	0.0	0.0	7.927	A
AB	6	1			6				
AC	1453	363			1453				
D-ABC	20	5	194	0.102	20	0.1	0.1	20.594	C
C-ABD	19	5	337	0.056	19	0.0	0.1	12.332	B
C-D	8	2			8				
C-A	866	217			866				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	34	9	188	0.182	34	0.2	0.2	23.453	C
ABCD	7	2	461	0.015	7	0.0	0.0	7.927	A
A-B	6	1			6				
A-C	1453	363			1453				
D-ABC	20	5	194	0.102	20	0.1	0.1	20.652	C
C-ABD	19	5	337	0.056	19	0.1	0.1	12.337	B
C-D	8	2			8				
C-A	866	217			866				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	28	7	287	0.097	28	0.2	0.1	13.927	B
ABCD	6	1	488	0.011	6	0.0	0.0	7.463	A
A-B	4	1			4				
A-C	1186	297			1186				
D-ABC	16	4	277	0.058	16	0.1	0.1	13.807	B
C-ABD	15	4	394	0.039	15	0.1	0.0	10.360	B
C-D	6	2			6				
C-A	707	177			707				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	23	6	349	0.067	23	0.1	0.1	11.050	B
ABCD	5	1	509	0.009	5	0.0	0.0	7.133	A
A-B	4	0.94			4				
A-C	994	248			994				
D-ABC	14	3	333	0.041	14	0.1	0.0	11.267	B
C-ABD	13	3	437	0.029	13	0.0	0.0	9.259	A
C-D	5	1			5				
C-A	592	148			592				

2028 Base + Committed + Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		3.41	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	636	Stream D-ABC

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2028 Base + Committed + Development	PM	LEVELS	16:15	17:45	90	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Scaling Factor (%)
A - Halifax Road (E)		LEVELS	100.000
B - Holland Street		LEVELS	100.000
C - Halifax Road (W)		LEVELS	100.000
D - Braddocks Close		LEVELS	100.000

LEVELS Data (Traffic)

Arm	Time rising	Flow rising (PCU/hr)	Time peak	Flow peak (PCU/hr)	Time falling	Flow falling (PCU/hr)
A - Halifax Road (E)	16:15	20	16:45	50	17:00	20
B - Holland Street	16:15	20	16:45	50	17:00	20
C - Halifax Road (W)	16:15	20	16:45	50	17:00	20
D - Braddocks Close	16:15	20	16:45	50	17:00	20

Origin-Destination Data

Demand (PCU/hr)

	To			
	A - Halifax Road (E)	B - Holland Street	C - Halifax Road (W)	D - Braddocks Close
From				
A - Halifax Road (E)	0	5	900	10
B - Holland Street	12	0	15	0
C - Halifax Road (W)	1128	16	0	12
D - Braddocks Close	4	0	6	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		A - Halifax Road (E)	B - Holland Street	C - Halifax Road (W)	D - Braddocks Close
	A - Halifax Road (E)	0	0	2	0
	B - Holland Street	0	0	0	0
	C - Halifax Road (W)	2	5	0	0
	D - Braddocks Close	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.08	6.61	0.1	A	29	44
ABCD	0.00	5.79	0.0	A	0.32	0.48
AB					0.16	0.24
AC					29	43
D-ABC	0.08	6.89	0.1	A	29	44
C-ABD	0.00	5.83	0.0	A	0.41	0.61
C-D					0.31	0.46
C-A					29	43

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	30	7	598	0.050	30	0.0	0.1	6.330	A
ABCD	0.33	0.08	625	0.001	0.32	0.0	0.0	5.757	A
AB	0.16	0.04			0.16				
AC	29	7			29				
D-ABC	30	7	577	0.052	30	0.0	0.1	6.573	A
C-ABD	0.41	0.10	653	0.001	0.41	0.0	0.0	5.794	A
C-D	0.31	0.08			0.31				
C-A	29	7			29				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	47	12	591	0.080	47	0.1	0.1	6.612	A
ABCD	0.52	0.13	622	0.001	0.51	0.0	0.0	5.794	A
AB	0.26	0.06			0.26				
AC	46	12			46				
D-ABC	47	12	569	0.083	47	0.1	0.1	6.893	A
C-ABD	0.65	0.16	649	0.001	0.65	0.0	0.0	5.831	A
C-D	0.49	0.12			0.49				
C-A	46	12			46				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	40	10	594	0.067	40	0.1	0.1	6.492	A
ABCD	0.43	0.11	623	0.001	0.44	0.0	0.0	5.778	A
A-B	0.22	0.05			0.22				
A-C	39	10			39				
D-ABC	40	10	572	0.069	40	0.1	0.1	6.761	A
C-ABD	0.55	0.14	650	0.001	0.55	0.0	0.0	5.815	A
C-D	0.41	0.10			0.41				
C-A	39	10			39				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	20	5	602	0.033	20	0.1	0.0	6.189	A
ABCD	0.22	0.05	628	0.000	0.22	0.0	0.0	5.739	A
A-B	0.11	0.03			0.11				
A-C	20	5			20				
D-ABC	20	5	581	0.034	20	0.1	0.0	6.419	A
C-ABD	0.28	0.07	655	0.000	0.28	0.0	0.0	5.775	A
C-D	0.21	0.05			0.21				
C-A	20	5			20				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	20	5	602	0.033	20	0.0	0.0	6.183	A
ABCD	0.22	0.05	628	0.000	0.22	0.0	0.0	5.737	A
A-B	0.11	0.03			0.11				
A-C	20	5			20				
D-ABC	20	5	581	0.034	20	0.0	0.0	6.415	A
C-ABD	0.28	0.07	655	0.000	0.28	0.0	0.0	5.773	A
C-D	0.21	0.05			0.21				
C-A	20	5			20				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	20	5	602	0.033	20	0.0	0.0	6.183	A
ABCD	0.22	0.05	628	0.000	0.22	0.0	0.0	5.739	A
A-B	0.11	0.03			0.11				
A-C	20	5			20				
D-ABC	20	5	581	0.034	20	0.0	0.0	6.415	A
C-ABD	0.28	0.07	655	0.000	0.28	0.0	0.0	5.775	A
C-D	0.21	0.05			0.21				
C-A	20	5			20				

Junctions 9											
PICADY 9 - Priority Intersection Module											
Version: 9.5.0.6896											
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Filename: A58_William St- 2028 Scenarios.j9

Path: M:\Projects\11353\ITM Smithy Bridge Road, Rochdale\Tech\Picady\2022 updated application

Report generation date: 22/04/2022 11:17:40

»2028 Base + Committed, AM

»2028 Base + Committed, PM

»2028 Base + Committed + Development, AM

»2028 Base + Committed + Development, PM

Summary of junction performance

	AM						PM					
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
	2028 Base + Committed											
Stream B-AC	0.0	0.00	0.00	A	0.00	900 %	0.0	8.01	0.01	A	0.07	43 %
Stream C-AB	0.0	0.00	0.00	A		[]	0.1	3.34	0.04	A		[Stream C-AB]
	2028 Base + Committed + Development											
Stream B-AC	0.0	0.00	0.00	A	0.00	900 %	0.0	8.10	0.01	A	0.08	39 %
Stream C-AB	0.0	0.00	0.00	A		[]	0.1	3.29	0.04	A		[Stream C-AB]

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	A58 / William Street
Location	
Site number	
Date	26/04/2019
Version	
Status	(new file)
Identifier	LH
Client	
Jobnumber	ITM11353
Enumerator	
Description	Single access calcs

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	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75			✓	Delay	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)	Run automatically
D1	2028 Base + Committed	AM	ONE HOUR	07:15	08:45	15	✓
D2	2028 Base + Committed	PM	ONE HOUR	16:15	17:45	15	✓
D3	2028 Base + Committed + Development	AM	ONE HOUR	07:15	08:45	15	✓
D4	2028 Base + Committed + Development	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

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

2028 Base + Committed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A58 / William Street	T-Junction	Two-way		0.00	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	900	

Arms

Arms

Arm	Name	Description	Arm type
A	A58 (East)		Major
B	William Street		Minor
C	A58 (West)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - A58 (West)	10.55			150.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - William Street	One lane	3.30	20	17

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	508	0.074	0.187	0.118	0.268
1	B-C	654	0.080	0.203	-	-
1	C-B	661	0.205	0.205	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2028 Base + Committed	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A58 (East)		ONE HOUR	✓	1298	100.000
B - William Street		ONE HOUR	✓	2	100.000
C - A58 (West)		ONE HOUR	✓	790	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A58 (East)	B - William Street	C - A58 (West)
	From			
	A - A58 (East)	0	1	1297
	B - William Street	2	0	0
	C - A58 (West)	790	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A58 (East)	B - William Street	C - A58 (West)
	From			
	A - A58 (East)	0	0	5
	B - William Street	0	0	0
	C - A58 (West)	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	A	0	0
C-AB	0.00	0.00	0.0	A	0	0
C-A					725	1087
AB					0.92	1
AC					1190	1785

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	326	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	460	0.000	0	0.0	0.0	0.000	A
C-A	595	149			595				
AB	0.75	0.19			0.75				
AC	976	244			976				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	275	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	421	0.000	0	0.0	0.0	0.000	A
C-A	710	178			710				
A-B	0.90	0.22			0.90				
A-C	1166	291			1166				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	199	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	367	0.000	0	0.0	0.0	0.000	A
C-A	870	217			870				
A-B	1	0.28			1				
A-C	1428	357			1428				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	199	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	367	0.000	0	0.0	0.0	0.000	A
C-A	870	217			870				
A-B	1	0.28			1				
A-C	1428	357			1428				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	275	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	421	0.000	0	0.0	0.0	0.000	A
C-A	710	178			710				
A-B	0.90	0.22			0.90				
A-C	1166	291			1166				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	326	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	460	0.000	0	0.0	0.0	0.000	A
C-A	595	149			595				
A-B	0.75	0.19			0.75				
A-C	976	244			976				

2028 Base + Committed, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A58 / William Street	T-Junction	Two-way		0.07	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	43	Stream C-AB

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)	Run automatically
D2	2028 Base + Committed	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A58 (East)		ONE HOUR	✓	891	100.000
B - William Street		ONE HOUR	✓	5	100.000
C - A58 (West)		ONE HOUR	✓	1103	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A58 (East)	B - William Street	C - A58 (West)
From	A - A58 (East)	0	3	888
	B - William Street	0	0	5
	C - A58 (West)	1098	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A58 (East)	B - William Street	C - A58 (West)
From	A - A58 (East)	0	0	2
	B - William Street	0	0	0
	C - A58 (West)	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.01	8.01	0.0	A	5	7
C-AB	0.04	3.34	0.1	A	30	44
C-A					982	1474
A-B					3	4
A-C					815	1222

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4	0.94	518	0.007	4	0.0	0.0	7.001	A
C-AB	15	4	1109	0.013	15	0.0	0.0	3.336	A
C-A	816	204			816				
A-B	2	0.56			2				
A-C	669	167			669				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4	1	491	0.009	4	0.0	0.0	7.391	A
C-AB	24	6	1211	0.020	24	0.0	0.0	3.079	A
C-A	967	242			967				
A-B	3	0.67			3				
A-C	798	200			798				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	6	1	455	0.012	5	0.0	0.0	8.008	A
C-AB	50	12	1360	0.037	50	0.0	0.1	2.794	A
C-A	1165	291			1165				
A-B	3	0.83			3				
A-C	978	244			978				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	6	1	455	0.012	6	0.0	0.0	8.008	A
C-AB	50	12	1360	0.037	50	0.1	0.1	2.798	A
C-A	1165	291			1165				
A-B	3	0.83			3				
A-C	978	244			978				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4	1	491	0.009	5	0.0	0.0	7.394	A
C-AB	24	6	1211	0.020	24	0.1	0.0	3.087	A
C-A	967	242			967				
A-B	3	0.67			3				
A-C	798	200			798				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4	0.94	518	0.007	4	0.0	0.0	7.004	A
C-AB	15	4	1110	0.013	15	0.0	0.0	3.339	A
C-A	816	204			816				
A-B	2	0.56			2				
A-C	669	167			669				

2028 Base + Committed + Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A58 / William Street	T-Junction	Two-way		0.00	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	900	

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)	Run automatically
D3	2028 Base + Committed + Development	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A58 (East)		ONE HOUR	✓	1334	100.000
B - William Street		ONE HOUR	✓	2	100.000
C - A58 (West)		ONE HOUR	✓	801	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A58 (East)	B - William Street	C - A58 (West)
From	A - A58 (East)	0	1	1333
	B - William Street	2	0	0
	C - A58 (West)	801	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A58 (East)	B - William Street	C - A58 (West)
From	A - A58 (East)	0	0	5
	B - William Street	0	0	0
	C - A58 (West)	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	A	0	0
C-AB	0.00	0.00	0.0	A	0	0
C-A					735	1103
A-B					0.92	1
A-C					1223	1835

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	320	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	455	0.000	0	0.0	0.0	0.000	A
C-A	603	151			603				
A-B	0.75	0.19			0.75				
A-C	1004	251			1004				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	267	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	415	0.000	0	0.0	0.0	0.000	A
C-A	720	180			720				
A-B	0.90	0.22			0.90				
A-C	1198	300			1198				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	189	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	359	0.000	0	0.0	0.0	0.000	A
C-A	882	220			882				
A-B	1	0.28			1				
A-C	1468	367			1468				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	189	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	359	0.000	0	0.0	0.0	0.000	A
C-A	882	220			882				
A-B	1	0.28			1				
A-C	1468	367			1468				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	267	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	415	0.000	0	0.0	0.0	0.000	A
C-A	720	180			720				
A-B	0.90	0.22			0.90				
A-C	1198	300			1198				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	320	0.000	0	0.0	0.0	0.000	A
C-AB	0	0	455	0.000	0	0.0	0.0	0.000	A
C-A	603	151			603				
A-B	0.75	0.19			0.75				
A-C	1004	251			1004				

2028 Base + Committed + Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	A58 / William Street	T-Junction	Two-way		0.08	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	39	Stream C-AB

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)	Run automatically
D4	2028 Base + Committed + Development	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A58 (East)		ONE HOUR	✓	913	100.000
B - William Street		ONE HOUR	✓	5	100.000
C - A58 (West)		ONE HOUR	✓	1139	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - A58 (East)	B - William Street	C - A58 (West)
From	A - A58 (East)	0	3	910
	B - William Street	0	0	5
	C - A58 (West)	1134	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - A58 (East)	B - William Street	C - A58 (West)
From	A - A58 (East)	0	0	2
	B - William Street	0	0	0
	C - A58 (West)	2	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.01	8.10	0.0	A	5	7
C-AB	0.04	3.29	0.1	A	32	48
C-A					1013	1519
A-B					3	4
A-C					835	1253

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4	0.94	515	0.007	4	0.0	0.0	7.047	A
C-AB	16	4	1127	0.014	15	0.0	0.0	3.287	A
C-A	842	210			842				
A-B	2	0.56			2				
A-C	685	171			685				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4	1	487	0.009	4	0.0	0.0	7.452	A
C-AB	26	7	1233	0.021	26	0.0	0.0	3.029	A
C-A	998	249			998				
A-B	3	0.67			3				
A-C	818	205			818				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	6	1	450	0.012	5	0.0	0.0	8.097	A
C-AB	55	14	1388	0.040	55	0.0	0.1	2.747	A
C-A	1199	300			1199				
A-B	3	0.83			3				
A-C	1002	250			1002				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	6	1	450	0.012	6	0.0	0.0	8.097	A
C-AB	55	14	1388	0.040	55	0.1	0.1	2.749	A
C-A	1199	300			1199				
A-B	3	0.83			3				
A-C	1002	250			1002				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4	1	487	0.009	5	0.0	0.0	7.453	A
C-AB	26	7	1233	0.021	26	0.1	0.0	3.034	A
C-A	998	249			998				
A-B	3	0.67			3				
A-C	818	205			818				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	4	0.94	515	0.007	4	0.0	0.0	7.047	A
C-AB	16	4	1127	0.014	16	0.0	0.0	3.290	A
C-A	842	210			842				
A-B	2	0.56			2				
A-C	685	171			685				

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.5.0.6896 © Copyright TRL Limited, 2018							
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Filename: Site Access.j9

Path: M:\Projects\11353ITM Smithy Bridge Road, Rochdale\Tech\Picady\2022 updated application

Report generation date: 22/04/2022 11:23:20

»2028 + Committed + Development, AM

»2028 + Committed + Development, PM

Summary of junction performance

	AM						PM					
	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Network Residual Capacity
2028 + Committed + Development												
Stream B-AC	0.2	9.13	0.16	A	0.93	119 %	0.1	8.31	0.08	A	0.80	141 %
Stream C-AB	0.1	5.14	0.04	A		[Stream B-AC]	0.2	5.15	0.11	A		[Stream B-AC]

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. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	Site Access
Location	Smithy Bidge Road
Site number	
Date	26/04/2019
Version	
Status	
Identifier	LH
Client	
Jobnumber	ITM11353
Enumerator	
Description	Single access calcs

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	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75			✓	Delay	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)	Run automatically
D1	2028 + Committed + Development	AM	ONE HOUR	07:15	08:45	15	✓
D2	2028 + Committed + Development	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

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

2028 + Committed + Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.93	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	119	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Smithy Bridge Road (South)		Major
B	Site Access		Minor
C	Smithy Bridge Road (North)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	6.25			150.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.55	22	22

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	523	0.094	0.238	0.150	0.340
1	B-C	673	0.102	0.258	-	-
1	C-B	661	0.253	0.253	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2028 + Committed + Development	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	454	100.000
B		ONE HOUR	✓	69	100.000
C		ONE HOUR	✓	296	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	A	B	C	
From	A	0	6	448
	B	20	0	49
	C	280	16	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A	B	C	
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.16	9.13	0.2	A	63	95
C-AB	0.04	5.14	0.1	A	23	35
C-A					249	373
A-B					6	8
A-C					411	617

Main Results for each time segment

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	13	519	0.100	52	0.0	0.1	7.695	A
C-AB	17	4	718	0.024	17	0.0	0.0	5.136	A
C-A	206	51			206				
A-B	5	1			5				
A-C	337	84			337				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	62	16	499	0.124	62	0.1	0.1	8.241	A
C-AB	22	5	731	0.030	22	0.0	0.0	5.075	A
C-A	244	61			244				
A-B	5	1			5				
A-C	403	101			403				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	76	19	470	0.162	76	0.1	0.2	9.119	A
C-AB	30	7	751	0.040	30	0.0	0.1	4.991	A
C-A	296	74			296				
A-B	7	2			7				
A-C	493	123			493				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	76	19	470	0.162	76	0.2	0.2	9.128	A
C-AB	30	7	751	0.040	30	0.1	0.1	4.994	A
C-A	296	74			296				
A-B	7	2			7				
A-C	493	123			493				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	62	16	499	0.124	62	0.2	0.1	8.253	A
C-AB	22	6	731	0.030	22	0.1	0.0	5.078	A
C-A	244	61			244				
A-B	5	1			5				
A-C	403	101			403				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	13	519	0.100	52	0.1	0.1	7.714	A
C-AB	17	4	718	0.024	17	0.0	0.0	5.139	A
C-A	206	51			206				
A-B	5	1			5				
A-C	337	84			337				

2028 + Committed + Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.80	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	141	Stream B-AC

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)	Run automatically
D2	2028 + Committed + Development	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	429	100.000
B		ONE HOUR	✓	36	100.000
C		ONE HOUR	✓	373	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A	B	C
	A	0	17	412
	B	10	0	26
	C	330	43	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A	B	C
	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.08	8.31	0.1	A	33	50
C-AB	0.11	5.15	0.2	A	66	100
C-A					276	414
A-B					16	23
A-C					378	567

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	7	522	0.052	27	0.0	0.1	7.272	A
C-AB	48	12	748	0.065	48	0.0	0.1	5.144	A
C-A	232	58			232				
A-B	13	3			13				
A-C	310	78			310				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	32	8	501	0.065	32	0.1	0.1	7.676	A
C-AB	63	16	767	0.082	63	0.1	0.2	5.115	A
C-A	272	68			272				
A-B	15	4			15				
A-C	370	93			370				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	40	10	473	0.084	40	0.1	0.1	8.311	A
C-AB	87	22	795	0.110	87	0.2	0.2	5.086	A
C-A	323	81			323				
A-B	19	5			19				
A-C	454	113			454				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	40	10	473	0.084	40	0.1	0.1	8.315	A
C-AB	88	22	796	0.110	88	0.2	0.2	5.092	A
C-A	323	81			323				
A-B	19	5			19				
A-C	454	113			454				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	32	8	501	0.065	32	0.1	0.1	7.682	A
C-AB	63	16	767	0.083	64	0.2	0.2	5.121	A
C-A	272	68			272				
A-B	15	4			15				
A-C	370	93			370				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	7	522	0.052	27	0.1	0.1	7.281	A
C-AB	49	12	748	0.065	49	0.2	0.1	5.154	A
C-A	232	58			232				
A-B	13	3			13				
A-C	310	78			310				

Junctions 10					
ARCADY 10 - Roundabout Module					
Version: 10.0.2.1574					
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Filename: Smithy Bridge Road _ Milnrow Road Mini Roundabout.j10
Path: M:\Projects\11353ITM Smithy Bridge Road, Rochdale\TechArcady
Report generation date: 05/09/2022 15:27:02

»2028 Base + Committed Development, AM
 »2028 Base + Committed + Development, AM

Summary of junction performance

	AM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2028 Base + Committed Development				
Arm 1	D3	14.4	74.18	0.97	F
Arm 2		2.8	17.70	0.73	C
Arm 3		1.3	14.02	0.56	B
	2028 Base + Committed + Development				
Arm 1	D5	16.8	84.69	0.99	F
Arm 2		2.9	18.14	0.74	C
Arm 3		1.5	15.30	0.60	C

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	Smithy Bridge Road / Milnrow Road Mini roundabout
Location	Rochdale
Site number	
Date	25/04/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	ITM11353
Enumerator	I-TRANSPORT\manchesterhotdesk
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	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
JUNCTIONS 9	5.75						0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2019 Observed	AM	ONE HOUR	07:15	08:45	15	
D2	2019 Observed	PM	ONE HOUR	16:15	17:45	15	
D3	2028 Base + Committed Development	AM	ONE HOUR	07:15	08:45	15	✓
D4	2028 Base + Committed Development	PM	ONE HOUR	16:15	17:45	15	
D5	2028 Base + Committed + Development	AM	ONE HOUR	07:15	08:45	15	✓
D6	2028 Base + Committed + Development	PM	ONE HOUR	16:15	17:45	15	

Analysis Set Details

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

2028 Base + Committed Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	41.88	E

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		41.88	E

Arms

Arms

Arm	Name	Description
1	B6225 Smithy Bridge Road	
2	Milnrow Road	
3	Smithy Bridge Road	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.70	3.30	4.40	1.4	14.00	10.80	0.0	
2	2.90	2.80	3.50	7.1	11.60	8.80	0.0	
3	3.20	3.00	3.80	0.8	13.80	13.20	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.616	915
2	0.604	857
3	0.607	822

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)	Run automatically
D3	2028 Base + Committed Development	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	663	100.000
2		ONE HOUR	✓	534	100.000
3		ONE HOUR	✓	305	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	577	86
	2	335	0	199
	3	63	242	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	1	1
	2	8	0	1
	3	4	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.97	74.18	14.4	F	608	913
2	0.73	17.70	2.8	C	490	735
3	0.56	14.02	1.3	B	280	420

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	499	125	181	804	0.621	493	297	0.0	1.6	11.459	B
2	402	101	64	818	0.491	398	609	0.0	1.0	8.938	A
3	230	57	250	671	0.342	228	212	0.0	0.5	8.283	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	596	149	217	782	0.763	590	356	1.6	3.0	18.473	C
2	480	120	77	811	0.592	478	731	1.0	1.5	11.329	B
3	274	69	300	640	0.428	273	255	0.5	0.8	10.026	B

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	730	182	265	752	0.971	698	435	3.0	11.0	49.731	E
2	588	147	91	802	0.733	583	872	1.5	2.7	16.917	C
3	336	84	366	600	0.560	334	308	0.8	1.3	13.736	B

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	730	182	266	751	0.972	716	438	11.0	14.4	74.175	F
2	588	147	93	801	0.734	588	890	2.7	2.8	17.698	C
3	336	84	369	598	0.561	336	312	1.3	1.3	14.021	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	596	149	219	780	0.764	639	361	14.4	3.6	31.484	D
2	480	120	83	807	0.595	485	775	2.8	1.6	11.945	B
3	274	69	304	637	0.430	276	264	1.3	0.8	10.258	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	499	125	183	803	0.622	507	301	3.6	1.7	12.585	B
2	402	101	66	817	0.492	404	624	1.6	1.0	9.229	A
3	230	57	254	668	0.344	231	216	0.8	0.5	8.444	A

2028 Base + Committed + Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	46.50	E

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		46.50	E

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)	Run automatically
D5	2028 Base + Committed + Development	AM	ONE HOUR	07:15	08:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	665	100.000
2		ONE HOUR	✓	538	100.000
3		ONE HOUR	✓	325	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	577	88
	2	335	0	203
	3	69	256	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	1	1
	2	8	0	1
	3	4	2	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.99	84.69	16.8	F	610	915
2	0.74	18.14	2.9	C	494	741
3	0.60	15.30	1.5	C	298	447

Main Results for each time segment

07:15 - 07:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	501	125	191	798	0.628	494	301	0.0	1.6	11.741	B
2	405	101	65	817	0.496	401	620	0.0	1.0	9.016	A
3	245	61	250	671	0.365	242	217	0.0	0.6	8.565	A

07:30 - 07:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	598	149	229	774	0.772	592	362	1.6	3.1	19.328	C
2	484	121	78	810	0.597	482	743	1.0	1.5	11.408	B
3	292	73	300	640	0.456	291	260	0.6	0.8	10.532	B

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	732	183	280	743	0.986	696	441	3.1	12.3	54.314	F
2	592	148	92	801	0.739	587	883	1.5	2.8	17.290	C
3	358	89	366	600	0.596	355	314	0.8	1.5	14.912	B

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	732	183	282	742	0.987	714	445	12.3	16.8	84.694	F
2	592	148	95	800	0.741	592	902	2.8	2.9	18.137	C
3	358	89	369	598	0.598	358	318	1.5	1.5	15.297	C

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	598	149	232	772	0.774	649	367	16.8	3.9	37.585	E
2	484	121	86	805	0.601	489	796	2.9	1.6	12.163	B
3	292	73	304	637	0.458	295	270	1.5	0.9	10.830	B

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	501	125	194	796	0.629	509	306	3.9	1.8	13.020	B
2	405	101	67	816	0.496	407	635	1.6	1.1	9.319	A
3	245	61	254	668	0.366	246	221	0.9	0.6	8.752	A

Junctions 10					
ARCADY 10 - Roundabout Module					
Version: 10.0.2.1574					
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Filename: Smithy Bridge Road _ Milnrow Road Mini Roundabout - Adjusted PM.j10

Path: M:\Projects\11353ITM Smithy Bridge Road, Rochdale\TechArcady

Report generation date: 27/04/2022 11:44:38

»2028 Base + Committed Development, PM

»2028 Base + Committed + Development, PM

Summary of junction performance

	PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2028 Base + Committed Development				
Arm 1	D2	1.6	11.89	0.62	B
Arm 2		9.5	36.29	0.92	E
Arm 3		1.2	17.18	0.54	C
	2028 Base + Committed + Development				
Arm 1	D3	1.7	12.31	0.63	B
Arm 2		10.9	41.40	0.94	E
Arm 3		1.3	18.05	0.56	C

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	Smithy Bridge Road / Milnrow Road Mini roundabout
Location	Rochdale
Site number	
Date	25/04/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	ITM11353
Enumerator	I-TRANSPORT\manchesterhotdesk
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	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
JUNCTIONS 9	5.75						0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2019 Observed	PM	ONE HOUR	16:15	17:45	15	
D2	2028 Base + Committed Development	PM	ONE HOUR	16:15	17:45	15	✓
D3	2028 Base + Committed + Development	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

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

2028 Base + Committed Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 2 have 85% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	26.59	D

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		26.59	D

Arms

Arms

Arm	Name	Description
1	B6225 Smithy Bridge Road	
2	Milnrow Road	
3	Smithy Bridge Road	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1	3.70	3.30	4.40	1.4	14.00	10.80	0.0	
2	2.90	2.80	3.50	7.1	11.60	8.80	0.0	
3	3.20	3.00	3.80	0.8	13.80	13.20	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.616	915
2	0.604	857
3	0.607	822

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

Arm Capacity Adjustments

Arm	Type	Reason	Direct capacity adjustment (PCU/hr)
2	Direct	Calibrate to Queue Survey	300

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)	Run automatically
D2	2028 Base + Committed Development	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	457	100.000
2		ONE HOUR	✓	911	100.000
3		ONE HOUR	✓	225	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	356	101
	2	545	0	366
	3	70	155	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	2	0
	2	1	0	1
	3	2	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.62	11.89	1.6	B	419	629
2	0.92	36.29	9.5	E	836	1254
3	0.54	17.18	1.2	C	206	310

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	344	86	116	844	0.408	341	459	0.0	0.7	7.233	A
2	686	171	75	1111	0.617	679	381	0.0	1.6	8.304	A
3	169	42	407	575	0.294	168	348	0.0	0.4	8.911	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	411	103	139	830	0.495	410	550	0.7	1.0	8.679	A
2	819	205	91	1102	0.743	814	458	1.6	2.8	12.417	B
3	202	51	487	526	0.384	201	418	0.4	0.6	11.193	B

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	503	126	169	811	0.620	501	663	1.0	1.6	11.685	B
2	1003	251	111	1090	0.920	981	559	2.8	8.3	28.772	D
3	248	62	587	466	0.532	246	505	0.6	1.1	16.429	C

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	503	126	171	810	0.621	503	674	1.6	1.6	11.891	B
2	1003	251	111	1090	0.920	998	562	8.3	9.5	36.294	E
3	248	62	597	459	0.539	248	512	1.1	1.2	17.177	C

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	411	103	141	829	0.496	413	569	1.6	1.0	8.855	A
2	819	205	91	1102	0.743	844	463	9.5	3.1	15.367	C
3	202	51	505	515	0.392	204	431	1.2	0.7	11.793	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	344	86	117	843	0.408	345	467	1.0	0.7	7.366	A
2	686	171	76	1111	0.617	692	386	3.1	1.7	8.786	A
3	169	42	414	571	0.297	170	354	0.7	0.4	9.123	A

2028 Base + Committed + Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 2 have 85% of the total flow for the roundabout for one or more time segments]

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	29.70	D

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		29.70	D

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)	Run automatically
D3	2028 Base + Committed + Development	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	463	100.000
2		ONE HOUR	✓	922	100.000
3		ONE HOUR	✓	235	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
	1	2	3	
From	1	0	356	107
	2	545	0	377
	3	74	161	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	1	2	3	
From	1	0	2	0
	2	1	0	1
	3	2	1	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.63	12.31	1.7	B	425	637
2	0.94	41.40	10.9	E	846	1269
3	0.56	18.05	1.3	C	216	323

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	349	87	120	841	0.414	346	462	0.0	0.7	7.335	A
2	694	174	80	1109	0.626	688	386	0.0	1.6	8.508	A
3	177	44	406	575	0.307	175	361	0.0	0.4	9.073	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	416	104	144	826	0.504	415	553	0.7	1.0	8.857	A
2	829	207	96	1099	0.754	824	463	1.6	2.9	12.966	B
3	211	53	487	527	0.401	210	433	0.4	0.7	11.503	B

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	510	127	176	807	0.632	507	666	1.0	1.7	12.078	B
2	1015	254	117	1086	0.935	990	566	2.9	9.3	31.508	D
3	259	65	585	467	0.554	257	522	0.7	1.2	17.157	C

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	510	127	177	806	0.632	510	678	1.7	1.7	12.314	B
2	1015	254	118	1086	0.935	1009	569	9.3	10.9	41.399	E
3	259	65	596	460	0.562	259	530	1.2	1.3	18.053	C

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	416	104	146	825	0.504	419	575	1.7	1.1	9.055	A
2	829	207	97	1098	0.755	859	468	10.9	3.3	16.889	C
3	211	53	508	514	0.411	213	448	1.3	0.7	12.233	B

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	349	87	122	840	0.415	350	470	1.1	0.7	7.477	A
2	694	174	81	1108	0.626	700	391	3.3	1.7	9.052	A
3	177	44	414	571	0.310	178	367	0.7	0.5	9.308	A

APPENDIX M. TfGM Initial Residential Relief Road Modelling Note

Highways Forecasting and Analytical Services

A58 Smithy Bridge Relief Road Rochdale Borough Council

Introduction

This note summarises the preliminary modelling work to assess the potential traffic re-assignment impacts of a proposed new link road parallel to the A58 in Rochdale. The proposed link road would extend from the A664 Albert Royds Street to Smithy Bridge Road.

Smithy Bridge is subject to a number of GMSF sites. Congestion in the peak on the A58, particularly at the junction of Halifax Road and Smithy Bridge Road, is an issue.

The 2017 Greater Manchester SATURN model was used to get a preliminary understanding of the potential impacts of the proposed link road. This model was calibrated and validated to a 2017 base year. The model covers the whole Greater Manchester area.

The link road has been modelled as a 7.3 meter single carriageway link road running from the extension of Riverside Drive off the A664 through to Smithy Bridge Road. This is based on drawing number A1/SBR Concept / 001 dated 6 February 2019 provided by Rochdale City Council.

Two average weekday time periods were modelled:

- Morning peak (0800-0900 hours)
- Evening peak (1700-1800 hours).

A future year has not been modelled.

Forecast Traffic Flows

In the morning peak hour (0800-0900), the SATURN modelling forecasts that, with the proposed changes in place, and compared to the as-now layout,

- Total flows on A58 towards Smithy Bridge Road decrease significantly, by about 136pcus-167pcus during the hour (pcu= passenger car unit).
- Total flows along the A58 towards the A664 decrease significantly by over 190pcus.
- This decrease along the A58 is associated with the flows now transiting along the new link road.
- Flows along the new link road are 190pcus eastbound and over 200pcus westbound.
- There are corresponding traffic increases along Smithy Bridge Road between the A58 and the new link road. The increases along this section are 104pcus southbound and 67pcus northbound.
- There are corresponding traffic increases along Smithy Bridge Road between the new link road and the B6225. The increases are 44pcus southbound and 30pcus northbound.

During the evening peak hour (1700-1800) the model forecasts that, with the scheme in place,

- Total flows on the A58 towards Smithy Bridge Road decrease significantly, by about 50pcus to 100pcus- during the hour (pcu= passenger car unit).
- Total flows along the A58 towards Greenfield Lane decrease significantly by about 164pcus to 176pcus.
- This decrease along the A58 is associated with the flows now transiting along the new link road.
- Flow along the new link road are 74pcus eastbound and over 198pcus westbound.
- There are corresponding traffic increases along Smithy Bridge Road between the A58 and the new link road. The increases along this section are 100pcus southbound and 11pcus northbound.
- There are corresponding traffic increases along Smithy Bridge Road between the new link road and the B6225. The increases are for 23pcus southbound and 58pcus northbound.

As it can be seen from the explanation above, morning and evening peak both show the same trend in terms of traffic changes.

SATURN difference-flow plots for the morning and evening peak hours are included towards the end of this note.

Forecast Traffic Congestion

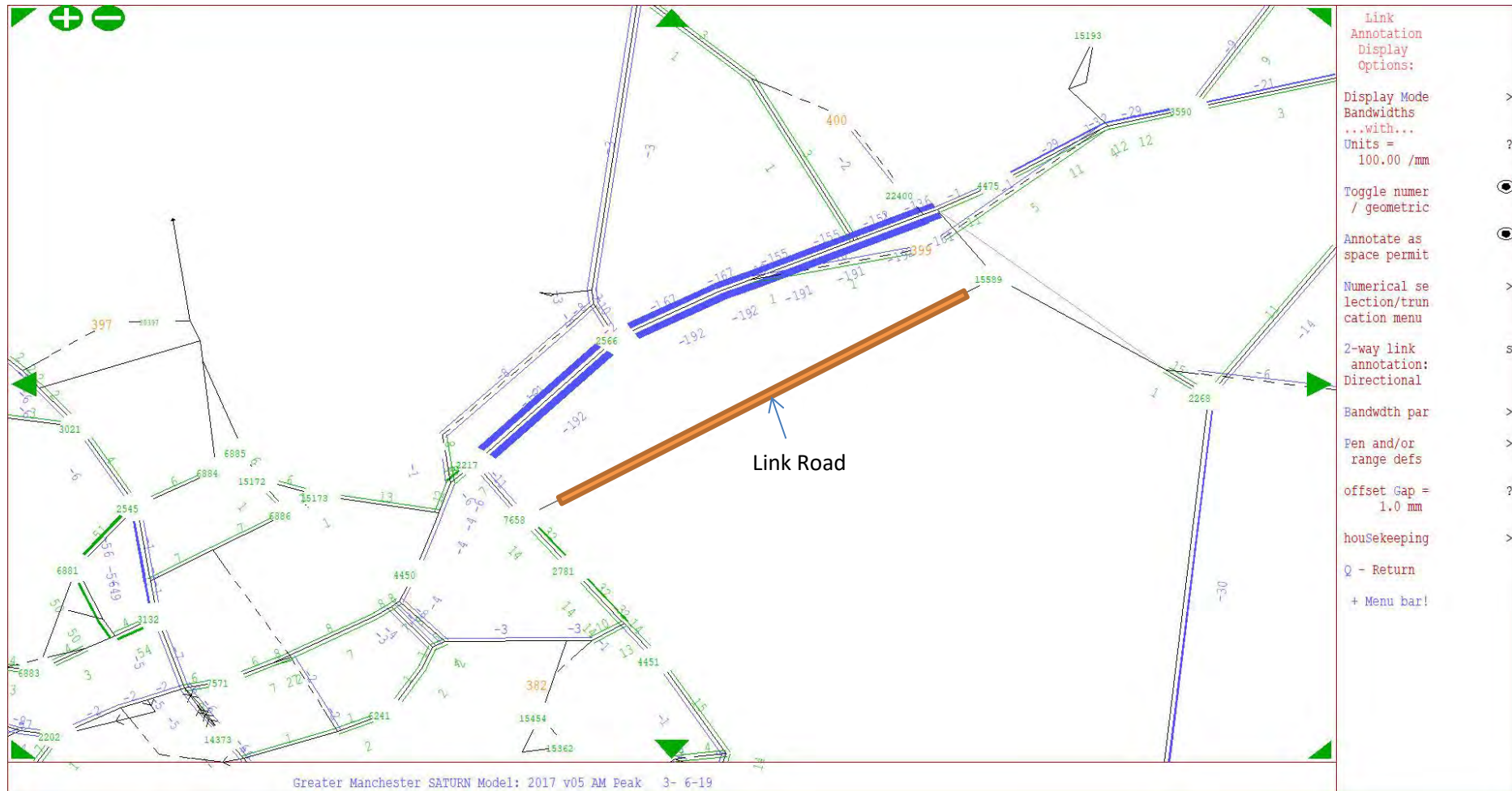
The SATURN modelling has been checked for possible forecasts of possible congestion for certain movements in the vicinity of the proposed link road. This has been done by calculating the ratio of forecast vehicle flow to available capacity; the resulting volume-to-capacity ratio is expressed as a percentage, where a vol/cap ratio greater than 85% is considered to indicate that the traffic movement through the junction is beyond its maximum practical capacity.

There is an increase up to 89% for the right turn movement from the Smithy Bridge Road onto the A58. For the left turn movement from Smithy Bridge Road the vol/cap ratio is 84%. Without the link road in place both movements recorded a vol/cap ratio of less than 70%.

The vol/cap ratio for the left turn movement from the link road onto the A664 is 86%. The ratio for the right turn onto the link road from the A664 is 84%.

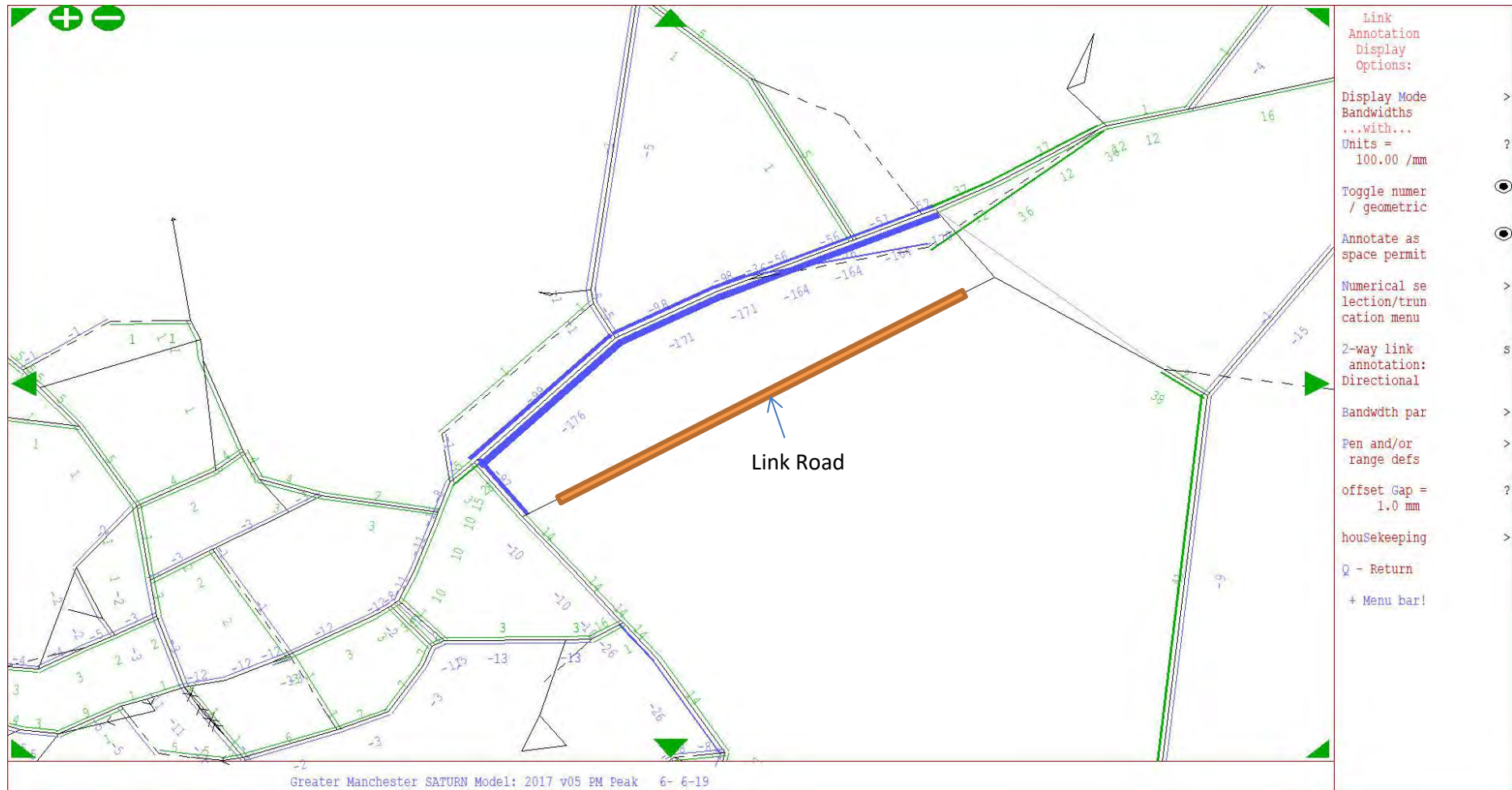
There are no noticeable changes in the vol/cap ratio during the evening peak period.

A58 Smithy Bridge Relief Road - Morning Peak Hour Forecast Flows Differences between with and without scheme



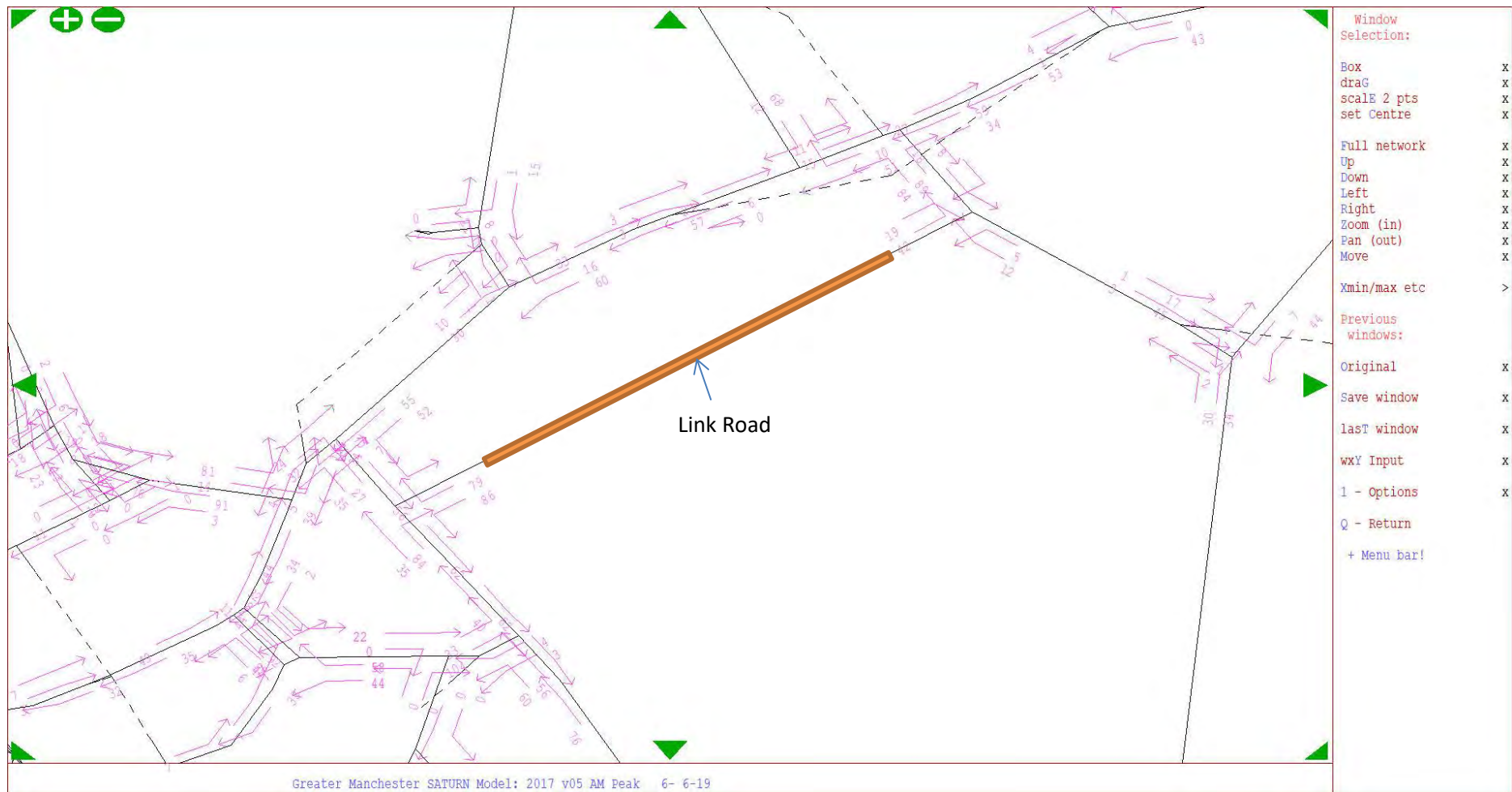
Note: Green= an increased flow is forecast due to Scenario 2; blue= lower flow forecast.

A58 Smithy Bridge Relief Road - Evening Peak Hour Forecast Flows Differences between with and without scheme

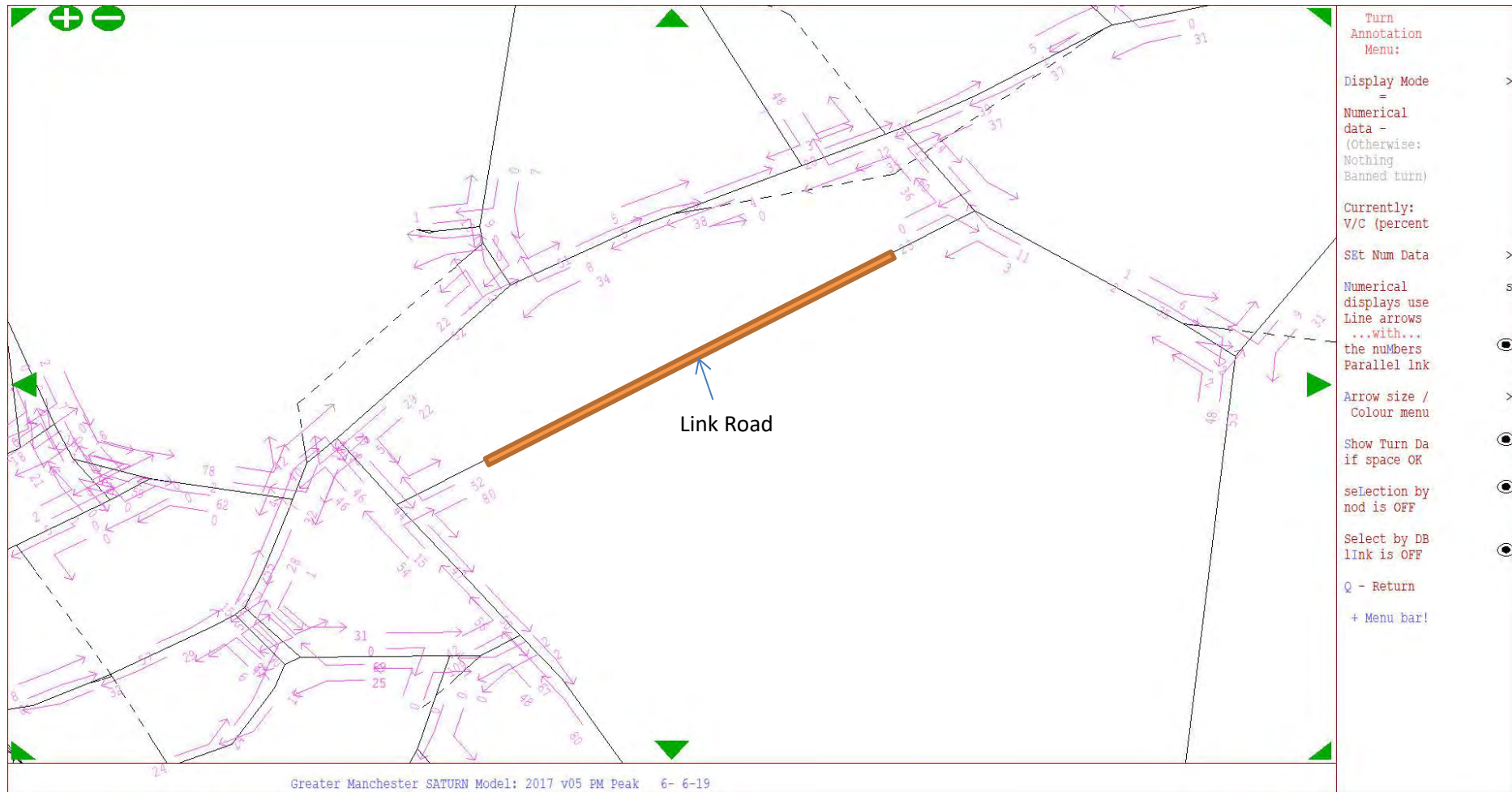


Note: Green= an increased flow is forecast due to Scenario 2; blue= lower flow forecast.

A58 Smithy Bridge Relief Road – Morning Peak Hour with scheme Junction Volume over Capacity Ratios



A58 Smithy Bridge Relief Road – Evening Peak Hour with scheme Junction Volume over Capacity Ratios



APPENDIX N. Level Crossing Survey Data

Appendix N - Level Crossing Observations in AM peak February 2022

Train Time (arrival Time)	Towards	Gates Down (time)	Gates Open (time)
07:54 (07:55)	Leeds	07:52	07:55
08:01	Kirkby	07:56	08:01
08:07	Through	08:05	08:07
08:17	Leeds	08:15	08:21
08:33	Wigan	08:29	08:32

